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Information and Communication Technology for Business Turnaround:
Sustainability, Growth and Innovation

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Jointly Organized by
PG & Research Department of Commerce, Computer Science & Applications

VIVEKANANDHA COLLEGE OF ARTS AND SCIENCE FOR WOMEN (AUTONOMOUS)
TIRUCHENGODE – 637 205, NAMAKKAL Dt., TAMIL NADU, INDIA

DHAKA INTERNATIONAL UNIVERSITY
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MTC Global, Bangalore

Department of Commerce
AVINASHILINGAM
INSTITUTE FOR HOME SCIENCE & HIGHER EDUCATION FOR WOMEN
Coimbatore
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VARIOUS FACTORS AFFECTING THE REACH AND THE AWARENESS OF E-FARMING AMONG THE RURAL AREAS: A PERCEPTUAL STUDY FOCUSED ON RURAL AGRICULTURALIST RESIDING IN VELLORE DISTRICT OF TAMIL NADU, INDIA

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Dr. Pulidindi Venugopal  
HOD & Associate Professor, Department of Technology Management, SMEC, VIT - Vellore, India

S. Aswini Priya  
Research Scholar, VITBS, VIT – Vellore

Abstract  
An expansive number of studies have demonstrated that even today roughly 70% of Indian Population lives in Rural Areas. Today, Rural Development is fundamental for the advancement of the Indian Economy. Rural economy can be developed by improving rural markets. Indian Government has understood the part of the rural advancement and the commitment of Information Technology in the improvement of Rural India. An expansive number of ventures are presented in the country territory with numerous forthcoming activities in pipeline; which are prone to be presented by the Government in the limited capacity to focus time. Country Literacy is positioned at the highest position of need. E-Farming plays key role in profitable and increased agriculture in the world with the usage of modern Information Technology and Information Communication Technology techniques. In this paper, we have an analysis on the awareness and usage of various E-Farming techniques currently which in practice in India by the rural farmers who resides in Villages of Vellore district, Tamil Nadu categorized under various factors like age, gender and education. And from the result analysis obtained from the purposive survey conducted, we came to a conclusion about the awareness and reach of various E-agricultural practices followed by the rural masses in Villages of Vellore district in Tamil Nadu.

Keywords: E-Farming, Information Technology (IT), Rural Development, Information Communication Technology (ICT)

Introduction  
Improved agricultural practices with high productivity, profitability and marketing of agricultural outputs by means of usage of new advanced technology and ICT enabled tools is said to be E-Farming. The Awareness of E-Farming among the rural masses is first important criteria so as to practice various E-Farming techniques in rural India. FAO proposes the following definition: “E-Farming is an emerging field in the intersection of agricultural informatics, Agricultural development and entrepreneurship, referring to agricultural services, technology dissemination, and information delivered or enhanced through the Internet and related technologies. More specifically, it involves the conceptualization, design, development, evaluation and application of new (innovative) ways to use existing or emerging information and communication technologies (ICTs)”. E-Farming concentrate on the upgrade of farming and provincial advancement through enhanced data and correspondence forms (IT & ICT). All the more particularly, E-Farming includes the conceptualization, outline, advancement, assessment and utilization of imaginative approaches to utilize data and correspondence advances (IT) in the country space, with an essential spotlight on horticulture. E-Farming is a generally new term and we completely anticipate that its extension will change and develop as our comprehension of the zone develops. Indian
Agriculture adds to 18.6% of India’s Gross domestic product, and roughly 59% of Indians get their work from the agrarian area. Data and Information Communication Technologies (ICT) assumes a basic part in Development and Economic development of the Developing nations of the World. Political, Cultural, Socio-Economic formative and behavioral choices today lays on the capacity to get to, assemble, dissect and use data and learning. ICT is the courses that transmit data and Knowledge to individual to augment their decisions for Economic and social strengthening. Cell phones and different ICT tools can give an expansive scope of open and social administrations to the poor in remote territories and they have turned into a fundamental and a vital utility for poor people. Agriculturists in remote towns use cell phones to get to the most current harvest costs and transient laborers use portable managing account administrations to exchange cash to relatives back home. Progressively, arrive enrollment, training, social insurance and voting are being led electronically utilizing ICT. ICT is the conductors that transmit data and information to individual to extend their decisions for Economic and social strengthening. By coordinating innovation into advancement, more viable and quick arrangements can be found for reasonable human improvement and financial development. E-Farming includes utilization of data and correspondence advances (ICTs) in a creative approaches to use with an essential spotlight on agribusiness in the country improvement space.

E-Farming and its Advantages

Need for the study
- From the Previous research studies, it is transparent that e-Farming usage in Vellore District, Tamil Nadu is not highlighted.
- There is a need to display and to determine the awareness and usage of e-Farming in Vellore District, Tamil Nadu.
- This study will discuss the reach and the awareness of e-Farming usage in villages of Vellore District, Tamil Nadu.

Research Questions
The research study answers the following questions:
- Is the rural masses resides in villages of Vellore District, Tamil Nadu really aware on e-farming and its uses.
- Does e-Farming is in practice by the rural masses resides in villages of Vellore District, Tamil Nadu.
Conceptual Framework

Objective of the Study

The objective of this research study is to find the reach and the awareness of e-farming and its various practices among rural masses dwells in Vellore District of Tamil Nadu.

Hypothesis of the Study

The hypotheses formulated for this research study is as follows

H₀₁: e-Farming awareness among the rural masses leads to e-farming practices in rural areas.

Outcome of the Study

The outcome of the study helps to determine the understanding on usage and awareness of e-Farming in Vellore District, Tamil Nadu. The study helps in understanding the problem regarding reach and awareness of e-farming practices among rural masses dwells in Vellore District of Tamil Nadu. This helps the state and the central government to formulate and develop new rules and regulations towards training rural masses in the field of e-Farming practices.

Literature Review

Various studies were carried out in the past regarding the advantages of using various e-Farming programmes launched and practiced in India. The e-farming programmes which were practiced in rural India were discussed in brief in various research studies and the various benefits for successive agriculture were highlighted in the prior research studies. The prior studies were made on the various e-farming programmes such as e-Mitra, iKisan, Drishtee, e-Sagu, n-Logue, Tel-nek, CSC(Common Services Centre), Akshaya, KCC (Kishan Call Centre), India Development Gateway (INDG), Community information centres, ITC (e-Choupal), Rural e-Seva, Krishi Ville, Warna wired village project, Remote Consultation Centres (RCC), Gyandoot, e-Kuthir, WWI, Rinfo1, Milk Coops, WPI(Watershed Project Initiatives), Community Information Centre, Bhoomi, vercon, Warna, K-Raid, Rural Bazaar, Agora programme, Suwilda, Imark, Lok Mitra, Giard, Mahashakti, Mandi Bhav, Kribhco (Reliance Kisan ltd), Cabi’s –Café Movel, Nanoganes, farm force, Machine to Machine (M2M), Telefonica, Behar Zindagi, Farm management information services (FMIS), Reuters market light (RML) services, ProGIS etc. Even various studies were carried out discussing the benefits of using agricultural smart mobile application for facilitating e-Farming among rural communities such as Srijan (Self reliant initiatives through joint action) in Madhya Pradesh, India, Jayalaxmi Aagrotech, m-Kissan, m-Ard, m-Agri (iks1,iffco,gsma), m-Krishi, Life lines, SMSOne, Krishi Ville, Nokia OVI life tools (OLT)

Research Methodology

Research Design

This research is a survey research, because it is a collection of quantified data from the section of population for describing or identifying the relationship between variables and the research design used here is an exploratory research design.

Sampling Design

In this study, Purposive sampling is used, as the research design comes under exploratory type of research design. 200 rural peoples selected randomly from rural villages of Vellore District were selected.
as per the convenience of the information gatherer and through them the details regarding the awareness of e-Farming were gathered. Here the sampling formula carried out is 1:10 ratio.

**Universe of the Study**

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<th>S.No</th>
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<th>Total Male</th>
<th>Total Female</th>
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<td>76,542</td>
<td>76,864</td>
<td>153,406</td>
</tr>
<tr>
<td>10.</td>
<td>Sholingur</td>
<td>45</td>
<td>60,567</td>
<td>60,490</td>
<td>121,057</td>
</tr>
<tr>
<td>11.</td>
<td>Arachanam</td>
<td>26</td>
<td>39,565</td>
<td>39,373</td>
<td>78,938</td>
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<tr>
<td>12.</td>
<td>Nemili</td>
<td>52</td>
<td>65,958</td>
<td>66,540</td>
<td>132,498</td>
</tr>
<tr>
<td>13.</td>
<td>Kaveripakkam</td>
<td>55</td>
<td>81,766</td>
<td>81,521</td>
<td>163,287</td>
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<tr>
<td>14.</td>
<td>Aroor</td>
<td>34</td>
<td>51,700</td>
<td>52,848</td>
<td>104,548</td>
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<tr>
<td>15.</td>
<td>Timici</td>
<td>55</td>
<td>52,935</td>
<td>52,756</td>
<td>105,691</td>
</tr>
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<td>16.</td>
<td>Tirupathur</td>
<td>34</td>
<td>70,440</td>
<td>68,138</td>
<td>138,578</td>
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<td>17.</td>
<td>Jolarpet</td>
<td>36</td>
<td>79,551</td>
<td>77,985</td>
<td>157,536</td>
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<tr>
<td>18.</td>
<td>Kandili</td>
<td>39</td>
<td>74,294</td>
<td>71,398</td>
<td>145,692</td>
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<td>19.</td>
<td>Narasampalli</td>
<td>26</td>
<td>47,012</td>
<td>46,230</td>
<td>93,242</td>
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<tr>
<td>20.</td>
<td>Alangayam</td>
<td>29</td>
<td>62,149</td>
<td>60,587</td>
<td>122,736</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td><strong>743</strong></td>
<td><strong>12,40,944</strong></td>
<td><strong>12,41,612</strong></td>
<td><strong>24,82,556</strong></td>
</tr>
</tbody>
</table>

Table 1 - Vellore District Rural Population as per Panchayat Union wise (According to Census 2011)

**Research Instrument**

The instrument used for the research study is the structured questionnaire. The structured questionnaire was framed with 10 questions excluding demographic details in the regional language were framed, examined and validated through subject knowledge experts. The questionnaires were provided for the rural people by means of interview schedule mechanism. The information were gathered from the respondents by means of self administered field interview.

**Mode of Data Collection**

The data were gathered and fed into the questionnaire through interview schedule technique. In which structured questionnaire was used.

**Reliability Analysis**

The reliability of the extracted factors was concluded using chronbach alpha coefficient. The values varied from 0.90 to 0.98, which is a reasonably 'Very good' relating statistics validation. The overall reliability coefficient of the questionnaire was carried out using chronbach alpha coefficient, it was found to be 0.97.

**Data Analysis**

The details collected through structured questionnaire from the village masses dewells in Vellore district, Tamil Nadu were then feed into excel sheet and then the analysis were carried out by means of AMOS tool and SPSS analytic tool.
Demographic Details of the Respondents

The demographic details of the rural respondents were provided and they were categorized under the demographic phenomenon such as age, gender, occupation and level of education. Table 2 shows the demographic details of the respondents in which out of 200 respondents, 125 respondents were male (62.5%), 75 respondents were female (37.5%) respondents. As age is concerned, under the age category 18-30 years, 55 respondents were found to be under this category (27.5%). Under the age category 31-40 years, 70 respondents were found to be under this category (35%), under the age category 41-50 years, 45 respondents were found to be under this category (22.5%), under the age category 51 years and above, 22 respondents were found to be under this category (10%). As per employment status is concerned, 160 respondents were seemed to be agriculturalist (80%) and 40 respondents were seemed to be non agriculturalist (20%). As per education qualification is concerned 60 respondents has no education (30%), 130 respondents has school level education (65%), 10 respondents has graduate education (5%).

Response Level of Respondents on E-Farming

The responses of rural respondents on the awareness of E-Farming and its various benefits were been provided in the table 3 given below. Maximum number of the rural respondents were found to be not aware with the statements and very few respondents were found to be aware with the statements. The median value of two and the mode value of two had obtained for all the total ten statements and therefore the median and the mode finds it as good and agrees to all the ten statements.

ANOVA Result

From the below table 4, the generated F value is 412. It has been inferred that probability of ANOVA at 5 per cent level establishes good relationship between the variables tested. The R² value is 0.002; it shows that 0.02% of e-farming practice is followed by the awareness of e-farming and its practices. Therefore it is concluded that rural masses dwells in Vellore district lacks awareness of E-farming and its various practices in rural areas. Hence the hypotheses H₀₁ were seemed to be rejected.
Sem-Measurement Level for Determining Factors Affecting e-Farming

Table 5 - SEM Measurement Levels

<table>
<thead>
<tr>
<th>Fit Index</th>
<th>Acceptable Threshold Level</th>
<th>Threshold Level achieved</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square Relative / df</td>
<td>Low Chi-square relative to degree of freedom with an insignificant $p$-value (p&lt;.05) (Tabachnick, B.G. and Fidell, L.S. 2007)</td>
<td>0</td>
<td>Acceptable model fit</td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>Values less than 0.07 (Hooper, D., C. 2007)</td>
<td>0</td>
<td>Reasonable model fit</td>
</tr>
<tr>
<td>Goodness of Fit Index (GFI)</td>
<td>Values greater than 0.95 (Miles, J. and Shevlin, M. 1998)</td>
<td>1</td>
<td>Excellent model fit</td>
</tr>
<tr>
<td>Adjusted Goodness of Fit Index (AGFI)</td>
<td>Values greater than 0.95 (Tabachnick, B.G. and Fidell, L.S. 2007)</td>
<td>1</td>
<td>Excellent model fit</td>
</tr>
<tr>
<td>Root Mean Square Residual (RMR)</td>
<td>Good Model have small RMR (Tabachnick, B.G. and Fidell, L.S. 2007)</td>
<td>0</td>
<td>Good model fit</td>
</tr>
<tr>
<td>Incremental Fit Indexes (IFI)</td>
<td>Values greater than 0.95 (Bentler, P.M. and Bonett, D. 1980)</td>
<td>1</td>
<td>Good model fit</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>Values greater than 0.97 (L. R. Steiger, 1990)</td>
<td>1</td>
<td>Good model fit</td>
</tr>
</tbody>
</table>

Regression Result

Table 6 - Regression Weights on e-Farming Awareness

<table>
<thead>
<tr>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD &lt;--- TQ</td>
<td>-.031</td>
<td>.048</td>
<td>.656</td>
<td>.519</td>
</tr>
</tbody>
</table>

It is also inferred that from the Table 6. The measure of coefficient of variance reveals that there is no awareness on e-farming among rural farmers of Vellore district and therefore e-Farming practices had been not yet followed in the rural areas. Therefore the results were observed to be insignificant. Therefore the hypotheses (H01) framed stand rejected and it is concluded that e-Farming awareness among the rural masses leads to e-farming practices in rural areas.

Result of the Model

On the basis of the measurements given in the table 5 mentioned below, the result of the study shows that the proposed model not has a reasonable data fit Chi-Square Relative / df = 0. P=.519 (insignificant), GFI=1, AGFI = 1, TLI = 1, CFI = 0, NFI = 0, PNFI = 0, PCFI = 0, RFI = 0.540, IFI = 1, RMSEA = 0. Therefore study concludes that rural respondents of Vellore district, Tamil Nadu lacks awareness on e-farming and therefore it is concluded that e-farming is not practiced widely in villages of Vellore District, Tamil Nadu, India.

Results

From the research analysis it is very clear that rural masses resides in villages of Vellore district, Tamil Nadu were not possessing awareness on e-farming and its various practices. Very few rural masses who posses graduate education alone have awareness on e-farming and its various benefits and it is sad that 99% of the agriculturalist do not posses knowledge on e-Farming and its various uses.

Conclusion

It is evident from the result of the survey research, the rural masses of Vellore district lacks awareness on e-farming and it’s various services and it is clear from the research study that only the masses with graduate education alone posses awareness on e-banking and its services. Whereas the uneducated rural masses and the masses who posses school level education do not posses awareness and knowledge about e-Farming and its various services. Therefore there is a serious need for the State government and the central government to provide training and to create awareness about e-Farming practices and its uses for profitable agriculture for the rural masses of Vellore District.

Suggestions

- From this research study, we conclude that rural masses resides in Villages of Vellore district lacks awareness on e-Farming and its various uses.
From this research study, we conclude that E-farming and its various services provides several benefits like increased productivity, increased quality in products, high income, increased efficiency, raised Profit, easy knowledge gathering about climatic condition, humidity, soil type, crop pattern etc and can share agricultural Information in a speedy manner.

E-agriculture facilitates timely and accurate updates regarding current market price & market demand to farmers at lower cost and at lower risk by means of ICT enabled devices such as mobile phones, radio and television and through internet services.

Therefore creating awareness among the rural masses regarding IT and ICT programmes, plays vital role for achieving rural development.

If IT and ICT awareness had been created among the rural masses, that may leads to social and economical wellbeing of rural masses, that facilitates rural development as well as nation development.

**Future Research**

This research study focus particularly on the villages of Vellore District of Tamil Nadu. Similar kind of research study can be carried out in future in various other district of Tamil Nadu and other states of the nation for determining the awareness of usage of various Information communication technology programmes and its various benefits.

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EDUCATION AND WOMEN EMPOWERMENT IN INFORMATION 
AND COMMUNICATION TECHNOLOGY

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Tiruchengode, Namakkal (DT), Tamil Nadu, India

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Abstract
It is generally accepted that in today's society women have access to education and can promote themselves much more easily than in the seventies. Women's changing role is happening because women now a day are educated. They play a very crucial role in the family in its sustainability, stability and growth. Even though their role is accepted by all but still women are not empowered to the level as expected in case of men. This discrimination against women is still continuing for millennia and there is no significant difference in their status in many of the communities even in this new millennium. the glory of women education slowly faded from equal education to the disappearance of even formal education. Provisions of the constitution and various pronouncements by successive governments have failed to ensure a meaningful quantum of education or literacy. In this context, highlighting of women's education and identified problem of educating the women and some solutions and suggestions were discussed in this paper.

Keywords: Technology, Education, Empowerment and Women

Why Study Women's Studies
The definition of a 'woman' has been colored, painted, drawn and represented with the prevailing systems of each age as and when times and systems have painted them. The hand that painted her was never her own. The picture has never been faithful to her person. It painter her at the whims and fancies of the painter. A woman has never had a voice or the power or freedom to define herself she has always been a non-person. She was never thinking, decision making, responsible, individual. She was perceived as so weak that she needed the crutch of man in various roles to get her through life.

Today the other side of the story is that what have been taken for granted by most women today are the very facilities. And liberties that were unheard of many decades ago. Freedom of movement, speech, decision-making in the grater and smiler issues pertaining to the life of a woman is taken so much for granted so much so that the lack of this freedom in the lives of many others in the world means nothing to us because it does not touch our lives in any way.

The History Woman
There was a time when women were considered to have no brains. They were told that if they studied like men do, their heads would literally burst this was not very long ago. It was during the Victorian age that this kind of thinking was perpetuated by not only men but also by women who took on the belief system just as blindly as women do today about many issues like the purdah system which still exists lending lending not only a credibility to it but also a faithful perpetuation of the dogmatic kind.
There is an added dimension to being women. Apart from being the female sex which establishes her identity as different from a male's, she is defined and confined as to her roles. It deserves an honorable mention here. She is a mother, sister, daughter, daughter-in-law, mother-in-law, sister-in-law, and friend, in peculiar self-sacrificing ways as defined by society. She may be a doctor, a teacher, an artist by profession. But she is also: the dead fetus, the dead infant, the molested, prostitute, victim of rape, burning, dowry victim harassment victim, eve teasing victim, window, sati etc. always preyed upon. Her identity has been the most ravished, the most smothered. The education of women is very essential for happy and healthy homes, improvement to society, economic prosperity and national solidarity. There is no doubt that women education in India is on the increase but still is lagging far behind compared to other countries. Still there is a wide gap between the education of men and women in our country. Kothari commission rightly said that there can't be an educated people without educated women. Literacy can be understood as the “ability to read and write” with 1990 having been declared as the International Literacy year, worldwide attention is focused on the all important national problem after poverty. Particularly after independence, literacy has been viewed as the essential component of the overall architecture of development planning in India. It is known that education of a boy means educating a single man, while educating a girl means educating family. However, this fact is far away from truth in India. In this scenario, the issue of female illiteracy is gaining additional significance.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>States/Union Territories</th>
<th>2001</th>
<th>2011 (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jammu &amp; Kashmir</td>
<td>55.52</td>
<td>68.74</td>
</tr>
<tr>
<td>2</td>
<td>Himachal Pradesh</td>
<td>76.48</td>
<td>83.78</td>
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<td>3</td>
<td>Punjab</td>
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<td>76.68</td>
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<td>4</td>
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<td>81.94</td>
<td>86.43</td>
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<tr>
<td>5</td>
<td>Uttarakhand</td>
<td>71.62</td>
<td>79.63</td>
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<td>Haryana</td>
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<td>Delhi</td>
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<tr>
<td>8</td>
<td>Rajasthan</td>
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<td>67.06</td>
</tr>
<tr>
<td>9</td>
<td>Uttarakhand</td>
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<td>69.72</td>
</tr>
<tr>
<td>10</td>
<td>Bihar</td>
<td>47</td>
<td>63.82</td>
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<td>Sikkim</td>
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<td>77.08</td>
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<td>Gujarat</td>
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<td>Goa</td>
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<td>87.40</td>
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<td>Puducherry</td>
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<td>86.55</td>
</tr>
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<td>Andaman &amp; Nicobar Islands</td>
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<td>86.27</td>
</tr>
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<td></td>
<td><strong>ALL INDIA</strong> a</td>
<td>64.84</td>
<td>74.04</td>
</tr>
</tbody>
</table>

Table 1 State-Wise Literacy Rates

Source: Office of the Registrar General, India.
Ministry of Home Affairs

Focus

Empowerment of women is directly linked with education. In spite of considerable improvement in health, education and employment sectors, women still comprise the largest section of population living...
in absolute poverty and they represent in the poorest of the poor. Women not only continue to be in marginal employment and low level of skills their contribution continues to be invisible. The rates for the 2001 and 2011 Censuses relate to the population aged seven years and above.

- The literacy rate for 1951 in case of West Bengal relates to total population including 0-4 age group.
- Literacy rate for 2001 in respect of Chhattisgarh, Madhya Pradesh and Manipur are based on sample population.

**Technology based opportunities**

Because of the high visible and influential role of computers and related technology in the post industrial economy and society, considerable attention is currently being paid to the concept of computer literacy in preparing students for work. The present Government and private sectors carrying their day to day activities in more electronic form rather than manual form. Many of the jobs in industries and offices are computer based. This resulting in IT jobs and women preferred for theses jobs for their concentration, stability, hard work, carefulness, sensitivity and creativity. Computer related skills and knowledge are being recommended for the work place in the present information society.

**Conclusion**

In the light of women role in Digital Revolution and Digital Economy, the development of Electronic computers and information and communication Technology has brought tremendous changes in lives of the people around the global. Democratic and gender just information society is possible only if multiple actors in the ICT arena commit to work in coordination, cooperation and collaboration. Women will also need to confront gender – based obstacles: the greater demands on them for the maintenance of household and family and the discrimination that women in all societies face within work environment. Women are no exceptional global phenomenon. The opportunities course facilities, need based and ability based courses, virtual classrooms etc., are paving way for a new hope in educating the girl child and ultimately resulting in empowering them to attain the gender equality.

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A CRITICAL REVIEW ON ADOPTION OF E-BANKING SERVICES

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Abstract

Financial inclusion through the e-banking services is the prime objective of the RBI as well as the Government of India. Due to the non-feasibility of physical branches at small villages the banks are trying to provide e-banking channels to offer banking services. However, it is noticed that the utilization of e-banking channels is so poor than the expectation and need to the time. In this paper researcher has investigated the causes behind it and found that, in the adoption of e-banking services the age, gender and educational level, ethnic background, area of residence, customer education and awareness, internet accessibility, awareness, attitude towards change, ease of use and convenience, lack of internet confidence, inadequate knowledge and support, service quality, cost effectiveness are the main determinants for the adoption and using e-banking channels. Hence, while the developing and offering the e-banking channels to the customers the bankers should think over it.

Introduction

Use of ICT for rendering services is foremost trend in the each country today. The Indian banking industry is not away from the same. However, we found that public, private, new generation private and cooperative banks also developing banking network through using information and communication technology and via various electronic means like ATM, Internet banking, mobile banking, POS terminals, green channel banking etc. The almost all banks are investing much more financial resources including human resource to extension of e-banking services. But we noticed that the utilization of these services and e-banking channel is very poor than expectations of banks and policy makers. Actually, there is need to identify the reasons behind it and make proper solutions for this. Hence, the present paper attempted to identify the factors those playing key role in adoption and application of e-banking services by common customers. It helps to banker to make proper use of e-banking channels and reduce the burden on front desk counters of the banking institutions.

Objectives of the Study

1. To know the process of adoption of e-banking services by users
2. To identify the key determinants of adoption of e-banking services
3. To identify the problems relating to adoption of e-banking service
4. To make proper suggestion for increase the use of e-banking services.

Significance of the Study

Recently almost all commercial banks are computerized and providing ICT based banking services to their customers. Even rural bank branches also providing these services to the rural peoples and banks have invested their money in required IT infrastructure. However, present situations clear that, many of the customers are not using e-banking channels for banking service and they preferring
traditional banking channels. Because of this, banker feels that they are failed in their goal of reducing burden on front desk counters of the banks. Author hope that, present study helps to find out the key determinants, major obstacles and problems in adoption of e-banking services; and it directs to the service designers and bankers to enhance e-banking services according to the expectations of the customers.

Data and Method
The present research article mostly based on secondary data sources which is collected from different research articles and theses related to adoption of e-banking services in different countries. The researcher has collected important information about the determinants of e-banking adoption and process of adoption of e-banking services. Apart from the use of secondary data sources researcher has considered some insights taken from different experts and expectations of the customers taken through main research work conducted.

Adoption of E-Banking
The RBI and ministry of finance taking much more efforts to avail banking and financial services to each marginalized persons in the country. Even though they are trying to offer essential and minimum banking services to the rural and peoples residing remote areas of the nation. However, starting new physical branch is not possible everywhere due to economical viability. Hence, developing virtual banking and e-banking channels is best solution for availing banking services to such a people. But the evidence shows that the development of e-banking channels is not so easy way to financial inclusion in India. Many e-searchers are trying knowing the causes behind this but their efforts are scattered and disorganized. Hence, the present researcher has trying to compile all evidences and concern in same article.

Challenges in Adoption of E-Banking
Banks and financial instructions are slowly moving from Brick and Mortar to click and Brick (E-banking). ATM’s, internet banking and card banking are the most popular electronic delivery channels for banking services. However, internet banking, mobile banking, card banking services are limited to very few customers in banking industry. Banstola (2011) mentioned that, only few customers are using internet banking facilities. Shukla and Shukla (2011), mentioned that, The Indian banks lag far behind the international banks in providing online banking. In fact, this is not possible without creating sufficient infrastructure or presence of sufficient number of users.

Demographic Characteristics
Most of studies have posited that the effects of the customers’ demographic characteristics such as age, gender and educational level on their attitude towards different banking technologies and individual acceptance of new technology. Sohail and Shanmugham (2007) mentioned that age, educational qualification, accessibility to the Internet, awareness of e-banking and customers’ resistance to change were significantly affecting on adoption of e-banking in Malaysia. Gan et. al. (2011) mentioned that demographic variables (age, gender, marital status, ethnic background, educational qualification, employment, income, and area of residence) influence consumer decision making process in adoption of e-banking. Burke, (2010) concluded that there is a significant difference between the males and females in using various types of technology.
Customer Education and Awareness

Al-Alawi (2013) reported that the adoption of Online Banking influenced by many factors in Bahrain banking system, like age of customer, security concerns, willing to adopt online banking, however, guidance for using IB is one of the important factor in adoption of IB. Li and Zhong (2012) studied the current trends in the Internet revolution that have set in motion in the Chinese banking sector and concluded that Internet accessibility, awareness, attitude towards change, ease of use and convenience are the major factors affecting the adoption of Internet bank services in China. Pikkarainen (2011) mentioned that information about using IB and its benefits influence the adoption of IB. Moreover, Sathye (2009) and Howcroft et al. (2010) posited that customers not to adopting IB due to low awareness of IB and Lichtenstein and Williamson (2010) mentioned that lack of internet confidence, inadequate knowledge and support are very important barrier in using internet banking.

Security and Assurance

Mattila and Mattila (2010) claimed that security has been widely recognized as one of the main barriers to the adoption of IB in Finland and Khalfan et al. 2011 and Al-Sabbagh and Molla 2009 also mentioned that, security concerns have been one of the major issues in the e-banking adoption in the Omani banking industry. Abid and Noreen (2012) posited that Cash culture is still prevalent in Pakistan compared to the plastic money replacement that has been adopted in most of the developed countries. They also mentioned that the most important reasons are lack of trust, non-availability of infrastructure, security and service charges. Sathye (1999) mentioned that 73% of people avoided the adoption IB because they do not sure about safety and security of transactions over the internet and Al-Alawi (2010) also posited same arguments. Even many researchers argued that the lack of trust is a critical issue that needs addressing pertaining to the internet and E-commerce adoption.

Service Quality

Service quality of IB depends up on quality of banking service and quality of internet service provided by telecommunication department or service providers. Only banking institutions are not responsible for quality of IB services (Kumbhar, 2012). Sathye (2007) mentioned that the quality of internet connection is also one of the more important factors in the adoption of IB. High quality of internet connection leads to adoption of IB. However, irregular and low speed internet connectivity adversely affects on adoption of IB. However, Parasuraman, Zeithaml & Malhotra in (2005) mentioned that efficiency fulfilment, system availability, privacy, responsiveness, compensation and contact are core dimensions of e-service quality. They provided E-S-QUAL and E-RecS-QUAL scales to assess service quality of e-services which is highly cited tool. Gan et. al. (2010) mentioned that service quality dimensions, perceived risk factors, user input factors, price factors and service product characteristics influence consumer decision making process in adoption of e-banking.

Cost Effectiveness

Cost effectiveness is another important factor in the transition to the employment of online banking services; lower price for banking service and lower cost for internet access leads to adopting IB service. Generally customer are comparing new services with old one if they realized that the new service is more cost effective than old service they adopt new service. Li and Zhong (2010) mentioned that cost of computer and cost of internet access also one of the important aspects in adoption of internet banking services. Li & Worthington,(2008) and Sohail& Shanmugham, (2009) also posited that the cost of computers and internet connections are important elements in using IB. Zheng and Zhong (2008) also realized that costs for computer and internet access are major factors in adoption of IB.
Conclusion

Financial inclusion through the e-banking services is the prime objective of the RBI as well as the Government of India. Due to the non-feasibility of physical branches at small villages the banks are trying to provide e-banking channels to offer banking services. However, it is noticed that the utilization of e-banking channels is so poor than the expectation and need to the time. In this paper researcher has investigated the causes behind it and found that, in the adoption of e-banking services the age, gender and educational level, ethnic background, area of residence, customer education and awareness, internet accessibility, awareness, attitude towards change, ease of use and convenience, lack of internet confidence, inadequate knowledge and support, service quality, cost effectiveness are the main determinants for the adoption and using e-banking channels. Hence, while the developing and offering the e-banking channels to the customers the bankers should think over it.

Further Scope for Research

The present researcher fill that the findings and concussion of the present research is based on secondary data sources; however, there is need of testing these variables and determents with the empirical data and evidences. Weather they are really key determinants or not? There may be some additions and extractions in the variables indicated. So, there is large scope for further empirical research in this area.

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A STUDY ON WORKING CAPITAL MANAGEMENT TOWARDS SALEM STEEL PLANT

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Abstract

The major reason for choosing the topic related to working capital is every company has to maintain working capital to meet the day-to-day expenses incurring in the concern. Many tools like ratio analysis, schedule of changes in working capital, comparative balance sheet reveals the working capital position of the firm. The study period was 5 years from 2012-2016. The data collected was secondary data. The investment decisions, current asset and current liability management are the major factor in determining the working capital.

Keywords: Working Capital, Cash Management and Capital Position.

Introduction

The investment in current assets to meet the day-to-day expenses is called working capital management. Working capital is otherwise called as Circulating Capital (or) Revolving Capital. Working capital management is very essential for the concern to sort out the day-to-day expenses. Working capital sometimes called as Networking is represented by the excess of current assets and current liabilities and relatively identified the liquid portion of total enterprise capital which constitutes a margin (or) buffer for maturing obligations with in the ordinary operating cycle of business.

Statement of the Problem

The research aims to study on working capital management “STEEL AUTHORITY OF INDIA, LIMITED, SALEM STEEL PLANT. The problem is enhanced on the study on working capital management in Salem steel plant... The management of working capital has a definitive effort on profitability and continued existence of any business. The research aims to find out the liquidity, activity, and leverage position of the company. This study is concerned with problems involved in working capital like estimation of working capital at the time.

Scope of the Study

1. The project aims at studying the working capital management of Salem Steel Plant which is a subsidiary of SAIL (STEEL AUTHORITY OF INDIA)
2. Based on the data interpretation and recommendations are given to increase the efficiency of the firm.

Objectives of the Study

1. To study and analyse the liquidity position of Salem steel plant.
2. To analyse and interpret the activity of Salem steel plant for Five years of profit & loss A/c and Balance sheet (2011-12 to 2015-16).
3. To analyse the impact of working capital changes.
4. To analyse the comparative financial statement in order to know the potential investment.

Research Methodology

Research refers to the searching for knowledge. One can also define research as a scientific and systematic search for pertinent information on a specific topic. In fact research is an art of scientific investigation. “A careful investigation or enquiry through search for new facts in any branch of knowledge”.

Data Collection

Data refers to the information or facts often and researcher also understand it by numeric figures only. It also includes descriptive facts, non-numerical information, qualitative and quantitative information. In a research if data are available the research is half complete.

Data Analysis

Secondary data means the data already available, that is they refers to the data which have already been collected and analysed for someone else. When the researcher utilizes the secondary data they have look into the sources of availability of data's.

Tools Used for Analysis

The following is the tool used in the study for the financial performance of the company

- Ratio analysis

Review of Literature

AmalenduBhunia (2014) has undertaken an analysis of financial performance of pharmaceutical companies to understand how management of finance plays a crucial role in the growth. The present study covers two public sector drug & pharmaceutical enterprises listed on BSE. In order to analyse financial performance in terms of liquidity, solvency, profitability and financial efficiency various accounting ratios have been used. Statistical measures namely Linear Multiple Regression Analysis and Test of Hypothesis t test has been used.

Rao and Rao& Ramachandran (2015) This study is aimed at analysing the trends and parameters of efficiency of WC(WC) utilization in respect of size of firms of cotton textiles sector in Indian on the application of three indices viz., Performance Index(PI), utilization Index(UI)and efficiency Index(EI). For the purpose of analysis the selected firms are classified into three size categories viz “Small”. Medium” and “Large” based on average assets size over the study period.

Limitations of Study

1. The study is restricted to a period of Five years (2011-12 to 2015-16).
2. Ratio analysis will not completely show the company's good or bad financial position.
3. Findings are restricted to a single firm and cannot be generalized to the industry as a whole.
4. The detailed information’s are not given from the company.

Data Analysis

The term analysis refers to comparison of certain measures along with searching for patterns or relationship that exists among data groups.
Interpretation means applications of logical thinking and division to the facts to understand and explain the line between the variables.

**Ratio Analysis**

**Table 1: Current Ratio**

**Source:** Secondary Data

<table>
<thead>
<tr>
<th>S. No</th>
<th>Year</th>
<th>Current Assets</th>
<th>Current Liability</th>
<th>Ratio %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2012</td>
<td>29137.97</td>
<td>16006.39</td>
<td>1.22</td>
</tr>
<tr>
<td>2</td>
<td>2013</td>
<td>28444.76</td>
<td>19766.79</td>
<td>1.01</td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td>27527.73</td>
<td>25623.97</td>
<td>0.72</td>
</tr>
<tr>
<td>4</td>
<td>2015</td>
<td>29001.01</td>
<td>31171.67</td>
<td>0.68</td>
</tr>
<tr>
<td>5</td>
<td>2016</td>
<td>22882.98</td>
<td>38403.09</td>
<td>0.62</td>
</tr>
</tbody>
</table>

The current assets gradually decreases from 2013 and 2014 comparing to 2012 and met a slight increase in 2015 and again decrease in 2016. The current liability increases from 2013 to 2016 comparing to 2012. The table shows that the current ratio is high in 2012 because the current assets exceed current liabilities.

**Table 2: Liquid Ratio**

**Source:** Secondary Data

<table>
<thead>
<tr>
<th>S. No</th>
<th>Year</th>
<th>Liquid Assets</th>
<th>Liquid Liability</th>
<th>Ratio %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2012</td>
<td>15239.04</td>
<td>19330.02</td>
<td>0.82</td>
</tr>
<tr>
<td>2</td>
<td>2013</td>
<td>12279.03</td>
<td>23211.68</td>
<td>0.68</td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td>12162.24</td>
<td>28845.77</td>
<td>0.62</td>
</tr>
<tr>
<td>4</td>
<td>2015</td>
<td>11058.05</td>
<td>34801.32</td>
<td>0.55</td>
</tr>
<tr>
<td>5</td>
<td>2016</td>
<td>7519.37</td>
<td>38804.65</td>
<td>0.44</td>
</tr>
</tbody>
</table>

The liquid assets had a decreeing trend from 2013 to 2016 comparing to 2012. The liquid liability increases from 2013 to 2016 comparing to 2012. The concern's liability shows an increasing trend which shows the bad financial position of the concern. The increase in loans and advances and payments to creditors is the major reason for the short fall. The table shows the liquid ratio is higher in 2012 because the liquid liabilities exceed liquid assets.

**Table 3: Debt-Equity Ratio**

**Source:** Secondary Data

<table>
<thead>
<tr>
<th>S. No</th>
<th>Year</th>
<th>Debt</th>
<th>Equity</th>
<th>Ratio %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2012</td>
<td>17110.69</td>
<td>40270.84</td>
<td>0.40</td>
</tr>
<tr>
<td>2</td>
<td>2013</td>
<td>19760.25</td>
<td>41644.52</td>
<td>0.52</td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td>19650.29</td>
<td>43301.44</td>
<td>0.57</td>
</tr>
<tr>
<td>4</td>
<td>2015</td>
<td>19748.52</td>
<td>44171.87</td>
<td>0.65</td>
</tr>
<tr>
<td>5</td>
<td>2016</td>
<td>22396.65</td>
<td>39929.20</td>
<td>0.80</td>
</tr>
</tbody>
</table>

The equity is high and the company’s position is good to pay off the debt. The debt increases from 2013 to 2016 comparing to 2012. The equity increases from 2012 to 2015 and decreases in 2016. The ratio is higher in 2016 as equity exceeds debt.

**Table 4: Absolute Liquid Ratio**

**Source:** Secondary Data

<table>
<thead>
<tr>
<th>S. No</th>
<th>Year</th>
<th>Cash and Bank</th>
<th>Current Liability</th>
<th>Ratio %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2012</td>
<td>6662.28</td>
<td>1600.39</td>
<td>0.41</td>
</tr>
<tr>
<td>2</td>
<td>2013</td>
<td>4190.32</td>
<td>1977.79</td>
<td>0.35</td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td>3165.97</td>
<td>25623.97</td>
<td>0.29</td>
</tr>
<tr>
<td>4</td>
<td>2015</td>
<td>2620.34</td>
<td>31171.67</td>
<td>0.15</td>
</tr>
<tr>
<td>5</td>
<td>2016</td>
<td>710.76</td>
<td>38403.09</td>
<td>0.10</td>
</tr>
</tbody>
</table>

The absolute liquid ratio indicates the cash and bank balance available to pay the current liability. The cash available and bank balance helps the company to pay of the liability immediately. The above table shows that the absolute liquid ratio does not maintain its standard level because of the increase in current liabilities.

**Table 5: Earnings Per Share Ratio**

**Source:** Secondary Data

<table>
<thead>
<tr>
<th>S.No</th>
<th>Year</th>
<th>Cash and Bank</th>
<th>Current Liability</th>
<th>Ratio %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2012</td>
<td>6662.28</td>
<td>1600.39</td>
<td>0.41</td>
</tr>
<tr>
<td>2</td>
<td>2013</td>
<td>4190.32</td>
<td>1977.79</td>
<td>0.35</td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td>3165.97</td>
<td>25623.97</td>
<td>0.29</td>
</tr>
<tr>
<td>4</td>
<td>2015</td>
<td>2620.34</td>
<td>31171.67</td>
<td>0.15</td>
</tr>
<tr>
<td>5</td>
<td>2016</td>
<td>710.76</td>
<td>38403.09</td>
<td>0.10</td>
</tr>
</tbody>
</table>

The earnings per share is determined by the market value of the company’s share. The net profit of the company is considered while determining the earnings of the shareholder in the concern. The investments in shares in also calculated i.e., holding of No. of Shares. The net profit decreased during 2013 to 2015 and had a increase in 2016. The no. of equity shares held is 41.
Findings
1. The current ratio describes the liquidity position of the company. The current assets can be easily converted into cash within one year and current liability indicates the payments that can be made within one year.
2. The liquid ratio describes the liquidity position of the company. The liquidity position implies the availability of ready cash to meet the daily expenses of the concern.
3. The increase in loans and advances and payments to creditors is the major reason for the short fall.
4. The debt indicates the payments that are to be made to debenture holders and long term provision. The equity indicates the equity share capital of the concern and reserves and surplus in the concern.
5. The equity is high and the company's position is good to pay off the debt. The debt increases from 2013 to 2016 comparing to 2012. The equity increases from 2012 to 2015 and decreases in 2016.
6. The earnings per share is determined by the market value of the company's share. The net profit of the company is considered while determining the earnings of the shareholder in the concern. The investments in shares in also calculated i.e., holding of no. of Shares.

Suggestions
1. The company should increase the investment by proper formation of portfolios for investment.
2. The company should maintain adequate cash to meet the day to day expenses of the concern.
3. The creditors and loans should properly managed, so as less the liability of the concern.
4. The inventory has to be maintained properly to estimate the stock holding and amount to be earned through sale of stock.
5. The market price of the shares should be increased to have an earnings over the share for the shareholders.

Conclusion
The study was undertaken to know the working capital management. Tools such as ratio analysis, schedule of changes in working capital and comparative statement have been used to find out the company's efficiency in performing all the functions. The analysis reveals that the company's working capital management is bad in terms of short and long period. The cash and bank balance investments shows a negative which shows the poor financial position of the firm over the period of study (5 years). The steel plant can be privatised for the efficient working rather than public undertaking. The current assets can be increased and cash and bank balance should be maintained adequately for the better working capital arrangement.

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INFLUENCE OF MANAGERIAL PROBLEMS OF ENTREPRENEURIAL STRESS IN CUDDALORE DISTRICT: PATH ANALYSIS APPROACH

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Abstract
The article tries to find out the influence of managerial problems of entrepreneurial stress in Cuddalore district. One objective of this study is reached through proper methodology. Sample size was 80 in all obtained through convenience sampling technique in Cuddalore district. Researcher designed questionnaire is with 5 point scale in the continuum of agreeing. Reliability of this tool is 0.78 and 0.84. Path analysis was used for data analysis. The path analysis found that there is an influence of financial problems on managerial problems. It also is found that there is an influence of marketing problems on managerial problems. It is identified that there is an influence of financial problems on entrepreneurial stress. The analysis also found that there is an influence of managerial problems on entrepreneurial stress. Hence, it is concluded that the policy makers who are deciding policies for the development of entrepreneurs in the country to formulate appropriate entrepreneur friendly policies to manage the stress level.

Keywords: Financial Problems, Marketing Problems, Managerial Problems, Entrepreneurial Stress And Cuddalore District.

Introduction
Entrepreneurship is an essential forerunning factor for national development. Nurturing an individual’s natural spirit of entrepreneurship is a powerful key to economic development, which takes its major share in the developing countries. Small and medium enterprises provide enormous employment opportunities to people. Moreover, small enterprise is frequently involved as a key player in the process of local economic development and the reorganization of national economies. The origin of entrepreneurship in India geared up only in last three decades. History has full of evidences of individual entrepreneur whose creativity has led to the industrialization of many nations. The spirit of enterprising transforms ordinary men into entrepreneurs and ideas into economic realities. Entrepreneurship is the ability to perceive an opportunity, the foresight to see scope for its exploration, the courage to undertake the initiative and trying to take risks.

Entrepreneurial Stress
Entrepreneurial Stress emerges from multiple roles. A stress is a position a person occupies in a system as defined by expectations of the role senders and perception of the role occupant. Role is composed of role perception and role expectations. Role perception refers to self-perception that is perception of an entrepreneur about her roles whereas role expectation refers to expectation of others. Entrepreneurs have multiple roles at home and at work place. Contrary to popular belief, stress is both natural and normal. What isn’t normal, however, is being stressed for prolonged periods of time. Stress is meant to be a fight or flight mechanism, providing humans with added strength when physical danger is imminent. Unfortunately, people have become accustomed to using stress to respond to emotional
issues, and in these situations, there are no outlets for that extra energy. The reaction lingers, causing negative physical and emotional side effects.

Entrepreneurs, in particular, frequently struggle with chronic, excessive stress. It's frequently rooted in the fear of failure or loss of finances, and can be difficult to escape. According to Michael Roy, founder and executive director of Clear view Women’s Center, “Stress is a normal part of life, but it shouldn't be your life. When stress becomes a chronic problem, it's time for the entrepreneur to do something about it”.

Entrepreneurial stress is a very real thing, and should not be ignored or pushed aside until later. It's important that you learn how to deal with it so you can truly move on.

**Review of Literature**

Occupational Stress among Entrepreneurs in Malaysian SMEs: A Conceptual Framework studied by **Sheikh Muhamad Hizam B. Hj. Sh. Khairuddin (2015)**. The first type of intervention is through reducing the source of stress itself (stressors). This includes improving entrepreneurs' work relationships, work-life balance, overload, job security, control, resources and communication, aspects of the job, and pay and benefits. This is the most effective means of stress intervention. However, if the first interventions are not possible, there is always the second option. The second intervention involved improving of entrepreneurs work passion and job burnout. Finally, intervention of stress of the third kind includes improving the entrepreneurs' individual work performance through counseling. For theoretical implication, this conceptual framework extends the stressor-strain theories and supports the General Theory of Stress (Beehr & Newman 1978). As a conclusion, the knowledge on entrepreneurship and stress in the Malaysian context could be improved by looking at the stress process that include common workplace stressors, work passion and job burnout phenomena that might impact upon their individual work performance.

**Habtamu Kebeu Gemeda (2014)** studied on "Entrepreneurial success as a function of human capital and psychological factors among micro and small enterprises operators: A psychological perspective study." The present study examined the effects of selected human capital indices and psychological factors on entrepreneurial success among micro and small enterprises operators in Ethiopia. Specifically, the main objectives of the study were to: i) determine the extent of effects of human capital and psychological factors on subjective personal success, and ii) examine the meditational role of psychological factors in the link between human capital and subjective personal success. Three hundred and two (186 males and 116 females) participants of the study selected using stratified and simple random sampling techniques from three towns (Adama, Bishoftu and Dukam) of East Shoa zone of Oromia region, Ethiopia filled in self-report questionnaire consisting of items and scales developed and/or adapted for the purpose. Data obtained from the participants were mainly analyzed using simple correlation, linear multiple regression analysis, and path analysis. The analyses suggested that from human capital indices, prior exposure to entrepreneurship and from the psychological factors all (entrepreneurial self-efficacy belief, collective efficacy belief and perceived work stress) considered stood out to have significant effects on subjective personal success. The psychological factors partly mediated the effects of some human capital indices on entrepreneurial success.

Islamic Theory of Motivation, Personality and Business Stress: Evidence from India studied by **Mohammed Galib Hussain (2013)**. A questionnaire survey was used to collect the primary data from a convenience sample of 550 individuals who own either a small or a medium or a big size of business in
various towns/cities of South India. The questionnaire was self-administered in order to distribute it to a variety of locations. The owners of small/medium/big businesses were identified from a business directory and personally visited or contacted via email or telephone. 520 questionnaires were returned. Out of which 20 filled up questionnaires found to be incomplete and could not used for the analysis. Remaining 500 questionnaires were taken for analysis. The response rate of 91% is very high compared to any study in social sciences. The analysis of the study was carried out in two parts namely descriptive and inferential analysis. The frequency distribution formed the basis for descriptive and the chi-square test and percentage analysis were used for inferential analysis. The results have established the validity of the claim that Islam is not a culture further the findings of the study provide inconclusive support to the hypothesis that Islamic concepts of personality, namely, Nafsu ammara, Nafsul Mutmaina do predict business stress.

Muthuchitra (2013) analyzed in the study entitled "A Study on Marketing Problems of Entrepreneurs." The researcher framed four objectives for this study such as to assess the marketing problems of Entrepreneurs, to study and the demographic profile of the entrepreneurs; to analyze the factors influenced them to become an entrepreneur and the last objective was to find out the sources of capital and subsidies. The researcher has selected convenience sampling method to collect the relevant data from the entrepreneurs in Madurai city. Sample size was 70 entrepreneurs. The study found that small scale entrepreneurs are mainly facing problems with supply of raw materials, transportation, distribution and promotion. The study concluded that making use of the assistance provided by the Government among the entrepreneurs are very low. The need for awareness about various incentives, subsidies and marketing assistance provided by central and State Government organizations have a bigger role to play. For this purpose, both Government and the entrepreneurs have to take initiative to solve the problems.

Brinda Kalyani and Ganeshan (2011) studied about "Financial Problems Faced by Small Scale Entrepreneurs in SIOCO Industrial Estates." The objective of the study was to analyze the financial problems faced by the small scale entrepreneurs in the SIOCO Industrial estates of Madurai and Virudhunagar districts. The field work was conducted from the month of May 2009 to October 2009 in order to collect primary data relating to the problems of small scale entrepreneurs. Descriptive research design was adopted. 200 small scale entrepreneurs have been taken as sample by the application of stratified random sampling technique. Stratified Random Sampling was adopted by dividing the whole SIDCD Industrial Estates of Madurai and Virudhunagar Districts. Percentage analysis, level of agreement technique and ranking method were used as tools for data analysis. The study found that the main finance problem faced by the majority of sample units is working capital problem (118 units of Madurai and 28 units of Virudhunagar and raising the finance due to more formalities (50 units of Madurai and 13 units of Virudhunagar). The two districts show varied trend and therefore differs from one another.

Research Methodology

Research Design

To obtain better answer to the research question, a proper research design is to be framed (Cooper & Schindler 2001; Davis & Cosenza 1988). Descriptive research design has been adopted for the present study. Descriptive study is a fact-finding investigation with adequate interpretation. It focuses on particular aspects or dimensions of the problem studied. It is designed to get the descriptive information and provided information and formulation of more sophisticated studies.
Research Gap

Financial problems, marketing problems, managerial problems and entrepreneurial stress, which are studied individually alone but combined research is not found in previous studies. This study is unique in introducing the dependent variable entrepreneurial stress, mediator variable managerial problems and independent variables financial problems and marketing problems. The title is “INFLUENCE OF MANAGERIAL PROBLEMS OF ENTREPRENEURIAL STRESS IN CUDDALORE DISTRICT.”

Framework of the Study

This framework of the study is unique in introducing the dependent variable entrepreneurial stress, mediator variable managerial problems and independent variables financial problems and marketing problems.

Figure 1: shows framework of the Study

Objective of the Study

To study the influence of managerial problems of entrepreneurial stress in Cuddalore district

Hypotheses of the Study

- There is an influence of financial problems on managerial problems.
- There is an influence of marketing problems on managerial problems.
- There is an influence of financial problems on entrepreneurial stress.
- There is an influence of managerial problems on entrepreneurial stress.

Sampling Technique

Convenience sampling technique was adopted for the study. Srivastava (2008) there is only a less effort need to collect the data. Actually no pre plan of executing is there.

Data Collection

The sample size of the study is 80 in all. The study was conducted in Cuddalore district, Tamil Nadu. Questionnaire with 5 point scale is used.

Reliability

For all the items in the questionnaire design the alpha was 0.78 to 84. This indicates high reliability of the items in the questionnaire. With these results the consistency, dependability and adoptability are confirmed.

Statistical Tool Used

Path analysis was adopted in this study. It is used to know the correlation and regression of independent variables with respect to rural women empowerment. Likewise the independent variables are financial problems and marketing problems. The variable managerial problem is considered as mediator variable. Entrepreneurial stress is considered as an outcome variable.
Analysis and Interpretation

### Table 1: Model Fit Indication

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>p</th>
<th>GFI</th>
<th>AGFI</th>
<th>NFI</th>
<th>CFI</th>
<th>RMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.657</td>
<td>0.103</td>
<td>0.987</td>
<td>0.912</td>
<td>0.984</td>
<td>0.976</td>
<td>0.017</td>
</tr>
</tbody>
</table>

**Source:** primary data

From the above table it is found that the calculated chi-square value is 2.657, p value is 0.103 which is greater than 0.05, which indicates that perfectly fit. Here GFI (Goodness of Fit Index) value and AGFI (Adjusted Goodness of Fit Index) values are greater than 0.90 which represent it is a good fit. The calculated CFI (Comparative Fit Index) value and NFI (Normed Fit Index) values are greater than 0.90 which means that it is a perfectly fit. It is found that RMS (Root Mean Square) value is 0.000 which are less than 0.08, which indicates that it is perfectly fit.

### Table 2: Regression Weights of Entrepreneurial Stress

<table>
<thead>
<tr>
<th>DV</th>
<th>IV</th>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial Problems</td>
<td>Financial Problems</td>
<td>.315</td>
<td>.093</td>
<td>3.379</td>
<td>.341</td>
<td>***</td>
</tr>
<tr>
<td>Managerial Problems</td>
<td>Marketing Problems</td>
<td>.288</td>
<td>.112</td>
<td>2.565</td>
<td>.259</td>
<td>.010</td>
</tr>
<tr>
<td>Entrepreneurial Stress</td>
<td>Financial Problems</td>
<td>.219</td>
<td>.097</td>
<td>2.247</td>
<td>.207</td>
<td>.025</td>
</tr>
<tr>
<td>Entrepreneurial Stress</td>
<td>Managerial Problems</td>
<td>.532</td>
<td>.105</td>
<td>5.042</td>
<td>.465</td>
<td>***</td>
</tr>
</tbody>
</table>

**Source:** primary data

H₀: Financial problems do not influence by managerial problems.

Hₐ: Financial problems influence by managerial problems.

Through the path analysis, regression weight as the value of CR is 3.379. The Beta value is 0.341 which indicates that 34.1% of influence is through financial problems towards managerial problems. The p value is 0.010; here the p value is less than 1% and the hypothesis is rejected; hence it can be concluded that the financial problems influences managerial problems in MSME entrepreneurs in Cuddalore district.

H₀: Marketing problems do not influence by managerial problems.

Hₐ: Marketing problems influence by managerial problems.

Through the path analysis, regression weight as the value of CR is 2.565. The Beta value is 0.259 which indicates that 25.9% of influence is through marketing problems towards managerial problems. The p value is 0.010; here the p value is less than 1% and the hypothesis is rejected; hence it can be concluded that the marketing problems influences managerial problems in MSME entrepreneurs in Cuddalore district.


Through the path analysis, regression weight as the value of CR is 2.247. The Beta value is 0.207 which indicates that 20.7% of influence is through financial problems towards entrepreneurial stress. The p value is 0.025; here the p value is less than 5% and the hypothesis is rejected; hence it can be concluded that the financial problems influences entrepreneurial stress in MSME entrepreneurs in Cuddalore district.

H₀: Managerial problems do not influence by entrepreneurial stress.

Hₐ: Managerial problems influence by entrepreneurial stress.

Through the path analysis, regression weight as the value of CR is 5.042. The Beta value is 0.465 which indicates that 46.5% of influence is through managerial problems towards entrepreneurial stress.
The p value is 0.010; here the p value is less than 1% and the hypothesis is rejected; hence it can be concluded that the managerial problems influences entrepreneurial stress in MSME entrepreneurs in Cuddalore district.

Findings of the Study

- The path analysis found that there is an influence of financial problems on managerial problems.
- It is found that there is an influence of marketing problems on managerial problems.
- It is identified that there is an influence of financial problems on entrepreneurial stress.
- The analysis found that there is an influence of managerial problems on entrepreneurial stress.

Recommendations of the Study

- It is recommended that the financial institutions and banks should give the support without any partiality to the needy and deserving entrepreneurs of MSME.
- The study recommended that the entrepreneurs of MSMEs in learning marketing techniques from their large scale partners. Government and NGOs’ may help artisans in marketing their products and be competitive in price and quality being informed on market environment.
- The entrepreneurs of MSMEs are advised to frequently attend seminars, workshops, and conferences organize to update their managerial skills.

Conclusion

The article tries to find out the influence of managerial problems of entrepreneurial stress in Cuddalore district. One objective of this study is reached through proper methodology. Sample size was 80 in all obtained through convenience sampling technique in Cuddalore district. Researcher designed questionnaire is with 5 point scale in the continuum of agreeing. Reliability of this tool is 0.78 and 0.84. Path analysis was used for data analysis. The path analysis found that there is an influence of financial problems on managerial problems. It also is found that there is an influence of marketing problems on managerial problems. It is identified that there is an influence of financial problems on entrepreneurial stress. The analysis also found that there is an influence of managerial problems on entrepreneurial stress. Hence, it is concluded that the policy makers who are deciding policies for the development of entrepreneurs in the country to formulate appropriate entrepreneur friendly policies to manage the stress level.

References


Going Global

The consumers experience the process of buying, having and being. As more of us go Online today, there is no doubt the world is changing and the consumer behavior evolves faster than you can say “The Web”. Today consumers and producers come together electronically in ways we have never known before. Rapid transmission alters the speed at which the new trends develop especially because the virtual world lets consumers participate in the creation and dissemination of new products. One of the most exciting aspects of the new digital world is that consumers can interact directly with the producers and other people who live around the world. Like this way today consumers get all information about the products online. Now we share opinions and get news about movies, CD’S, cars, clothes etc. and we name it. Above all is the digital world always a rosy place? Unfortunately just as in the “Real World” the answer is no. The potential to exploit the consumers in almost all possible ways by simply giving advertisements and marketing their product is always there. Still we can't imagine a world without Web. When it comes to the new virtual world of the consumer behavior you are either on the train or under it.

Consumer behavior Means

Consumer behavior is the study of the processes involved when individuals or groups select, purchase, use, or dispose of the products, services and experiences to satisfy all their needs and desires. There are many perspectives from the consumers point of view. But as a general it takes a process of three. Firstly they exchange the products idea among themselves and then they decide the organization of where they will be buying the product and finally they spread it to the society. Learning consumer behavior is a very good business in simple terms.

Definition of a Consumer

A consumer is a person who identifies his own needs and desires and wants and then uses and disposes the product till his need is fulfilled by that particular product. Today most of us as a person are consumers as well as marketers in some or the other way. A consumers is always considered as a KING. Without a consumer there is no bargain and without bargain there is no profit margin and without profit there is no competition in the market and thus it doesn't make any use for the producer to manufacture his product. Consumers today are classified in terms of so many aspects like age, gender, family structure, social class and income. A consumer at the end of the day has to realize the he is a consumer most of the time during the day and not a marketer. But it happens vice versa in the real world. Consumers keep doing the job of the marketer and exploit himself and the others directly and indirectly. A consumer is a person who is influenced by all the marketing techniques and advertisements. Thus consumer refers to any person who purchases some goods for consideration that has been either paid or promised to be paid in future or has been partly paid or promised to be partly paid in future and such goods is not meant for resale.
Internet Marketing

Regardless of the size, majority of the business now-a-days are practicing Internet Marketing. That’s because it is the most inexpensive way for them to reach millions of their target market. But what is Internet Marketing really? It is also called online marketing in which the process of promoting the brand of the product takes place over the internet. Its scope includes many things with the customer via wireless media. It also combines the various aspects of the World wide web such as advertising marketing and sales. It is a marketing practice wherein a business pays for an online retailer site or blog for each visitor or sales that these websites make for their brand. To increase the awareness of the product among the consumers they do display advertising. The customer also become more convenient by receiving mails when the marketers do email marketing. By setting up business blogs today marketers make the customers involve in sharing their valuable content called inbound marketing. Above all today the trending way of marketing is through the social networks like Facebook, Twitter and so on.

Importance of Internet Marketing

The internet has the power to connect millions of people from around the world. Thus it also has the capabilities to bring your business to millions of your target market worldwide. What makes this process a best inclusion is to your promotional effort is the fact that you don’t need to shell out plenty of money. In addition the effectiveness of your campaign can be easily measured using web analytics and its tools. It can all be done only with the internet marketing.

Needs and Wants

Manipulation of Consumers by the Marketers

One of the most common issue and stinging criticisms of marketing is that companies convince consumers they NEED many material and that they are considered to be inferior in the society if they do not have these NECESSITIES. The issue is a complex one and is certainly worth considering: Do marketers give people what they want or do they tell people what they should want? The answer to the above question is even more complicated. The concept of TANGLED WEB plays a vital role here. Today the consumers are even more exploited by means of advertisements most of which are fake. The consumers look to these advertisements and become slave to some products. Who controls the market, companies or consumers? There is no answer because new ways of buying having and being are developing every day. Thus by these fake advertisements and blogs created by the marketers the consumers gets artificial needs and are not satisfied to the fullest all the time.

The Need of Advertisement and Marketing

Large scale efforts are being made often with impressive success to channel our unthinking habits our purchasing decisions and our thought processes by the use of insights gleaned from the social sciences. The economist charged that radio and television are important tools to accomplish this manipulation of the masses. This criticism may even be more relevant to online communications, where a simple lick delivers a world of information to us. Products are designed to meet existing needs and advertising only helps to communicate their availability. On the whole marketers only promise miracles which will and not happen.
The Working of Internet Marketing

So what’s the verdict? Does internet marketing work or not? Perhaps the question is when does it work? Although the argument is for a homogenous culture world appealing in principle in practice internet marketing does not work at all. One reason is that the consumer in different countries have different customs and conventions and so they simply do not use the product in the same way. Yet the internet marketing plays a significant role in the minds of the consumers by giving all information to the consumers with just one click.

Pictorial versus Verbal Cues
Consumers Attitude towards Visual Aspects

Today it’s very true among consumers that we buy the products by seeing it and not by listening to its usefulness. Certainly visual aspects of an advertisement are more likely to grab a consumers attention. Studies also say that consumers typically recall advertisements with visual figures more often and they like them better. The best example in today’s market is online shopping like Amazon, Flipkart etc. In this market system the seller gives the picture of the product and gives some information about the product such that the customer goes in for the product and buys it and owns it. So everywhere the consumer gets attracted by the pictures that they see and they buy it.

The Attention of Consumers towards the Marketers

Marketers constantly search for ways to break through the clutter and grab people's attention. At times these efforts come out with different results. Networks try to engage viewers during commercial breaks by using attractive advertisements and make them buy the product. The consumers by this way anticipate about the product and sit over many more advertisements. In the online world advertisers are trying more tricks to get visitors to watch their messages. One of the most popular today is rich media. This technique uses movement to get viewers attention. Because the brains capacity to process information is very limited consumers are very selective about what they pay attention to.
CORPORATE SOCIAL RESPONSIBILITY AND ITS IMPACT ON INSURANCE SECTOR

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As we are aware that making profit only should not be the objective of any business as eating is not the objective of living. Focus should be laid on wellbeing of the society as that indirectly effects the profits therefore CSR is the DNA of business which incorporated would be beneficial to the business ensuring sustainable development. Businesses exist to make profit, and this isn’t meant to change as a goal. Yet no organisation operates in isolation; there is interaction with employees, customers, suppliers and stakeholders. CSR is about managing these relationships to produce an overall positive impact on society, whilst making money. Companies need to help other peoples by providing them good standard of living. Commonly CSR programs range from community development to development in education, environment and healthcare etc. The ability to make a significant difference in the society and improve the overall quality of life could be set as a goal for the CSR activity. Not one but all corporates should try and bring about a change in the current social situation in India in order to have an effective and lasting solution to the social woes. Corporates could increasingly join hands with non-governmental organizations (NGOs) and use their expertise in devising programs which address wider social problems. Partnerships between companies, NGOs and the government should be facilitated so that a combination of their skills such as expertise, strategic thinking, manpower and money to initiate extensive social change will put the socio-economic development of India on a fast track.

Studies have shown that business operations are disturbed mostly by non-technical issues all bothering on environmental, health and social issues not considered early enough in business planning. Gone are the days when corporations ‘did good’ because of regulatory requirements, these days, apart from the media attention and stringent reporting requirements and stakeholder scrutiny, impacted communities are now more aware of business operations, even the smallest businesses have started leaving behind the footprints of CSR.

The benefits from adopting CSR can be less obvious than say, helping the environment. For example, a survey from Net Impact found that 53% of workers said that “a job where I can make an impact” was important to their happiness. Interestingly, 35% would take a pay cut to work for a company committed to CSR. Companies have specialised CSR teams that formulate policies, strategies and goals for their CSR programs and set aside budgets to fund them. These programs are often determined by social philosophy which have clear objectives and are well defined, it should also be aligned with the mainstream business.

Concept of Insurance

A number of authors define Insurance as a contract between the insurer and the insured. (Dagar and Phougat, 2011). “Life insurance commands the maximum popularity and importance in the insurance world because the life is the most important property of the society or an individual. Basically, insurance means a promise of compensation for any potential future losses. It facilitates financial protection against by reimbursing losses during crisis. Although It can be better define as a
contract (policy) in which an individual or entity receives financial protection or reimbursement against losses from an insurance company. The company pools clients' risks to make payments more affordable for the insured (Sethi and Bhatia, 2007). “The fundamental of insurance is to protect the few against the heavy financial impact of expected misfortune by scattering the loss among the many who are exposed to risk of a similar nature” Insurance is generally categorized into life insurance and non-life insurance.

Life insurance provides financial protection to the insured against the risk of uncertain and unpleasant things that occur. Life insurance is a contract between the policy holder and the company, where company promise to pay the beneficiary a sum of money in exchange for premium, upon the death of insured person. As per the contract, other events such as incurable illness or serious illness may also trigger payment. The policy holder pays a premium regularly or as a lump sum amount fix at the time of getting the policy. Whereas, Non-life insurance provides protection to the insured against accidents, property damage, burglary and other liabilities. It is a promise of compensation for specific potential future losses in exchange for a periodic payment. Insurance is designed to protect the financial well-being of an individual, company or other entity in the case of unexpected loss. Some forms of insurance are required by law, while others are optional. Agreeing to the terms of an insurance policy creates a contract between the insured and the insurer. It also a Risk transfer mechanism that ensures full or partial financial compensation for the loss or damage caused by event(s) beyond the control of the insured party (Sethi and Bhatia, 2007).

Milestones of Life Insurance Business in India

- **1818:** Oriental LIC, the first LIC on Indian soil started functioning.
- **1870:** Bombay Mutual Life Assurance Society, the first Indian LIC started its business.
- **1912:** The Indian Life Assurance Companies Act enacted as the first statute to regulate the life insurance business.
- **1928:** The Indian Insurance Companies Act enacted to enable the government to collect statistical information about both life and non-life insurance businesses.
- **1938:** Earlier legislation consolidated and amended to by the Insurance Act with the objective of protecting the interests of the insuring public. Nationalization of life insurance business in India.
- **1972:** Nationalization of general insurance business in India.
- **1993:** Setting-up of the Malhotra Committee.
- **1994:** Recommendations of Malhotra Committee released.
- **1995:** Setting-up of Mukherjee Committee.
- **1996:** Setting-up of an (interim) Insurance Regulatory Authority (IRA).
- **1997:** Mukherjee Committee Report submitted but not made public.
- **1998:** The Government gives greater autonomy to LIC, GIC and its subsidiaries with regard to the restructuring of boards and flexibility in investment norms aimed at channeling funds to the infrastructure sector.
- **1999:** The cabinet decided to allow 40% foreign equity in private insurance companies – 26% to foreign companies and 14% to non-resident Indians (NRI), overseas corporate bodies (OCB) and foreign institutional investors (FII).
- **1999:** The Standing Committee decided that foreign equity in private insurance should be limited to 26%. The IRA Act was renamed the Insurance Regulatory and Development Authority (IRDA) Act.
- **1999:** Cabinet clears IRDA Act.
- **2000:** President gives assent to the IRDA Act.
Principles of Life Insurance

The main aim of every insurance contract is to give financial security and protection to the assured from any future uncertainties. Seeking revenue opportunities by reporting forged occurrences breaks the terms and conditions of an insurance contract (Sharma, 2013). This breaks trust, results in breaching of a contract and invites legal penalties. These seven principles of Insurance are as follows:

- Principle of Utmost Good Faith.
- Principle of Insurable Interest.
- Principle of Indemnity.
- Principle of Contribution.
- Principle of Subrogation.
- Principle of Loss Minimization.
- Principle of Causa Proxima.

Penetration of Life Insurance in India

Life insurance penetration in India is about 4 per cent of the country's gross domestic product (GDP) in terms of total premiums underwritten yearly. State-owned Life Insurance Corporation (LIC) enjoys a dominant position with almost 71 per cent of the market share. The Life Insurance Council, the industry body of life insurers in India, has estimate the percentage of insurance premium to gross domestic product (GDP) is expected to grow to 5 per cent by 2020 from the current 3.2 per cent, according to the council. Life insurance industry has about 36 crores (360 million) inforce policies and is a high capital-intensive industry. It further estimates that positive Indian demography insurable population rise to 750 million and life expectancy to 74 years by FY 2020. (www.businessstandard) Therefore, life insurance, which is the second most preferred financial instrument, would make growth in net household financial savings to an estimated 35 per cent of total savings in the next seven years, compared with a meager 26 per cent in FY10.

The council also estimates a potential foreign exchange inflow of $10 billion in the near future when the foreign direct investment in insurance increases to 49%. Indian Insurance companies are struggling to enlarge their distribution channel and raise the number of life insurance advisers to above three million over the next five years and expecting to contribute Rs 3.5 lakh crores towards infrastructure projects by FY 2020. (www.businessstandard) Life insurance sector comprises of:

- Over 10,636 branches.
- More than 21.51 lakh agents.
- lakh direct employees and growing significantly.
- 34.49 crores In-force policies.

Different Authors Defines CSR in different ways

(Carroll, 1979) business encompasses the economic, legal, ethical and discretionary expectations that society has of organization at a given point in time. (Whetten, Rands and Godfrey 2002) societal expectations of corporate behavior; a behavior that is alleged by a stakeholder to be expected by society or morally required and is therefore justifiably demanded of a business. Modern definition of CSR arranged in Carroll's "Pyramid of CSR." Pyramid divided into four layers and defined that every business or corporation has four types of responsibilities. The following figure shows the Carroll’s model of different responsibilities.
Corporate Social Responsibility (CSR) is the commitment of companies to provide resources and support activities focused on enhancing economic and social development. It is the effort made by companies to improve the living conditions of the local area in which they operate and the society at large. The activities taken up as part of corporate social responsibility reflect the intent to create a positive impact on society without seeking any commensurate monetary benefits. The basic objective of CSR in today’s world is to maximize the company’s overall impact on the society and stakeholders. CSR policies, practices and programs are being comprehensively integrated by an increasing number of companies throughout their business operations and processes. The concept of CSR in Insurance law is, encouraging or enforcing contribution to the society at large, thus upholding the interests of the society in which the firms are operating. The two main relevant laws that protect the stakeholders’ interests are the Companies Act 2013 and the IRDA Act 1999. The insurance regulator has identified insurance firm’s commitment towards community and society as per the obligation of insurers Rural and Social sector Rules 2002 by proposing obligation towards community and society. These rules mandate insurance companies to penetrate into the rural sector market with insurance products suitable for the rural poor.

The Rural and Social sector Rules 2002 is a part of the inclusive agenda which do not enforce these insurance companies to spend any sum towards the segment of their market. The compliance to CSR clause 135 of the Companies Act 2015 applies to all the companies registered under the Act. Alongside the CSR agenda, the allied purports of the Act include good governance, fraud mitigation, accountability, inclusions and several others provisions.

The CSR Rules of Clause 135 of the Companies Act 2013 pronounced contain

1. The CSR provisions are applicable to companies with an annual turnover of 1000 crores INR and more or a net worth of 500 Crores INR and more, or a net profit of five crore INR and more.
2. The new rules require companies to set up a CSR committee consisting of their board members including an independent director.
3. The Act encourages companies to spend at least 2% of their average net profit in the previous three years on CSR activities.

India is among very few countries that had legislated CSR as a mandatory activity for corporates. It is estimated that nearly 16,000 companies out of total universe of 11 lakh companies registered in India will fall under the mandatory CSR net. Regardless of the nature of the sector CSR rules of Companies Act surpass all boundaries of the market.

Motives for Corporate Social Responsibility

If the firm can benefit from CSR in two distinct ways, it can be expected that managers will consider both criteria when making decisions concerning the CSR activities of the firm. In order to uncover managerial motives for CSR, a series of interviews with managers responsible for their firms’ community and social investment portfolios was undertaken.

The sample included a total of fifteen senior and mid-level managers at nine firms across a range of industries. The firms were identified with the help of the local United Way chapter, who identified the firms as mature in their development of CSR. Firm size ranged from 500 employees to over 30,000 employees and all of the firms had generally positive reputations with stakeholders. Further, given the problem of examining a complex construct like CSR, the specific focus of the interviews was on the corporate philanthropic initiatives of the firm. Given that corporate philanthropy is often used to demonstrate the firms’ position to a broad range of key stakeholders a focus on corporate philanthropy
is expected to provide an accurate reflection of the firms CSR strategies. However, given the unstructured nature of the interviews, informants also discussed the wider socially responsible activities on the part of the firm. Interviews lasted approximately one hour and were transcribed for analysis. Pseudonyms are used to protect the anonymity of informants; industry and position details are given in Table 2. The core elements of CSR activities include ethical functioning, respect for all stakeholders, protection of human rights and care for the environment. Bajaj Group generally implements the above initiatives through its employees, Welfare Funds and Group NGOs / Trusts / Charitable Bodies operating at various locations in the country. It also enlists the help of non-Group NGOs, Local Authorities, Business Associations and Civil Society, wherever deemed necessary.

Ethics and Responsibilities in Insurance Sector

There are nearly 24 life insurance companies running business in the Indian insurance market, giving buyers plenty of choices. The high demand of customers from companies is commitment of earning and maintaining the trust of customers through ethical and financially responsible business practices. It is the responsibility of every agent and every employee to abide by the rules and regulations that govern the insurance business.

a) Business Ethics Policy:

Business Ethics Policy applies to all employees in an organization. The policy addresses such things as business and accounting practices, political contributions and conflict of interest among others. Where appropriate, the fraud is reported to law enforcement and/or regulatory authorities and those implicated are pursued through the courts to seek conviction and the recovery of assets or restitution.

b) Privacy Policies:

Federal and state legislation requires insurance agents and general agencies to protect the privacy of non-public, personal information about their customers. An agencies are expected to abide by the rule and regulation of companies’ policy and maintain the confidentiality of customer information. The privacy of a customer in the service sector plays an important role in achieving the satisfaction of a customer towards company.

c) Ethical Client Service:

A needs-based analysis is the best way to determine which life insurance product is the most appropriate for customer need, based on existing insurance portfolio, needs, goals and current tax and financial position. Matching insurance coverage to customer needs is one of the agent’s primary responsibilities.

d) Complaint Resolution Procedures:

Insurance companies take customer service seriously and feel such kind of experience which meets customer’s expectations. The resolutions of complaint handle properly and efficiently which satisfy the need of consumer. (www.lgamerica.com)

CSR in Indian Insurance Sector: A View

Social responsibility is the core responsibility of an organization for the effects of its decisions and activities on society and the environment through clear and ethical behavior that is consistent with sustainable development and the benefit of society, consider the prospects of stakeholders. (Revathy, 2012) The concept of CSR has increased importance from all avenues. Organization must recognize that government without the help of their contribution will not able to get accomplish in its effort to uplift the downtrodden of society. There is increasing demand for the companies to take on their
responsibilities towards society. (Yadav and Rokade, 2012) Every company must reassess its management methods and take into consideration what individuals and companies, who are directly or indirectly affected by its activities, expect from them. Managers must focus essentially on grappling with the unpredictable and risks in finances, social conflicts, pollution, image, reputation, etc.

Life Insurance Corporation of India

The Life Insurance Corporation of India popularly known as “LIC of India” founded in 1956 when the Parliament of India passed the Life Insurance of India Act that nationalized the private insurance industry in India. Over 245 insurance companies and provident societies were merged to create the state owned Life Insurance Corporation. Today LIC functions with 2048 fully computerized branch offices, 105 divisional offices, 8 zonal offices, 992 satellite offices and the corporate office. LIC’s Wide Area Network covers all divisional offices and connects all the branches through a Metro Area Network. LIC has tied up with some Banks and Service providers to offer on-line premium collection facility in selected cities. LIC’s ECS and ATM premium payment facility is an addition to customer convenience. Apart from on-line Kiosks and IVRS, Info Centers have been commissioned at Mumbai, Ahmadabad, Bangalore, Chennai, Hyderabad, Kolkata, New Delhi, Pune and many other cities. With a vision of providing easy access to its policyholders, LIC has launched its SATELLITE SAMPARK offices. The satellite offices are smaller, leaner and closer to the customer. The digitalized records of the satellite offices will facilitate anywhere servicing and many other conveniences in the future.

Objectives of LIC of India

- To conduct business with utmost economy and with the full realization that the moneys belong to the policyholders.
- To act as trustees of the insured public in their individual and collective capacities.
- To meet the various life insurance needs of the community that would arise in the changing social and economic environment.
- To involve all people working in the Corporation to the best of their capability in furthering the interests of the insured public by providing efficient service with courtesy.
- Promote amongst all agents and employees of the Corporation a sense of participation, pride and job satisfaction through discharge of their duties with dedication towards achievement of Corporate Objective.

ICICI Prudential Life Insurance Company Ltd

ICICI Prudential LIC is a joint venture between ICICI Bank, a premier financial powerhouse, and prudential plc, a leading international financial services group headquartered in the United Kingdom. ICICI Prudential was amongst the first private sector insurance companies to begin operations in December 2000 after receiving approval from Insurance Regulatory Development Authority (IRDA). ICICI Prudential Life’s capital stands at Rs. 4,793 crores (as of March 31, 2013) with ICICI Bank and Prudential plc holding 74% and 26% stake respectively. For the FY 2013, the company has garnered total premium of Rs 13,538 crores and has underwritten over 13 million policies since inception. The company has assets held over Rs. 74,000 crores as on March 31, 2013. For the past decade, ICICI Prudential Life Insurance has maintained its dominant position amongst private life insurers in the country, with a wide range of flexible products that meet the needs of the Indian customer at every step in life. (www.iciciprulife.com)
Bajaj Allianz LIC Limited

Bajaj Allianz Life Insurance is a union between Allianz SE, one of the largest Insurance Company and Bajaj Finserv. Allianz SE is a leading insurance conglomerate globally and one of the largest asset managers in the world, managing assets worth over a Trillion (Over INR. 55, 00,000 Crores). Allianz SE has over 119 years of financial experience and is present in over 70 countries around the world. At Bajaj Allianz Life Insurance, customer delight is the guiding principle. Their business philosophy is to ensure excellent insurance and investment solutions by offering customized products, supported by the best technology.

CSR areas in which the foundation takes into the consideration are:-

- Community Welfare
- Education
- Employee Welfare
- Environment
- Healthcare
- Poverty Eradication
- Rural Development
- Vocational Training
- Women

HDFC Standard Life Insurance Co. Ltd

HDFC Life is one of India’s leading private life insurance companies, offers a range of individual and group insurance solutions. It is a joint venture between Housing Development Finance Corporation Limited (HDFC), India’s leading housing finance institution and Standard Life PLC, the leading provider of financial services in the United Kingdom.

HDFC Ltd. holds 72.37% and Standard Life (Mauritius Holding) Ltd. holds 26.00% of equity in the joint venture, while the rest is held by others. HDFC Life’s product portfolio comprises solutions, which meet various customer needs such as Protection, Pension, Savings, Investment and Health. Customers have the added advantage of customizing the plans, by adding optional benefits called riders, at a nominal price. The company currently has 25 retail and 9 group products in its portfolio, along with 10 optional rider benefits catering to the savings, investment, protection and retirement needs of customers. HDFC Life continues to have one of the widest reaches among new insurance companies with about 500 branches in India touching customers in over 900 cities and towns. HDFC Life has a strong presence in its existing markets with a strong base of Financial Consultants.

Major CSR Projects & Initiatives Undertaken by HDFC Life

CSR Initiatives by HDFC Life People

Children Education Project

Navjeevan Hindi Medium School, Turbhe, Mumbai- HDFC Life partnered with United Way of Mumbai & Aarambh to support 500 municipal school children at Turbhe, Maharashtra. The objective of the project is to support underprivileged children to continue formal education and aid their holistic development of children studying in Grade 5 to 10.

Children Education Project through NGO’s

Educo, a registered nongovernmental organization (NGO) aims to provide quality school education to impoverished children. HDFC Life and Educo provide education for better future career prospects for
these children. Through this project HDFC Life and its employees support 180 children in the Saibaba Path Mumbai Public School based in Lalbaugh.

**Teach for India**

HDFC Life has been partnering with ‘Teach for India’ – non-profit organization engaged in supporting education for underprivileged children, by sponsoring two employees each for the 2010-12 and 2012-14 Fellowships. Teach for India Fellowship is a two-year paid assignment during which Fellows are placed as full-time teachers in low income English Medium schools.

**Payroll Giving**

Employees are encouraged to give a small part of their salary to establish their own charity account through the Payroll Giving program implemented in partnership with GiveIndia, an organization dedicated to helping individuals donate to credible NGOs. HDFC Life has been successfully running the programme with an exponential increase in the number of enrolments since 2008 and till date, has effectively channelized Rs.56.81 lakhs worth of donations.

**Mumbai Marathon**

As a part of CSR initiative, HDFC Life has been participating in the Mumbai Marathon to run for a cause since 2009. In 2013, HDFC Life partnered with the Non-profit-SAMPARC, a team of 15 employees ran the Half Marathon & Dream Run to support education for lesser privileged children. In 2012 and 2011, HDFC Life supported the NGOs Educo and Make a Wish foundation respectively.

**Swabhimaan Calendar Activities**

The Swabhimaan calendar activities are driven by 45 Swabhimaan Champions. The objective is to instill and encourage social giving amongst employees and other stakeholders. CSR activities on local level like Old age home visit, Blood donation camps, Clothes collection drives, Woolen clothes donation drive, Aadhar (UID) melas, Fundraisers for charity, etc. were organized pan India.

**Joy of Giving Week**

The India Giving Challenge, one of the events initiated by GiveIndia during the Joy of Giving Week is a country wide initiative which aims to engage every single Indian in giving back to society in a way that she or he chooses. HDFC Life has been participating in the challenge since 2010 and collectively raised funds for NGOs like the Akshaya Patra Foundation, Akanksha Foundation and National Society for Equal Opportunities for the Handicapped by involving employees through different activities.

**Conclusion:**

The concept of corporate social responsibility has gained immense importance throughout the world. The overseas corporate houses as well as Indian corporate sector has realized the importance of CSR activities for attaining the persistent dominance in the marketplace. Though, the concept of CSR evolved in 1920’s but in India, the concept was recognized only in 1990’s after the liberalisation of the economy. It can be articulated that on the advent of globalisation, the Indian corporate were inclined towards CSR activities because of the increased competitive pressures. Today, numbers of industries have started CSR activities for enhancing their reputation and brand value and insurance sector is no exception to it. It is worth to be mentioned that number of social welfare schemes by private life insurance companies have noticeably contributed for the welfare of the society. It can be concluded that CSR activities are symbiotic in nature leading to the welfare of all i.e., customers and the common people. Therefore, in this era of high competition companies need to pin their attention on social welfare projects besides caring for their economic health.
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ONLINE ADVERTISEMENTS IN MODERN FASHION

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Online Advertisements

Online advertising, also called online marketing or Internet advertising or web advertising, is a form of marketing and advertising which uses the Internet to deliver promotional marketing messages to consumers. Online advertisements are purchased through one of the following common vehicles:

- **Cost per Thousand (CPM):** Advertisers pay when their messages are exposed to specific audiences.
- **Cost per Click (CPC):** Advertisers pay every time a user clicks on their ads.
- **Cost per Action (CPA):** Advertisers only pay when a specific action (generally a purchase) is performed.

Examples of online advertising include banner ads, search engine results pages, social networking ads, email spam, online classified ads, pop-ups, contextual ads and spyware.

Benefits of Online Advertisements

- A major advantage of online advertising is the quick promotion of product information without geographical boundary limits.
- It offers more value for your advertising dollars as it can be more targeted than offline mediums.
- It is up and running 24/7 providing round-the-clock visibility.
- It has a faster and wider reach as you can connect with people anywhere even in the remotest locations, as long as there is Internet connectivity.
- It provides more information at a low cost.
- It is convenient for your audience as they can access your online advertising material as many times as they want.

Disadvantages of Online Advertisements

- Slow internet connections can cause difficulties. If the companies build too complex or too large websites, it will take too long for users to check them or download them and they will get bored eventually.
- The e-commerce doesn’t allow the user “to touch” the merchandise before purchasing it.
- Other factor is the payment: many users still don’t trust in the electronic methods of paying and give up buying online because of this.
One of the major disadvantages may be the lack of trust of the users because of the constant virtual promotions that appear to be frauds. This is an aspect that deteriorates the image and reputation of quality and honest companies.

Other disadvantage is the cash on delivery system, since it doesn’t guarantee the 100% purchase of the product. This is also the case of thousands of users that dedicate themselves to daily mock big companies by ordering on the internet using false identities.

Online Advertising and Traditional Advertising

1. **Targeted Placement**: Targeting the particular group of audience is very easy

2. **Improved Tracking**: Advertiser can measure whether his advertisement works or not by tracking web. Tracking the audience such as how many of them visiting your websites and how long a user stayed in your site and how many of them clicked you ads etc.

3. **Efficiency of Investment**: the combination of relevant placement and improved tracking makes online advertising a much more efficient than traditional Ads. The benefit is advertiser can get better result with less investment in online.

**PPC AD’S**

1. **Context sensitive Ad Placement**: In order for ads to appear alongside the results on a search engine (commonly referred to as a Search Engine Results Page, or SERP).

2. **Pay per click**: Advertisers pay every time a user clicks on their ads. These are advertisements in which the cost of advertising is determined by the number of clicks an ad receives.

3. **Bidding for keywords**: As its name implies, the Ad Auction is a bidding system. This means that advertisers must bid on the terms they want to “trigger,” or display (It allows advertisers to bid for ad placement in a search engine’s sponsored links when someone searches on a keyword that is related to their business offering), their ads. These terms are known as keywords. Google's PPC search ads are managed by Google's AdWords.

4. **Choosing a bidding strategy**: There are 5 main types of bidding strategy, these include:
   - Maximise Clicks, this is generally done through automatic bidding.
   - Target search page location, this increases the average position for the ad to target higher placements on page 1 or (first page of search results)
   - Target cost per acquisition (CPA) bidding which focuses on getting as many conversions as possible based on keyword to conversion performance
   - Enhanced Cost Per Click, this involves adjusting your manual bid up or down based on the keyword and click likelihood of a conversion.
   - Target return on ad spend, this is a new bid strategy in Google Adwords that sets bids to maximise conversion value from a budget whilst trying to return an average return value per spend amount.

5. **Writing Ad copy**: Ad copy is a term that refers to the main text of a clickable advertisement, whether it is a contextual or a pay per click ad. The text of the ad copy is generally the second and third lines of an ad displayed on a search engine results page or any other web page, and is between the title and the display URL. Most advertisers use ad copy not only to describe the advertisement, but to also insert the keywords that the ads have been created for. While ad copy is only two or three lines long, it is a very important part of the pay per click advertising package.
Paid Ads (Ppc) Benefits

- **Time:** Unlike organic search rankings that can take months or years, paid results are placed at the top of rankings as soon as you pay for ad placement.

- **Targeting:** PPC campaigns can be tailored to reach specific audiences. Examples of segmentation include geo-targeting, income, age, educational level, marital status, industry, etc.

- **Click through rates:** Searches using terms that denote high purchase intent such as product or brand-specific keywords will get more clicks than organic results. The advantage of paid search can clearly be seen in the Internet retailers MarketLive Performance Index data. For the year 2013 as a whole, PPC accounted for 36.5% of search traffic but an outsized 47.9% of revenue from search.

Different Types of Online Ads

1. **Google AdWords (Pay-per-click Advertising):** AdWords and Bing Ads both use a pay-per-click model.

2. **Banner Advertising:** This form of online advertising is even older than the search engines themselves, and the concept is pretty simple. You simply put some sort of banner (usually with a catchy image and headline) on a relevant website.

3. **Newsletter Advertising:** You can contact webmasters and email programs to ask them if they are willing to sell ad space in their newsletter or e-zine.

4. **Affiliate Marketing:** Whether you specialize in physical products or in digital information products like e-books and other courses, affiliate marketing is a great form of online advertising. The major advantage is that you don't actually have to pay your affiliates a commission until the sale is made.

5. **Social Media:** Have you heard of Facebook and LinkedIn? Of course you have. What you may not realize is that social media can be used as a form of online advertising, and Facebook ads are excellent examples.

Display Advertising

Display advertising is the use of web banners or banner ads placed on a third-party website or blog to drive traffic to a corporate website and increase product awareness. These banners consist of static or animated images, as well as interactive media including audio and video.

Mobile Advertising

Cell phone advertising is the ability for organizations and individuals to advertise their product or service over mobile devices. Mobile advertising is generally carried out via text messages or applications.

Online Advertising Networks

1. Google Ad network
2. Yahoo! Network plus
3. AOL Advertising
4. ValueClick

Networks

1. 24/7 Real media global web alliance
2. Specific media
3. Tribal fusion
Landing Page and Purpose of Landing Pages

A web page which serves as the entry point for a website or a particular section of a website. A landing page refers to any Web page that a user arrives at after clicking a hyperlink.

Purpose of having Landing Pages

- The ultimate goal is to have the visitor purchase immediately
- Lead generation landing pages are used to capture user data, such as a name and email address. The sole purpose of the page is to collect information that will allow you to market to and connect with the prospect at a subsequent time.

Recent Trends in Online Advertising

Mobile Advertising

Cell phone advertising is the ability for organizations and individuals to advertise their product or service over mobile devices. Mobile advertising is generally carried out via text messages or applications.

Social Media

Have you heard of Facebook and LinkedIn? Of course you have. What you may not realize is that social media can be used as a form of online advertising, and Facebook ads are excellent examples. Example - Many companies promote their products by posting frequent updates and providing special offers through their social media profiles

Going Direct Advertisement

Mass distribution of promotional messages through mail, internet, telephone, or fax

Nonstandard Ads

No proper font size or images. These ads are different in size and different color mixture and different languages in the content of the advertisement.

Bigger, More intrusive Ads:

Where advertising is intrusive is when there's a complete mismatch between product and viewer.” In other words, advertising is intrusive when it is not relevant to the viewer. Not when it intrudes on the program.

Ppc and Seo (Internet Marketing)

The main difference between Search Engine Optimization (SEO) and Pay Per Click (PPC) is that traffic coming from SEO (organic) is free while traffic generated from PPC is not free (as the name implies you have to pay a cost per click). Both SEO and PPC are part of Search Engine Marketing (SEM) which is one of the tools can be used as part of overall Internet Marketing campaign.

Spam Online Advertisement

Unsolicited messages (spam), especially advertising, as well as sending messages repeatedly on the same site. While the most
widely recognized form of spam is email spam, the term is applied to similar abuses in other media: instant messaging spam, Usenet newsgroup spam, Web search engine spam, spam in blogs, wiki spam, online classified ads spam, mobile phone messaging spam, Internet forum spam, etc.

**Ad Server**

An Ad Server is a web based tool used by publishers, networks and advertisers to help with ad management, ad trafficking. An ad server also provides reporting on ads served on the website.

Ad serving describes the technology and service that places advertisements on web sites. Ad serving technology companies provide software to web sites and advertisers to serve ads, count them, choose the ads that will make the website or advertiser most money, and monitor progress of different advertising campaigns. (That stores advertisements used in online marketing and delivers them to digital support visitors (a website, mobile apps, a mobile site...).

**Common Functions**

- Uploading advertisements and rich media.
- Trafficking ads according to differing business rules.
- Targeting ads to different users, or content.
- Tuning and optimization based on results.
- Reporting impressions, clicks, post-click & post-impression activities, and interaction metrics.

**Display Network**

The Display Network is a collection of websites -- including specific Google websites like Google Finance, Gmail, Blogger, and YouTube -- that show AdWords ads. This network also includes mobile sites and apps.

**Contextual Advertising (Content Network Ads)**

- Contextual advertising is a form of targeted advertising for advertisements appearing on websites or other media, such as content displayed in mobile browsers. The advertisements themselves are selected and served by automated systems based on the content displayed to the user.
- Content campaigns display ads on the Web pages of site owners who participate in a search engine’s ad serving program. Google has AdSense, while Yahoo has Yahoo Publisher Network. Microsoft is working on a similar program. These programs allow site owners to “monetize their content” (i.e., earn money by displaying ads). The site owner puts a chunk of JavaScript code onto their site pages, and the search engine automatically serves ads displayed on those pages. When a site visitor clicks on one of the ads, the advertiser pays the search engine, and the search engine pays a portion to the site owner.

**Types of Display Advertisements**

Display advertising is a type of advertising that is located on websites. It can be seen in a wide range of different formats and contains items such as texts, images, flash, video and audio. The main purpose is to deliver general advertisements and brand messages.

**Types of Social Media Advertising**

Popular social media sites, Facebook, Twitter, and YouTube, offer different ways to advertise brands. Facebook gives advertisers options such as promoted posts, sponsored stories, page post ads,
Facebook object (like) ads, and external website (standard) ads. To advertise on Twitter there are promoter tweets, trends, and promoted accounts that show up on users newsfeeds. For advertising on YouTube there are branded channels, promoted videos, and in video advertising.

Each channel (Facebook, Twitter, and YouTube) offers the benefits of:

- **Interaction**: Your ad and content right on the homepage allows users to interact with it like they do any other piece of social content.
- **Reach**: Expand your reach to new potential customers who can interact with your content by commenting, liking, favoriting, retweeting, etc.
- **Followers**: Brands also report a notable increase in followers through these social advertising options, since brand visibility increases significantly.
E-COMMERCE

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Abstract

E-commerce is also known as electronic commerce. E-commerce is buying and selling of products and services by business and consumers over the internet. It involves an online transaction. It draws on technologies as mobile commerce, electronic funds transfer, supply chain management, internet marketing, online transaction processing, electronic data interchange, inventory management system. Consumer takes lower prices offer by wholesaler retailing their products. The benefit of e-commerce is availability of goods at lower cost, wider choices and saves time of the consumers. There are two categories of ecommerce.

They are e-merchandise and e-finance. In India most of companies and organisations doing business with the help of ecommerce and also it shows the tremendous changes in India. Increasing internet users have added to its growth. Being the second largest user base in world, only behind china(650 million, 48% of population), the penetration of ecommerce is low compared to markets like united states(266 million, 84%),or France (54 million, 81%), but is growing at an unprecedented rate, adding around 6 million new entrance every month. India’s ecommerce market worth about $3.9 billion in 2009, it went up to $12.6 billion in 2013.

The e-retail segments was worth US$2.3 billion. In India 70% of e-commerce is related to travel. According to Google India, in 2014 there was 35 million online shoppers in India and it reached 100 million in 2016. By 2020, India expected to generate $100 billion online retail revenue out of $35 billion will apparel sales are set to grow four times in upcoming years.

This paper outcome of a review of various research studies carried out on e-commerce. The present studies has been undertaken to analyses the present trends of e-commerce in India & examine the challenges, opportunities, impacts of e-commerce in India.

Keywords: E-Commerce, recent trends, opportunities, challenges and impacts of e-commerce.

Introduction

The E-commerce industry in India has come a long way since its early days. e-commerce is anything that involves online transaction. It makes a consumer to get the goods at lower price, wider choice and saves time. E- Commerce includes not only buying and selling of goods but also for various business process and individual organizations that supports the goal.

Online business likes financial services, travel, entertainment, and groceries etc., are provided to the customers. The growth of e -commerce is affected by economic factors political factors, culture factors and supranational institutions.

The benefits of e -commerce includes the wide availability of goods and services for the customers, the speed of access, easy accessibility and international reach.

Definition

Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to "any for of business transaction in which the parties interact electronically rather than by physical exchange or direct physical contact."
Types of E-Commerce

There are some types of e-commerce. The major different types of e-commerce are:

- Business-to-business (B2B)
- Business-to-consumer (B2C)
- Business-to-government (B2G)
- Consumer-to-consumer (C2C)
- Mobile commerce (M-Commerce)

E-Commerce in India

Increasing internet and mobile penetration, growing acceptability of online payments and favourable demographics has provided the e-commerce sector in India the unique opportunity to companies connect with their customers. Developing countries like India, e-commerce offers considerable opportunity. In India e-commerce is still growing stages. The first e-commerce site in India was rediff.com. it was most trafficked portals for both Indians and non-residents Indians. It provides a wealth of Indian-related business news engine, e-commerce and web solution services. In last 2 years have seen rise in the number of companies enabling e-commerce technologies and the internet in India. many Indian portal sites have also shifted towards e-commerce instead of depending advertisement revenues. They noted that the buying trends during 2016 will witness a significant upwards movement due to aggressive online discounts, rising fuel price and wider and abundant choice will hit the e-commerce industry in 2016. It observed mobile commerce is growing rapidly as a secure supplement to the e-commerce industry. Shopping through smart phones is proving to be a game changer, and industry leaders believe that m-commerce could contribute up to 70% of their total revenues. In India roughly 60-65% of the total e-commerce sales are being generated by mobile devices and tablets, increased by 50% than in year 2015 and also continue upwards. Only 10% opened for internet banking and a scanty 7% preferred cash cards, mobile wallets, and other such modes of payments. Among the above age segments 18-25 years of age group has been the fastest growing age segment online with user growth being contributed by both male and female segments. The survey revealed that 38% of regular shoppers are in 18-25 age group, 52% in 26-35 age group and 8% in 36-45 age group and 2% in the age group of 45-60.

Recent Trends in Indian E-Commerce

India is a massive E-commerce market place now with every age group comfortably transacting online. E-commerce industry is growing at an astounding rate in India and is expected to account for 1.61% of the global GDP by 2018. According to a report by Forrester, India is set to become the fastest growing market in the Asia-Pacific region with an expected growth rate of over 57% between 2012 and 2016.

- Cash on delivery is the most preferred online payment method. People mostly love cash on delivery option. It gives us more control over online transactions since we don’t have to pay until the product is at our doorstep.
60% of online purchases happen during a business hour that is 9am to 6pm. It shows the trend is a myth-buster, it shows how integral a part online shopping has become in our day-to-day lives.

The rural pitch: E-commerce companies have emphasized more attracting the consumers from rural areas. The traditional business houses such as Tata Group and Reliance Industries will enter more aggressively into the e-commerce business.

Smart phone apps: users browse

Opportunities of e-commerce:

Increasing online users' base and mobile phone penetration, Indian e-commerce has seen impressive growth in last five years. Considering India's demographic dividend and rising internet accessibility the sector is related to greater height. We take into the current e-commerce landscape and the sector key drives and challenges. Internet penetration is one of the factors affecting the growth of e-commerce. The following table can provide information about the percentage of the penetration in different countries of the world.

<table>
<thead>
<tr>
<th>Country</th>
<th>Internet Users(2017)</th>
<th>Penetration (% of Population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>738,539,792</td>
<td>53.2%</td>
</tr>
<tr>
<td>India</td>
<td>462,124,989</td>
<td>34.4%</td>
</tr>
<tr>
<td>United states</td>
<td>286,942,362</td>
<td>87.9%</td>
</tr>
<tr>
<td>Brazil</td>
<td>139,111,185</td>
<td>65.9%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>132,700,000</td>
<td>50.4%</td>
</tr>
</tbody>
</table>

The above table reveals that e-commerce industry is fast rising; changes can be seen over year for developing countries like India, e-commerce offers considerable opportunities. The table shows that, e-commerce in India is still in growing stages. Going by statistics, e-commerce market in India is expected to nearly double to Rs. 211,005 crores by December according to industry body internet and mobile association of India. The market grew 30% between December 2011 and December 2015. Online travel which includes domestic air tickets and railway tickets booking is expected to grow around 40% by the end of 2016.

- Large percentage of population subscribes to broadband internet, rapidly increasing 3G internet users, and a recent introduction of 4G across the country.
- Explosive growth of smartphone users.
- Rising standards of living as result of fast decline in poverty rate.
- Available of much wider product range.
- Competitive prices compared attractive to the customers.
- Increased usage of online classified sites, with more consumers buying and selling second-hand goods.

Challenges in the E-Commerce

There are barriers responsible for slow growth of e-commerce in India. Some barriers in using e-commerce includes security problems, lack of skills, cost, etc., people do not trust paperless, faceless transactions. For the growth of e-business in India it needs a focus and should to make country in lines of e-business.

- In India cash on delivery is most preferred payment mode: most of people in India prefer to pay cash on delivery due to low credit card and low trust in online transactions.
- Incorrect postal address: when the customers places an online order, he will get a call from the company, asking about his exact location. The given address is not enough because there is always a
little standardization while writing postal address. It is one of the most biggest challenges in e-commerce India.

- Privacy and security concern: in cases, start up a small business, business owners fail to take the initial steps to secure and protect their online business through installation of authentic protection services like antivirus and firewall protection, which indeed a crucial step for successful online business players. Usage of unauthorized software will not protect the customers.
- Touch and feel: Indian customers are more comfortable in buying products physically. They tend to choose the product by touching directly.
- Product return, refund: product which is not satisfactory for the customers tends to get replaced or returned. This is another major issue which leads into overall loss in revenue, and more than these loss of reputation.

**Growth of E-Commerce in India**

**Replacement Guarantee**
- The replacement guarantee should offers 30 days to their customers.

**Price Comparison**
- Providing offering and instant price comparison are highly popular amongst the price conscious customers.

**Customer Convenience**
- By providing cash on delivery payment option services to customers.

**Reach**
- Enabling mobile-capable sites and supporting m-commerce services.

**Multiple Payment Option**
- Standard credit card, debit cards, bank payments option should be there.

**Right Content**
- Getting the right content and targeting customers with crisp and relevant information is of utmost importance to users on the move.

**Quick Services**
- Timely services provided by the company.

**Terms and Condition**
- Terms and condition should be clearly mention.

**Quality**
- The product quality should be same as shown on the portal.

**Customer Care Centre**
- A dedicated 24/7 customer care centre should be there.
- The e-commerce sector is fast hiring the best talent available in the country and this placement season saw e-commerce companies recruiting big numbers at premier institutions like the institutes of management (IIMs) and Indian institute of technology (IITs).

**Conclusion**
- Growth of e-commerce depends to a great extent on effective IT security system for which necessary technological and legal provisions need to be in place and strengthened constantly. Many companies, organisations, and communities in India are beginning to take advantages of the potential of e-commerce, critical challenges remains to be overcome before e-commerce become an asset for
common people. In general, today’s business must always strive to create the next best thing that consumers will want because consumers continue to desire the products, services. To continuously be better, faster, and cheaper. In this world of new technology, business need to accommodate to the new types of consumers needs and trends because it will prove to be vital to their business success and survival. E-commerce is continuously progressing and it becoming more and more important to business as technology continues to advance and is something that should be taken advantage of and implemented. However, just like anything else, e-commerce has its disadvantages including consumer uncertainties, but nothing that cannot be resolved or avoided by good decision-making and business practices. If the correct methods and practices are followed, a business will prosper in an e-commerce setting with much success and profitability.

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APPLICATION OF INFORMATION COMMUNICATION TECHNOLOGY TECHNIQUES IN SELECTED UNIVERSITIES – A PARADIGM SHIFT IN EDUCATION SYSTEM

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Abstract

In India the custom of Information Communication Technology (ICT) for providing excellence education and wisdom is inevitable today. This research article made an effort to evaluate the important issues for effectual operation and achievement of ICT in all levels of education systems in chosen Universities in Coimbatore District to upgrade their quality education system. The practice of ICT tools among the teaching staffs, non-teaching staffs, administrations, technicians, students, research scholars and parents benefits a lot and plays a decisive role in humanizing the total quality education and learning system in the higher education/Institutions/Universities in India. It also alert towards positive necessary factors for the use of ICT in higher education/Universities. The research study portray the implications of force of ICT to the teachers, students, teachers, research work, institutional, higher education’s and societal effectiveness. ICT in teaching and learning is planned to build knowledge among the faculty in higher education, creation of virtual learning and laboratories, creating a huge database and server, access to expert lectures and technological developments in Industries. In this context, an attempt is made to examine the efficacy of ICT tools for quality education and Learning among selected universities in Coimbatore District. The study is carried out with the help of a structured questionnaire administered to respondents and with the help of their responses analysis is made thereafter, which is followed by findings of the study with few suggestions.

Keywords: ICT tools, Quality Education, Higher Education/Universities, Teaching aids, Virtual Education and Internet Gateway

Introduction

The higher education system in India has been imparted challenges in terms of Access, Equity and Quality. The Government of India has taken quite a lot of initiative works during the 11th five year plan period to increase access to higher education by adopting state specific strategies, enhancing the relevance of higher education through Curriculum reforms, Vocational programs, Networking, Information Technology adoption and Distance Education along with reforms in governance. The Indian Higher Education System has established itself as the largest system in the world in terms of number of institutions and third largest in terms of student enrollment. While several new institutions have emerged due to momentous increase in private sector participation over the last few years, concerns remain regarding the quality of education being imparted to students.

Objectives of the Study

- To comprehend the application of ICT tools among the chosen universities stakeholders; and
- To know the implications ICT techniques in the selected universities education system.

Hypothesis of the Study

- \( H_{01} \): ICT tools influence the performance and proficiency of universities stakeholders to improve their education system to meet the current requirement of the stakeholders.
Sample Design

The Multi Stage Sampling method is used for the present study in the selected area. In the first stage it is respondents are selected based on the Education Systems/Higher Education in the Universities levels / Institutions. Second stage area wise selection is done, where in Tamil Nadu, Coimbatore district is chosen and in the third stage, the study concentrated only on selected Universities employees, employers (both including teaching and non-teaching members), research scholars, project assistants, technicians and others who use ICT tools in their routine life within the Universities for education and learning in improving the quality of education. The respondents for the current study is chosen based on the employment in educational institutions/Universities and the target respondents are all the stakeholders of University which includes only six Universities located in and around the Coimbatore district. The Universities is selected based on the number of universities situated in Coimbatore and those who uses ICTs for Education and learning in improving the quality education. The sample size taken for the study is 200.

Statistical Tools and Techniques

The present study has used percentages and Structural Equation Model (SEM) - Amos (Analysis of Moment Structures) (IBM version 20.0) is used which is an easy-to-use program for visual SEM. With Amos, you can quickly specify, view, and modify your model graphically using simple drawing tools.

Period of the Study

The study covered a period from July to December 2017.

Sources of Data Collection

Primary data for the study are collected from the selected group of University employees, employers (Including teaching and non-teaching staff members), students (UG and PG students), and research Scholars in the selected University in Coimbatore District. Secondary data are collected from books, journals, research papers, newspapers, on-line sources, Reports of Economic Indicators, University web portal, India studies, and University Library resources (Both offline and Online sources) etc.,

Analysis and Interpretation

The present study focused mainly on the Strategic Cost Management and its effective implementation in the CUB, Coimbatore. With the help structure questionnaire, the collected data is presented here.

(a) Socio Economic Profile of Respondents

Demographic Profile of the Respondents

Source: Survey Data, 2017, N – Number of samples, Sample size: N – 200
Effective usages and attentiveness of ICT Techniques among the Universities Stakeholders

Source: Survey Data, 2017 N – Number of samples, Sample size N – 200

Awareness of ICT tools and Techniques among the Universities stakeholders

Source: Survey Data, 2017, N – Number of samples, Sample size: N – 200

Table 1: Proficiency of ICT techniques and its applications in the among the Stakeholders of selected Universities in Coimbatore

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Strategic Techniques</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Aware</td>
<td>Aware</td>
</tr>
<tr>
<td>01.</td>
<td>Satellite Instructional Television Experiment (SITE) or EDUSAT</td>
<td>77 (38.50)</td>
</tr>
<tr>
<td>02.</td>
<td>Educational Media Resource Centers (EMRCs)</td>
<td>73 (36.50)</td>
</tr>
<tr>
<td>03.</td>
<td>E-Learning</td>
<td>70 (35.00)</td>
</tr>
<tr>
<td>04.</td>
<td>Audio-Visuals Resource Centers</td>
<td>67 (33.50)</td>
</tr>
<tr>
<td>05.</td>
<td>Wireless Connectivity (wifi)</td>
<td>63 (31.50)</td>
</tr>
<tr>
<td>06.</td>
<td>Virtual Libraries and Digital learning/Digital Library (VL/DL)</td>
<td>62 (31.00)</td>
</tr>
<tr>
<td>07.</td>
<td>Computer Based Training (CBT)</td>
<td>58 (29.00)</td>
</tr>
<tr>
<td>08.</td>
<td>Virtual Learning Campus (VLC)/Virtual Class Rooms</td>
<td>54 (27.0)</td>
</tr>
<tr>
<td>09.</td>
<td>Library Network (INFLIBNET)</td>
<td>52 (26.0)</td>
</tr>
<tr>
<td>10.</td>
<td>Tele-Education System (TES)</td>
<td>37 (18.50)</td>
</tr>
<tr>
<td>11.</td>
<td>LCD Projectors</td>
<td>36 (18.00)</td>
</tr>
</tbody>
</table>

Source: Survey Data, 2017, N – Number of samples, Sample size (N) – 200, (a) Strongly Aware (5); Aware (4); Moderately Aware (3); Slightly Aware (2); Not At all Aware (1)
Table – 2: ICT Tools Influences Stakeholders of Universities in Coimbatore

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Cost Drivers</th>
<th>Influencing Factors ranked</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Not all Influence (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slightly (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Somewhat (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderately (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extremely (5)</td>
</tr>
<tr>
<td>01.</td>
<td>Audio-Visually Resource Centers (AVRC)</td>
<td>57 (28.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 (15.00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39 (19.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35 (17.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39 (19.50)</td>
</tr>
<tr>
<td>02.</td>
<td>Virtual Learning Campus (VLC)/Virtual Class Room</td>
<td>73 (36.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>43 (21.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 (11.00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45 (22.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17 (08.50)</td>
</tr>
<tr>
<td>03.</td>
<td>Virtual Libraries and Digital learning/Digital Lib</td>
<td>77 (38.50)</td>
</tr>
<tr>
<td></td>
<td>rary VL&amp;DL</td>
<td>28 (14.00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29 (14.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37 (18.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29 (14.50)</td>
</tr>
<tr>
<td>04.</td>
<td>Tele-Education System (TES)</td>
<td>43 (21.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 (10.00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 (25.00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45 (22.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42 (21.00)</td>
</tr>
</tbody>
</table>

Source: Survey Data, 2017

Testing of Hypothesis

- H₀₁: ICT tools influence the performance and proficiency of universities stakeholders to improve their education system to meet the current requirement of the stakeholders.

Model – 1: Proficiency of ICT Techniques and its Applications among the Stakeholders of Selected Universities in Coimbatore

Results and Discussion

Table – 5: Summary Results of Measurement Model

<table>
<thead>
<tr>
<th>Model</th>
<th>X²</th>
<th>df</th>
<th>P Value</th>
<th>RMSEA</th>
<th>PGFI/PCFI</th>
<th>NNFI</th>
<th>CFI</th>
<th>RFI</th>
<th>CMIN/DF</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₀</td>
<td>687.633</td>
<td>98</td>
<td>0.000</td>
<td>0.021</td>
<td>0.862</td>
<td>0.299</td>
<td>0.962</td>
<td>0.169</td>
<td>1.972</td>
</tr>
</tbody>
</table>

Source: Survey data, 2017

The Chi-Square (X²) value of 687.633 with the 98 degree of freedom is at the 0.05 (5%) significant level: its p - value is 0.000. This finding suggests that model fits the data acceptably from selected stakeholders of Universities in Coimbatore district. Corroborating evidence is provided by the RMSEA fit
statistics. 0.021 the obtained value of 0.008 is less than the cutoff 0.08. Similarly, the Tucker Lewis Index (TLI)/CMIN - DF result of 1.972 is considerably above the 0.95 threshold denoting satisfactory model fit.

In the above Model – 1, Proficiency of ICT techniques and its applications in the Coimbatore basis for the scores experiential on the measures of variables regarding ICT and its efficacy with the stakeholders of selected stakeholders who are concentrated towards the improvement of ICT techniques to perform the current education system in order to improve the teaching effectively with the quality inputs to the Indian Institutions. The impact of the ICT tools and its influencing factors on the stakeholders of universities are represented by single-headed arrows in the path diagram. Since the chi-square test of absolute model fit is reported, along with its degrees of freedom and probability value.

Conclusion

Transmission of ICTs in Indian universities OR Higher Educational Institutions would take action to the twenty-first century demands. In modern-day higher education systems are designed for getting hold of ICT skills as central part education structure, prerequisite of infrastructure/fully operational labs, proficient support and other hold looked-for enhancement of the quality in education and learning methods. The relevance of ICTs in supervision of higher education institutions and use of the know-how to normalize worth of education in the highly varied in the current scenario across the universities established in the Coimbatore District, Tamil Nadu would promote many students in developing their skills and knowledge. The influence against the introduction of ICTs has pointed out that ICTs would do high-quality to the teaching fraternity and student community. The procedures taken for the achievement of ICT needs to be a suitable action plan and training to all stakeholders implicated in the integration and bring change on quality of teaching and learning in the university level education system. It is vital to assess the impact of efficacy of implementation and usages of ICT tools in quality teaching and learning among the selected universities in the Coimbatore district. In the present study, it is identify that the purpose of ICTs in managing higher education institutions and use of the technology to homogenize the excellence of teaching and learning is highly diverse state of affairs across the universities established in the country would profit many students. From the study, it is evidenced that ICT tools strongly plays crucial role and influencing the all the stakeholders of the selected universities such as teachers, students, research scholars, research assistant, Project fellowship holders, and parents too in the modern education system.

References
2. An Alten Group Company, Calsoft labs (2012) IT/ICT Adoption in Indian Higher Education
E-GOVERNANCE: A CASE STUDY ON GYANDOOT PROJECT

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Final Year Students of B.Com (PA), PSGR Krishnammal College for Women

Abstract

The Information Technology (IT) revolution in India as elsewhere has had its impact on the way the business of managing public services is conducted. The governments both at the centre and in the states including various government agencies have realized that IT and internet can be used in a highly effective manner to improve the government to citizen interface. This paper discusses the various developments initiatives in India in general and Gyandoot Project of Dhar district of Madhya Pradesh in particular.

Introduction

E-Governance or electronic governance may be defined as “delivery of government services and, information to the public using electronic means. Such means of delivering information is often referred to as information technology or ‘IT’ in short. Use of IT in government facilitates an efficient, speedy and transparent process for disseminating information to the public and other agencies and for performing government administration activities”. Another definition of the e-governance refers to the use by government agencies of Information Technologies (such as Wide Area Networks, the Internet, and Mobile Computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth and cost reductions.

Traditionally, the interaction between a citizen or business and a government agency took place in a government office. With emerging information and communication technologies it is possible to locate service centres closer to the clients. Such centres may consist of an unattended kiosk in a government agency, a service kiosk located close to the client, or the use of a personal computer in the home or office.

Minimum Agenda for E-Governance in the Ministries/Departments of the Central Government

The Website of the ministry www.mit.govt.in lists the following as the minimum agenda for e-governance in the ministries/departments of the central government:

- Each ministry/department must set up LANs and provide PCs with necessary software up to the section officer level. The Hindi version of the content of the websites should be developed simultaneously, as far as possible.
- 100 percent training of all staff who have access to and need to use computers for their office work should be ensured.
- Pay roll accounting and other house-keeping software should be put to use in day-to-day operations.
- Notices for internal meeting should be sent by e-mail to the officers and also put up on online notice boards of the ministry/department.
- Each ministry/department should have its own website and also make efforts to develop packages so as to begin electronic delivery of services to the public.
- Each ministry/department should have an overall IT version or strategy for a five year period, within which it could do detail specific action plans and targets (including the minimum agenda) to be implemented within one year.

**Road Map for Future Developments**

Due to limitation of resources, the whole exercise of computerization has, necessarily to be phased to cover various areas of government operations. In order to have an impact of use of IT in government for citizen service, those services which have a direct interface with the public should be taken up for computerization on a priority basis. Government should have an internet for ensuring smoother flows of data, communications and access to information by different govt. agencies. The site of the ministry of information technology also mentions following as the road map for future developments in the area:

**Computerisation**

Transactions between various departments of the government of India and other government organizations should be networked, so that a substantial part of transfer of files and paper can be replaced by an internet within the government.

Each department/ministry should form a standing panel of IT consultants for seeking advice on various technical issues. In fact it is possible for some of the mentors and champions to lead the process after making it successful in one department to another.

1. Redesigning the manual of office procedures.
2. Cyber laws and their implementation.

**Use of Local Languages**

The access of information must be permitted in the language most comfortable to the public user, generally the local language. There are already existing technologies such as GIST and language software by which transliteration from English into other languages can be made.

**Spreading Awareness**

Perhaps the most important aspect of computerization and spreading of IT is bringing a change in the mind-set of the government servants who have been accustomed to work only in the manual mode. It is necessary to train all employees in basic computer usage.

**Defining a Working Model for E-Governance**

Governments require this new model so they can perform effectively in a networked, global economy. Businesses need this model so they can define and win emerging public sector markets for digital-era products and services. A handbook should be prepared that will integrate key project findings into a comprehensive model of e-governance.

**Information KIOSKS**

Communication of data to public accessibility and retrieval of data by public through citizen IT interface (Information Kiosks) in Public Places such as shopping centres, post office, railway station,
libraries. PCOs (Upgraded to manned public access terminals) selected STD/ISD booths at prominent places can be converted into Information Kiosks. Government departments which have maximum interaction with the public must be identified for the use of IT. Listed below are a few such areas:

- a) Public Grievances
- b) Rural Services
- c) Social Services
- d) Public Information
- e) Agriculture Sector
- f) Utility Payments/Billing
- g) Commercial
- h) Government

A Case Study on Gyandoot Project

The Dhar district in central India has a population of 1.7 million; 60 percent live below the poverty line. The goal of the Gyandoot project has been establish community-owned, technologically innovative and sustainable information kiosks in a poverty-stricken, tribal dominated rural area of Madhya Pradesh. During the design phase of the project, meetings were held with villagers to gather their input. Among the concerns highlighted by villagers was the absence of information about prevailing agriculture produce auction centre rates. Consequently, farmers were unable to get the best price for their agricultural produce. Copies of land records also were difficult to obtain. A villager had to go out in search of the patwari (village functionary who maintains all land records), who often was difficult to get hold of as his duties include extensive travel. To file complaints or submit applications, people have to go to district headquarters (which can be several kilometres away, resulting in loss of wages/earnings).

The Gyandoot project was launched on January 1, 2000 with the installation of a low-cost rural Intranet covering 20 village information kiosks in five Blocks of the district. Later, 11 more kiosks were set up. Villages that function as Block headquarters or hold the weekly markets in tribal areas or are located on major roads (e.g., bus stops) were chosen for establishing the kiosks. Seven centres are located in towns (urban areas), 08 in large villages with a population of 5,000-6,000, another 07 in medium-sized villages with a population of 1,000-4,000, and the rest are in small villages with population less than 500. Each kiosk caters to about 25 to 30 villages. The entire network of 31 kiosks covers 311 Panchayats (village committees), over 600 villages and a population of around half a million (nearly 50% of the entire district).

Kiosks have been established in the village Panchayat buildings. Information kiosks have dial-up connectivity through local exchanges on optical fiber. The server hub is a Remote Access Server housed in the computer room in the District Panchayat. User fees are charged at the kiosks for the services provided. Local rural youth act as entrepreneurs, running these information kiosks along commercial lines. At the inception of the project it was decided that further expansion of kiosk centres will take place only when local youth come forward to start new centres as private enterprises.

A local person with a ten-year schooling (matriculate) can be selected as an operator. He/she needs only maintenance, limited typing (software is menu driven) and numeric data entry skills. For the initial kiosks, each village committee selected three candidates to receive training at the district council. At the end of the training, the best trainees were selected to run a kiosk. The following services are now offered at the kiosks:

Agriculture Produce Auction Centres Rates

Prevailing rates of prominent crops at the local and other recognized auction centres around the country are available on-line for a nominal charge of Rs.5/- per visit. The volume of incoming agricultural produce, previous rates, etc., are also provided on demand.
Copies of Land Records

Documents relating to land records including khasra (record of rights) are provided on the spot at a charge of Rs.15/-. All of the banks in the district have agreed to accept these kiosk documents. Approximately 0.2 million farmers require these extracts at every cropping season to obtain loans from banks for purchasing seeds and fertilizers.

On-line Registration of Applications

Villagers had to make several visits to the local revenue court to file applications for obtaining income/caste/domicile certificates. Now, they may send the application from a kiosk at a cost of only Rs.10/-. Within 10 days, notification about the readiness of the certificate is sent via e-mail to the relevant kiosk. Only one trip is needed – to collect the certificate.

Online Public Grievance Redress

A complaint can be filed and a reply received within 7 days for a cost of Rs.10/-. These can include complaints regarding drinking water, quality of seed/fertilizer, scholarship sanction/disbursement, employee establishment matters, functioning of schools or village committees, etc.

Village Auction Site

This facility began in July 2000. It makes auction facilities available to farmers and villagers for land, agricultural machinery, equipment, and other durable commodities. One can put one’s commodity on sale for a charge of Rs.25/- for three months. The list of saleable commodities can be browsed for Rs.10/-. 

Transparency in Government

Updated information regarding beneficiaries of social security pension, beneficiaries of rural development schemes, information regarding government grants given to village committees, public distributions, data on families below the poverty line, etc. are all available on the Intranet, which makes the government functioning more transparent.

Other services offered at the kiosks include on-line matrimonial advertisements, information regarding government programs, a forum for school children to ask questions, ask an expert, email (free for information on child labour, child marriage, illegal possession of land belonging to Scheduled Tribes, etc.). Some kiosks also have added photocopy machines, STD PCO, and horoscope services.

The enthusiasm for the e-governance across the States and government at different levels is primarily because e-initiatives can help in large measure in cutting down hierarchy and dependence on govt. employees for simple tasks like seeking information, online registration and form filling, paying bills and taxes, registering complaints, knowing the status of applications and so on.

Conclusion

The e-governance and G2C (Government to Citizen) initiatives also mean good news for the Indian business. Firstly, as the ITC initiative indicates private sector can help in empowering and enriching rural consumers. This is true specially for companies relying on farm produce or rural markets primarily. Secondly, there is going to be a large demand for IT related products and services gradually as there is mass implementation of such projects in the Govt. sector. Similarly, there is large potential in G2B (Govt. to Business) transactions in future in form of online tax payments, online submission of business information, online clearances etc.
There are still a lot of issues that need to be sorted out before e-governance tools can make a difference to the lives of the citizens the e-government is not an answer to every ill that besets the government systems. It is only a tool for good governance. Then there are high cost involved in computerization of public systems. With a literacy rate of 65 percent and very few computer literates, it is long way ahead before Indians can meaningfully enjoy the benefits of IT and e-governance. The Internet connectivity in India is still very low with 2.5 million connections and 6 Million user base. However, these numbers are growing rapidly and that is very encouraging news for the future of the e-initiatives being undertaken in the public domain.

References
E-BANKING IN INDIA

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Introduction

E-Banking refers to electronic banking. It is like business through electronic media through internet or mobile in the banking industry. E-Banking is also called as “Virtual Banking” or “Online Banking”. E-Banking is the result of the growing expectations of banks customers. E-Banking involves information technology based banking. Increasingly, more and more people are switching to electronic platforms for executing financial transactions. The wider usage of cell phone and internet certainly seems to be playing a role in blurring physical boundaries, and unlocking a whole new world of opportunities for banks in tapping newer customer segments and in recording greater volume of transactions. The banking industry recognizes that the internet must be secure to achieve a high level of confidence with both clients and business. Anywhere banking and anytime banking has become reality. It means using electronic means to transfer funds directly from one account to another In recent years the world economy has gone through a new phenomenon which is considered as one the most important changes since the industrial revolution, i.e. The birth of “Internet-based Economy”, Considering the benefits of using internet the banks have started to invest in this newly created market. At the initial level, banks mainly focus on developing the commercial web- sites, with the purpose of promoting their products and services using the internet, gradually, it was realized by banks that the Internet can be an effective distribution channel too. Now with the changing times the traditional approach of banking is being changed and banks are trying to match up with the recent advancement in the field of technology. Revolutionary developments in information and communication technology (ICT) in the past 20 years have changed the way how banks deal with their bank customers.

Concepts of E-Banking

Delivery of banking services to customers at their office or home with the help of electronic technology is termed as e-banking. Daniel (1999) defines electronic banking as the delivery of bank's information and services by banks to customers via different delivery platforms that can be used with different terminal devices such as a personal computer and a mobile phone with browser or desktop software, telephone or digital television. E-banking is a brew of services that embody Internet banking, Mobile banking, ATM, Fund Transfer System, Real Time Gross Settlement (payment & allotment system), Credit/ Debit/Smart/Kisan Cards, Cash government services, as well as Data warehousing, Operational interpretation for MIS as well as Customer Relationship Management. The popular services covered under E-banking include: Automated Teller Machines, Credit Cards, Debit Cards, Smart Cards, Electronic Funds Transfer (EFT) System, Mobile Banking.

The Main Advantages of E-Banking Are

The operating cost per unit services is lower for the banks. It offers convenience to customers as they are not required to go to the bank’s premises. There is very low incidence of errors. The customer
can obtain funds at any time from ATM machines. The credit cards and debit cards enable the Customers to obtain discounts from retail outlets. The customer can easily transfer the funds from one place to another place electronically.

E- Banking Benefits

Internet banking provides numbers of benefits to its customers, some of the benefits are: It removes the traditional geographical barriers for customers. The customer can access their account anytime and from any part of the world, Due to new innovative and convenient facility it attracts new customers who are using traditional banking system so far, It facilitate the offering of more services because this is internet based services which is time saving and customer can access and regulate his/her account himself/herself, This facility have zero fee, so no monthly payments are required to forfeit for availing this service, Free of charge bill reimbursement and refunds on ATM surcharges, Simple online submissions for personal accounts, loans and credits, Due to self access system it reduce customer attrition and Increase customer loyalty, High-tech technical advancements in the form of intrusion detection systems (IDS) to virus control equipments have made Online Banking system hazard free.

Status of E- Banking In India

Indian banks have a wonderful history. Banks were started during British mandate; they formed many large and small private banks. After independence, Indian government revealed interest towards banks which results the nationalization of banks, leading to the emergence of the public sector banks. Later on in 90’s the banking industry embracing technology in a massive way, led in particular by the new private banks and MNC banks. The Indian banking industry has undergone unprecedented rivalry among unconventional banking organizations. The introduction of latest technologies along with the deregulation of the banking sector has attracted new players to make a foray into the industry rapidly and competently. On online banking has made things much easier and has saved lot of time of bank employees as well as general public. The traditional way of waiting in a queue and filling up all the forms manually, is no hassle now for transacting with any bank. Banks in India are offering wide range of their services and their products through e-banking.

Some of the Major Services and Products in India are:

**Statements**

Provide account statement (account info), Balance enquiry, balance statement and transaction reports used. Customers can even download and print the statement of accounts.

**Online Fund Transfer**

Transfer funds between accounts, even if they are in different branches or cities. Customer can also transfer funds to any person having an account with the same bank anytime, anywhere, using third party funds transfer option.

**Bill Payment Service**

Banks Bill Payment is the easiest way to manage bills. Account holder can pay their regular monthly bills i.e. telephone, electricity, mobile phone, insurance etc. at anytime, anywhere for free. Saves time and effort. Make bill payments at customer's convenience form their home or office. Lets account holders check their bill amount before it is debited form their account.
Requests and Intimations

Can electronically submit a request for Cheque-book, Stop payment instructions, Opening a fixed deposit, Opening a recurring deposit, Intimate for the loss of ATM card, Register online for phone and mobile banking, Cheque status, Online application for debit card, Issue a DD or a Banker’s cheque form account at special rates.

Demat Account and Share Trading Demat Account

Demat is commonly used abbreviation of “Dematerialization”, which is a process whereby securities like share, debentures are converted from the “material” (paper documents) into electronic data and stored in the computer of an electronic Depository. A depository is a security “banks,” where dematerialized physical securities are held in custody, and form where they can be traded. This facilitates faster, risk-free and low cost settlement.

Challenges in E-Banking

E-Banking today is a norm rather than an exception for the banks. But despite the fact that it offers number of benefits which make banking convenient and easy for customers, there are some issues and challenges that needs to be addressed. Some of which are stated below:

Security Risk

The problem related to the security has become one of the major concerns for banks. A large group of customers refuses to opt for e-banking facilities due to uncertainty and security concerns. According to the IAMAI Report (2006), 43% of internet users are not using internet banking in India because of security concerns. So it’s a big challenge for marketers and makes consumers satisfied regarding their security concerns, which may further increase the online banking use.

The Trust Factor

Trust is the biggest hurdle to online banking for most of the customers. Conventional banking is preferred by the customers because of lack of trust on the online security. They have a perception that online transaction is risky due to which frauds can take place. While using e-banking facilities lot of questions arises in the mind of customers such as: Did transaction go through? Did I push the transfer button once or twice? Trust is among the significant factors which influence the customers’ willingness to engage in a transaction with web merchants.

Customer Awareness

Awareness among consumers about the e-banking facilities and procedures is still at lower side in Indian scenario. Banks are not able to disseminate proper information about the use, benefits and facility of internet banking. Less awareness of new technologies and their benefits is among one of the most ranked barrier in the development of e-banking.

Privacy Risk

The risk of disclosing private information & fear of identity theft is one of the major factors that inhibit the consumers while opting for internet banking services. Most of the consumers believe that using online banking services make them vulnerable to identity theft. According to the study consumers’ worry about their privacy and feel that bank may invade their privacy by utilizing their information for marketing and other secondary purposes without consent of consumers.
Strengthening the Public Support

In developing countries, in the past, most e-finance initiatives have been the result of joint efforts between the private and public sectors. If the public sector does not have the necessary resources to implement the projects it is important that joint efforts between public and private sectors along with the multilateral agencies like the World Bank, be developed to enable public support for e-finance related initiatives.

Availability of Personnel Services

In present times, banks are to provide several services like social banking with financial possibilities, selective up gradation, computerization and innovative mechanization, better customer services, effective managerial culture, internal supervision and control, adequate profitability, strong organization culture etc. Therefore, banks must be able to provide complete personnel service to the customers who come with expectations.

Implementation of Global Technology

There is a need to have an adequate level of infrastructure and human capacity building before the developing countries can adopt global technology for their local requirements. In developing countries, many consumers either do not trust or do not access to the necessary infrastructure to be able to process e-payments.

Non-Performing Assets (NPA)

Nonperforming assets are another challenge to the banking sector. Vehicle loans and unsecured loans increases N.P.A. which terms 50% of banks retail portfolio was also hit due to upward movement in interest rates, restrictions on collection practices and soaring real estate prices. So that every bank have to take care about regular repayment of loans.

Competition

The nationalized banks and commercial banks have the competition from foreign and new private sector banks. Competition in banking sector brings various challenges before the banks such as product positioning, innovative ideas and channels, new market trends, cross selling ad at managerial and organizational part this system needs to be manage, assets and contain risk. Banks are restricting their administrative folio by converting manpower into machine power i.e. banks are decreasing manual powers and getting maximum work done through machine power. Skilled and specialized man power is to be utilized and result oriented targeted staff will be appointed.

Handling Technology

Developing or acquiring the right technology, deploying it optimally and then leveraging it to the maximum extent is essential to achieve and maintain high service and efficiency standards while remaining cost effective and delivering sustainable return to shareholders. Early adopters of technology acquire significant competitive advances Managing technology is therefore, a key challenge for the Indian banking sector.

Opportunities in E-Bankings

Increasing Internet Users & Computer Literacy

To use internet banking it is very important or initial requirement that people should have knowledge about internet technology so that they can easily adopt the internet banking services. The
fast increasing internet users in India can be a very big opportunity and banking industry should encash this opportunity to attract more internet users to adopt internet banking services.

**Untapped Rural Markets**

Contributing to 70% of the total population in India is a largely untapped market for banking sector. In all urban areas banking services entered but only few big villages have the banks entered. So that the banks must reach in remaining all villages because majority of Indian still living in rural areas.

**Multiple Channels**

Banks can offer so many channels to access their banking and other services such as ATM, Local branches, Telephone/mobile banking, video banking etc. to increase the banking business.

**Develop Customer Service**

Worthy customer services are the best brand ambassador for any bank for growing its business. Every engagement with customer is an opportunity to develop a customer faith in the bank. While increasing competition customer services has become the backbone for judging the performance of banks.

**Conclusion**

E-Banking seems poised to become an important part of the Indian banking sector in the years to come. The banking today is re-defined and re-engineered with the use of Information Technology and it is sure that the future of banking will offer more sophisticated services to the customers with the continuous product and process innovations. Thus, there is a paradigm shift from the seller's market to buyer’s market in the industry and finally it affected at the bankers level to change their approach from "conventional banking to convenience banking" and "mass banking to class banking". The shift has also increased the degree of accessibility of a common man to bank for his variety of needs and requirements. Analysts claim that Internet banking holds lots of potential with the emergence of growing Internet awareness among customers, integration of banking services with e-commerce service, the increasing reach of the Internet and the entry of global players in the banking sector. Reserve Bank of India has come out with e-banking related guidelines.

**References**

E-BANKING TECHNOLOGY IN BANKS BEFORE AND AFTER DEMONITISATION

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Abstract

Indian banks were established in the 18th century and by passing of the years banks started changing their primary traditional services to secondary services to withstand the competition and they terms as commercialized banks. Very individual bank has its own strategy and regulation in tune with the RBI and governments of India, which make lot of people, come into banking system. It becomes necessary to understand the need of digital currency. A currency that a normal person hold in its wallet / pocket is called physical currency and digital currency is represented that of physical currency which can seen in banks in the form of digital currency.

E-banking is a product designed for the purposes of online banking that enables a customer to have easy and safe access to your bank account. E-banking is a safe, fast, easy and efficient electronic service that enables us to access to your bank account and to carry out online banking services, 24 hours a day, and 7 days a week. With this service you save your time by carrying out banking transactions at any place and at any time, from your home or office, all you need is internet access.

The present study talks about the important of e-banking, online banking before and after demonetization by taking three SBI bank branches and studying the customer arriving to bank branch to have their tradition banking transactions. It is identified that there is a change in number of transactions held in the bank branch and with online transactions. Customers are trying accepting the change in the present economy.

Keywords: Demonetization, E-Banking, Digital Currency, SBI Bank.

Introduction

Bank is a financial institution that accepts deposits and channels those deposits into lending activities. It provides financial services to its customers, they also play an important role in financial markets and they have very unique position for developing Indian economy.

In Indian banks were establish in the 18th century and by passing of the years banks started changing there primary traditional services to secondary services to with stand the competition and they terms as commercialized banks.

RBI was identified as bankers to bank, they laid down all the policies, rules and regulation for banks to run in India it is also called as central bank. Indian government takes over the charge of minting the money in India. And it takes decision about what type of denomination should be print and at what quantity and released in the market through banks. Indian currency is rupee and denomination we use at present are 10Rs, 20 Rs, 50 Rs, 100 Rs, 200 Rs, 500 Rs, 2000 Rs rupees, and Indian coin of 1Rs, 2Rs, 5Rs, 10Rs denomination coins.

In Indian for the first time demonetization was done in the year 1946 that is the currency notes of RS 1000 and Rs. 10000 were removed from circulation. It did not show much impact on common public because the denomination was higher; however in 1954 it was again and re-introduced with an additional currency of Rs. 5000. The second time Indian government has announced the currency ban in the year 1978 by stopping the circulation of Rs 5000 and Rs 10000 the main objective behind is to eradicate black money in the country. In the same year Indian government have also introduced high denomination bank notes Act. In the year 2016, for the third time Indian government similarly announced the ban by taking away Rs. 500 and Rs. 1000 out of circulation, the main objective behind this decision was to drive away black money hence the act was re-exercised that is demonetization act.
Indian government was also introduced smaller denomination currency notes like Rs. 50, Rs. 100, Rs. 500, and Rs. 2000 with new features and design one of the reason to do is to stop from duplicate currency circulation, and for tax avoiders who are holding larger amounts of cash and crab black money and to have a check on all the possibilities for illegal transaction.

Demonetization is not as end itself rather it is a conduct for India to become a less cash economy at first and a cashless economy later. Going cashless has its own range of advantage. Very individual bank has its own strategy and regulation in tune with the RBI and governments of India, which make lot of people, come into banking system. It becomes necessary to understand the need of digital currency. A currency that a normal person hold in its wallet / pocket is called physical currency and digital currency is represented that of physical currency which can seen in banks in the form of digital currency.

E-banking is a product designed for the purposes of online banking that enables you to have easy and safe access to your bank account. E-banking is a safe, fast, easy and efficient electronic service that enables you access to bank account and to carry out online banking services, 24 hours a day, and 7 days a week. With this service you save your time by carrying out banking transactions at any place and at any time, from your home or office, all you need is internet access.

Review of Literature
1. Sandeep Kaur in his article on demonetization and its impacts in India. According to him Demonetization term is used to Withdrawal a particular form of currency from circulation. It is used whenever there is a change of national currency. The old unit of currency must be removed and substituted with a new currency unit. The currency was demonetized first time in 1946, second time in 1978 and third time the national currency is demonetized on Nov. 2016, the objective of the step taken by the govt. was for the betterment of the economy and country. In this paper he had discuss the impact of recent demonetization on the Indian system.
2. Faiz M. Shaikh, in his study on Factors that Influence the Adoption of Online Banking Services in Hyderabad according to him the use of online banking is influenced by channel convenience, security perception internet knowledge and information on online banking are factors have impact significantly on bank customer and they demographic factors and also he have suggested that it becomes important that bank customer who opt for online banking, must be full aware about the usage and its terminology for better transactions.
3. An article on Research Trends in the Diffusion of Internet Banking in Developing Countries. It is a study about the internet banking phenomenon and how it transformed the banks across the world. Banking transactions through internet had brought a new strategic direction for investment in banking information and communication technologies. This paper provides the research trends in the diffusion and adoption of internet banking in developing countries. The main purpose of the study is to present the current level of research on internet banking in developing countries and expose any gaps that need scholarly attention. And it found that countries like African, Caribbean and South American countries still lagging behind in internet banking research, and to identify the research gaps on internet banking and it will be useful for academics and practitioners who are working or plan to work in the area of internet banking in developing countries.

Objectives
1. To study the types of service adopted by Indian government to over come from demonetization.
2. To study the change in the number of bank transaction done by SBI bank customer at bank branch before and after the demonetization.
3. To study the important of e-banking and befits to the bank customer.

**Research Methodology**

Secondary data is used for above study. Data is used to collected information from SBI branches (Hyderabad) to know about the number of customer visiting a bank for their bank transactions and also information from bank Brochures, news papers, journals, and websites.

**Research Approach**

An analysis was done from the year 2015 to 2017 on customer transaction with the bank branch. A consensus survey was done on financial statements offered by SBI Bank, including enquiries and discussions had with the bank officials within the city of Hyderabad as per convenience.

**Limitations of the Study**

1. The study is limited to the data provided by the bank brochures, official bank websites and banks executives.
2. The study was conducted only at Hyderabad city with limited to three SBI bank branches.
3. The values taken for calculation are purely confidential.

**Measures are taken by Indian Government at the time of Demonetization**

- The RBI has doubled the balance that can be kept in prepaid wallets and cards to Rs.20000 to Rs.50000 per month to help small merchants get paid electronically.
- Waiving off service charges on debit card transactions to increasing the limit on e-wallets.
- Rail ways have announced waiving off of services charge on tickets booked online.
- Automobiles manufactures to provide a digital identify for all new vehicles to access electronic payment.
- Introducing point of sales machines at big bazaar stores.
- NABARD gas sanctioned a special limit of Rs.21000 for district cooperative banks.

Financial inclusion by SBI bank conducting marketing through electronic media, road shows ect., are not only providing the entire range of banking services but also insuring that it is providing opportunities for investment, insurance and pension products for every single citizens of India.

The four key words are mostly concentrated by SBI bank are accessibility, affordability, quality and usability. SBI Banking anywhere anytime is log used which makes the bank to drive towards the demand for innovating methods for banking services like online account opening, FATCA compliance, retail loan origination, mortgage, credit cards, trade finance, wealth management, commercial lending, tab banking, payments solution etc.

SBI launches YONO an integrated app for financial service. It is a unified integrated app called “you need only one” that would offer all kinds of financial and life style products. The portal has been designed for maximum customer convenience and that the product has been developed by SBI using artificial intelligence, predictive analysis and machine learning. SBI own a digital wallet called SBI buddy app for almost all its services. Over dozen different apps will be integrated into YONO

India is going digital at developing face and banks are taking significant role in the digital banking space. SBI has over 42 crores customers of where 7 crores are using digital transaction. An empirical
study was done to know the number of customer arriving to the bank and having the bank transaction with the bank branch, and how the bank customers are opting online banking before and after demonetization.

<table>
<thead>
<tr>
<th>Years/ Average Number of Customer Visited the Bank Branch</th>
<th>SBI branch 1</th>
<th>SBI branch 2</th>
<th>SBI branch 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>354</td>
<td>302</td>
<td>252</td>
</tr>
<tr>
<td>2016</td>
<td>562</td>
<td>479</td>
<td>321</td>
</tr>
<tr>
<td>2017</td>
<td>231</td>
<td>259</td>
<td>218</td>
</tr>
</tbody>
</table>

**Interpretation**

The above table shows that average number of customer visited the bank branch for their further cash transactions. The data was collected from three different SBI bank branch at Hyderabad and it is observed that the number of customer visited the bank branch for their further cash transactions was more in the year 2015 that is before demonetization when compare to after demonetization that is in the year 2017. In year 2016 the year announced the ban on the circulation of the rupees 500 and 1000. Most of the bank customer approaches the bank for depositing the old currency that make the bank customer visit bank in more number in the year 2016.

**Merits**

1. Very convenient: online banking is a totally easy thing to do. In the comfort of our home or offices.
2. Unlimited services: the services and various features of our bank are always available at 24@7 day's services.
3. No time constraint: online banking is also stress free because it never closes unlike the traditional banking that has cut-off time.
4. Easy way of payment: Bill payment can also be handled properly and smartly, instead of waiting for certain due dates, we can easily pay all our transactions using your computer and in coordination with our bank.
5. Smart: online banking is simple and smart. This enables us to do troubleshooting regarding any problem that may arise from our business.
6. Higher interest rate is another greater advantage of online banking in traditional banking; online banking can earn us a better interest or return of investment both in our savings and checking account.

**Demerits**

1. Understand the usage of internet banking might be difficult for a beginner at the first go. Though there are some sites which offer a demo on how to use internet banking might face some difficulty
2. We cannot have access to internet banking if we don’t have an internet connection.
3. Security of transaction is a big issue to our account, information might get hacked by unauthorized people over the internet.
4. Password security is a must. After getting our net banking password, we have to change it and memorize it otherwise our account mite be misused by some one who gets to know our password inadvertently.
5. We cannot use internet banking, in case the bank server is down.
6. Another issue is that sometimes it becomes difficult to note whether our transactions was done successful or not.

Conclusion

It conclude that banks are trying to attract more bank customer to use online banking, mobile banking for further transactions which can be done in more speedy, comfortable and efficiency manner. SBI banks are taking measure to make public the awareness about the online banking and introducing of free internet accessibility. And one of the advantages for a common public is announcing free internet accessing by reliance JIO during the demonetization also helped the most of the customer to try to use the online banking or mobile banking facilities provided by the banks.

The maximum proportion of small transactions take place in cash people who have the option of using credit cards, debit cards, net-banking, mobile banking, or paytm are executing the majority of their transaction through cashless forms of payments. From the above information it shows that present Indian citizens are try to go with cash less transactions and banks have to take more strong measure so that they have to gain the confidence of the people by encourage more electronic payment strategy for both consumer and corporate by mobile and online banking. One has to know about the usage of online banking or e-banking. It becomes important to all banks to make aware of the merits and demerits of have online transaction to their respective customer for sustainability development of the bank. Bank should be ready to with new innovation of models so that it can attract its customers, which help them to grow in the present competition. and people are becoming more concussions about financial transactions, but still it have to make them selves aware about the utilization of e-banking and making India a cash less economy via digitalization.

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Abstract

The entire process of setting up a website, helping the prospective customers navigate through the website, showing them the available products, offering discounts and vouchers and doing everything possible to woo the prospective clients and converting them into customers, comes under the purview of e-business. E-commerce will go deeper through displacing traditional processes in manufacturing, go wider by encompassing products and services provided by different enterprises, and go higher by acquiring requirements intelligently and interactively so that enterprises can deliver customized products. The technologies for these developments including service composition and virtual markets are taking shape steadily. When business inter-operation has achieved a kind of equilibrium, the technologies will surely expand. That’s where e-business is headed in the near future, but even today, it is a thrilling and lucrative part of daily commerce.

Keywords: Navigation, Website, Customized products, Virtual markets, Equilibrium.

Introduction

E-business refers to the exchange of products and services between businesses, groups, and individuals with the help of internet i.e. doing a business via the internet. It is a monolithic term was coined by IBM’s business and internet team in 1996 it encompasses the various business processes than to integrate the vendors or traders with the consumers and suppliers using the internet. The entire process of setting up a website, helping the prospective customers navigate through the website, showing them the available products, offering discounts and vouchers and doing everything possible to woo the prospective clients and converting them into customers, comes under the purview of e-business. E-commerce, on the other hand, is a subset of e-business and refers to online transactions that can be accounted for in monetary terms. E-business is using technology to improve your business processes. This includes managing internal processes such as human resources, financial and administration systems, as well as external processes such as sales and marketing, the supply of goods and services, and customer relationships. For instance, accepting credit card payment for products sold to consumers or making payments for shopping online are examples of e-commerce. In other words, e-commerce refers to the last stage of e-business, which involves collecting payments for the goods sold by the business firm.

E-Business and E-Commerce an Overview:

E-Business

The explosion in the use of the internet has paved the way for several path-breaking innovations. One of the most interesting and exciting aspects of this revolution is the emergence of electronic businesses being
E-commerce is defined as the process of using electronic technology to do business. It is the day and age of electronic business. Also, the structure of the web is rapidly evolving from a loose collection of websites into organized marketplaces. The phenomena of aggregation, portals, large enterprise sites, and business-to-business applications are resulting in centralized, virtual places, through which millions of visitors pass daily. E-business has become a standard operating procedure for the vast majority of companies. Consumers of today's growing economy tend to shop through internet they like to access to products and services on a 24/7 basis, and the easiest way to provide that is to move operations online. The businesses that provide the most reliable, most functional, most user-friendly and fastest services will be the ones that succeed.

E-Commerce

E-commerce is the subset of e-business that focuses specifically on commerce. Commerce is the exchange of goods and services or for cash payment. E-commerce is all that a company conducts commerce through electronic technology. Since commerce is clearly a sort of business, all the keys to success for e-business automatically apply for e-commerce also. E-commerce redefines the very foundations of competitiveness in terms of information content and information delivery mechanisms. Flows of information over international networks have created an electronic market-space of firms that are learning to exploit business opportunities. A few years ago the only way of buying books is that one has to go to bookstores. Purchasing clothes meant a trip to the malls. Trading of stocks happened through brokers only. Not anymore! Today businesses are coming to our doorstep. A number of companies and large warehouses have successfully managed to put an electronic outlet to traditional businesses.

E-Business Models

When organizations go online they should first decide what type of model best suits them. The emergence of e-commerce and its related technologies had lead to the creation of many different robust applications that are typically grouped into several categories of e-commerce.

1. Business to Consumer (B2C)
2. Business to Business (B2B)
3. Business to Business to Consumer (B2B2C)
4. Consumer to Consumer (C2C)
5. Customer to Business to Consumer (C2B2C)

Business to Consumer (B2C)

These are the applications that provide an interface from businesses directly to their consumers. The most common example of a B2C application is a retail website featuring that business's products or services that can be directly purchased by the consumer. The importance of B2C varies dramatically from company to company. For some companies, reaching consumers has been the critical aspect of their business. For some companies that run a chain of retail stores, B2C should be one of the most important pieces of their Internet strategy. Even some companies that already have third parties to distribute, market, and sell their products are not much concerned about B2C. Many companies that
never have sold directly to consumers, having realized it is clearly much more cost effective to open a B2C site than to open a physical store, have begun to lean towards B2C. In this case, it becomes necessary for them to address a whole lot of small and big issues. But still, B2C applications remains on top of the applications of the Internet as this is directed related to the mas

Business to Business (B2B)

Forging new relationships between businesses is becoming critical for businesses to survive and blossom in this increasingly fast-paced world. B2B applications provide new opportunities for businesses to leverage emerging technologies to build their businesses. Examples of B2B applications include facilitating transactions for goods/services between companies, selling goods/services on the Internet to businesses, and supply chain integration. Another example is the online procurement of goods from one company to another. Legacy integration is a huge issue in B2B applications. If existing applications such as EDI or EFT are extended to help the B2B process, then the existing legacy applications can be a big help in moving forward. On the other hand, if two companies want to trade data, but have dramatically different legacy systems, legacy integration can be a challenge to overcome. There are other issues such as security, speed, and flexibility, in B2B applications.

Business to Business to Consumer (B2B2C)

This is one of the emerging models of e-commerce. B2B2C is basically defined as using B2B to help support and rejuvenate companies attempting B2C. This is due to the fact that B2B has been an overwhelming financial success and B2C has not performed up to the expectations. This model is poised to do well as it capitalizes that success of B2B and the potential demand of B2C. B2B provides a way for B2C companies to reduce costs and improve their B2C services. An example of B2B2C is developing products to help B2C companies increase profit by integrating inventory from the manufacturer to the distributor. An application that links one online catalog to another would be considered B2B2C applications as it capitalizes on both B2B and B2C.

Consumer to Consumer (C2C)

C2C is an interesting relatively new piece of the e-commerce world. C2C applications involve consumers conducting commerce directly with other consumers. This obviously means that the company facilitating the transaction must find some non-traditional revenge stream. This could be a small cut of the transaction, a service fee, advertising, or some combination of these. E-bay is an excellent example of a C2C application that is extremely popular with consumer

Customer to Business to Consumer (C2B2C)

It involves consumers conducting transactions with other consumers using a business as an intermediary. www.autotrader.com is the best example of this sort of application. This site facilitates the transactions of selling used cars between consumers but also contains an inventory of used cars to sell to the consumer.

Forces Fueling E-Commerce

Economic Forces

One of the most evident benefits of e-commerce is economic efficiency resulting from the reduction in communications costs, low-cost technological infrastructure, speedier and more economic electronic transactions with suppliers, lower global information sharing, and advertising costs, and cheaper
customer service alternatives. Economic integration is either external or internal. External integration refers to the electronic networking of corporations, suppliers, customers/clients, and independent contractors into one community communicating in a virtual environment (with the Internet as a medium). Internal integration, on the other hand, is the networking of the various departments within a corporation, and of business operations and processes. This allows critical business information to be stored in a digital form that can be retrieved instantly and transmitted electronically. Internal integration is best exemplified by corporate intranets. Among the companies with efficient corporate intranets are Procter and Gamble, IBM, Nestle, and Intel.

**Market Forces**

Corporations are encouraged to use e-commerce in marketing and promotion to capture international markets, both big and small. The Internet is likewise used as a medium for enhanced customer service and support. It is a lot easier for companies to provide their target consumers with more detailed product and service information using the Internet.

**Technology Forces**

The development of ICT is a key factor in the growth of e-commerce. For instance, technological advances in digitizing content, compression and the promotion of open systems technology have paved the way for the convergence of communication services into one single platform. This, in turn, has made communication more efficient, faster, easier, and more economical as the need to set up separate networks for telephone services, television broadcast, cable television, and Internet access is eliminated. From the standpoint of firms/businesses and consumers, having only one information provider means lower communications costs.

**E-Business Strategy**

The concept of strategy carries several connotations. In order to position and define e-business strategy, we focus on two of them. One view defines strategy as plans and objectives adopted by the organization to achieve higher-level goals: in the sense, a strategy is developed to achieve a goal like implementing organizational change or a large software package such as ERP system. The strategy may also relate to plans concerning the long-term position of the firm in its business environment to achieve its organizational goals. The strategy thus defines the future direction and actions of an organization. Whereas e-business strategy is the set of plans and objectives by which applications of internal and external electronically mediated communication contribute to the corporate strategy. A firm will decide to implement an e-business strategy for a variety of reasons main reason will be like to have a clever long-run plan and to implement it for a better performance. The purpose of strategic implementation is that leveraging the impact of IT on the strategy of a firm could help that firm to maintain or improve its market position through the use of computerized information systems. The argument to invest in information technology is not primarily related to cost reduction, but rather to revenue generation or retention and thus to the continued existence of the firm. Given this perspective, the implementation of e-business may be strategic in nature. The idea then is to create, a preferably sustainable, competitive position for the company, by integrating the internet and related technology in its primary processes. In this case of adoption of IT may lead to fundamental changes in products and services, market served, relationships with key stakeholders and business models applied. E-business strategy should support not only corporate strategy but also various functional strategies, like marketing and supply chain
management. There is a possible connection between e-business and other strategies, such as functional strategies, which encompass supply chain management (SCM), marketing, purchasing and human resource (HR) strategies, and information system (IS) strategy. Out of the functional strategies, we especially emphasize SCM and marketing strategies because these are closely related to e-business.

Levels of E-Business Strategy

Strategies will exist at different levels of the organization. E-business is about communication within business units, between business units of the same enterprise and between independent organizations. To make electronic communication possible, agreements between the parties that communicate about the information systems used are necessary. Therefore the e-business plans to support the competitive strategy of the firm, require action at three levels of strategy.

The Supply Chain or Industry Value Chain

E-business requires the view of the role, added value, and position of the firm in the supply chain. Important issues that need to be addressed here include who is the firm’s direct customers, what is the firm’s value proposition to the customers, who are the suppliers, and how does the firm add value to those suppliers. These are the issues that need to be effectively addressed in order to understand the current and future position of the firm in the chain. This analysis gives an impetus to insight in upstream and downstream data and information flows, and in the kind of shared IT infrastructure that is required to enable e-Business development in the supply chain.

The Line of Business or Business Unit Level

Understanding the position in the value chain is a starting point for further analysis of how Internet-related technologies could contribute to the competitive strategy of the individual line of business. This is the level where the competitive strategy in a particular market for a particular product and so the strategic positioning is developed. There are four generic strategies for achieving a profitable business: differentiation, cost, scope, and focus. This is a specialization strategy with the goal of becoming the premier provider in a narrow market.

The Corporate or Enterprise

This level for each firm that encompasses a collection of business units. This level addresses the problem of synergy through a firm-wide, available common IT infrastructure. The commonality of e-business applications is basically needed for two reasons. From an efficiency point of view, having different applications for the same functionality in different lines of business is a need for cross line of business communication and share-ability of data. Mass communication and individualization put the emphasis in the business plans on the consumer and not on the final product. If an enterprise has structured its activities in the business for each of its different products, focus on the customer requires cross-business unit collaboration and information. This can only be relied on with an appropriate Enterprise Information Systems (EIS) infrastructure in place to support communication and share-ability of data across business units. These all become subject of an enterprise-wide e-business policy.

Pros and Cons of E-Business

Pros Worldwide Presence

It’s the biggest advantage in conducting online business. A firm engaging in e-business can have a nationwide or a worldwide presence. IBM was one of the first companies to use the term e-business to
refer to servicing customers and collaborating with business partners from all over the world. Dell Inc too had a flourishing business selling PCs throughout the U.S., only via telephone and the Internet till the year 2007. Amazon.com is another success story that helps people buy internationally from third parties. Hence, worldwide presence is ensured, if companies rethink their business with regard to the Internet.

Cost-effective Marketing and Promotions

Using the internet to market products guarantees worldwide reach at a nominal price. Advertising techniques, like pay per click advertising, ensure that the advertiser only pays for the advertisements that are actually viewed. Affiliate marketing where customers are directed to a business portal because of the efforts of the affiliate, who in turn receive a compensation for their efforts meeting with success, have emerged on account of e-business. Affiliate marketing has helped both the business and the affiliates. Firms have managed to use cost-effective online advertising strategies to their advantage.

Developing a Competitive Strategy

Firms need to have a competitive strategy in order to ensure a competitive advantage. Without an effective strategy, they will find it impossible to maintain the advantage and earn profits. The strategy that the firms can pursue can be a cost strategy or a differentiation strategy. For instance, until the year 2007, Dell Inc. was selling computers only via the Internet and the phone. It adopted a differentiation strategy by selling its computers online and customizing its laptops to suit the requirements of the clients. Thus, e-business resulted in Dell Inc. managing to capture a chunky segment of the market using the differentiation strategy.

Better Customer Service

E-business has resulted in improved customer service. Many a time, on visiting a website, the customer is greeted by a pop-up chat window. Readily available customer service may help in encouraging the customer to know more about the product or service. Moreover, payments can be made online, and products can be shipped to the customer without the customer having to leave the house.

Shorten Transaction Cost

The nature of online business is such that, the costs incurred for every transaction to go through smooth and sound, there is no acting middleman. Websites are sufficiently loaded with directions to facilitate stress-free transactions. Simple and succinct instructional tabs, generally, save the potential buyer from predicaments of any sort. The mode of payment is predetermined, promising security to the customer. Thus, online payments are a no-ho-hum affair. All that you are left with, as the proprietor of your online business, is to download the required order and ship it. This demands effort, too; however, the toil is far less than a tangible business profile.

Reduction in Overhead Cost

An E-business, essentially, is independent of costs that are incurred due to business having a physical entity. Utility bills and other expenses are manageable. You also cut back on costs incurred for hiring personnel and retaining them with competitive incentives topped with abundant facilities. Running an e-business is highly convenient as the proprietor does not require hiring another site to execute the business.
Cons

Sector Limitations

The main disadvantage of e-business is the lack of growth in some sectors on account of product or sector limitations. The food sector has not benefited in terms of growth of sales and consequent revenue generation because of a number of practical reasons, like food products being perishable items. Consumers do not look for food products on the Internet since they prefer going to the supermarket to buy the necessary items as and when the need arises.

Costly E-business Solutions for Optimization

Substantial resources are required for redefining product lines in order to sell online. Upgrading computer systems, training personnel, and updating websites requires substantial resources. Moreover, Electronic Data Management (EDM) and Enterprise Resource Planning (ERP), necessary for ensuring optimal internal business processes, may be looked upon, by some firms, as one of its disadvantages.

Lack of Safety

With the world beguiled by the Internet, it’s a fat chance that you are not one among the aficionados. The Internet is second to none, not to oxygen even, to say the least. Well, one breathes Internet. Shoppers act live wires when it comes to online pick and pays. However, with far and many pacing about, there are a few, who twitch at the mention of online payment. Instances of dupery have no intentions of nailing up anytime soon, and pseudo sites merrily mushroom. The entire customer remains in the state of doubt.

Data Security

To carry out online transactions, the websites ask for your email address and other contact details. Customers brake at the mention of providing personal details, lest defiling of some nature occurs. Besides, certain sites have a complicated operational structure. Thanks to them, hackers have a job! They fiddle with accounts; meddle with important files and corrupt data. This, certainly, cannot be termed ethical hacking! Viruses metastasize every second damaging the database, sometimes awarding disastrous repercussions, too.

Site Honesty

"We respect privacy. The information provided by the customer will be protected. We refute dissemination practices as much as you do." Does this statement not tintinnabulation in the ears” Well, we have come across these paraplegic oaths several times. Are they true to their word? Maybe or maybe not. Some sites are known to trade their customers' details for monetary benefits. The question remains: Can we trust them.

System Upgradation

Once a system is developed, the responsibility of ad hoc up gradation at intervals follows suit. If this does not happen, the site turnover would be poor. To improve site performance and tow in a good share of online customers, keeping up with the advancements is pivotal. Though, some sites may find doing this an unnecessary feature.
Temporary Intangibility

No matter what e-business may try, their chances of selling products like furniture and appliances successfully, are bleak. Unless a buyer has the liberty to splurge the kitty, the ‘E’ sector fights a battle; it absolutely isn’t a part of. For instance, if you are planning to buy a sofa set, you would want to sit on it, get the feel of the upholstery used, the finish, and what have you! An online furniture bay, by no means, can consider a proposition like this one. It is better to accept that, there, indeed, are certain things not meant to be bought online due to the spatial creep; for the rest there is e-transaction.

Future of E-Business
1. E-Business will become a critical competitive strategy that will revolutionize The global economy.
2. Companies will learn to manage customers’ relationships by virtually serving their needs “24 / 7”- 24 hours a day, 7 days a week.
3. E-business that enables customers to personalize and customize products or services will flourish.
4. Using the internet to find new customers and to better target customer preferences will be a standard practice.
5. Producing, marketing, and distributing products or services online will be a cost-effective strategy for a business.
6. Learning to develop and serve online communities with niche interests will be essential to building customer loyalty.
7. E-business models that provide greater choice for customers will change the traditional economics of supply and demand.
8. Ready access to the Net from multiple gateway cable TV, satellite, wireless telephones, and other devices will greatly expand e-business opportunities.
9. Highly efficient e-business virtual supply chains will intimately link manufacturers and producers directly to customers.
10. E-business will reach over one billion people and generate more than $2 million in revenues worldwide in the upcoming decades

Conclusion

Today’s users want multimedia and e-commerce in a package that is both powerful and user-friendly. Programmers want all these benefits in a truly portable manner so that applications will run without modification on a variety of platforms. E-commerce will go deeper through displacing traditional processes in manufacturing, go wider by encompassing products and services provided by different enterprises, and go higher by acquiring requirements intelligently and interactively so that enterprises can deliver customized products. The technologies for these developments including service composition and virtual markets are taking shape steadily. When business inter-operation has achieved a kind of equilibrium, the technologies will surely expand. That’s where e-business is headed in the near future, but even today, it is a thrilling and lucrative part of daily commerce. Any company that uses the Internet for e-mail and document exchange, maintains a Website, or draws on online resources to do research is conducting e-business to some extent and once a company enters this online world, there is no turning back.
Abstract

E-Marketing (Electronic Marketing) are also known as Internet Marketing, Web Marketing, Digital Marketing, or Online Marketing. E-marketing is the process of marketing a product or service using the Internet. E-marketing not only includes marketing on the Internet, but also includes marketing done via e-mail and wireless media. This paper aims to build a structured literature review to the field of E-Marketing. The literature review covers many areas such as: E-business, E-marketplace, Electronic Commerce, Electronic platforms, Mobile marketing and many other research areas. It uses a range of technologies to help connect businesses to their customers. Now the marketing over internet which is becoming most helpful way of promoting any business with smallest cost and greatest attain to target customer. CRM worked as a tool increased use of e-commerce makes CRM a necessary component. The conception of Internet marketing has developed and brought more opportunities for organizations to increase number of consumers at global level. Earlier, the Internet was only used as a tool to contact customers and it was a part of direct marketing. Currently, the Internet, principally websites are becoming a popular media for any company to introduce its products and services. At present, Internet is extensively used by organizations to persuade the business and online encouragement is one of the most booming and economical techniques of marketing for businesses.

Keywords: E-Platforms, E-business, CRM, SEM, Banner, Block

Introduction

There is important and dynamic growth of E-Marketing in recent days. There are many small units of business enterprises that have an important role in the World of economy. In the recent era of globalization and advancement of technology, there is a big change in the way of communication among the people. These changes are also improving the business policies among the Nations. Internet and the electronic media are giving these companies a big change and a huge growth in E-Marketing. Advances in telecommunications and computer technologies in recent years have made computer networks an integral part of the economic infrastructure. More and more companies are facilitating transactions over web. There has been tremendous Competition to target each and every computer owner who is connected to the web. All firms viewed that internet and e-mail is essential for business in the 21st century. It provides the services platform, which enables to enter new markets, reducing the investment and resources required to work internationally.

E-Marketing

E-marketing is “moving elements of marketing strategies and activities to a computerized, networked environment such as the Internet. Internet marketing is “the process of building and maintaining customer relationships through online activities to facilitate the exchange of ideas, products and services that satisfy the goals of both parties. E-Marketing is a mixture of all the activities of advertising, promotion publicity deciding the look and feel of the product, how it will be sold and sent to the customer etc. These technologies include the Internet media and other digital media such as
wireless mobile media, cable and satellite. They have defined service quality as the ability of the organization to meet or exceed customer expectations.

Digital marketing is also called the online marketing, internet marketing and web marketing. Digital marketing has been fashionable in all over the world. The term online marketing is still popular in US. It is popular as ‘web- marketing’ in Italy. In UK and other countries, it is used as digital marketing. E-marketing includes email, websites and micro sites, search engine advertising, search engine optimization, co-registration, mobile marketing, and other technology-driven tools.

How Can Organization look at E-Marketing

An organization may look at internet marketing to do one of the following functions:-

- **Sell** - Grow sales and create a centre of attention to business using digital technologies.
- **Serve** - Affix the value through the benefits of the Internet such as speed.
- **Speak** - Receive closer to customers by making the business available to them at home, work or on the go with mobile technologies.
- **Save** - Diminish costs by using information technologies to make the business more proficient.
- **Sizzle** - Extend the online brand (create a new one) - remember sell the sizzle not the sausage i.e. the benefits, aesthetics or value of a product or service rather than its features.

E-Marketing Methods

1. **Search Engine Market (SEM)**

   Search engine marketing (SEM), which allows firms to target consumers by placing ads on search engines, has proven to be an effective audience acquisition strategy. Unlike traditional online advertising, advertisers pay only when users actually click on an ad. When successfully implemented. Most online advertising campaigns have two main objectives-brand development and direct response. Which has a two types:-
   - Pay-Par Click
   - Search Engine Optimization(SEO)

2. **Online PR**

   PR stands for "public relations". Online PR is managing publicity about an organization and its brands, products or web sites through its online presence and third party web sites and other digital media. It includes providing press releases via e-mail or on website and submitting them to online news feeds.
   - Link-building and generating editorial
   - Blogs, communities and RSS
   - Managing how your brand is presented on third party sites
   - Creating a buzz – viral marketing

3. **E-Mail Marketing**

   Email marketing is a method of distributing information about product or service or for soliciting feedback from customer about a product or service through Email. Email addresses of customers and prospective customer may be collected or purchased. Email marketing is a form of direct marketing. Special deals and postcard by e-mail marketing Increase profit and sales, promote products and services, last minute special offer. There are two major types of e-mail marketing.
   - Opt-in email
   - Opt – out email
4. **Banner Advertisement**

Banner is a placement of ads on website for a fee. The offline equivalent of this form of online marketing would be traditional ads on newspaper or magazines. Banner service is relatively expensive. Banner ads are graphical presentations placed on web pages with the purpose of attracting visitors to click on the ad and visit the advertised website. There are many standard Banner ads, each with a different Shape or size.

- Banner sand Button
- Rectangles and Pop-ups
- Skyscrapers
- Floating

5. **Viral Market**

Viral marketing uses email to transmit a promotional message to another potential customer. It is very useful in reaching a large number of people rapidly like a computer virus. The contents of email can be a video clip, a TV ad, a cartoon, a funny picture, a poem, a song, a political message or a news item which must be so interesting and amazing that makes people pass it on. In comparison to the traditional marketing, viral marketing equals that of a "word of-mouth"

6. **Blog Market**

Blog marketing is the process of reaching a business prospects through the use of a blog. Blog market is an act of positioning comments, expressing opinions or making announcement in a discussion forum and can be accomplished either by hosting your own blog or by posting comments and URL in other blogs related to your product or service online. Blog marketing may also help improve a Website's rankings in search results and is often used for search engine optimization (SEO) purposes.

**Scope of E-Marketing**

E-marketing has global applicability. It covers almost all types of business namely, agricultural, industrial, medical, tourism, governance, Education and so on.

There are some common applications of e-marketing as Document automation, payment systems, content management, group buying, online banking, shopping and order tracking, Teleconferencing, Electronic tickets which have become common with large and small businesses alike. The history of e marketing can be traced back to:

**“Skill Development: The Key to Economic Richness”**

1. **1971 or 1972**: The ARPANET is used to arrange a sale between students at the Stanford Artificial Intelligence Laboratory and the Massachusetts Institute of Technology, the earliest example of e commerce.
2. **1979**: Michael Aldrich showed the first online shopping system.
3. **1981**: Thomson Holidays UK is first business-to-business online shopping system to be installed.
5. **2007**: Flipkart was established in India. The e-commerce market of India is one of the fastest growing markets in the world. It is due to the rapid growth of internet users in the country. Internet users in India were estimated to be 300 million in 2014. India has an internet user base of about 250.2 million as of June 2014. The admission of e-commerce is low compared to markets like the United States and the United Kingdom. India’s e-commerce market was worth about $3.8 billion in 2009, it went up to $12.6 billion in 2013. In 2013, the e-retail market was worth US$ 2.3 billion.
About 70% of India’s e-commerce market is travel related. There are about 10 million online shoppers in India and is growing at an estimated 30% CAGR vis-à-vis a global growth rate of 8–10%.

**Scope of E-Marketing in India**

Internet marketing is a new concept in the marketing sector of India. Still, traditional marketing has huge consumers in India, but due to continuous hike in internet users, business man have realized the importance of digital marketing and its future prospects very soon in coming years. Sellers are able to reach potential consumers in quick time using the concept of online tools. Consumers also feel relax as it help to save their time in reaching different vendors.

There are several online marketing companies in the Indian market which are providing services to their clients to meet their goals by targeting their specific online consumers at different rates. There are many others effective techniques which are being used to gain huge popularity among online industries like blogging, email marketing, social media optimisation, pay per click. It is very important for the beginners specially in India while targeting the online users to give best and latest information accurately not to misguide, so it is important to be focused every time as it will help to maintain a good relationship between clients, consumers and service providers.

**Growth Factors**

E-commerce is standard for its ability to allow business to communicate and to form transaction anytime and anyplace. Whether an individual is in India or overseas, business can be conducted through the internet. The authority of e-commerce allows geophysical barriers to disappear, making all consumers and businesses on earth potential customers and suppliers. Several factors have contributed to the growth of e-marketing in India. There is sea change in the life style of the growing middle class. Internet and 3G penetration revolutionized the marketing scenario for both consumers and the marketers. Rising standard of living has not only increased the level of consumption but also the pattern and quality of consumption. Busy urban lifestyles, lack of time for shopping, desire for variety and convenience and comfortable disposable income has changed the way Indian consumers prefer to shop today. Some other factors helping the online retail industry seeing good growth include smartphones offering accessibility to online shopping, aspirations of tier II & III cities, women becoming more tech savvy, evolving perception around branded products, impulsive buying and logistical convenience.

**Legal issues**

Legal issues of e-commerce in India are generally ignored by e-commerce websites. Foreign companies and e-commerce portals would be required to register in India and comply with Indian laws, as India is gearing up to regulate online business. Efforts are being made to regulate marketing websites dealing with various products online and violating laws of India. Enforcement directorate (ED) of India has already initiated legal actions against companies dealing with Bitcoins in India. Tax liability of foreign companies like Google, Face book, etc. is also under consideration in India. Myntra, flipkart and many more e-commerce websites are under regulatory scanner of ED of India for violating Indian laws. The case of US-based transport application provider UberInc is the latest example that can be cited.
Similarly, illegal online sales of prescribed drugs by illegal online pharmacies of India are also under scrutiny of regulatory authorities of India. In India, the Information Technology Act 2000 governs the basic applicability of e-commerce. Further, e-commerce laws and regulations in India are also supplemented by different laws of India as applicable to the field of e-commerce. For instance, e-commerce relating to pharmaceuticals, healthcare, travelling, etc. are governed by different laws though the information technology act, 2000 prescribes some common requirements for all these fields. The competition commission of India (CCI) regulates anti competition and anti-trade practices in e-commerce fields in India.

Collection of Data through Questionnaire

In this method a questionnaire is sent to the person concerned with request to answer the questions and return the questionnaire. A questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms. The questionnaire is mailed to respondent who are expected to read and understand the question. The respondents have answered the questions on their own. The research methodology on on-line marketing is based on the survey. Objective type questions have been designed in survey. Some responses have been collected from people. Like (Student, Professional and others). The result of survey is shown in graphs.

Graph represent yes/no options

<table>
<thead>
<tr>
<th>S.No</th>
<th>Questions</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strong Agree</th>
<th>Strong Disagree</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The instructions displayed in the web are very clear</td>
<td>75</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>The site enables the visitors to acquire the required information</td>
<td>78</td>
<td>2</td>
<td>15</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>The web site has related links so that the customer is able to get maximum information</td>
<td>82</td>
<td>5</td>
<td>13</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Product selection is easy/ enjoyable</td>
<td>55</td>
<td>13</td>
<td>15</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Ordering procedure is simple.</td>
<td>62</td>
<td>9</td>
<td>8</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>Payment process is simple to follow.</td>
<td>45</td>
<td>22</td>
<td>15</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Hackers Can steal your Payment</td>
<td>33</td>
<td>4</td>
<td>16</td>
<td>9</td>
<td>38</td>
</tr>
<tr>
<td>8</td>
<td>Do Online marketing Cleared all doubt of customers about the products</td>
<td>45</td>
<td>7</td>
<td>30</td>
<td>3</td>
<td>15</td>
</tr>
</tbody>
</table>

This graph indicated two options(Yes/No). This graph shows following results:
1. 87 persons answered in affirmation is the best way online marketing and 13 of respondents negatively answered.
2. 61 persons answered brokers involved in online marketing and 39 of respondents negatively provide were not involve in online marketing.
3. 90 persons accepted data update time to time and 10 of the respondents negatively answered.
4. 98 persons accepted service open 24 hours and 2 of them negatively answered.
Overall analysis of E-Marketing on the basis of Survey

This graph indicated five options (agree, disagree, strong agree, strong disagree, neutral). The graph reveals following options.

1. 82 persons answered in agree, 5 persons respondent disagree and 13 persons respondent in strong agree, 0 persons respondent strong disagree and 0 persons respondent neutral to question no. 3 because they think that customer able to get maximum information from website.

2. 13 persons answered in agree, 25 persons respondent disagree and 20 persons respondent in strong agree, 16 persons respondent strong disagree and 26 persons respondent neutral to question no. 10 because they have no trust in online market and they think that no proper home delivery through e-marketing.

3. 34 persons respondent in agree, 6 persons respondent disagree and 48 persons respondent in strong agree, 4 persons respondent strong disagree and 8 respondents neutral to question No 22. So
maximum global information possible through online marketing.

4. The maximum peoples are agree on my questionnaire because they think that it is a direct market, great deal of efforts of hard work, reliable service, product presentation and currency schemes available in online marketing. Online market are local or worldwide.

Future Scope

- In future e-marketing provide the efficient website which is easy to use for common peoples.
- E-marketing provide give the discount on product.
- Better service Quality.
- Electronic payment provides greater freedom to individuals in paying their taxes, licenses, fees etc.
- Reduce deployment costs and distribute information easily.
- Avoiding long lines and other hassles.
- If any transactions have been carried out in marketing through traditional methods then have no cost of marketing.
- The Future scope of the study of E-marketing use to reduce cost.
- E-marketing is used in the long run results in reduction of number of branches, saying rentals of related buildings and properties.
- In Future with the help of online marketing perform a function within Short period of time.
- By using Security issues wages and salary bill of banks get reduced. Banking convenience of client has considerably increased as the can transact from home or office.

Conclusion

- E-marketing has become an essential part of modern Marketing. This opportunities e-marketing function increases different levels of risks for marketing. More than twelve Years of Internet marketing research have yielded a set of important findings. Based on our review of these findings, it is clear that the Internet is playing a more and more significant part in the field of marketing. If the websites give the flexibility, effectiveness of work, give the better security of e-marketing then e-marketing will be increase.

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E-ACCOUNTING

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Abstract
Electronic accounting or online accounting is a new development in the field of accounting. It means that all transactions will be recorded in a server or database, just like a website or blog. E-accounting practices are composed of actions such as following the transactions conducted between firms and customers or sellers, keeping and registering documents, and preparing financial tables in an electronic environment and submits those to related persons via internet. The concept of accounting has been given a new dimension in the name of e-accounting which overcomes all the problems of manual accounting. It has been observed that 72 per cent of the respondents are specialized in Banking/companies and 86.7 per cent of the respondents are using tally software. The result shows that the main role of accounting professionals is the implementation of e-environment and it has been ranked as first. The main problem faced by the professionals is “Inaccuracy of report” and it has been given the highest rank. E-accounting helps businesses keep their financial data and accounting software in a safe, secure environment by allowing real-time access.

Keywords: e-accounting, accounting professionals, accounting information, accuracy.

Introduction
Accounting, as an information system, is the process of identifying, measuring, and communicating the economic information of an organization to its users who need the information for decision-making. It identifies transactions and events of a specific entity. A transaction is an exchange in which each participant receives or sacrifices value (e.g., purchase of raw material). An event (whether internal or external) is a happening of consequence to an entity (e.g., use of raw material for production). An entity means an economic unit that performs economic activities. The reports generated by various streams of accounting, such as cost accounting and management accounting, are invaluable in helping management make informed decisions.

Electronic accounting can be defined as “to follow internal and external operational events as well as to document, record, archive, summarize those events, and to present summary information to the vested interest groups in an electronic environment”. It is possible to analyze the electronic accounting concept in three categories, such as e-taxing, e-banking, and e-accounting practices. In e-taxing practice, transactions such as preparation of tax returns, imputation of taxes, and following tax-related debt and other relevant information occur in an electronic environment. E-banking practices consist of enterprises’ bank-related transactions that actually take place in an electronic environment via internet. E-accounting is a new development in the field of accounting but for opening or making accounts will use login id and password. There is a large number of companies who started e-accounting. E-accounting involves performing regular accounting functions, accounting research and the accounting training and education through various computer-based /internet-based accounting tools such as digital toolkits, various internet resources, international web-based materials, institute and company databases which are internet-based web links, internet-based accounting software, and electronic financial spreadsheet tools to provide efficient decision making. In e-accounting the accountant and employer both feel satisfaction because, this is cheap and without software defaults or failure. The accounts save in online server or database, so there is no need to record manually. By this way we can save large amount of
money spending on manual books and different accounting software, e-accounting or online accounting is the application of online and Internet technologies to the business accounting function. Similar to e-mail being an electronic version of traditional mail, e-accounting is "electronic enablement" of lawful accounting and traceable accounting processes which were traditionally manual and paper-based.

Objectives of the Study

The study has the following objectives,

1. To ascertain the role of technology in e-accounting.
2. To find out the benefits of using e-accounting.
3. To know the view of accounting professionals on certain accounting issues relating to e-accounting.
4. To understand the features of e-accounting.

Meaning of E-Accounting

E-Accounting or Online Accounting is new development in field of accounting. It means all your transactions will record in online server or data base. Just like website or blog or web blog. But for opening or making accounts will uses login id and password. E-Accounting is just in the developing age and up to 2010. It will surely commercialize use. There is large number of companies who started E-Accounting. In E-Accounting the accountant and employer both feel satisfaction because, this is cheap and without software defaults or failure. Your accounts save in online server or database. So there is no need to record manually. By this way we can save large amount of money spending on manual books and different accounting software.

Online accounting through a web application is typically based on a simple monthly charge and zero-administration approach to help businesses concentrate on core activities and avoid the hidden costs associated with traditional accounting software such as installation, upgrades, exchanging data files, backup and disaster recovery. E-accounting does not have a standard definition but merely refers to the changes in accounting due to computing and networking technologies.

Features of E-Accounting

- Universal access.
- Good collaboration.
- Quick Rectification and Result.
- Fast record with Advance Technology.
- Strict control.
- Large scale business record.
- Adjust with law and accounting standards.
- Modification is possible.

Universal Access

Today, I was in the post office for delivery my products parcel which I sold through my other e-commerce website. In the post office, a customer had called me for knowing the prices of his interested product. I had 3G smart phone. I just accessed to my database where I found the list of his interested price.
Good Collaboration

If you are the team member of accounting department which have lots of departments, you can collaborate each other with e-accounting. In this feature, you can help each other for maintaining the accounts of company. For example, Mr. A is in Delhi branch, he passed entry of sale in his Delhi branch. Mr. B is in Mumbai branch, he passed the entry of purchase of his branch. All effects will be added in the financial statement of company by these accounting team's collaboration and joint efforts.

Quick Rectification and Result

If there is the mistake, there is more chance to rectify the mistake of accounting fastly because large number of team members can access faster. Many experts are just for monitor, so, this will bring accurate and true financial results.

Fast Record with Advance Technology

Today, all accounting software companies want to become no. 1 in the market, but in the market, there is big competition. So, these accounting software companies are doing best for innovation. So, everyday, you will see the new and updated hacks, shortcuts for recording fast. So, enjoy this feature of e-accounting.

Strict Control

Now, it is impossible for hackers to hack accounting database because ethical hackers are working in developing of advance accounting software who are making strict security for accessing to accounting information.

Large Scale Business Record

Today is the time of doing hard work not laziness. Because business is growing fastly. Today, I have lots of projects because my work has increased. So, thanks the automation system of e-accounting which help to record our business during increasing its scale.

Adjust with Law and Accounting Standards

Through installing new utilities, any accounting software can adjust with new amendments of any law and accounting standards.

Modification is Possible

If you will shift from one business model to other business model, your accounting software can also change its configuration.

Issues Faced by Accounting Professionals

Most of the clients were not using e-accounting hence, as awareness about e-accounting is to be provided to them. E-accounting helps to reduce the man hours and also to enhance the system effectively and efficiently. So the important of e-accounting to be given to the clients. If there is a provision of proper IT assistance the accuracy of the techniques can be improved. Proper peripherals should be used in order to overcome the hindrance of inability of the system. It is not just enough, if there is large storage capacity, rather it is more important that the available storage space should be used effectively in order to increase the efficiency of work. So that the accounting professionals should give the importance to the clients.
Problems in E-Accounting

Theft of Computer Time

Information created by one person may be easily copied by another person who can claim that the data is his own and he is the actual creator. In computers there is nothing like original copy and duplicate copy.

Manipulation of Programs

An intruder, rival or competitor can manipulate, modify or delete one or more programs of a company making the complete software unusable.

Theft of Data

Data stored in a computer can be copied into floppies and could be delivered to competitors. With modern communication networks available, insiders of the company may send confidential information of a company to another. Hackers can connect to network and steal data.

Stealing Software

This is the most commonly committed crime in computers. An employee of the company may copy the software purchased by a company and copy it in his home computer. Precautions and controls can be employed for protecting hardware and software from illegitimate use.

Controlling Access

Controlling of hardware and software should be the first system security. The system should be under lock and key to prevent hardware theft. Physical and electronic access control techniques including keyboard locks, automatic logs, restricted access to systems and limited after-hour use.

Passwords

Passwords should be provided at all levels of system. They should be changed frequently or as and when needed so that unauthorized users cannot enter into the system.

Benefits of E-Accounting

The following the benefits of e-accounting,

Create Accounts for More Companies

We can create account of more than one company from any place of the world.

Share Information

It can be used to share accounting information with other from any place of the world.

Live Work

We can do live work of accounting. It means one accounting project can be complete more than one person from different place.

Easy to Audit

We can audit the made accounts from any place of the world.
Better Future Plan
We can give better input data to finance manager for good future financial plan.

Easy to Access
We can get result more fastly from any place of the world. Any can know what will be the profit or loss figure after each transaction. We can get all old data more fastly for analysis purposes.

Cheap and Best
Everything online, so there is no need to invest money in papers. We can import raw accounting data from other system also. We can also export our accounting data to other system.

Effective Working
We need small number of accountant. Same accountant can be promoted for other analysis work.

Usage of Technology in E-Accounting
Information technologies influence business world and our social life today considerably. In the aspect of accounting, accounting software is being used efficiently in our country. There is much accounting package software in the market written for unified accounting system. Along with unified accounting, computerized accounting applications have increased rapidly and almost all companies in Turkey started to keep their records through such applications. Hence, record and supervision of transactions became easier. Usage of computers in accounting increased more correspondingly developments in information technology and at the same time became more complex.

While simple transactions such as pursuit of debts and receivables, calculation of salaries are carried out in accounting by the help of computer, following that, activities such as data invoicing, stock records, customer records started to be transacted simultaneously. e-Accounting can be described as following books and documents used in accounting, of accounting records; preparation in electronic media, submitting to relevant institutions in electronic media, supervision in electronic media. In order to put following books and documents used in accounting in electronic media into practice, taking inventory of book, document and financial statements is necessary.

Conclusion
E-accounting environment has also opened up new vistas of opportunities for accounting professionals. Lack of knowledge about the real advantages of e-accounting and resistance to change are the reasons for companies’ not adopting e-accounting. There is a need for standards related to measurement, recording and disclosure of certain e-transactions. E-accounting support the business houses by providing lots of component through which the whole system of accounting become globalized. By implementing e-accounting it has been observed, that the professional aspects of better practice control is subject to change. The foremost attribute of using e-accounting is the large storage capacity and reduction of clerical works. Thus e-accounting helps businesses keep their financial data and accounting software in a safe, secure environment by allowing real time access.
Abstract

Electronic Commerce (E-Commerce) is process of doing business through computer networks. A person sitting on his chair in front of a computer can access all the facilities of the Internet to buy or sell the products. Unlike traditional commerce that is carried out physically with effort of a person to go and get products, eCommerce has made it easier for human to reduce physical work and to save time. eCommerce which was started in early 1990’s has taken a great leap in the world of computers, but the fact that has hindered the growth of e-commerce is security. Security is the challenge facing eCommerce today & there is still a lot of advancement made in the field of security. The main advantage of eCommerce over traditional commerce is the user can browse online shops, compare prices and order merchandise sitting at home on their PC. For increasing the use of eCommerce in developing countries the B2B eCommerce is implemented for improving access to global markets for firms in developing countries. For a developing country advancement in the field of eCommerce is essential. The research strategy shows the importance of eCommerce in developing countries for business applications. This report provides certain helpful tips for building an discusses on some of the legal and regulatory issues of E-Commerce.

Definition of E-commerce

Electronic commerce or eCommerce is a term for any type of business, or commercial transaction, that involves the transfer of information across the Internet. It covers a range of different types of businesses, from consumer based retail sites, through auction or music sites, to business exchanges trading goods and services between corporations.

Working of E-Commerce

The consumer moves through the internet to the merchant’s web site. From there, he decides that he wants to purchase something, so he is moved to the online transaction server, where all of the information he gives is encrypted. Once he has placed his order, the information moves through a private gateway to a Processing Network, where the issuing and acquiring banks complete or deny the transaction. This generally takes place in no more than 5-7 seconds. There are many different payment systems available to accommodate the varied processing needs of merchants, from those who have a few orders a day to those who process thousands of transactions daily. With the addition of Secure Layer Technology, eCommerce is also a very safe way to complete transactions.

Present Challenges Facing E-Commerce

Speaking of obstacles, there are a lot of them that need to be uprooted before eCommerce can compete with traditional commerce. The biggest obstacle in the course of advancement of eCommerce is that the consumer’s senses are limited to seeing and hearing the product. The second largest problem that eCommerce has been facing over the past few years is that of security. Traditional buyers and sellers are still paranoid about conducting business online. According to emarketer.com, “70% of US
consumers are concerned about online security; this discourages consumers from using credit cards to shop online. Also according to e-marketer.com, in December 2001, 91% of websites collected personal information and in April-May 2001, 68% of US Internet users were concerned that transactions may not be secure and other companies and individuals might gain access to their personal information.

Some recent technological breakthroughs

Finally, in order to make the online shopping experience even more better, there are a lot of new technologies like Verify, DigiScent's ismell and Touch Sense that have emerged over the last couple of years. Verify is one technology that has been widely adopted today, and for good reason. According to a recent BitRate study, over 50% of online shoppers stated that they would not make further purchases from a Web merchant that delivered an item in a colour that wasn't what they expected. This is the problem that Imation have designed their Verify system to solve. Here's how it works. When a shopper visits a Verify-enabled Web site for the first time they are invited to take a Web based survey that establishes how their monitor, computer, operating system and browser handle colour. This information is then stored as a cookie in the shopper's browser. Then, when they view a product image, the Verify system reads the information in the cookie and combines this with the profile of the scanner (or digital camera etc.) that the merchant used to produce the image to generate a colour-accurate image in the shopper's browser.

The Reality of E-Commerce with Developing Countries

The report is about the potential offered by internet based business-to-business (B2B) e-commerce for improving access to global markets for firms in developing countries. It addresses three questions:

- Is B2B e-commerce opening new and cheaper access to global markets for developing country producer firms or, conversely, is it strengthening existing buyer-producer relationship and existing power relations?
- Are developing country producers being marginalized by the spread of B2B e-commerce trading relationships that depend on sophisticated information and communication technologies (ICT’s) and on efficient logistics systems, electronic payment systems and new certification procedures?
- How can governments or technical assistance agencies help producers in developing countries to participate in B2B e-commerce developments on an equitable basis?

B2B E-Commerce: Issues for Developing Countries

Business to Business or B2B refers to electronic commerce between businesses rather than between a business and a consumer. B2B businesses often deal with hundreds or even thousands of other businesses, either as customers or suppliers.

Optimism about the potential of B2B e-commerce depends upon the idea that the major obstacle to increased sales is the cost of making products known to potential buyers in industrialized countries. It considers the policy implications that arise from these expectations and assumptions. It also examines the strength of the evidence supporting projections of rapid growth in B2B e-commerce transactions.

B2B E-Commerce Expectations and Assumptions

The idea that B2B e-commerce would radically transform the way firms to do business can be summed up in four propositions about how this form of e-commerce is expected to work. These are taken from the publications of just two UN organizations concerned with trade and development,
UNTAD and ITC. However, the broadly reflect the general state of the expectations for B2B e-commerce in 2000 and 2001.

**Proposition 1: E-Commerce Works through ‘Many-To-Many’ E-Marketplaces**

B2B e-commerce marketplaces are on-line spaces were many buyers and sellers can come together in one trading community and obtain sufficient information to make decisions about whether to buy or sell. “E-markets involve a large number of buyers and sellers that engage in many-to-many transactions and relationships. They create a trading community in buyers’ orders are matched with sellers offers’ and the trading partners benefit from other forms of collaboration”

**Proposition 2: B2B E-Commerce Offers Greater Returns to Firms in Developing Countries than other Trading Channels.**

B2B e-commerce offers two important advantages for developing country firms. First, e-commerce related transaction costs are less sensitive to distance than traditional marketing channels, so access to global markets is made easier. Second, by simplifying and making market channels more efficient, B2B e-commerce enable developing country firms to retain a large share of the final consumer price of products.

**Proposition 3: B2B e-commerce particularly helps smaller firms to enter global markets**

Reduction in the costs of accessing global markets are particularly important for Small and Medium sized Enterprises (SME’s).

“E-Trade opens new commercial opportunities to the export-oriented enterprise. In particular, it empowers the small and medium-sized enterprise (SME), allowing into participate in international markets where previously market entry and promotion costs were prohibitive. It enables the firm to source production inputs more expeditiously, to stream line (i.e. eliminate intermediaries) its own supply- and export-distribution chains and to reduce business transaction costs. It was suggested that:

- Buyers and sellers could eliminate the ‘middlemen’ and intermediaries, establish one-to-one on-line trading and rationalise marketing channels.
- Electronic trading would create opportunities for developing country producer firms to enter new markets and to strengthen their position in international trade.

**The Reality of E-Marketplaces**

How do e-marketplaces operate in practice? The answer to this question is based on the mapping of the characteristics of attributes of 184 e-marketplaces in the garments and horticulture (including some sites concerned with a broader range of agricultural products) sectors. The following illustrates the types of applications that were present at the e-marketplaces based on the web, which were included in the sample.

Types of applications in B2B e-marketplaces

**Direct Buyer/Seller Links:** Provides a means for sellers to post direct links from a web site to their own company web sites. Potential buyers can follow these links to a vendor’s web site. Alternatively, there may be no link and only protect and contact information about particular firm (e.g. electronic showrooms on-line directories, on-line catalogues).

**Line auctions On:** Applications may take three forms

a) Listing-agent auctions where the service provider acts as an agent running web-based auctions on the behalf of independent sellers who list their own auctions.
b) Merchant auctions where no independent sellers are identified, and the service provider acts as a retailer, which happens to conduct its transactions by auction.

**Request for quotes:** This consists of a seller or buyer posting a message to a forum within an on-line environment or to individual members, indicating a desire to buy or sell items. Buyers and sellers may be unable to select the firms to which their quotes are sent as well as the individual firms from which they receive quotes. Messages may include price information.

**Trade Leads/Classifies:** buyers and/or sellers post messages to an on-line forum or to individual members indicating a desire to buy or sell items. Buyers and sellers do not have control over which user forms can access messages posted to the forum. Messages generally do not include price information.

**E-Retail:** The service provider sells products directly to users. Visitors take the role of buyers and the site provider takes the role of a seller. These platforms parallel the exchange processes common on B2C web sites.

**Support services in e-marketplaces**

To what extent were providers of e-marketplaces offering affordable services to support the settlement of transactions on-line? On-line trading might be greatly facilitated by services that: The road to creating a successful online store can be a difficult if unaware of e-commerce principles. Researching and understanding the guidelines required to properly implement an e-business plan is a crucial part to becoming successful with online store building.

- Enable payment to be made.
- Facilitate the delivery of the product.

Product delivery was equally unspotted. The companies hosting e-marketplace rarely played a direct rule in arranging for the delivery of the products. For an additional cost, e-marketplace users could access logistic service including shipping and delivery service, financial service customs brokering, insurance service and travel service. Shipping and/or delivery support service were accessible to users in 34% of the 77 horticulture and 53% of the 107 garments e-marketplace. It was not possible to excess the effectiveness of these services using the method employed in this study, but in many cases the web site provider merely provided a link to the web site of the provider of these services.

**Trust service in e-market places:** An extremely limited amount of product and partner information was available to users of the e-marketplaces. ‘Buyer and seller beware’ was the norm. Of the 117 e-marketplace providers, 46% noted on their web sites that they did not mediate between firms using their sites. It was the user’s responsibility to evaluate whether to enter into an exchange agreement with another firm.

**Advantages of E-Commerce**

Looking at the brighter side however, e-commerce obviously has numerous advantages over traditional commerce, the number one advantage being convenience of use. The user can browse online stores, compare prices and order merchandise sitting at home on their PC. One way in which the
company has encouraged online ordering is by offering rebates on the products that are bought online. Other companies should follow Dell’s example if they want to succeed in the online world.

Conclusion

E-Commerce refers to all forms of business activities across the internet. This can include E-tailing, B2B, intranets and extranets, online advertising, and simply online presence of any form that are used for some type of communication. E-Commerce has several advantages and disadvantages as indicated in these papers. E-Commerce applications that started in early 1970’s needs to be still developed in terms of security and efficiency. For the developing country like our India advancement in e-commerce is a challenge to compete with the developed countries.

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A STUDY ON E-CUSTOMER RELATIONSHIP MANAGEMENT IN ICICI BANK WITH SPECIAL REFERENCE TO TAMBARAM TOWN

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Abstract
The Indian banking industry is transforming from its traditional transactional concept to Relationship Marketing. The tag “Customer is King” depicts that the customer is the focal point for any business scenario. The CRM concept has been implemented with the intention of better understanding of needs, requirements and trying to maintain a long term relationship with the customer. Maintaining personalized attention approach, managing database, creating customer value and appropriate retention strategies is the key for growth for banks in the present day scenario. This paper deals with customer’s opinion about e-customer relationship management in ICICI bank with special reference to Tambaram town.

Keywords: Electronic Customer Relationship Management; Electronic Commerce; Relationship Marketing, ICICI bank.

Introduction
Customers are important assets for any business. Companies have to develop close, cooperative relationships with customers. In recent days e-CRM has attracted many people and companies have started using e-CRM in order to attract new customers and retaining their existing customers. Service industries especially the banks are taking lot of initiatives to make the best use of e-CRM tools and techniques. Banks are using these tools to offer world class services to their customers.

Electronic customer relationship management (E-CRM)
ECRM, simply, means accessing to customer relationship management database through web. In other words, it corresponds with Intranet access for internal users, extranet access for business partners and customers, and of course, internet access for market in macro scale. Electronic CRM software provides the profiles and histories of all organization’s contacts with its customers. ECRM is an integration of hardware, software, applications, and management commitments.

Objectives of the Study
- To know the Electronic Customer Relationship Management (E-CRM)
- To know the benefits of E-CRM technology in ICICI bank

Research Methodology
Primary data: Information collected by observation, interaction and structured administered questionnaires. Sample size 50 respondents selected on the basis of Simple Random Sampling.

Secondary data: The article also based on secondary data as well literature, reports, annual reports, statistical figures and books, journals published and also visited to various websites.

Statistical Design
For data analysis -Percentage analysis
For data presentation – Tables and Charts are used
Current Status of E-CRM in Indian Banks

In the present scenario, there are five functional categories for online banking sites – online brochure centre, interactive bank, e-mails, calculations and cyber banks, which offer customers access to account information, inter-branch funds transfer and utility bill payments. Internet has empowered banking at the click of the mouse. Several banks have been in collaboration with service providers in telecom and power sectors which enable their customers to make bill payments online. In India, under the private sector, ICICI Bank, HDFC Bank, UTI Bank and many more banks have taken the lead in e-banking. Amongst the foreign banks, Citibank has noticeable presence, while others like Federal Bank, HSBC Bank, Deutsche Bank and ABN Amro Bank are growing as major players in e-banking. E-banking services in India were first offered by ICICI Bank logging more than one lakh regular internet user accounts, of which more than 25 percent were of NRIs. The bank visualized advanced information technology as a managerial and competitive tool and tried to harness technology to the maximum possible extent to deliver superior customer services.

UTI bank uses VSAT terminals at strategic locations, which will help in ATM servicing and internal management information system. The bank had signed a memorandum of understanding with equitymaster.com for e-brokering activities of the site. This will enable the bank to leverage its database for e-commerce and other initiatives with data warehousing and data-mining, where information of the customer spending habits will be used to sell other co-related products like credit cards.

Technology Initiatives of CRM

In ICICI bank CRM is hugely technological driven. The technology might push customer away from the branch and get most of requirements fulfilled through machines outside the branch. As smartphones are redefining every aspect of life today, mobile banking is a main stream. ICICI launched "POCKETS", India’s first digital wallet by a bank, which can be used by customers and non customers alike. Users, especially the young generation who may not have access to a traditional bank account, can be download the pocket app instantly on their phone, fund it and start transacting immediately. Within the first year of its launch "POCKETS’ has garnered over 3.6 million downloads "Touch & pay", India’s first contactless mobile payment solution, enables secure payment through smartphones at retail stores and does away with need to carry physical cards. All ICICI bank credit and debit card users can use this features to make payment at over 60,000 merchant outlets across the country.

In early 2008, when ICICI bank launched iMobile, India’s first mobile banking app, smartphones were still at their nascence in the country. iMobile today has evolved to become India’s most comprehensive mobile banking application, which brings 150+ banking services on a single platform. It offers a range of essential banking features such as fund transfer, bill payment, checking account balance and opening fixed and recurring deposits. In addition, users can also now add payees, personalize their debit cards with an image of their choice and even book railway tickets. Electronic payment has become ubiquitous today. For those customers who still derive comfort from writing a physical cheque a new technology leveraged by ICICI bank is named as "eftCheques". The EFT Cheques app by the bank replicates the cheque writing experience on customers’ smartphones. Customers can flip open a virtual cheque book on their eftCheque app and write a cheque to any person from their phone book. The recipient receives a web link over SMS and can encash the cheque into a bank account of his or her choice instantly. Cheques can be written and encashed any time of the day, all days of the week including holidays. Another feature of eftcheques allows customers to scan a cheque they have received and upload the image before depositing the cheque in a nearby branch. This eliminates the
cheque scanning activity at back office and saves a few hours in the cheque clearing process. The overwhelming adoption of iMobile has clearly indicated high customer appetite for accessing banking services on smart phones. The bank created a comprehensive app for its asset products, "iLoans" - an app that makes it easy for customers to track and access all their loan-related details while on the move. Consumers have for long struggled to track and conveniently make bill payments to merchants who may not have elaborate online payment systems. An innovative online solution, aptly named "Eazypay" was launched this year to ease such payments for customers, while reducing collection overheads for merchants. Merchants can upload bills of their customers and simply link the bills to the mobile number of the customer. Customer can log on to the Eazypay portal, submit their phone numbers and view and pay all their bills from various merchants. The service is bank agnostic customers of all banks can use it to make their bill payments. ICICI bank introduced Touch banking branches a few years ago. These branches operate in self service mode, round the clock, 365 days of the year, At 110 of these branches across 33 cities in India, customers can deposit cash or cheques, print bank statements and do much more. Customers can also interact with bank staff through video conference. From this touch banking, the bank designed self-services kiosks. The bank has deployed more than 1800 self services kiosks, which include cash depositing machines, and insta banking kiosks across its branches.

Results and Discussion

Table I Demographic Factors of the Respondents

<table>
<thead>
<tr>
<th>Factors</th>
<th>Particulars</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>38</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Age</td>
<td>18-25 years</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>25-35 years</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>35-45 years</td>
<td>04</td>
<td>08</td>
</tr>
<tr>
<td></td>
<td>Above 45 years</td>
<td>04</td>
<td>08</td>
</tr>
<tr>
<td>Education</td>
<td>Illiterate</td>
<td>02</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>Primary level</td>
<td>05</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Secondary level</td>
<td>07</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Post Graduate</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Category of Employment</td>
<td>Private / Government employees</td>
<td>23</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Professional</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Income</td>
<td>Below Rs.10,000</td>
<td>07</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>10,000 – 20,000</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>20,000 – 30,000</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>30,000 – 40,000</td>
<td>05</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Above 40,000</td>
<td>13</td>
<td>26</td>
</tr>
</tbody>
</table>

From Table I, it is inferred that out of 50 respondents, most of the respondents are male, belong to the age group of below 27 years, post graduate, their monthly income Rs.10, 000 to Rs.20, 000. Out of 50 respondents, most of the Respondents are Private / Government employees. Out of 23 respondents, majority of the respondents are employees.
It is clear from Table II that out of 50 respondents, 20 (56.8%) respondents have Savings Bank Account, 36 (24%) have Current Account, 8 of them (6.4%) have Recurring deposit account and the remaining 16 of them (12.8%) have fixed deposit account. It clearly reveals that large number of respondents have savings bank accounts.

Chart 1 Type of Account

<table>
<thead>
<tr>
<th>S.No</th>
<th>Kind of Account</th>
<th>No. of Respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Savings Account</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Current Account</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Recurring Deposit Account</td>
<td>05</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Fixed Deposit Account</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Table III Reasons for the Bank Selection

Out of 50 respondents, 34 per cent (17) of the respondents select the bank for quality service, 22 per cent (11) of the respondents choose the bank for goodwill, 30 per cent (15) of the respondents select for the reason of excellent CRM, 14 per cent (07) of the respondents are select the bank for proximity to home. Most of the respondents are selecting the bank for the reason of quality service.

Chart 2 Reasons for the Bank Selection
Table IV Nature of E-CRM

Source: Primary Data

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particular</th>
<th>No.of Respondents</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quick Service</td>
<td>19</td>
<td>38</td>
<td>I</td>
</tr>
<tr>
<td>2</td>
<td>Easy Updating</td>
<td>05</td>
<td>10</td>
<td>IV</td>
</tr>
<tr>
<td>3</td>
<td>Customer Relationship</td>
<td>17</td>
<td>34</td>
<td>II</td>
</tr>
<tr>
<td>4</td>
<td>Anywhere Access</td>
<td>09</td>
<td>18</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>50</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

It is transparent from Table IV that quick service the 1st rank, Customer Relationship gets 2nd rank; 3rd rank has been gained by anywhere access facility and the 4th rank has been placed to easy updating.

Conclusion

Though implementing E-CRM in the operational business, banks can improve their services to their valued clients. By implementation of E-CRM banks can improve their regulating and monitoring process. The Government need to pass a bill involves legal provisions relating to piracy, defamation, advertising, taxation, digital signatures, copyrights and trade secrets in the cyber-world and that bill will intend to facilitate e-business by removing legal uncertainties created by new technologies. The final objective of the E-CRM process is to create a powerful new tool for customer retention, customer value, customer acquisition & profitability. Hence, CRM and E-CRM is an inevitable tool of marketing that can be considered as Critical Responsibility of Market with regard to Banks in present context. Hence E-CRM should significantly applicable for banks all over the world.

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E- MARKETING (DIGITAL MARKETING) STRATEGIES OF ORGANIC FOOD PRODUCTS

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Abstract

The word “Organic” may not seem new to everyone, it means higher levels of animal welfare, lower level of pesticides, no use of artificial pesticides, and a lot more beneficial features. Organic food is something which covers a great pitch from organic food, drink or beauty and textiles from raw fabric materials like cotton to even vegetables. As the awareness level among the consumers has increased, the demand for organic products has also raised eventually. The organic product marketers are ready to make use of the demand and the emerging E-Market. The organic food product marketers can make use of various online marketing strategies to widen their market and to increase their sales. E-Marketing also helps to increase the awareness level about the organic food products among the general public. This paper not only states the importance and benefits of E-Marketing but also deals with the various strategies like social media / instant marketing, video promotion, Email marketing, etc., that are used and can be used by the organic food product sellers for marketing their products in online, which is stated as E-Marketing Strategy.

Keywords: Organic food products, E-Marketing, E-Marketing Strategies, Organic food sellers and consumers, Promotion, Sales.

Introduction

According to “Personal Determinants of Organic Food Consumption: A Review”, by J. Aertsens and others, there exists a great deal of uncertainty regarding different attributes of organic food. Even if people hold positive attitudes toward organic food, uncertainty lowers their likeliness to purchase, and causes them to further scrutinize the higher prices. Organic food producers must do more to position themselves as competitive alternatives to traditional food providers. This means implementing marketing strategies that present organic goods not simply as food, but as a way of improving personal health and lifestyle.

The internet provides a convenient method to advertise the organic product business, sell products, and communicate with customers. Most households have access to the internet in their homes. This is a potentially large market for specialty farm products. Organic product sellers may advertise on the internet by developing their own web sites or by participating in web-based farm directories. Organic product homepages are an effective means for informing customers of products the farm grows, when they are available, and how to obtain them. Related blogs report on-farm or products or family activities.

There are number of web pages allow customers to see the farm and the people who work there. This enhances not only the personal aspect of organic products but also the farm direct marketing that many people find appealing. There are also opportunities for sales via the internet. Value-added or even fresh food products may be shipped to customers throughout the country. The internet is a quick and easy method for communicating with established customers. The latest information on product availability, farm news, and other information may be distributed to customers through an email list.
Benefits of Digital Marketing Strategies ANF Its Opportunities

- Assist organic product sellers to connect with the consumers on through internet
- Generates higher conversion rates for organic food stores
- Saves organic product sellers money from irrelevant marketing tactics
- Enables real-time customer service
- Connects the organic products seller with the mobile consumer
- Helps generate higher revenues
- Delivers higher ROI from organic product sellers campaigns
- Keeps organic product sellers at par with competitors
- Helps the organic products seller compete with large corporations

Elements of an Online Marketing Strategy

Phil called "aggressive online organic food marketing", can be simply call as smart content marketing strategy combined with a strong social media strategy - done consistently, and with purpose. It boils down to these key elements:

Alluring Link

Alluring Link or Link Bait is content that other people link to it naturally. It might be funny, negative, controversial, thought provoking or otherwise highly interesting. Consider the things we've linked to ourselves. "Share Bait" is a new term for content people link to (or share) on their favorite social media channels. As an important thing they used to put their organic food products content out across the social media channels themselves so that it can be shared, liked, +1’d, re-tweeted, etc.

Meet Their Markets Where They Are

They use a marketing method or a specific medium where they don't define their business. Different markets of organic food products will hang out in different places online. Their goal is to find out where their target market, and will join them there. By this way the marketers ultimately get their own site connected to a wide market place.

Increase Their Reach on Online Market

They will not just write great optimized content on their organic food products, and hang out in a few places online, and expect their website to take off on all by its own. They constantly look for ways to increase their food products reach. They find new places to interact with the target market, new angles to reach them in search results, study what people share most and create that same type of content, etc.

Leverage their Competition

They also seek out the Organic Food Market Leaders in their niche and consider ways they can leverage their success. Join their forums, comment on their blogs, used to interact with them on social media channels, share their content, will become their affiliate, then will review their products, etc.

Natural Link Building

There are many things that organic food product E-marketers can do to get their link(s) out there on the web: social media updates, set up niche forum profiles, guest blogging, submit to niche directories, etc. But they also use variety to people's inbound links. If they have top ranking pages on specific topics, people will link to those links naturally. They interact professionally with their
consumers via social channels, answering questions and offering suggestions, so that people will naturally mention and recommend their site. They used encourage this a bit by offering to be interviewed, engaging others in a Cross Blog Conversation, hosting contests, etc. And by simply including their contact information on people’s About page with an open invitation to get in touch with them.

Guest Blogging

Guest Blogging is one of the easiest ways to get in front of the consumers. Not only leads the organic food product marketers to get in front of an established readership, and get an inbound link from an established blog, but will also likely get them in front of email readers & social media followers.

Video Promotion. As per current marketing scenario, mostly user shows its interest on watching promotional videos. So, they introduce promotional HD animated videos of their organic food shop/product and share on video sharing sites as well as on Social Media Channels for increasing the brand popularity.

Email Marketing

Email marketing is a great source for reaching into their potential customer’s pocket. Promotional Mails helps to create big sales if mail’s have good promotional message which directly impacts their targeted consumers and hits into their mind.

Proactive Communication with Other Merchants & Brands

Step One is to make a list of all the merchants, products and brands of organic food products, they would like to work within their niche. They used to be proactive about reaching out. Like Facebook pages, follow them on Twitter, and they will be sure to add updates regarding their products.

These are all the marketing strategies or the ways through which today’s marketers market their organic food product through online.

Conclusion

For business and entrepreneurs who want to stay on top of the freshest and most attractive deals and sales going on in the world, E-marketing is a necessity, not a choice. This method on marketing has lifted the business domain to new heights. The limitations of E-marketing are few in number, while the advantages are sure to boost any business up to wards the most fantastic and profitable opportunities. The organic food products industry uses all these mentioned marketing strategies to promote their organic food products and to increase its sales by widening their market well with the help of E-Marketing in India. Selling organic food online is the best way of saving time as we don’t have to go miles for bringing fresh and organic food.

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CUSTOMER PREFERENCE FOR RETAIL IN E-STORES VS BRICK-AND-MORTAR STORES: A COMPARATIVE ANALYSIS

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Abstract

E-stores are becoming emerging in today’s retailing sector. But they push back the Brick-and-Mortar stores for some extent due to convenience and time saving as the most important factors behind it. At the same time, the customers rush to E-stores and Brick-and-Mortar equally considered as important due to emotional values which are gratification (fulfilment) and physical evidence. These things never ever replaced by E-stores. In this study, it is analysed the comparison between E-stores and Brick-and-Mortar stores with certain products and services among the respondents’ shopping preference. Primary and secondary data were used to collect the data and analysed using Percentage analysis and Factor analysis.

Keywords: Brick-and-Mortar store, E-Store, Convenience and Emotional values.

Introduction

Retail involves the sale of merchandise from a single point of purchase directly to a customer who intends to use that product. The single point of purchase could be a brick-and-mortar retail store or an e-store or even through mobile phone. The retail transaction is at the end of the chain. Globally, digital retailing is probably headed towards high sales and highly profitable in the retail market. Whereas brick-and-mortar stores are the popular and traditional store format prevailing in the retail market. The preference of consumers towards the shopping of the products rely on the both type of stores among various product categories. So, the journey of retailing with regards to the preference of consumers towards brick-and-mortar and e-store are travelling in a parallel path.

Brick-and-Mortar

A brick-and-mortar retail establishment is one that operates from a physical storefront, as opposed to other common retailing methods such as mail order catalogues or online shopping. Brick-and-mortar retailing can offer a number of benefits and drawbacks for store owners as well as customers. (Chris Joseph). Forrester with Millennial shoppers’ survey (2016) indicate that preference ine-store and brick-and-mortar. It revealed that 62 percent still prefer to shop in a physical space versus online. Even, the most technologically connected generation in history still wants to shop and buy in a brick-and-mortar store.

E-Store

An e-store is an e-commerce solution for merchants who want to host a website that advertises their products or services and for which consumer transactions are generated online. Various software applications are available to merchants, which range from electronic shopping carts to secure payment
gateways. Merchants that lack e-commerce technical skills find that storefront vendors are especially helpful when starting out or maintaining their online stores. It allows consumers to directly buy goods or services from a seller over the internet using a web browser. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product's availability and pricing at different e-retailers. Alternative names are e-web-store, e-shop, Internet shop, web-shop, web-store, online-store, online storefront and virtual store.

The delivery fees for online purchases and security reasons are among the factors that drive almost as many shoppers to check out a product in an E-store, then visit a brick-and-mortar store to make the sale. This poses challenges to retailers who rely on both E-sales and physical store sales for the base line.

**Brick-and-Mortar versus E-Store**

The E-store journey can have many pros over a brick-and-mortar store like they don't require any costly storefronts rather more cost-effective warehouses used to hold inventory. With numerous warehouses, brands can dispatch products quicker through online orders and customers can receive products faster than earlier. The convenience of shopping through e-store is agreeably the tremendous benefit whereas consumers can select a product and buy it within minutes. There are countless spaces for brands. (Carly Botelho, 2014).

E-stores are rapidly growing in the retail industry, but until the online can provide all the benefits of in the in-store experience, physical stores will continue to be in demand. Shopping is more than consumerism. It may involve the opportunity to spend the time with friends, to temporarily alter the way one perceives them by changing physical appearance or surrounding oneself with company they strive to keep. Apart from the popularity of buying through e-store, there are highly emotional aspects of shopping maintain the appeal of buying in person.

**Review of Literature**

The ability to see, touch and feel products as well as take items home immediately rank highest among the reasons consumers choose to shop in brick-and-mortar stores versus e-stores, according to Retail Dive’s Consumer Survey. (Sandy Skrovan, 2017).

Technology has been the key enabler throughout the history of retail and has changed consumer patterns. E-commerce started in the mid-1990s when for example Amazon and E-bay were found. (Brown et al. 2012).

“Online Vs Bricks and Mortar Retailing: A comparison of Price, Assortment & Delivery time”, in this study it is analysed that under traditional bricks-and-mortar retail model, the retailer displays and sells the assortment in a physical store, whereas under the online retail model, the retailer accepts orders online and delivers the products offline. Large proportion of consumers who buy online and offline. (Erick Li, Steven Lu and Masoud Talebian, 2014).

“Investigating factors influencing customer online buying satisfaction in Gautang, South Africa”, in this study it is found that convenience, delivery and time saving were influenced by customers as the most important reasons for buying online and branding as the least important factor. (Sharon Rudansky-Kloppers, 2014).

In the previous days of online retailing, the phrase “brick-and-mortar” came to mean a retail store with a physical building, as opposed to one that conducts sales entirely through online. Brick and
mortar, undoubtedly, were traditional building element. But the term has taken on a less positive connotation in the internet majority, normally meaning “old-fashioned”. (Matthew Hudson, 2017).

Objectives of the Study
The objectives of the study are

- To find out the comparison among the mode of shopping between Brick & Mortar store and E-Store, and
- To analyse the factors influencing the Brick & Mortar store and E-Store modes of shopping.

Research Methodology
In composition with the objectives of the study, a survey was conducted at Coimbatore District in Tamil Nadu. Primary data was collected through interview schedule from 63 respondents who were selected on a convenience sampling method. Secondary data were collected from various sources such as Journals, Books, Published reports and online sources. The primary data were analysed using the Statistical tools namely Percentage analysis and Factor analysis.

Results and Discussion
The results of the study are prescribed under the following heads.

Socio-Economic Profile of the Respondents
The distribution of socio-economic profile of the sample respondents were analysed and presented in Table 1.

**Table 1 Socio-Economic Profile of the Respondents**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Respondents (N=63)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>53.97</td>
</tr>
<tr>
<td>Male</td>
<td>29</td>
<td>46.03</td>
</tr>
<tr>
<td>Age (in years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-30</td>
<td>32</td>
<td>50.79</td>
</tr>
<tr>
<td>30-40</td>
<td>16</td>
<td>25.40</td>
</tr>
<tr>
<td>40 and above</td>
<td>15</td>
<td>23.81</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>26</td>
<td>41.27</td>
</tr>
<tr>
<td>Married</td>
<td>37</td>
<td>58.73</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>23</td>
<td>36.51</td>
</tr>
<tr>
<td>Employee</td>
<td>27</td>
<td>42.86</td>
</tr>
<tr>
<td>Business</td>
<td>13</td>
<td>20.63</td>
</tr>
<tr>
<td>Monthly Income (in Rs.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 20,000</td>
<td>9</td>
<td>14.29</td>
</tr>
<tr>
<td>20000 – 30000</td>
<td>22</td>
<td>34.92</td>
</tr>
<tr>
<td>30000 – 40000</td>
<td>17</td>
<td>26.98</td>
</tr>
<tr>
<td>40000 and above</td>
<td>15</td>
<td>23.81</td>
</tr>
</tbody>
</table>

The table1 indicates the socio-economic profile of 63 respondents. Out of them, 53.97 percentage are Female and 46.03 percentage are Male. They are from different age groups, 50.79 percentage are between 20 years and 30 years, 25.40 percentage are 30 to 40 years, and the remaining 20.63 percentage are above 40 years of age. Regarding to Occupation, 36.51 percentage of respondents are Professional people, 42.86 percentage are Employees and the remaining 20.63 percentage of respondents are Business category people. In case of Income, most of the respondents (34.92 percentage) are earning Rs. 20,000 to Rs.30,000 as their monthly income, the next 26.98
percentage of respondents are coming under the category of earning Rs.30,000 to Rs.40,000, 23.81 percentage of respondents are earning Rs.40,000 and above. In case of marital status, 58.73 percentage are married and 41.27 percentage are single.

Mode of Shopping of the Respondents

The selection of shopping mode between E-Store and Brick & Mortar store among the respondents was analysed. The comparison between both the stores were made with some product categories. It is given in Table 2.

Table 2 Comparison between E-store and Brick & Mortar

<table>
<thead>
<tr>
<th>Product Category</th>
<th>E-Store (in %)</th>
<th>Brick &amp; Mortar (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td>26.98</td>
<td>73.02</td>
</tr>
<tr>
<td>Garments</td>
<td>17.46</td>
<td>82.54</td>
</tr>
<tr>
<td>Fashion Jewellery</td>
<td>77.78</td>
<td>22.22</td>
</tr>
<tr>
<td>Gold Ornaments</td>
<td>0.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Ready to Eat Foods</td>
<td>19.05</td>
<td>80.95</td>
</tr>
<tr>
<td>Foot Wears</td>
<td>47.62</td>
<td>52.38</td>
</tr>
<tr>
<td>Electronic Goods</td>
<td>49.21</td>
<td>50.79</td>
</tr>
<tr>
<td>Grocery</td>
<td>12.70</td>
<td>87.30</td>
</tr>
<tr>
<td>Kitchen Utensils</td>
<td>42.86</td>
<td>57.14</td>
</tr>
<tr>
<td>Buying &amp; Selling of Used Goods</td>
<td>61.90</td>
<td>38.10</td>
</tr>
<tr>
<td>Toys</td>
<td>25.40</td>
<td>74.60</td>
</tr>
<tr>
<td>Sportswear</td>
<td>53.97</td>
<td>46.03</td>
</tr>
<tr>
<td>Tickets (Travelling, Cinema…)</td>
<td>84.13</td>
<td>15.87</td>
</tr>
<tr>
<td>Payment of bills (EB, Mobile…)</td>
<td>79.37</td>
<td>20.63</td>
</tr>
</tbody>
</table>

The above table contains various product categories showing the comparison between shopping made with Brick and Mortar stores and E-Stores among the respondents. Some of the products they intend to buy from brick and mortar stores only and some from E-stores. That's according to the type of product and also it is rely upon the customers too. In such way, some hits in the brick and mortar store and some of them in E-stores. The products like Books (73 percent), Garments (83 percent), Ready to eat foods (81 percent), Grocery (87 percent) and Toys (75 percent) are highly preferred to buy in Brick and mortar stores than E-stores.

Then products like Fashion jewellery (78 percent), Booking or reservation of tickets for various purposes (84 percent) and Payment of bills (84 percent) like Electricity, phone and for other purposes in day to day life made with E-stores by large numbers among the respondents. And Buying and Selling of used goods (62 percent) are used deal with E-stores(eg.OLX).

Further, there are some of the products are in the list which are equally buy from Brick and Mortar stores and E-stores too. They are Foot wears (E-store: 48 percent) (Brick and Mortar (B & M) store: 52 percent), Electronic goods (E-store: 49 percent) ((B & M) store: 51 percent), Kitchen utensils (E-store: 43 percent) ((B & M) store: 57 percent). Finally, one luxury product which is used to buy only from Brick and Mortar store is Gold (100 percent).

Factors influencing preference for shopping in Brick & Mortar Store

In order to find out the factors influencing the Brick and Mortar store as the mode of shopping among the respondents, their intentions were gathered through five-point Likert scale. The data so collected were subjected to Factor Analysis, in order to bring out the underlying factors, Varimax Rotation with Kaiser Normalisation were used. The principle component analysis was used based on Eigen value and all these factors which have Eigen value more than one were included. Six factors have Eigen value more than one. The KMO and Bartlett’s brings out sample adequacy and highly significant as shown in Table 3.
Table 3 KMO and Bartlett’s Test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</th>
<th>.671</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett’s Test of Sphericity</td>
<td>.553542</td>
</tr>
<tr>
<td>Approx. Chi-Square</td>
<td>190</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 4 Factors influencing preference for shopping in Brick & Mortar Store among the Respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Factors</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Removal of Waiting Frustrations</td>
<td>.490</td>
<td>.208</td>
</tr>
<tr>
<td>Credit facility</td>
<td>-.288</td>
<td>.175</td>
</tr>
<tr>
<td>Time saving</td>
<td>-.159</td>
<td>.345</td>
</tr>
<tr>
<td>Gratification(fulfillment)</td>
<td>.381</td>
<td>.827</td>
</tr>
<tr>
<td>The joy of shopping(entertainment)</td>
<td>.148</td>
<td>.898</td>
</tr>
<tr>
<td>Segmented Channels</td>
<td>.108</td>
<td>-.110</td>
</tr>
<tr>
<td>Sales Promotion</td>
<td>.110</td>
<td>.075</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>.059</td>
<td>.140</td>
</tr>
<tr>
<td>Peer group influence</td>
<td>.122</td>
<td>.059</td>
</tr>
<tr>
<td>Discounts &amp; Offers</td>
<td>.308</td>
<td>-.103</td>
</tr>
<tr>
<td>Accessibility</td>
<td>.509</td>
<td>.112</td>
</tr>
<tr>
<td>Description &amp; Measurement of the</td>
<td>.654</td>
<td>.033</td>
</tr>
<tr>
<td>product</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of the product</td>
<td>.494</td>
<td>.397</td>
</tr>
<tr>
<td>Tangibility</td>
<td>.721</td>
<td>.317</td>
</tr>
<tr>
<td>Trust Worthy</td>
<td>.187</td>
<td>.198</td>
</tr>
<tr>
<td>Return or Exchange of the product</td>
<td>.741</td>
<td>.256</td>
</tr>
<tr>
<td>Delivery of the product</td>
<td>.713</td>
<td>.232</td>
</tr>
<tr>
<td>Payment facility</td>
<td>.844</td>
<td>.032</td>
</tr>
<tr>
<td>Quality of the product</td>
<td>.799</td>
<td>-.104</td>
</tr>
<tr>
<td>Broad brand choices to choose</td>
<td>-.186</td>
<td>.195</td>
</tr>
<tr>
<td>Variance (%)</td>
<td>28.652</td>
<td>11.146</td>
</tr>
<tr>
<td>Cumulative Variance(%)</td>
<td>28.652</td>
<td>39.798</td>
</tr>
</tbody>
</table>

Source: Computed Data

On factoring 20 variables totally six key factors influenced the respondents towards shopping through Brick & Mortar store to the extent of 67 percent. The factor one “Legitimacy and longevity” consists of Description and Measurement of the product (.654), Tangibility (.721), Return or Exchange of the product (.741), Payment facility (.844) and Quality of the product (.799) influenced 28.652 percent of the variance. The second factor “Self-interest” consists of Gratification (fulfilment) (.827) and the joy of shopping (entertainment) (.898) influenced 11.146 percent of the variance. The third factor “Motive” which includes Peer group influence (.736) influenced 9.742 percent of the variance.

The fourth factor “Salesmanship and trust” consists of Sales Promotion (.846) and Trust Worthy (.699) influenced with 6.727 percent of the variance. The fifth factor “Attitude” consists of Atmosphere...
Factors influencing preference for shopping in E-Store

In order to find out the factors influencing the Brick and Mortar store as the mode of shopping among the respondents, their intentions were gathered through five-point Likert scale. The data so collected were subjected to Factor Analysis, in order to bring out the underlying factors, Varimax Rotation with Kaiser Normalisation were used. The principle component analysis was used based on Eigen value and all these factors which have Eigen value more than one were included. Six factors have Eigen value more than one. The KMO and Bartlett’s brings out sample adequacy and highly significant as shown in Table 5.

Table 5 KMO and Bartlett’s Test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</th>
<th>.743</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett’s Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Square</td>
<td>604.619</td>
</tr>
<tr>
<td>Df</td>
<td>190</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 6 Factors influencing preference of shopping in E-Store among the Respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit facility</td>
<td>.528</td>
<td>-.049</td>
<td>-.442</td>
<td>.084</td>
<td>.264</td>
<td>-.254</td>
<td>.618</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>.255</td>
<td>.041</td>
<td>.703</td>
<td>.017</td>
<td>.064</td>
<td>.085</td>
<td>.573</td>
</tr>
<tr>
<td>Tangibility</td>
<td>.503</td>
<td>.471</td>
<td>-.139</td>
<td>-.156</td>
<td>.237</td>
<td>.300</td>
<td>.664</td>
</tr>
<tr>
<td>The joy of shopping (entertainment)</td>
<td>.550</td>
<td>.568</td>
<td>-.046</td>
<td>-.131</td>
<td>-.020</td>
<td>-.070</td>
<td>.650</td>
</tr>
<tr>
<td>Discounts &amp; Offers</td>
<td>.336</td>
<td>.700</td>
<td>-.185</td>
<td>-.033</td>
<td>.002</td>
<td>.119</td>
<td>.652</td>
</tr>
<tr>
<td>Delivery of the product</td>
<td>-.200</td>
<td>.388</td>
<td>.154</td>
<td>-.173</td>
<td>.644</td>
<td>.025</td>
<td>.659</td>
</tr>
<tr>
<td>Segmented channels</td>
<td>.097</td>
<td>-.195</td>
<td>.020</td>
<td>.093</td>
<td>.850</td>
<td>-.063</td>
<td>.783</td>
</tr>
<tr>
<td>Peir group influence</td>
<td>.328</td>
<td>.710</td>
<td>.078</td>
<td>-.036</td>
<td>.011</td>
<td>-.021</td>
<td>.619</td>
</tr>
<tr>
<td>Sales Promotion</td>
<td>.270</td>
<td>.290</td>
<td>.247</td>
<td>.223</td>
<td>-.006</td>
<td>.693</td>
<td>.748</td>
</tr>
<tr>
<td>Return or Exchange of the product</td>
<td>-.295</td>
<td>-.280</td>
<td>.260</td>
<td>.695</td>
<td>.007</td>
<td>.023</td>
<td>.717</td>
</tr>
<tr>
<td>Time saving</td>
<td>.090</td>
<td>.080</td>
<td>-.074</td>
<td>.888</td>
<td>.200</td>
<td>.013</td>
<td>.849</td>
</tr>
<tr>
<td>Description &amp; Measurement of the product</td>
<td>.252</td>
<td>.762</td>
<td>.232</td>
<td>.032</td>
<td>-.071</td>
<td>.046</td>
<td>.709</td>
</tr>
<tr>
<td>Gratification (fulfilment)</td>
<td>.291</td>
<td>.450</td>
<td>-.148</td>
<td>.344</td>
<td>.113</td>
<td>-.628</td>
<td>.834</td>
</tr>
<tr>
<td>Broad brand choices to choose</td>
<td>.801</td>
<td>.296</td>
<td>.039</td>
<td>-.172</td>
<td>.105</td>
<td>-.036</td>
<td>.773</td>
</tr>
<tr>
<td>Removal of Waiting Frustrations</td>
<td>.691</td>
<td>.338</td>
<td>.241</td>
<td>-.079</td>
<td>-.019</td>
<td>-.109</td>
<td>.668</td>
</tr>
<tr>
<td>Accessibility</td>
<td>.739</td>
<td>.161</td>
<td>.121</td>
<td>.220</td>
<td>-.133</td>
<td>.297</td>
<td>.741</td>
</tr>
<tr>
<td>Availability of the product</td>
<td>.741</td>
<td>.427</td>
<td>.025</td>
<td>-.165</td>
<td>.020</td>
<td>.014</td>
<td>.760</td>
</tr>
<tr>
<td>Payment facility</td>
<td>.777</td>
<td>.210</td>
<td>.156</td>
<td>.073</td>
<td>.016</td>
<td>.189</td>
<td>.713</td>
</tr>
<tr>
<td>Quality of the product</td>
<td>.599</td>
<td>.313</td>
<td>.228</td>
<td>.041</td>
<td>-.252</td>
<td>-.166</td>
<td>.601</td>
</tr>
<tr>
<td>Trust worthy</td>
<td>-.056</td>
<td>-.016</td>
<td>-.777</td>
<td>-.082</td>
<td>-.062</td>
<td>.024</td>
<td>.619</td>
</tr>
<tr>
<td>Variance (%)</td>
<td>34.005</td>
<td>10.530</td>
<td>8.283</td>
<td>6.032</td>
<td>5.685</td>
<td>5.208</td>
<td></td>
</tr>
<tr>
<td>Cumulative Variance (%)</td>
<td>34.005</td>
<td>44.535</td>
<td>52.818</td>
<td>58.850</td>
<td>64.535</td>
<td>69.743</td>
<td></td>
</tr>
</tbody>
</table>

Source: Computed Data
On factoring 20 variables totally six key factors influenced the respondents towards shopping through Brick & Mortar store to the extent of 69 percent. The factor one “Convenience” consists of Broad brand choices to choose (.801), Removal of waiting frustrations (.691), Accessibility (.739) and Availability of the product (.741) influenced 34.005 percent of the variance. The second factor “Motive and interest” consists of Discounts and offers (.700) and Peer group influence (.710) and Description and measurement of the product (.762) influenced 10.530 percent of the variance. The third factor “Ambience” which includes Atmosphere (.703) influenced 8.283 percent of the variance.

The fourth factor “Adaptability” consists of Return or exchange of the product (.695) and Time saving (.888) influenced with 6.032 percent of the variance. The fifth factor “Facilitation” consists of Delivery of the product (.644) and Segmented channels (.850) with the variance of 5.685 percent. And finally, the sixth factor “Promotional activity” consists of which includes Sales promotion (.693) influenced with 5.208 percent of the variance. The highest communality value .849 indicates that the “Time Saving” influenced the respondents towards the shopping made with the E-Stores.

Recommendation

Brick-and-Mortar stores will need to grow and evolve in order to continue to compete with the development of E-stores. This can be done by provide an enjoyable, convenient shopping environment, incorporate new technologies in-stores to make shopping experience more efficient and also continue to offer helpful resources for customers. The retail owners should recognize the different view of consumers when buying E-Store versus Brick-and-Mortar, can design a channel strategy that aligns with needs of the consumers’ regardless of in which mode of stores they buy.

Conclusion

The results of the analysis clearly indicate that both the E-store and Brick-and-Mortar store plays a major role in the shopping activities of the consumers. Even though E-stores facilitate more convenience and time saving as the main factors influenced by the consumers, still they stick on to the Brick-and-Mortar stores for certain type of products. But for some of the products they prefer both the stores equally according to their timing needs and convenience. Finally, the stores that can discover a seamless and flawless way to make shopping both in e-store and in-store to connect with the customers will be the most successful.

References
A STUDY ON E-TRANSACTIONS IN E-GOVERNANCE OF TAMIL NADU

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Abstract

The advancements in technology are in rapid phase with the Information and Communication Technology (ICT) as a big driver of other sectors to be automated in a large context. Human mentality of simplifying and easing of work in all aspects is increasing including in the Public Governance. The Governance in current scenario is much automated through ICT to provide quicker and transparent services to the targeted people. India is one of the fast growing economies in the world which is also improving in E-Governance, according to the United Nation’s E-Index which denotes the status of E-Readiness and E-Governance services. India is having a rapid increase in E-transactions through the Digital India program. Tamil Nadu being one of the top 5 states in Economy wise has implemented a lot of E-Governance services. This paper stretches to analyze the E-transactions in the selected E-Governance services of the Tamil Nadu Government.

Keywords: Tamil Nadu e-governance, information and communication technology, e-transactions, electronic service, online services, ICT merits.

Introduction

Asia is the world’s largest and most-populous continent. It hosts a large diversity of ethnicities, religions, cultures and languages. Many of the Asian countries are known for its history, culture and civilizations. Many of the world’s top economies are part of this region. In the current trend, the technology is also embarking as Asia centric with many countries like China, Japan, Singapore, South Korea are advancing to the peak in improving the e-infrastructure. For instance, Singapore and Hong Kong are well known for its transparent and efficient E-Governance and the time taken in E-Government is relatively very less.

India, being a multi-cultural, multi-lingual country with a very large population, the improvement of literacy rate improvement is in slow progress. Although the internet penetration is increasing rapidly in the country, the E-Readiness and E-Governance services are yet to be received by the poor people and rural areas. The Digital India has given a boost to the E-Governance services but it’s a long term process. As the Agriculture is found predominant in India, E-Governance should include all its sectors for the effective people participation. India, considered as one of the global influencing economies is also in the process of implementing E-Governance in Agribusiness mainly in analyzing and approval of projects, environmental protection, research in Climatic conditions, Agriculture, Pollution control, etc. Many of the public and private agencies work on Environment Care, Energy Management, Audits, Hazardous Waste Management, Bio Medical Waste Management, etc. The Department of Agriculture and Cooperation (DAC), Ministry of Agriculture has implemented a National e-Governance Programme (NeGP) in the Agribusiness Sector as a Mission Mode Project (A-MMP). It addresses the needs of the Agribusiness community with provision to relevant information and services through different delivery channels are available.
Tamil Nadu, is one of the top five states in economy and one of the top seven in the developed states in India, has unique language, Tamil, as its official language. With a negotiable Hindi speaking population in the state, it is necessary that all the Government services are provided in Tamil. Hence the E-Governance services also have been framed in bilingual. Top E- Governance services like E-District project have been implemented in full swing with the aid from Central Government and Lakhs of E-transactions are done every year.

Review of Literature

According to Monga (2008), Nowadays the international trend is towards the online service delivery and greater citizen interaction, this interaction and service delivery can be achieved through the uses of new technologies. The E-Government paradigm means rendering of government services and information to public using the electronic media. The new shape of government has brought a revolution in the quality of services delivered to the citizens. It has ushered the transparency in the governing process; saving the time due to provision of service through single window; simplification of procedures; better office and record management; reduction in corruption and improved attitude, behaviour and job handling capacity of the dealing personnel. With its ingrained transparency and openness, E-Governance has got a wide scope of social views in a changing environment which is highly adaptive to a technology based growth in the society. According to Holmes (2003), E-Governance is the outgrowth of the efforts made by the governments to improve the relations with their citizens and provide transparency.

Statement of the Problem

The advancements in technology are in rapid phase with the Information and Communication Technology (ICT) as a big driver of other sectors to be automated in a large context. In the recent years, ICT availability has dramatically increased and involved across every sector. ICT in Governance provides faster processing of services and more transparency. Hence the current status of ICT implication in Governance needs to be known to improve it to further advanced levels. The usage of various E-Governance services can give the current status of ICT implication in Governance in the Tamil Nadu region.

Purpose of the Study

The purpose of this study was to examine and describe number of E-Transactions in the context of E-Governance services in Tamil Nadu. This paper describes the implication of ICT in Governance through the number of E-Transactions done in a particular time period in Tamil Nadu region. This paper mainly focuses on the study of effective ICT implementation in the Governmental services of Tamil Nadu and is limited to year 2016 with the E-Governance services–Community certificate, Income Certificate, Nativity certificate and No Graduate Certificate.

Research Design

The Tamil Nadu Government issues various certificates to individuals for different benefits such as getting scholarship, admission under quota and so on. Some of such certificates are–Community certificate, Income Certificate, Nativity certificate and No Graduate Certificate. These certificates are now provided in both in person and online mode, but recommended mode is online. The data for this study is obtained from the Government agencies and its web portals through applicable laws. The data shows the current status of E-Transactions based on given time period. Variance analysis of the
obtained data is done to analysis the number of E-Transactions for each time period. This paper analyses the E-Transactions in the above certificates for the year 2016 based on the following hypotheses.
1. There is a significant difference between the number of E-Transactions in each month of given data.
2. Income certificate is the category with most E-Transactions from the given data.

Analysis

E-Readiness is an important criterion for effective E-Governance which includes best infrastructure, capability to implement high end E-Governance projects, provide simple & transparent E-services in quick time to the targeted people and the efficiency of citizens to take part in Governance. Also Security polices, practices and procedures must be in place as well as utilization of security technology, which help to protect e-Government systems against attack, detect abnormal activity services and to have a proven contingency plan in place as part of Smart City solution. Fundamental factors are to have a proper public-key infrastructure providing a required level of authentication and integrity and also to have a continuous awareness and training program to ensure people understand security threats, know how to identify potential issues and behave accordingly to maintain a secure e-Government service.

The E-Transactions will increase based on the E-Readiness value and is directly proportional to each other. Given below is the data of E-Transactions in various services provided by Tamil Nadu Government in E-mode. The study is mainly for the certificates issued by the Tamil Nadu Government in the year 2016.

Table 1 Number of E-Transactions of Tamil Nadu in the each Certificate Category for the Year 2016

<table>
<thead>
<tr>
<th>Month</th>
<th>Community Certificate</th>
<th>Income Certificate</th>
<th>Nativity Certificate</th>
<th>No Graduate Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>232208</td>
<td>196336</td>
<td>173069</td>
<td>786</td>
</tr>
<tr>
<td>February</td>
<td>192199</td>
<td>166807</td>
<td>131915</td>
<td>680</td>
</tr>
<tr>
<td>March</td>
<td>125485</td>
<td>97716</td>
<td>69249</td>
<td>720</td>
</tr>
<tr>
<td>April</td>
<td>102127</td>
<td>111254</td>
<td>85531</td>
<td>669</td>
</tr>
<tr>
<td>May</td>
<td>160815</td>
<td>288107</td>
<td>219718</td>
<td>81480</td>
</tr>
<tr>
<td>June</td>
<td>396328</td>
<td>567526</td>
<td>352440</td>
<td>52607</td>
</tr>
<tr>
<td>July</td>
<td>301746</td>
<td>509652</td>
<td>259733</td>
<td>19548</td>
</tr>
<tr>
<td>August</td>
<td>313880</td>
<td>631524</td>
<td>289836</td>
<td>9723</td>
</tr>
<tr>
<td>September</td>
<td>310699</td>
<td>459375</td>
<td>280555</td>
<td>4661</td>
</tr>
<tr>
<td>October</td>
<td>151115</td>
<td>207858</td>
<td>112173</td>
<td>2135</td>
</tr>
<tr>
<td>November</td>
<td>191880</td>
<td>198166</td>
<td>128895</td>
<td>1304</td>
</tr>
<tr>
<td>December</td>
<td>137359</td>
<td>134024</td>
<td>90710</td>
<td>764</td>
</tr>
</tbody>
</table>

Hypothesis 1

Null Hypothesis: There is no difference between the number of E-Transactions in each month of the given data.

Alternate Hypothesis: There is a significant difference between the number of E-Transactions in each month of the given data.

The above table (table 1) shows that No Graduate certificate has a fewer transactions compared to other certificates and most of the transactions are done between May-August, which is linked to the academic year in the region with school and college admissions in this time period. Based on this it can be assumed that most of these certificates are used for educational purposes than other purposes. Hence the null hypothesis is rejected and alternate hypothesis is accepted. There is a significant difference between the number of E-Transactions in each month from the given data.
Hypothesis 2
Null Hypothesis: There is no difference between the number of E-Transactions in each certificate category of the given data
Alternate Hypothesis: Income certificate is the category with most of the E-Transactions done for given data

Figure 1: Number of E-Transactions of Tamil Nadu in each Certificate Category for the Year 2016

Among the various Certificate categories, the 4th category (No Graduate) has very low transactions. The chart given above shows the most and least E-Transactions for the given data. The one way ANOVA analysis is used to check the analysis of variance for the given data. It gives the analysis for hypothesis 2. The ANOVA analysis for the given data is as below.

Table 2 ANOVA Analysis for Hypothesis 2

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Certificate</th>
<th>Mean/SD</th>
<th>Mean</th>
<th>ANOVA f-ratio</th>
<th>ANOVA p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Community Certificate</td>
<td>217986.75 / 92629.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Income Certificate</td>
<td>29732.08 / 191246.96</td>
<td>178189.31</td>
<td>12.43</td>
<td>0.000282</td>
</tr>
<tr>
<td>03</td>
<td>Nativity Certificate</td>
<td>182818.66 / 94621.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>No Graduate Certificate</td>
<td>14589.75 / 25865.79</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the above table (table 2), ANOVA analysis to check the significant difference between the number of E-Transactions in each month of given data with 5% level of significance is given. As p=0.000282, which is less than 0.5, so null hypothesis is rejected and Alternate Hypothesis is accepted. Hence there is a significant difference between E-Transactions in each certificate category of given data. Based on the chart above, Income certificate is the category with most of the E-Transactions for the given data.

In India, generally the community certificate is very important as it is used for many Government subsidies and welfare measures. Also in education and jobs, it plays a vital role. Still, Income certificate is the category which has obtained highest number of transactions in the above figure, and moving the community certificate to the second level. Tamil Nadu is considered as a region with vast number of educational institutions and also one of the top economy states in India which generates a lot of jobs in various sectors. The least number of 'No Graduate' certificate can also be taken as a parameter to assume the literacy and job ratio in the region.

The general lessons obtained from this study shows that many of the people are using E-Transactions to avail the Governmental services in Tamil Nadu. The obtained data and the analysis has given the current status of ICT through number of E-Transaction for the given time period. The transactions are not at the same level throughout the year and hence the infrastructure should be
capable for peak loads in certain time period. Improving the security and user friendliness and a good campaign about E-Governance services will gradually increase the E-Participation of the people in Governance.

**Conclusion**

The success of E-Government lies in applying the principles in a coherent and holistic way by numerous people across agencies, states consistently over a period. E-Governance is already playing a vital role in the global economy. The various agencies of United Nations Organization (UNO) and the World Bank are already providing a vast support for the E-Governance initiatives. E-Governance enhances the efficacy of citizen and Government interactions. In order to fulfill this need, the Government has to encourage e-participation of the citizens in all its services. This paper gave a current view of E-Transactions in some of the E-Governance services of Tamil Nadu Government.

**References**

FACTORS OF PREDICTIVE MODEL FOR OCCUPATIONAL SAFETY

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Abstract
Occupational safety, is one of the important measure which requires an utmost attention across industries. Implementation and accommodation of workplace safety strategies always benefits the workplace’s reputation, growth, and have less attrition in human resources. In India, Occupational Health and Safety (OH & S) specifies the key regulations to ensure accident-free industrial environment. Analyzing the historical safety incidents data helps the organization in a great way to identify the potential trends and helps to reduce the loss. Modern Data Mining techniques provides the insight on the compiled accident and incident data to construct the model that can prevent accidents/incidents. This paper discusses about the factors to be considered for effective construction of the prediction model using data mining techniques to prevent the accidents/incidents. Identifying the underlying factors of accidents/incidents will find the root cause and with the availability of these factors, model will predict the probability of future accidents/incidents before they occur.

Keywords: Workplace Safety, Data Mining, Predictive Model, Occupational Health and Safety;

Introduction
Bureau of Indian Standards has formulated the Occupational Health and Safety (OH&S) standards to improvise the Indian industries and organizations to achieve high safety and health measures. IS 18001:2007 describes Indian Standard Occupational Health and Safety Management System – Requirements with guidance for use[5]. This standard assists the organizations for a systematic approach of OH&S to protect the employees from organizational activities. The OH&S management systems may be integrated with the management of other aspect of business performance in order to:

a) minimize risk to employees and others, b) improve business performance, and c) assist organizations to establish a responsible image at the marketplace[5]. In other words, this standard will not only help to improve occupational safety and health of the employees but also to improve the overall quality and environmental conditions in the workplace. Based on the organization’s objective and philosophy, the occupational health and safety policy may vary depending upon their specific needs. As organizations grow, there can be enhancements to the policies, procedures and programmes to improve the OH&S performance.

[5] Organizations’ system model which incorporates the Occupational Health and Safety management system should comply with the following principles:

1. **Commitment and Policy**: An organization should define its OH&S policy and ensure commitment to its OH&S management systems.
2. **Planning**: An organization should plan to fulfill its OH&S policy, objectives and targets.
3. **Implementation and Operation**: For effective implementation, an organization should develop the capabilities and support mechanism necessary to achieve its OH&S policy, objectives and targets.
4. **Measurement and Evaluation**: An organization should measure, monitor and evaluate its OH&S performance and take preventive and corrective actions.

5. **Management Review**: An organization should regularly review and continually improve its OH&S management system with the objective of improving its OH&S performance.

**Classification System**

Modern industrialization changes the nature of work and its related process which also opens more hazards and ill health problems among the workers. This insists a progressive organization should incorporate the standards to keep an eye on safety, health and environment. Safety incidents are less common than road traffic accidents, but Safety incidents cause great concern mainly due to unpredictability in terms of when and where and their scale of impact[7]. People, especially employees, are always exposed to the number of hazards and risks, no matter how they occupy themselves. "Zero risk" does not exist to an individual, society or the environment.

The Survey of Occupational Injuries and Illnesses (SOII)[7] and the Census of Fatal Occupational Injuries (CFOI)[7] share several systems to classify industry, occupation, case circumstances and worker characteristics[3]. Each incident can be classified into five viewpoints which can describe about the serious non-fatal injury or illness or a fatal injury:

**Fig.1 Incident circumstance from five classification view points**

Incident circumstance may also include day of the week, time of the day, hours of work before the incident happened. As same, worker characteristics includes the information about occupation, industry type, age and age group, gender, and experience in the specific field of work. Subset may also include days away from work, incidence rates, and percent distribution. Sometimes, High technology can also cause unforeseen hazards and vulnerable to failures. General classification of risk types of organization are: Reputation risk - frequent workplace injuries may impact the reputation, Talent risk - frequent or severe workplace incidents may cost a talent base and lower productivity, and Financial risk - insurance premiums, compensation payments, productivity loss and repairs.

**Methodology**

General methodology to analyze the safety incident involves the analysis of the historical safety incident data. Analysis looks for the missing piece of information in regard to the current incident. This analysis might the fact of what happened but it will miss the information about why. To find out the root cause of the incident, organizations need a way to identify the potential “casual factors” of the safety incident.

Availability of various casual factors of safety incidents allows organizations to view incidents in different analytic perspectives. Analysis can be in a traditional employee focused perspective by having employees attributes contributed to the safety incident like a) training, b) age, c) tenure, and d)
engagement. Organization can also focus on other parts of incidents by constructing a more holistic model of the incident. Considering the variables of the incident like a) weather, b) job site, c) maintenance schedule, d) production measures, and e) financial data, helps to identify the other casual factors not associated with the employees. This provides the insight to the organization to take preventive actions to reduce the incidents.

Following are the four major data sources that organizations can use to create a perspective over the safety incident.

1. **Incident Report** – contains details of person injured/involved, date and time, exact location, unsafe conditions observed, sequence of events, control measures taken, and weather conditions.

2. **Equipment Status Report** – contains details of tools used by the person involved, maintenance schedule of the equipment, operational status of the equipment, part numbers and if there any fault in the tools then details about how it happened.

3. **Worker Characteristics** – contains details about name, address, age, sex, any medical condition, training, tenure, experience, safety measures taken, nature of work, belongings and wearings of the person, length of absence.

4. **Survey** – contains details about information about injured/involved person from any require to speak to, any witnesses information, factual information about sequence of events without a guess, putting in place a control measure to prevent recurrence.

**Safety Analytics:** Modern data mining and analytical tools provides the variety of options to bring all the available diversified data together to optimize and fuse the data into analytic data set for better analysis. Safety analytics brings the act of findings in the timely manner. Text mining retrieves the useful and valuable information from the above specified data sources in the form of interesting patterns and trends using pattern learning techniques. Optimizing and validating the data sources involves the routines of the following:

- Defining the initial analysis of the data points
- Gathering all the information
- Validating the data to achieve quality and maturity
- Structuring the data for analysis
- Derive the metrics including calculations
- Exploration and identification of the causes
- Defining and developing the domain model
- Prioritizing the causes of the incident
- Conducting the survey to get the insight of the issues

**Predictive Model**

Predictive modeling involves data mining and statistical techniques to generate a mathematical model that can predict and classify future events by analyzing the trends. Although the historical data provides the factors to analyze the cause, data is not sufficient. For better predictive approach, a periodic safety auditing/inspection of the workplace should be carried out to generate a factual information about the current scenario. By having the safety auditing information, organization can apply data analytics and determine the results of workplace safety. By implementing data analytic strategies like data visualizations and machine learning, organizations can have increase in productivity, financial benefits and reduced litigations. Usage of inspection data in predictive model can bring down
the human cost of safety by reducing the number of workplace incidents which makes organizations to
focus on their primary goal. Inspection model varies to different organization based on the nature of
work and work culture. Generalized inspection model to be used for predictive analytics have the
following factors:

- Brief description of worksite (Building, floors, confined space etc.)
- Slip, Trips and Falls (details about tiles, leaks, storage space, disposal facilities etc.)
- Fire Safety (details like fire exits, signs, alarm signals, assembly point etc.)
- Equipment (details about air conditioning, power sockets, furniture, work stations etc.)
- Environment (details like light levels, temperature, air quality etc.), and
- Training and procedures (emergency procedure, security procedure etc.).

Regression techniques helps to predict continuous responses when the data point is dynamic or in
fluctuation. Whereas, Classification techniques helps to predict the discrete results. Effectively
identifying and using the factors in Predictive modeling prevents/reduce the potential fatality, severity
and frequency. Broad range of available data helps the better outcomes of workplace safety and
business efficiency.

Conclusion

Need for an efficient implementation of Occupational Health and Safety Management System is vital.
The OH&S management in India is complex due to challenges such as huge workforce, less cost
employees, and lack of historical and reliable OH&S data. Predictive model using data mining techniques
is an important solution to ensure workplace safety. Identify the key factors for predictive model as
discussed in above sections helps organizations to produce better outcome to reduce the workplace
incidents. Number of auditing/inspection reports are directly proportional to workplace safety.
Organizations that makes employees in identifying the unsafe workplaces have fewer incidents.

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A STUDY WITH REFERENCE TO STATE BANK OF INDIA'S ONLINE BANKING SERVICES

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Abstract  
E-Banking also called as internet banking, online banking or virtual banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution’s website. This paper is about the E-Banking aspects of State Bank of India (SBI), it also provides a clear view on the benefits and advancement in technology in banking sectors. The study also tells us about customer application which saves their valuable time and energy.  
**Keywords:** e-banking, Information Technology, Customer application.

State Bank of India  
Introduction  
Online or Internet banking is a way for customers of a bank to conduct a range of financial transactions through their online banking channel. Online banking gives us the freedom to bank where and when we want. It is a very convenient way to stay on top of our finances. The State Bank of India plays a vital role on the e banking services. The Online SBI is the Internet banking portal for State Bank of India. The portal provides anywhere, anytime, online access to accounts for State Bank's Retail and Corporate customers. The application is developed using the latest cutting edge technology and tools. The infrastructure supports unified, secure access to banking services for accounts in over 15,000 branches across India.

Services Rendered by SBI on E - Banking  
Retail Internet Banking  
- Transfer funds to own and third party accounts  
- A suite of completely online deposit products (Fixed, Recurring, Flexi, Tax Saving etc.)  
- Airline, Rail, Bus and hotel ticket booking  
- Online Shopping and instant recharge features.  
- IMPS Funds Transfer  
- Western Union Service  
- Credit beneficiary accounts using RTGS/NEFT feature  
- Generate account statements  
- Setup Standing Instructions and Scheduling payments
Corporate Internet Banking

State Bank of India offers world class Internet Banking services to its Corporate Customers through the portal www.onlinesbi.com. The Corporate Internet Banking (CINB) facility of SBI enables the corporate customer to carry out banking activities anywhere and anytime aided with the power and convenience of the internet.

- Convenience banking – Operate your account from the comfort of home or office.
- Maker – Checker model to ensure security and integrity in the transactions.
- Anytime Banking- Enquire/ transact on your account on a 24 x 7 basis.
- Save time and costs - No need to go to the bank branch for routine transactions.
- Promote Green Banking – No hassle of paper work
- Pay your Bills, taxes and statutory dues online - Beat the queues.
- File upload facility: Facilitates bulk payment of salary, tax, pre-paid card top up, utility bills, remittances etc.

Apps Provided by SBI

- SBI Online
- SBI Buddy
- SBI Anywhere
- SBI Rewardz
- SBI Quick
- YONO by SBI

SBI Online

SBI online app will redirect the customer to SBI Retail Internet Banking (online SBI) Site by invoking native / installed browser of the mobile for catering responsive user interface. Customer can use their Retail Internet Banking credentials to login. All the features available to Desktop version of SBI Retail Internet Banking (online SBI), will be available through it. It will give you uniform experience with desktop version of SBI internet banking. No need to the update the app as newly added features will automatically be available through it.

Features of SBI online app

- Less memory space required on device
- Fully Secure
- No frequent update required
- Full range of desktop version features available
- Enjoy incremental feature without any extra effort.
- No need to remember URL

SBI Buddy

SBI Buddy is the first Indian Mobile Wallet Application available in 13 Languages. It comes with several features like Send money to registered and new users, Ask money and Send reminders to settle dues, transfer additional cash into an account of your choice free of cost, Recharge and Pay Bills instantly, Book for movie tickets, flights and hotel and shop for your favorite merchandise.

Uses of SBI Buddy

- First time users Sign Up by swiping to the right
- Load money into your wallet
- Transfer money with your contacts on phonebook
Recharge your mobile/DTH and pay bills
Shop online and book movies, flights and hotels
Transfer money instantly to your bank account
24*7 customer support: Write to us at customercentre@sbi.co.in

SBI Anywhere Personal
Mobile Banking application for Smart Phone customers of SBI supporting English and Hindi languages. Use your Retail Internet Banking credentials to login or register afresh through the Register> New User option. A safe, convenient and easy to use application with a host of features to help users manage your finances on the move. Download from Google Play store Only. Do not use any other websites for downloading this application.

Services
- Manage Debit Cards Access Channels
- Manage Channel Wise Limits for Debit Card Transactions
- Debit Card Hotlisting
- Create and Manage Standing Instruction
- Change Maturity Instructions for eDeposits
- Online Nomination
- Virtual Card facility for secure eCommerce payments

SBI Quick
SBI Quick – MISSED CALL BANKING is a new service from State Bank of India which involves Banking by giving a Missed Call or sending an SMS with pre-defined keywords to pre-defined mobile numbers. This service can only be activated for the mobile number that is registered for a particular account with the Bank.

Services include
- Balance Enquiry
- Mini Statement
- Blocking of ATM Card
- Car and Home Loan Enquiry

YONO by SBI
With YONO, You Only Need One app for all your banking, shopping and investment needs. YONO is your one stop shop to fulfil all your banking, insurance, investments, and daily shopping needs.

Offers by YONO
An extension of our secure and trusted banking legacy, YONO by SBI puts India’s largest range of products and services at your fingertips. YONO will fulfil your digital banking, other financial products need as well as your daily lifestyle, entertainment, travel and shopping needs through its marketplace within one single app. YONO offers you omni-channel seamless experience.

Conclusion
In conclusion, e banking is a tool that can both help and harm. Whether it is used for business, school, research, or for relationship building, e banking offer many new and exciting opportunities. However, the unsuspecting user can quickly be led down a potentially dangerous path. I give social networking neither the green light nor the red light but rather the yellow light: proceed with caution.
A STUDY ON CONSUMER AWARENESS AND SATISFACTION OF E-BANKING SERVICES IN PUBLIC SECTOR BANKS IN ERODE DISTRICT

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Abstract
Consumer awareness is the basic for the success of any product or service. In this connection, this study aims to find out the consumer awareness of e-banking services provided by the public sector banks in Coimbatore district. For this study 458 customers of various banks were selected as samples based on convenient sampling method. The data were collected from the respondents using interview schedules. This study focused on the consumer awareness on e-banking, Internet banking, mobile banking, real time gross settlement, electronic fund transfer, NEFT, ECS.

Keywords: Electronic banking; Internet banking; Credit/debit cards; Transparency; Accuracy; Cost saving; Customer's awareness and Satisfaction.

Introduction
Information Technology has become a necessary tool in today's organizations. Banks today operate in a highly globalized, liberalized, privatized and a competitive environment. In order to survive in this environment banks have to use Information technology. Information technology has introduced new business paradigm. It is increasingly playing a significant role in improving the services in the banking industry. Indian banking industry has witnessed a tremendous developments due to sweeping changes that are taking place in the information technology. Electronic banking has emerged from such an innovative development. Modern technology is seen as a panacea for most of the ills that the banking sector faces today. Even at present, India is a relative unbanked country as the credit to GDP ratio is one of the lowest in the developing economies. So banks are facing the dual challenge of increasing penetration and high growth trajectory. The banking industry can kill two birds with one stone that is with help of technology. Tremendous progress took place in the field of technology which has reduced the world to a global village and it has brought remarkable changes in the banking industry. Branch banking in the brick and mortar mode has been transformed into click and order channel mode. Online banking, also known as internet banking, E-Banking or virtual banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank and is in contrast to branch banking which was the traditional way customers accessed banking services. To access a financial institution's online banking facility, a customer with internet access would need to register with the institution for the service, and set up a password and other credentials for customer verification. The credentials for online banking is normally not the same as for telephone or mobile banking. Financial institutions now routinely allocate customers numbers, whether or not customers have indicated an intention to access their online banking facility. Customer numbers are normally not the same as account numbers, because a number of customer accounts can be linked to the one customer number. Technically, the customer number can be linked to any account with the financial institution that the customer controls, though the financial institution may limit the range of accounts that may be accessed.
to, say, cheque, savings, loan, credit card and similar accounts. The customer visits the financial institution's secure website, and enters the online banking facility using the customer number and credentials previously set up. The types of financial transactions which a customer may transact through online banking are determined by the financial institution, but usually includes obtaining account balances, a list of the recent transactions, electronic bill payments and funds transfers between a customer's or another's accounts. Most banks also enable a customer to download copies of bank statements, which can be printed at the customer's premises (some banks charge a fee for mailing hard copies of bank statements). Some banks also enable customers to download transactions directly into the customer's accounting software. The facility may also enable the customer to order a cheque book, statements, report loss of credit cards, stop payment on a cheque, advise change of address and other routine actions.

Statement of the problem
E-banking draws a great attention in the banking industry. This is because e-banking reflects the internet. Several major banks in India are offering e-banking services. Thus e-banking becomes an important part of the Indian banking sector. So it is important to know the awareness of the e-banking in customers of the bank.

Objectives of the Study
The following are the objectives of the study.
1. To study the demographic background of the respondents.
2. To analyze the customer’s awareness regarding E-Banking services.

Scope of the study
The aim of the study is to assess the e-banking service of banks in Coimbatore District the efforts have been taken to identify e-banking facilities account holders how they are availing the facilities. The study also highlights the level of awareness of the customers regarding the various e-banking services. This study is also extended further to cover the influence of socio-economic variables on the awareness level of the customers. Moreover e-banking product-wise awareness level of the customers has also been studied.

Review of Literature
1. Kleiner, et al (1996) opined that applications of modern technology helped service excellence, by improving operating processes and helping to gather and collate more information both about and for the customers, so that the banks can provide customers with better and more appropriate services.
2. Fillotte, et al (1997) stated that increased competition in the financial services sector has forced even the most reluctant institutions to analyze the opportunities offered by new technologies in the delivery of financial products.
3. Fain and Roberts (1997) proposed that the relative advantage is poor since online banking does not offer any task not previously available. They suggested that the tradition barrier in electronic banking arises as it is not the way consumers are accustomed to paying bills. Therefore, it may be that in internet and mobile banking the barrier exists among those consumers who simply prefer to deal directly with the bank instead of learning to use new technologies.
4. Das, Abhiman (1997) examined the efficiency of public sector banks nationalization using longitudinal data. The findings indicated that banks of SBI group are more efficient than the nationalized banks. The main source of inefficiency was found to be technical in nature than locative. It has concluded that inefficiency in public sector banks is mainly due to underutilization or wasting of resources rather than incorrect input combinations.

Research methodology
The study was based on primary and data which were collected through various sources. In order to collect the primary data from the sample customers of Public Sector Banks, the interview schedule was developed. The secondary data were collected from journals, books, websites, and magazines.

Findings
The present findings from the interpretation of the results regarding factors considered for adopting e-banking / internet banking services by bank customers, functional / psychological barriers, and usefulness and benefits of e-banking services are enumerated here.

1. Internet centre in the study area is the place for using internet for around 50 per cent of the respondents.
2. Though majority of the bank customers perceive the ATM usage as important, the importance of ATM usage is significantly related to location, education and occupation of the bank customers based on the present study.
3. The perceived importance of Tele-banking is independent of the location and income but depends upon sex, age, education and occupation of the bank customers.
4. The internet banking is important for bank customers and at the same time the importance of internet banking is significantly related to their age, education, occupation and income.
5. The extent of services like Online Enquiry, Online Payment, Credit Card and Telephone Banking has been at “Fair” level whereas the extent of services such as ATM Card, Debit Card, Internet Banking, Depository Service, and Investment Advisory Service, e-Transfer of Funds, Core Banking and Anywhere Banking has been “good” by the banks.
6. There is significant difference in the extent of services as provided by both public and private sector banks.
7. The preference to manual banking is little more than that of e-banking and preference towards manual banking and e-banking is largely associated with location, age, education and occupation of the bank customers.
8. There is significant relationship between adoption of e-banking and location, age, education and income of the bank customers.
9. The adoption of e-banking is significantly associated with the number of banking transactions per month among bank customers.

Suggestions
The following suggestions are recommended for enhancing e-banking / internet banking services of banks to the customers
1. Banks should take necessary steps to create awareness among rural people about the advantages of e-banking / internet banking services available in the banks.
2. The e-banking / internet banking system should be enhanced to make the online enquiry and online payment much more easier to the customers.
3. Public sector banks should improve their e-banking / internet banking services to compete with their private sector counterparts.
4. Most of the customers have not availed of the e-banking / internet banking services because they do not trust the internet channel presuming it as complicated. So banks may set up a team of personnel to train the customers to get acquainted with internet channel.
5. The bank customers have perceived the risk of getting wrong information from e-banking / internet banking services. These illusions should be removed from the minds of the customers by bank people as these factors are the barriers for most of the customers for not adopting these services.
6. Though e-banking / internet banking is convenient and easy to use, customers are afraid of adopting these services because they think that using these "services are difficult and complicated". So, on-site training can be provided to the bank customers who intend to use e-banking / internet banking services.

Conclusion

Based on this study, the opinion of the sample respondents among the bank customers the various aspects of e-banking / internet banking services provided by public and private sector banks are evaluated using appropriate statistical techniques such as Cross tabulation analysis with Kruskal-Wallis test, t-test in addition to descriptive statistics like mean and standard deviation.

It is concluded from the results of the study that the usage of ATM, Telebanking and Internet banking are perceived as important and the use of these services is associated with socio-economic and demographic characteristics of the respondents. Though, most of the customers prefer manual banking over e- 197 banking, the customers tend to use e-banking / internet banking and adoption of e-banking and internet banking services among the bank customers is significantly influenced by the number of times visiting the banks as well as the number of banking transactions per month. Most of the services through e-banking / internet banking performed by both public and private banks are beyond the expectation of the customers. Similarly the various services provided by both public and private sector banks are more than adequate for customers. It is concluded finally that there is significant difference between public and private sector banks in respect of both services provided and services performed via e-banking / internet banking. From the results regarding functional / psychological barriers and benefits, it is noted that there are four underlying aspects (dimensions) of functional / psychological barriers (two aspects related to barriers such as “Complications and Difficulties in using IB initially” and “Risk of getting wrong information”) and benefits (two benefits namely, "Convenient & Easy to Use" and “Good option next to traditional banking”) are identified using factor analysis. It is also concluded that there is significant difference in the perceived status of functional / psychological barriers / benefits dimensions by socioeconomic characteristics and the perceived status of functional / psychological barriers/benefits is related to importance of using ATM, internet banking, preferred type of banking, availing e-banking services, period of using e-banking, number of times visiting banks in a month, number of internet transaction in a week and number of banking transaction in a month. 198 From the evaluation of the customers' opinion with regard to the benefits and usefulness of e-banking / internet banking in addition to “intention of using e-banking / internet banking in the future”, it is identified that there are four major benefits, namely “Save time & Cost Less”, “Provide accurate, relevant and up-to date information”, “Flexible and easily accessible with convenience” and “Assists to share the experience
with bank and other customers more efficiently" from e-banking / internet banking. It is found that "flexibility and easy accessibility with convenience" is the most desirable benefit followed by “Providing accurate, relevant and up-to-date information” and “Saving time & Cost Less” and the perceived status of the above benefits is associated with education and family income of the respondents. From this, it is apparent that there is significant difference in the perceived level of benefits of e-banking / IB between public and private sector banks as well as between non-users and users of e-banking / IB. Regarding the usefulness of e-banking / internet banking, it may be concluded that “Generating the latest reports of banking transactions” is the major usefulness followed by “Funds transfer”, “Pay bills using available cash in the accounts” and “Order to buy and sell shares”. It is also concluded that the usefulness of e-banking / IB provided by private sector banks is remarkably higher than that of public sector banks. Further, the perceived status of usefulness among non-user group as well as among rural group is significantly less than that of their respective counterparts. It is found that the perceived status of usefulness of e-banking / IB is also related to education and family income of the respondents.

References
ROLE OF E-HRM IN AN ORGANISATION

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Abstract

Human resource management (HRM) has always played a major role in improving the performance of an organization. There exists a strong relationship between Organizational Effectiveness (OE) and HRM. E-HRM can be one of the most powerful driving force towards enhancing OE and the concept of sustainability. E-HRM can be considered as a multilevel phenomenon to perform HR activities. It can help the organizations to upgrade the HR functions to web based technology and speed up the flow and implementation of business strategies and processes. It will take the HRM functions to one level up in contributing to OE. In the last, this paper will describe the role of e-HRM in an organization.

Keywords: e-HRM, HRM, Organisation, Technology

Introduction

E-HRM refers to the application of (ICT) for implementing HR strategic policies and practices in the organizations or in a broader terms it can be referred as “the (planning, implementation, and) application of information systems for both networking and supporting actors in their shared performing of HR activities”. E-HRM can be used for all HRM functions from traditional activities to transformational activities that add to organizational effectiveness. It can also be used to manage whole employee lifecycle from its recruitment to its exit from the organization. Self-service systems have been developed with help of dynamic software’s to perform maximum transactional activities. In 21st century, all HR departments are changing them to e-HRM around the world with rapid innovations in web based technologies.

Objectives of the Study

1. To understand the meaning of Organizational Effectiveness and Sustainability.
2. To study the role and functions of E-HRM.
3. To analyze the various types & advantages of E-HRM.
4. To understand the challenges in implementing E-HRM in the organizations.

Role of E-HRM

We know that the people play a good role in any industry especially the banking sectors, so human resource development function will and should play a more tactical responsibility. It should go further its mere managerial support function to actions and frontline departments. Whether or not company views Human Resource intentionally may decide whether market share, sales, or profits would increase or not. A successful Human Resource policy becomes equally crucial as the company’s marketing strategy.

Technology too is changing Human Resource tasks. As industries, particularly the banking industry, and the way they struggle or compete turn out to be knowledge-based, Human Resource performance display will shift from manpower and man-hours supplied to intelligence and brain hours delivered. The affected areas in people management will also move from creation and quantity to efficiency and
excellence. Capability, calculated in employee thoughts generated and implemented, and productivity gained, will be more imperative than ability, measured in man-hours available, man-hours lost, absenteeism, etc.

**Scope of E-HRM in an Organization**

1. E-HRM is helpful in building a higher internal profile for the HR Department leading to better work culture.
2. E-HRM provides more transparency in the system.
3. E-HRM is seen as offering the potential to improve services to HR department clients (both employees and management).
4. It improves efficiency and cost effectiveness within the HR department, and allow HR to become a strategic partner in achieving organizational goals.
5. It provides the platform of adaptability to any client and facilitating management.
6. E-HRM is an integral support system for the management of human resources and all other basic and support processes within the company.
7. It helps in creating more dynamic workflow in the business process, productivity and employee satisfaction.
8. E-HRM also has relational impacts for a business; enabling a company’s employees and managers with the ability to access HR information and increase the connectivity of all parts of the company and outside organizations. This connectivity allows for communication on a geographic level to share information and create virtual teams.
9. And finally e-HRM creates standardization, and with standardized procedures this can ensure that an organization remains compliant with HR requirements, thus also ensuring more precise decision-making.

**Functions of E-HRM**

1. Integration of organization data pertaining to human resource available all time at reasonable cost to support strategic policy planning and implementation.
2. Monitoring and maintain the human resource demand and supply equilibrium.
3. Automation of records pertaining to employees.
4. Maintaining accuracy, consistency, security and privacy of data.
5. Higher speed in generating information.
6. Quick adaptability to client management.
7. Broader access to HR force by means of e-recruitment.
8. Easy and transparent procedures of e-selection and assessments.
9. Automated appraisal systems by e-performance management systems where employees can update their information by themselves online through the intranet system.
10. Faster and paperless administration tasks leading to reduction in cost, time and labour.

**Challenges of E-HRM**

1. Cost Implications: Costs tend to be relative to requirements and the type of organization. Given the costs, companies must allow only those operations that are imperative, indispensable or desirable. requirements of the company.
2. Security of the information
3. Aligning the e-HRM system with the business requirements: Enterprise Resource Planning applications vary widely in their allowance for control, typically assuming either a corporate or business-unit locus of control. Hence management must believe the ERP’s stance on control to ensure it will meet the business generated: A company needs to ensure that outsiders or competitors should not access the information. In this framework, proper vendor selection is a critical condition to ensure confidentiality.

4. Managing the data: Managing the huge amount of data generated through Human Resource Management System is a relatively new challenge for companies.

5. Overkill and loss of the human touch: Another challenge is the evasion or avoidance of overkill and loss of the human touch. It should not be the case that in a bid to be techno-savvy we desert the human side.

6. For traditional companies the task is more so difficult: e-HRM is more so a challenge for the traditional companies which need to bring about a change in the mindsets to a large extent. These companies as compared to those in the Information Sector (IT), BPO’S etc, are having a tougher time getting people to speed up on these e-HR tools.

7. Training the users, a crucial issue: Training the users is many a time a long drawn out process, as many people do not find them to be used friendly.

8. Continuous monitoring and feedback: Constant and continuous monitoring and feedback are critical to the success of any e-HRM effort in an organization.

Types of E-HRM

There are three types of E-HRM. These are described respectively as operational HRM, relational HRM and transformational HRM.

**Operational HRM:** e-HRM is concerned with administrative function like payroll, employee personal data, etc.

**Relational HRM:** e-HRM is concerned with supportive business process by the means of training, recruitment, performance management, and so forth

**Transformational HRM:** e-HRM is concerned with strategic HR activities such as knowledge management, strategic re-orientation, etc.

Tools OF E-HRM

**E-Employee Profile**

The E-Employee Profile web application provides a central point of access to the employee contact information and provides a comprehensive employee database solution, simplifying HR management and team building by providing an employee skills, organization chart and even pictures. EEmployee profile maintenance lies with the individual employee, the manager and the database manager. EEmployee profile consist of the following: Certification, Honor/Award, Membership, Education, Past Work Experience, Assignment Skills, Competency, Employee Assignment Rules, Employee Availability,
Employee Exception Hours, Employee Utilization, Employee tools, Job information, Sensitive job Information, Service Details, Calendar, Calendar Administration, Employee Locator.

**E-Recruitment**: Organizations first started using computers as a recruiting tool by advertising jobs on a bulletin board service from which prospective applicants would contact employers. Then some companies began to take e-applications. Today the internet has become a primary means for employers to search for job candidates and for applicants to look for job. As many as 100,000 recruiting web sites are available to employers and job candidates and which to post jobs and review resumes of various types. But the explosive growth of internet recruiting also means the HR professionals can be overwhelmed by the breadth and scope of internet recruiting.

**E-Recruiting Methods**: Job boards, Professional/Career, websites, Employer Websites.

a) **E-Selection**: Most employers seem to be embracing Internet recruitment with enthusiasm, the penetration of on-line assessment tools such as personality assessments or ability tests, has so far been limited. A survey has shown that although more than half respondents organizations already use either psychometric or other assessment during the recruitment process, only few of these companies use online assessments prior to interview. Fewer still include a core fit questionnaire in the recruitment pages of their websites.

b) **E-Learning**: E-Learning refers to any programme of learning, training or education where electronic devices, applications and processes are used for knowledge creation, management and transfer. E-Learning is a term covering a wide-set of applications and processes, such as web-based learning, computer-based learning, virtual class room, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio-and videotape, satellite broadcast, interactive TV, CD – Rom, and more.

c) **E-Training**: Most companies start to think of online learning primarily as a more efficient way to distribute training inside the organization, making it available "any time", "anywhere" reducing direct costs (instructors, printed materials, training facilities), and indirect costs (travel time, lodging and travel expenses, workforce downtimes). Attracted by these significant and measurable advantages, companies start to look for ways to make the most of their existing core training available online, and to manage and measure the utilization of the new capabilities.

d) **E-Performance Management System**: A web-based appraisal system can be defined as the system which uses the web (intranet and internet) to effectively evaluate the skills, knowledge and the performance of the employees.

e) **E-Compensation**: All companies whether small or large must engage in compensation planning. Compensation planning is the process of ensuring that managers allocate salary increases equitably across the organization while staying within budget guidelines. As organizations have started expanding their boundaries, usage of intranet and internet has become vital. The usage of intranet and internet for compensation planning is called E-Compensation Management.

**Advantages of E-HRM**

- Collection and store of information regarding the work force, which will act as the basis for strategic decision-making.
- Integral support for the management of human resources and all other basic and support processes within the company.
- Prompt insight into reporting and analysis.
• A more dynamic workflow in the business process, productivity and employee satisfaction
• A decisive step towards a paperless office
• Makes the work to get over fast
• Amplified and easy access to HR data and ease in classifying and reclassifying data.
• E-HRM can save costs while maintaining the quality of data

Conclusion

The e-HRM technology is very helpful for the organizations and has proved effective for the employees working in the organization as it provides sufficient opportunities for employee's career planning and development. Moreover, by the implementation of e-HRM the employees can identify and nurture their talents and helps them to raise their performance. E-HRM is a way of implementing Human Resource strategies, policies and practices in an organization through a conscious and directed support of and/or with the full use of web-based channels. E-HRM is an increasing phenomenon. More than one-fifth of large companies have made considerable steps to support HR practices and policies through web technology.

References
PROSPECTS AND CONSTRAINTS OF PUBLIC SECTOR HEALTH INSURERS IN ERODE DISTRICT OF TAMIL NADU: AN ANALYSIS

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Abstract

The insurance industry was a government monopoly. It is now experiencing cutthroat competitions because, a number of performers have entered into the Indian market in the form of joint ventures with Indian private sector partners. Consequently, the Indian Insurance industry is closely integrated with the world economy, thereby making it vital for insurance companies to operate outside national boundaries. During the long monopoly regime, the government attempted minor changes in the techniques without going into the root cause. The deregulation requires the comprehensive changes in the character and basic policies of the industry. Increasing market competition, intensified customer service anticipations and the need to build know-hows that stand out from the competition are some of the key challenges facing the health insurance industry today. Irrespective of a large number of products which are in the health insurance sectors, the victory and letdown finally remaining in the hands of the customers who is undisputedly is the “king”.

Keywords: Insurance, Health, Customer, Monopoly, Economy

Introduction

The Indian insurance sector has been allowed to flourish and as Indians become more familiar with different insurance products, this growth can only increase; the period from 2010 – 2015 projected to be the 'Golden Age' for the Indian Insurance industry. In the new economic reality of globalization, insurance companies face a dynamic global business environment. Changing customer needs, and the uncertain economic environments in the developing world are exerting pressure on insurer’s resources while testing their ability to persist. The existing insurers are facing snags from non-traditional competitors who are entering the retail market with new approaches and through new channels.

Health Insurance an Overview

Health insurance continues to be one of the rapidly growing sectors in the Indian insurance industry. The growth of the health insurance industry lies mainly in better customer orientation in terms of servicing the customers, standardization of procedures and definition across the industry. The standardization provides simple yet innovative products, better understanding of the terms by the public and easy penetration in the market. Increased awareness about the benefits of health insurance, particularly in urban areas has occurred due to rise in the medical costs and also a result of popular government schemes. This, in turn, has steered the authority to take a number of initiatives in health insurance sector. Marketing of health insurance policies involves unique practices when compared to any other products. Health insurance policies are services and hence intangible in nature. So there is no chance of immediate realizing the services, whether it is good or bad. It’s very tough to convince the buyer in all respects before materializing a contract.

The importance of insurance is unquestionable in modern economies as it serves a broad public interest and is vital to individuals’ security. Consumers’ satisfaction is the major focus of any marketer, whether marketing tangible products or intangible services. Health insurance, as a service and
intangible in nature could be sold, only if the buyers are satisfied with the service. Health Insurance Company finds much more difficult to sell out their insurance policies. Based on the above issues, the following questions were probed,

1. What is the perception of the customers towards the services offered by the public health insurance companies in Erode district?
2. To what extent the public health insurance companies take initiatives and steps to satisfy the customers in the study area?
3. What are the marketing strategies practiced by the Indian originated, public health insurance companies to compete in the current scenario?
4. What are the common problems faced by the policy holders in utilizing the health insurance services in Erode district?

**Objectives of the Study**

The following are the main objectives of the study.

1. To study the evolution of health insurers in general and in particular to public health insurers.
2. To understand the problems encountered by the respondents, while utilizing the services of public health insurers in Erode district.
3. To recapitulate the findings of the study and to offer suggestions to progress the performance of health insurers and to solve the problems associated therein.

**Analysis and Interpretation**

**Sample Design**

Tamil Nadu has been selected because one of the leading states for health insurance spending. The prime goal of the present study is to analyze the prospects and constraints of select public sector health insurers (National Insurance Co, Ltd, New India Assurance Co. Ltd, Oriental Insurance Co. Ltd and United India Insurance Co. Ltd) in the Erode District. The technique adopted for the selection of sample respondents is Stratified Random Sampling followed by Convenience Sampling method and 150 respondents from each of the public sector health insurers have been selected which resulted in a total of 600 respondents. The data has been collected from the health insurance policy holders by administering the self-structured questionnaire from them.

**Rate of Problems towards Various Services**

An attempt has been made to know the rate of problems towards various services among public sector health insurers. For the purpose of this study, it has been classified into eleven categories the details are furnished in the following table.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Statements</th>
<th>SA (in %)</th>
<th>A (in %)</th>
<th>N (in %)</th>
<th>DA (in %)</th>
<th>SDA (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hassle free claim application process</td>
<td>149 (24.8%)</td>
<td>103 (17.2%)</td>
<td>118 (19.7%)</td>
<td>83 (13.8%)</td>
<td>147 (24.5%)</td>
</tr>
<tr>
<td>2.</td>
<td>Hassle free claim settlement</td>
<td>144 (24.0%)</td>
<td>101 (16.8%)</td>
<td>116 (19.3%)</td>
<td>114 (19.0%)</td>
<td>125 (20.8%)</td>
</tr>
<tr>
<td>3.</td>
<td>Claim settlement within a limited period</td>
<td>157 (26.2%)</td>
<td>114 (19.0%)</td>
<td>113 (18.8%)</td>
<td>100 (16.7%)</td>
<td>116 (19.3%)</td>
</tr>
<tr>
<td>4.</td>
<td>Claim logged fully settled</td>
<td>177 (29.5%)</td>
<td>112 (18.7%)</td>
<td>141 (23.5%)</td>
<td>124 (20.7%)</td>
<td>46 (7.7%)</td>
</tr>
<tr>
<td>5.</td>
<td>Claim logged partially settled</td>
<td>163 (27.2%)</td>
<td>132 (22.0%)</td>
<td>102 (17.0%)</td>
<td>72 (12.0%)</td>
<td>131 (21.0%)</td>
</tr>
</tbody>
</table>
6. The Claim settled with limited terms and conditions
   - 167 (27.8%)
   - 118 (19.7%)
   - 129 (21.5%)
   - 89 (14.8%)
   - 97 (16.2%)

7. Cooperation and attitude of TPAs
   - 142 (23.7%)
   - 230 (38.3%)
   - 68 (11.3%)
   - 71 (11.8%)
   - 89 (14.8%)

8. Cooperation and attitude of surveyors
   - 238 (39.7%)
   - 221 (36.8%)
   - 68 (11.3%)
   - 41 (6.8%)
   - 32 (5.3%)

9. Cooperation and attitude of the insurance company
   - 224 (37.3%)
   - 110 (18.3%)
   - 102 (17.0%)
   - 68 (11.3%)
   - 96 (16.0%)

10. Time taken by TPAs
    - 175 (29.2%)
    - 116 (19.3%)
    - 87 (14.5%)
    - 99 (16.5%)
    - 123 (20.5%)

11. Time taken by surveyors
    - 144 (24.0%)
    - 132 (22.0%)
    - 102 (17.0%)
    - 68 (11.3%)
    - 154 (25.7%)

Source: Primary Data

It is proposed from the above table that the respondents are strongly agree towards hassle free claim application process, hassle free claim settlement, claim settlement within a limited period, claim logged fully settled, claim logged partially settled, the claim settled with limited terms and conditions, cooperation and attitude of surveyors, cooperation and attitude of the insurance company and time taken by TPAs as 24.8, 24.0, 26.2, 29.5, 27.2, 27.8, 39.7, 37.3 and 29.2 percent respectively. On the other hand, 38.3 percent of the respondents have agreed towards cooperation and attitude of TPAs and 25.7 percent of the respondents are strongly disagreeing towards time taken by surveyors. It is found from the analysis that the majority (39.7%) of the respondents strongly agrees towards cooperation and attitude of surveyors.

Henry Garrett Ranking Technique

Purpose of Availing the Health Insurance Product

An endeavour has been made to know the purpose of availing the health insurance product of the respondents. For the purpose of this study, five purposes are tax savings, family protection, accidental benefit, unexpected medical expenses and hospital reference. To identify the most important purpose, Henry Garrett ranking technique was employed and the details of the ranking of purpose of availing the health insurance product of the respondents are shown in the following table.

Table 2: Purpose of Availing the Health Insurance Product

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Purpose</th>
<th>Mean Score</th>
<th>Total Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tax savings</td>
<td>31642</td>
<td>52.7</td>
<td>II</td>
</tr>
<tr>
<td>2</td>
<td>Family protection</td>
<td>28049</td>
<td>46.7</td>
<td>IV</td>
</tr>
<tr>
<td>3</td>
<td>Accidental benefit</td>
<td>33597</td>
<td>56.0</td>
<td>I</td>
</tr>
<tr>
<td>4</td>
<td>Unexpected medical expenses</td>
<td>30845</td>
<td>51.4</td>
<td>III</td>
</tr>
<tr>
<td>5</td>
<td>Hospital reference</td>
<td>26626</td>
<td>44.4</td>
<td>V</td>
</tr>
</tbody>
</table>

It is examined from the above table that most of the respondents have the purpose of availing the health insurance product as an accidental benefit with the Garrett scores 33597 points. It followed by the second and third ranks assigned to tax savings and unexpected medical expenses with the Garrett scores of 31642 and 30845 points respectively. The fourth and fifth rank assigned to family protection and hospital reference with the Garrett scores of 28049 and 26626 points respectively. It is found from the analysis that the majority of the respondents have the purpose of availing the health insurance product as accidental benefit and tax savings.

Reasons for Not Taking Health Insurance Policy

An attempt has been made to know the reason for don’t take a health insurance policy of the respondents. For the purpose of this study, six reasons do not feel the need, no return on investment, high premium, alternate sources for health, poor service provided & coverage and shortage disposable
funds. To identify the most important reason, Henry Garrett ranking technique was employed and the details of the ranking of reason for don’t take a health insurance policies of the respondents are shown in the following table.

**Table 3: Reasons for not taking Health Insurance Policy**

<table>
<thead>
<tr>
<th>Source: Primary Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. No.</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>

It is stated from the above table that most of the respondents are the reason for don’t take a health insurance policy as shortage disposable funds with the Garrett score 36489 points. It followed by the second and third ranks assigned to poor service provided & coverage and alternate sources for health with the Garrett scores of 36096 and 31077 points respectively. The fourth and fifth rank assigned to no return for investment and high premium with the Garrett scores of 29142 and 28023 points respectively. The last rank assigned to did not feel the need with the Garret scores of 19050 points. It is found from the analysis that the majority of the respondents are the reason for don’t take a health insurance policy as shortage disposable funds and poor service provided & coverage.

**Problems Faced with Public Sector Health Insurers**

An attempt has been made to know the problems faced by public sector health insurers of the respondents. For the purpose of this study, nine problems are no proper response of officers / agents, poor after sales service, not a proper intimation of the next renewal period, delay in claim settlement, not a proper explanation of unknown policies, lack of knowledge of the agent / officer, worth of the claim is very low, lack of promotion of schemes and linked hospitals are not easily accessible. To identify the most important problem, Henry Garrett ranking technique was employed and the details of the ranking of problems faced by public sector health insurers of the respondents are shown in the following table.

**Table 4: Problems Faced with Public Sector Health Insurers**

<table>
<thead>
<tr>
<th>Source: Primary Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. No.</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
</tbody>
</table>

It is discussed from the above table that most of the respondents are problems faced by public sector health insurers as no proper response of officers / agents with the Garrett score 37560 points. It followed by the second and third ranks assigned to linked hospitals are not easily accessible and delay in claim settlement with the Garrett scores of 33648 and 33297 points respectively. The fourth and fifth rank assigned to not proper intimation of the next renewal period and not a proper explanation of unknown policies with the Garrett scores of 29523 and 29202 points respectively. The sixth and
seventh rank assigned to poor after sales service and worth of the claim is very low with the Garrett scores of 28104 and 27042 points respectively. The eighth and ninth rank assigned to lack of promotion on schemes and lack of knowledge of the agent / officer with the Garret scores of 25656 and 24234 points. It is found from the analysis that the majority of the respondents are problems faced by public sector health insurers as no proper response of officers / agents and linked hospitals are not easily accessible.

Conclusion

Targeted product development, proximity to the consumer, and championing efficiency will be the critical success factors. A focused approach encompassing public and private sectors, and leveraging emerging technology will play a disruptive role in the healthcare transformation ahead. The customer expects a lot when purchase the health insurance product as it is a pure service. Both desired and adequate expectation varies under different situation. It may be personal or influenced by the surroundings. Apart from policy bond, claim, relationship building, technology is few core areas which have a major impact on customers' mind and finally expectation. Public insurers must consider various factors relating to customer expectations and design services accordingly.

References
1. Jagendra Kumar, “This Fiscal may be Deuce, for Private and Public Sector General Insurers”, the Insurance Times, Vol. XXX No. 6, June, 2010.
A STUDY ON REASONS FOR SELECTING AND PREFERENCE TO AVAIL HOUSING LOAN FROM CO-OPERATIVE HOUSING SOCIETIES IN ERODE DISTRICT

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Introduction
Housing is regarded as a basic human need along with food and clothing. Housing condition is an important indicator of the level of living of the people. It has been rightly observed in the National Sample Survey Report on Housing Conditions that housing conditions and related facilities determine the immediate environment of man. The development of physical and mental potentialities is in turn influenced by the environment he lives. Housing condition is, therefore, recognized as an important indicator of the level of living. Adequate housing contributes directly to the individual health and productivity which are essential for national economic growth. Investment in housing has a multiplier effect on the economy through the concurrent development of allied industries.

Statement of the Problem
It was the motto and policy of the Government to provide a house for each family in Tamil Nadu. The Co-operative Housing Societies play an important role in achieving the above object. In Tamil Nadu State, there were 834 Urban Co-operative Housing Societies and 196 Taluk Rural Co-operative Housing Societies and along with a state level Apex Body namely Tamil Nadu Co-operative Housing Federation Limited functioning to cater the Housing needs of the members in urban and rural areas. In Erode district in 2015-16, there were 24 housing Co-operatives with a membership of Rs.4.3 lakhs and the working capital of Rs.27.23crores. As Housing Co-operatives have made appreciable progress in India, the study was designed to study the performance of Primary Co-operative Housing Societies in Erode District wherein eight Co-operative Housing Societies are functioning at the grass root level.

In this juncture, it is imperative to examine the number of members in Co-operative Housing societies, mobilization and utilisation of resources, lending activities, problems faced by Co-operative Housing Societies and its beneficiaries.

Scope for the Study
Now-a-days shelter is one of the common needs for any individual. Therefore, there is a significant scope to examine the need for housing loan, utilization level, financial performance of Co-operative Housing Societies, extent of overdue, problems faced by the Co-operative Housing Societies and its beneficiaries. To assess the performance level, eight sample societies are taken and compared. The study is made to analyse the extent of utilization level of members of sample Co-operative Housing Societies...
Societies at Erode district. The study is confined only to the individuals who are the members of the Erode Co-operative Housing Society. The study is individual oriented and so the concept of utilization has been considered from the point of view of the members of sample Societies in Erode District and not from the point of view of the society.

Objectives of the Study

• To study the profile of Co-operative Housing Societies in Erode District.
• To analyze the financial performance of Co-operative Housing Societies in Erode District.
• To examine the extent of over dues in Co-operative Housing Societies in Erode District.
• To analyze members perception about the services offered by Co-operative Housing Societies in Erode District.
• To examine the problems of sample Co-operative Housing Societies and its beneficiaries and to offer suggestions.

Hypothesis of the Study

1. There is no significant relation between the type of house and demographic profile of the respondents.
2. There is no significant association between demographic variables and motivational factors.
3. There is no significant association between the level of satisfaction and the services provided by the Co-operative Housing Societies.

Research Methodology

The present study is an empirical one. Field survey method and personal interview technique have been adopted for the collection of the required data from the selected Co-operative Housing Societies and its members. The secondary data have been gathered from the institutions and primary data have been collected from the selected respondents by using schedules constructed for the purpose.

Sampling Procedure

Random sampling technique has been adopted for the study. Erode Revenue District has been selected purposively because of its unique characteristics. Erode district has been one of the industrially, Co-operatively and educationally developed district of Tamil Nadu state.

The other considerations like proximity, financial and time factors have also contributed to select the particular district for an in-depth study.

In Erode Revenue District, 8 Co-operative Housing Societies have been selected out of 24 by using simple random sampling method. The sample societies are listed below:

• The Erode Co-operative Housing Society Ltd.
• Perundurai Taluk Co-operative Housing Society Ltd.,
• Gobichettipalayam Co-operative Housing Society Ltd.,
• Tamil Nadu Transport Employees Co-operative Building Society
• Erode Co-operative Building Society
• Southern Railway Employees Co-operative House Building Society Ltd.,
• Perundurai Teachers and Staff of Education Department, Co-operative Housing Society Ltd.,
• Bhavani Cooperative Building Society Ltd.,
The main focus of the study was on the financial performance of Cooperatives Housing Societies in the study area. However, it is felt that any study on the performance of the housing Societies would not be completed without studying the satisfaction of its members. Therefore, the members’ perception about the services offered by the sample societies has been included as another dimension which would help to vouch the result of the study. Totally 376 members have been selected for study.

Pilot Study

A pilot study was conducted among 40 respondents, which constituted 10 percent of the total sample. Based on the results of this study and personal observation, the requisite factors influencing the level of satisfaction of the respondents have been identified. Due to this, the scope of the present study has been widened. Accordingly, the schedules have been restructured and finalized to conduct the research.

Field Work

The officials of the institutions were contacted according to their convenient places and timings and required data have been gathered from the records and registers and also from their perceptions. The members were directly contacted and interviews are carried out in the convenient timings and places. After creating a good rapport by explaining the purpose of the study, a good response has been received from each and every member.

Secondary data from the institutions and primary data from the selected respondents have been gathered without any complexity.

I. Tools Used

A. Chi-Square Analysis

The chi-square analysis has been used to test the significance of the influence of demographic characters over the opinions of the borrowers. The chi-square statistic is

\[ \chi^2 = \sum \frac{O - E}{E} \]

Here: O: Observed frequency E: Expected frequency

B. Average Score Analysis

After converting the qualitative information into a quantitative one using a five point scale, the average scores were obtained on various issues to determine the mean scores regarding satisfaction regarding services. Parametric test of two sample t-Test and One way analysis of variance for more than two groups are applied to for judging the significance of the difference between means scores after testing the normality by Q-Q plot.

Garrett Ranking

Garrett ranking has been used to find out the most influential factor in motivating the borrowers to approach Cooperative Housing Societies for loan. As per this method, respondents have been asked to assign the rank for all factors and the outcomes of such ranking have been converted into score value with the help of the following formula:

Percent position = 100 (Rij - 0.5) / Nj

Where Rij = Rank given for the ith variable by jth respondents;
Nj = Number of variable ranked by jth respondents
With the help of Garrett’s Table, the percent position estimated is converted into scores. Then for each factor, the scores of each individual are added and then total value of scores and mean values of score is calculated. The factors having highest mean value is considered to be the most important factor.

**Period of Study**

The primary data required for the study have been collected from the respondents during the year 2015 – 2016 and the secondary data from 2006 – 2016.

**Profile of the Study Area**

In Erode District, there are 24 Housing Cooperatives effectively extending their services to the members. Among these cooperatives, Erode Cooperative Housing Society Limited was the age old society. It was registered on 24.03.1924. Next to this, Bhavani Cooperative Building Society and Gobi Cooperative Building Society were 65 years old cooperative institutions. Gobichettipalayam Cooperative Housing Society Limited was registered before 61 years.

There were 7 societies come across with more than 50 years of registration. It was also observed that these societies have crossed above 40 years of age and the rest of the societies were below 40 years old. Olagadam Cooperative Housing Society was of recent origin than compared to other housing societies. This society has been rendering effective services to its members for the past 17 years in Olagadam.

**Reasons for Selecting Co-Operative Housing Societies**

There are many sources of finance for the public. They may borrow from nationalized banks, private banks, co-operative banks, Co-operative Housing Societies, money lenders, friends and relatives. The sample respondents have chosen Co-operative Housing Societies as a source of housing finance. The reasons for selecting Co-operative Housing Societies as given by the respondents are listed in Table 1.

**Table 1: Reasons for Selecting Co-Operative Housing Societies**

<table>
<thead>
<tr>
<th>Co-operative Housing Society</th>
<th>Reason for selecting Co-operative Housing Societies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------------------</td>
<td>Most Popular</td>
<td>Easy approach</td>
</tr>
<tr>
<td>The Erode Co-operative Housing Society Ltd.</td>
<td>17</td>
<td>4.52</td>
</tr>
<tr>
<td>Perundurai Taluk Co-operative Housing Society Ltd.</td>
<td>22</td>
<td>5.85</td>
</tr>
<tr>
<td>Gobichettipalayam Co-operative Housing Society Ltd.</td>
<td>7</td>
<td>1.86</td>
</tr>
<tr>
<td>Tamil Nadu Transport Employees Co-operative Building Society</td>
<td>5</td>
<td>1.33</td>
</tr>
<tr>
<td>Erode Co-operative Building Society</td>
<td>8</td>
<td>2.13</td>
</tr>
<tr>
<td>Southern Railway Employees Co-operative House Building Societies</td>
<td>2</td>
<td>0.53</td>
</tr>
</tbody>
</table>
It is evident from the Table that 32.5 percent of the respondents have chosen Co-operative Housing Societies for its easy accessibility. 28.7 percent have selected Co-operative Housing Societies due to the facility of easy repayment in instalments. Eighty respondents accounting for 21.3 percent preferred Co-operative Housing Societies as they are ready to help the borrowers. 17.6 percent are attracted towards Co-operative Housing Societies as it is more popular among the public. It can be seen from the Table that with regard to sex there is equal distribution of sample respondents among the reasons shown in the Table. Easy approach to the society has been stated as the main reason by most of the respondents in the age group of 26 to 40 years. It is surprising to note that respondents belonging to most backward classes and have secondary level education have selected Co-operative Housing Societies because of its
easy and simple approach. Respondents who prefer Co-operative Housing Societies for its easy approach come from nuclear family with three earning members.

In order to find the association between reasons for selecting Co-operative Housing Societies and the profile of the respondent, chi-square test has been used and result of the test is shown in Table 2.

Table 2: Results of Chi Square Test
Source: Computed by the researcher

<table>
<thead>
<tr>
<th>Profile of the respondent</th>
<th>Chi square value</th>
<th>df</th>
<th>p</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>0.91</td>
<td>3</td>
<td>0.822</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Age</td>
<td>29.52</td>
<td>12</td>
<td>0.003</td>
<td>Highly Significant</td>
</tr>
<tr>
<td>Community</td>
<td>799.17</td>
<td>9</td>
<td>&lt;0.001</td>
<td>Highly Significant</td>
</tr>
<tr>
<td>Education</td>
<td>15.71</td>
<td>12</td>
<td>0.205</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Marital Status</td>
<td>3.84</td>
<td>3</td>
<td>0.279</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Type of family</td>
<td>6.82</td>
<td>3</td>
<td>0.078</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Size of family</td>
<td>10.47</td>
<td>6</td>
<td>0.106</td>
<td>Not Significant</td>
</tr>
<tr>
<td>No. of earning members in the family</td>
<td>18.45</td>
<td>21</td>
<td>0.620</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>

It is noted from the Table that the p value is less than 0.01 for age and community. The result is significant at 1 percent level. From the analysis it is concluded that there is a highly significant association between age, community and reasons for selecting Co-operative Housing Societies.

Preference for Co-Operative Housing Loan

The respondents have been asked about their preference for Co-operative Housing Societies for getting housing loan. Their reasons for preferring the co-operative housing society to get housing loan is presented in Table 3.

Table 3: Preference for Co-Operative Housing Societies
Source: Computed by the researcher

<table>
<thead>
<tr>
<th>Reasons</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy access</td>
<td>123</td>
<td>32.7</td>
</tr>
<tr>
<td>Low interests</td>
<td>80</td>
<td>21.3</td>
</tr>
<tr>
<td>Subsidy/Govt. assistance</td>
<td>16</td>
<td>4.2</td>
</tr>
<tr>
<td>Simple procedures</td>
<td>142</td>
<td>37.8</td>
</tr>
<tr>
<td>Reluctance of other institutions</td>
<td>15</td>
<td>4.0</td>
</tr>
<tr>
<td>Others</td>
<td>376</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Simple procedure has been ranked as first by 142 respondents accounting for 37.8 percent and 123 respondents with 32.7 percent has ranked easy access as second. Only 80 respondents have ranked low rate of interest as third. Subsidies from government and reluctance of other financial institutions to give loan have been ranked as fourth and fifth respectively by the respondents.

In order to identify the most influential factor Garrett rank analysis has been used and the results are given in Table 4.

Table 4: Garrett Rank

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Garrett score</th>
<th>Garrett Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy access</td>
<td>2.03</td>
<td>1.10</td>
<td>64.67</td>
<td>I</td>
</tr>
<tr>
<td>Low interests</td>
<td>5.73</td>
<td>0.83</td>
<td>25.88</td>
<td>VI</td>
</tr>
<tr>
<td>Subsidy/Govt. assistance</td>
<td>4.22</td>
<td>1.16</td>
<td>43.82</td>
<td>V</td>
</tr>
<tr>
<td>Simple procedures</td>
<td>2.32</td>
<td>1.45</td>
<td>62.27</td>
<td>II</td>
</tr>
<tr>
<td>Reluctance of other institutions</td>
<td>3.28</td>
<td>1.30</td>
<td>52.16</td>
<td>III</td>
</tr>
<tr>
<td>Others</td>
<td>3.42</td>
<td>1.19</td>
<td>51.20</td>
<td>IV</td>
</tr>
</tbody>
</table>

It could be noted from the above Table that among the six factors "Easy access" has been ranked first. It is followed by the "Simple procedures" and "Reluctance of other institutions". Subsidy/Government assistance has been given fifth rank which is followed by low rate of interest.
Findings

- It is surprising to note that in all the other societies, no one has borrowed loan to the tune of more than Rs.10 lakhs. Further, in all the remaining Co-operative Housing Societies, more or less equal number of borrowers has obtained loans in the range of less than Rs.1 lakhs to 10 lakhs. Therefore, it can be inferred that majority of the respondents (219) accounting for 58.25 percent have borrowed in the range of Rs. 1 to 5 lakhs.

- Among the five factors “Easy access” has been ranked first. It is followed by the “Simple procedures” and “Reluctance of other institutions”. Low rate of interest has been given fourth rank which is followed by Subsidy/Government assistance.

- Overall level of satisfaction for all the selected Co-operative Housing Societies ranged between 63 percent to 100 percent.

Suggestions

- The loan amount sanctioned for the members are from Rs.5 lakhs to Rs.10 lakhs. The amount so discharged is not sufficient for their construction. The period of the loan can be from 10 to 20 years.

- The loan formalities can be minimized by the bye-laws of the society. The share base can be reduced to 3 percent instead of 7 percent. The members do not know the importance of share capital base. This indeed is a pattern of savings. But this is not possible by all the members. Hence, the members who have the intension to increase the savings can go for deposit schemes of the society.

- The process of the loan gets delayed since the proceedings for the loan is partly automated and partly manual. To fasten the proceedings of the loan, proper training should be given for the employees. The employees should take active part in the systemization of the records, publishing of reports, reduce duplication and fasten the flow of work for the speedy action.

References


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HRM FUNCTIONS AND WEB 2.0

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Abstract
The purpose of this paper is to identify the possible gaps in use of Web 2.0 tools and human resource (HR) functional performance, and to identify the potential areas of future research. By having a Web 2.0 and HR functions’ concepts, the study develops a conceptual model with seven propositions that assist in answering two major research questions, i.e., whether Web 2.0 tools can benefit the four major functions of human resource management, and to what extent Web 2.0 tools help HR Managers to reap maximum out of four major functions of HRM. By identifying the possible gaps in use of Web 2.0 tools and HR functional performance, the study identifies potential areas. Though using Web 2.0 tools in HR functions can encounter various challenges as management of huge information, time wastage, personal conflicts, threats of losing information confidentiality, etc., HR can be favorably facilitated by Web 2.0 in favor of both, i.e., employees and the employers which could ultimately enable them to create a competitive edge in the market place. The organizations in general (whether private or public, manufacturing or public, small and medium enterprises or MNEs) can extract the real benefits from the right use of Web 2.0 while performing any of their HR function. Enhanced decision making may also be gained using the right mix of Web 2.0 tools and HR practices in any organization. Conceptual analysis of links between the use of Web 2.0 tools and HR functions to draw the attention of HR practitioners to benefit both employers and employees.

Keywords: functional performance, Web 2.0 tools, employers and employees

Introduction
Human resource management is about increasing employee performance to their highest level corresponding to their role in the organization. It is about acquiring services of people, developing their skills, motivating them to the foremost level and making sure that they continue to maintain their commitment towards the organization. In short, HRM is concerned with the management of employees from recruitment to retirement.

Web 2.0 is the current state of online technology as it compares to the early days of the Web, characterized by greater user interactivity and collaboration, more pervasive network connectivity and enhanced communication channels. The market of Web 2.0 services is hectic with small startups and vendors, making it difficult to assess which of the services will sustain into the future. Most of these new tools and services have been marketed to the consumer.

Review of Literature
Darcy DiNucci, an information architecture consultant, coined the term "Web 2.0 In 2012 article, "Fragmented Future" which loads into a browser window in essentially static screenfuls, is only an origin of the Web. The first glimmerings of Web 2.0 are beginning to appear, and we are just starting to see how that origin might develop. The Web will be understood not as screenfuls of text and graphics but as a transport mechanism, the ether through which interactivity happens.
Tim O'Reilly is generally credited with popularizing the term, following a conference dealing with next-generation Web concepts and issues held by O'Reilly Media and MediaLive International in 2015. O'Reilly Media has subsequently been energetic about trying to copyright "Web 2.0" and holds an annual conference.

Functions of Human Resource Management

- Managerial Functions,
- Operative Functions, and
- Advisory Functions

Managerial Functions

Planning - In this function of HRM, the number and type of employees needed to accomplish organizational goals is determined.

Organizing - In an organization tasks are allocated among its members, relationships are identified, and activities are integrated towards a common objective.

Directing - Activating employees at different level and making them contribute maximum to the organization is possible through proper direction and motivation.

Controlling - After planning, organizing, and directing, the actual performance of employees is checked, verified, and compared with the plans.

Operative Functions

Recruitment and Selection - Recruitment of candidates is the function preceding the selection, which brings the pool of prospective candidates for the organization so that the management can select the right candidate from this pool.

Performance Appraisal - Human resource professionals are required to perform this function to ensure that the performance of employee is at acceptable level.

Training and Development - Training development programs are organized for both new and existing employees. Employees are prepared for higher level responsibilities through training and development.

Personnel Research - Personnel researches are done by human resource management to gather employees' opinions on wages and salaries, promotions, working conditions, welfare activities, leadership.

Advisory Functions

Advised to Top Management - Personnel manager advises the top management in formulation and evaluation of personnel programs, policies, and procedures.

Advised to Departmental Heads - Personnel manager advises the heads of various departments on matters such as manpower planning, job analysis, job design, recruitment, selection, placement, training, performance appraisal.

Elements of Web 2.0

- The increasing prevalence of Software as a Service (SaaS), web apps and cloud computing rather than locally-installed programs and services.
Mobile computing, also known as nomad city, the trend toward users connecting from wherever they may be. That trend is enabled by the proliferation of smart phones, tablets and other mobile devices in conjunction with readily accessible Wi-Fi networks.

Mash-ups: Web pages or applications that integrate complementary elements from two or more sources.

Social networking: The practice of expanding the number of one's business and/or social contacts by making connections through individuals. Social networking sites include Facebook, Twitter, LinkedIn and Google+.

Collaborative efforts based on the ability to reach large numbers of participants and their collective resources, such as crowd sourcing, crowd funding and crowd source testing.

User-generated content (UGC): Writing, images, audio and video content -- among other possibilities -- made freely available online by the individuals who create it.

Unified communications (UC): The integration of multiple forms of call and multimedia/cross-media message-management functions controlled by an individual user for both business and social purposes.

Social curation: The collaborative sharing of content organized around one or more particular themes or topics. Social content curation sites include Reddit, Digg, Pinterest and Instagram.

Web 2.0 Technologies

Most of the technologies used in delivering web 2.0 are rich Web technologies, such as Adobe Flash, Microsoft Silverlight and JavaScript (in addition to Ajax, RSS and Eclipse). Web 2.0 applications are often based on the decentralized download methodology that made BitTorrent so successful, in which each downloader of content is also a server, sharing the workload and making heavily demanded content more accessible that it would be in the centralized model where demand can lead to overwhelmed servers and pages.

Enterprise 2.0

Web 2.0 technologies into an enterprise's business processes, intranet and extranet is sometimes referred to as Enterprise 2.0. Most enterprise 2.0 followers use a combination of blogs, social networking and social collaborative tools as well as free, paid and home grown technologies. The term Enterprise 2.0 was coined by Harvard Business School Associate Professor Andrew McAfee in an MIT Sloan Management Review he named "Enterprise 2.0: The Dawn of Emergent Collaboration.

The Future of Web 2.0: Web 3.0

Web 2.0 is merely a transitional phase between the early days of the World Wide Web's existence and a more established phase they're calling Web 3.0, also known as the Semantic Web. Web 3.0 will involve the publishing of web resources in languages intended for data (such as XML, RDF, OWL and XHTML) to supplement them with metadata that will allow software to analyze, classify and deliver content for more personal relevance. The Semantic Annotations for Web Services group at W3C is defining the specifications for the Web 3.0.

Web 2.0 Tools

Web tools can be used to enhance teaching and collaboration among teachers and students as well as increase professional collaboration between educators. These tools are internet tools that allow the
user to go beyond just receiving information through the web. The user is expected to interact and to create content with others. Social media sites such as Facebook and Twitter are examples of Web 2.0 tools.

**Edmodo**

It provides teachers and students to secure place to connect and collaborate, share content and educational applications, and access homework, grades, class discussions and notifications. Our goal is to help educators harness the power of social media to customize the classroom for each and every learner.

**Audacity**

Audacity involves Record live audio, convert tapes and records into digital recordings or CDs, edit Ogg Vorbis, MP3, WAV or AIFF sound files, cut, copy, splice or mix sounds together, change the speed or pitch of a recording.

**Conclusion**

The HR function plays a great role in the execution of the company's goal. Through effective implementation from the start up to the end, it will yield to higher employee productivity and retention. HRM functions are deliberate and directed to the success of the organization. HR must relate to the organization's overall strategy. When this approach is accomplished, affirmative changes can occur in talent management, leadership development, and organization.

Web 2.0 has the potential to challenge established pedagogical practices. There is likely to be more discussion of the role of learners and teachers in education, the nature of assessment and what it is that should be assessed. The idea is to be institutionalized education is remembering information has passed, but if not then the development of the internet and the social computing tools of Web 2.0 should certainly force this issue. This opportunity to individualization will help institutions tailor their teaching for their students, at the same time as learners are able to adapt their learning to suit themselves. Web 2.0 will ultimately result in more personalized learning and therefore better outcomes for learners.

**References**

1. Steve haragon's classroom 2.0, “creating a voice thread on web 2.0 in education”.
2. Lileane Esnault and Emmett Lyon, “web based educational and pedagogical technology”.
Abstract

Image segmentation plays a major role in analyzing the images effectively in the medical world. There are various methods that segment the high quality images. These methods are designed using unsupervised and that can be applied for only single band images with less functionality. In this paper an effective segmentation pattern Multi-Class Independent Component Infomax Analysis (MICIA) has been proposed for multi-class high quality images. This new method, MICIA, combines the watershed cuts principle and Minimal Spanning Forest method to attain the richer segmentation of color textures with minimal computational time and to evaluate the image at minimum timing interval respectively. This method uses two principles namely, Watershed cuts principle and Minimum Spanning Forest method. Watershed cuts principle handles the multi-class poorly defined boundary images. Independent Component Analysis of Infomax achieves the richer segmentation of the color textures with maximum likelihood function. Experiments on a variety of challenging sequences using Corel Image Features Data Set with comparisons to different state-of-the-art methods has been demonstrated for more robust segmentation efficiency. Experiment evaluation in conducted on computational time taken for sub pixel accuracy rate which gets improved by 6 to 11 % while comparing with HAIRIS and by 20 – 33 % when compared to UIS.

Keywords: Multi-class Independent Component, Watershed Principle, Minimum Spanning Forest, Maximum Likehood Function, Informax Method.

Introduction

Segmentation pattern is challenging task in the several applications specifically the medical field. The need of effective segmentation leads to several method development. HAIRIS [1] presented a method to perform segmentation on pair of images on the basis of relaxation parameter. HAIRIS also applied histogram modes via the area among the objects which is an efficient method for image registration and was proved as a robust statistical based method for effective object matching. HAIRIS with different spectral content was applied only to single-band images but not implemented towards multi-band image segmentation and it also consumed more computational time during single-band segmentation stage.

A novel mathematical and algorithmic model called as UIS [2] was designed to perform unsupervised image segmentation. Flexible segmentation framework with unsupervised method was though well suited on segmenting wide range of multi-class poorly defined boundary images, it consumed more time on simply segmenting the colors from multi-class images.

Intensity Histogram Equalization (IHE) [3] preprocess the image to remove the noise present in the image and enhance the image contrast for disparity enhancement and in that way introduces intensity to improve the brightness. The preprocessing in IHE method includes mask production, enlightenment equalization, and color normalization for efficient analysis of different chosen design parameters. Mask production labels the pixels, and Region-of-Interest (ROI) in the entire image excludes the background of the image to generate a binary image for each band. The histogram threshold rate was calculated using pixel value statistics for exact relationship maintenance on gradient flow. This work improves the contrast but the segmentation process is not defined.
A new framework [4] is designed to integrate all the three metrics namely color, texture and information regarding shape in order to perform effective segmentation and to enhance the retrieval rate at a lesser amount of time using the dominant color feature. Even though the precision is improved, the complexity increases with the increasing number of features applied.

A maximum likelihood approach was presented in [5] that efficiently performed an automatically tuned process using Cramer-Rao Bound method. With this, the registration accuracy was improved in addition to optimal fused performance.

In this work, focus is made on improving the efficiency of segmentation using watershed cuts principle and independent component analysis based on infomax method. With the application of Watershed cuts principle, richer segmentation of color textures with minimal computational time is attained. Watershed cut principle in MICIA associated with regional minima of map effectively handles multi-class poorly defined boundary images using dilation and erosion of points on two dimensional multi-class images.

Independent Component Analysis based on InfoMax achieves richer segmentation of color textures with maximum likelihood function. ICA based on InfoMax handles multiclass texture images and as a result, the Maximum likelihood ensures higher independency on segmentation cuts. Finally, the Minimal Spanning Forest method evaluates the image at minimum timing interval. As a result, high quality texture image reduce the computational time on multi-class images and improves the sub pixel accuracy rate on segmenting.

**Multi-Class Independent Component Infomax Analysis**

High Quality texture image segmentation with the mathematical morphology helps to reduce the computational time on the multi-class images and improves the sub pixel accuracy rate on segmenting. The watershed cut principle is used in MICIA based segmentation for segmenting region based texture similarity. The process of segmentation also uses the independent component analysis to improve the region based texture segmentation without dependency. Moreover to establish the consistency level on multi-class texture images, the watershed cut principle uses the minimum spanning forest method to establish the consistency level on multi-class texture images. The minimum spanning forest method in MICIA based segmentation processes the multi-class images with minimal computational time.

The watershed principle in MICIA based segmentation uses dividing lines to separate different color textures. The color texture of the regions is efficiently segmented in MICIA even though the boundary images are poorly defined.

**Fig. 1: Architecture Diagram of MICIA**

The Figure 1 describes the architecture of the proposed method MICIA. This method initially extracts the multiclass color images from the Corel Image Feature database. In order to perform efficient segmentation on multi-class color images, watershed principle is used to segment the different color textures for easy classification process during the upcoming work. The process of segmentation is carried out in MICIA method using the minimum spanning forest method in order to reduce the computational time. Followed by this, the segmentation process next uses the multi-class independent component analysis using the
Infomax method. The independent component used in MICIA method effectually reduces the dependency level and in turn improves the likelihood function. Maximum likelihood function is used in MICIA method for richer segmentation attainment. The brief note on water shed principle using minimum spanning forest method and multi-class independent component analysis using Infomax is explained in the forthcoming sections.

\[ \text{Watershed Gradient } I(x,y) = (u + D) - (u - E) \]  

(1)

In (1), the ‘D’ denotes the color dilation of points on two dimensional multi-class images whereas, ‘E’ denotes the erosion of color points (i.e.,) that is highly unrelated to the defined segmented structure and is therefore removed using the dividing units. Let us further consider that if \( I(x,y)<0 \) is considered as minimal zones of color while regions with \( I(x,y)>0 \) is considered as the maximal zone of color texture on two dimensional multi-class images. The watershed principle is applied in MICIA method in order to successfully identify, when dilation or an erosion of color occurs on two dimensional multi-class images ‘I’.

The minimum spanning forest in MICIA method creates an optimality of watersheds. Minimum spanning forests relative to sub pixels of ‘P’ induces a unique pixel cut using the watershed principle. The main result of segmentation using MICIA method with minimum spanning forest is to identify the relative minima distance for mapping the pixel points. In fact, MICIA method derives the minimum spanning tree computations using distinct weights. As a result, the weight on each pixel point is likely used on the watershed cut property.

\[ \text{Weight of 'a' pixel point} > \text{Weight of 'b' pixel point} \]  

(2)

Let ‘a’ and ‘b’ denotes the two pixel points on the image ‘I’ and identified whether the ‘a’ pixel point is a minimum spanning forest pixel to perform the segmentation process or not. If the condition does not get satisfied, then the ‘b’ pixel point is checked through its corresponding weight points. Each pixel watershed principle with MSF is explained through the algorithmic procedure.

//Minimum Spanning Forest procedure
Begin
   Step 1: Let us assume ‘a’ and ‘b’ be the pixel point on image ‘I’ to perform segmentation
   Step 2: Initially, Watershed Principle is applied to compute the dilation and erosion of color texture image
   Step 3: Repeat
   Step 4: Compute edge of the region to easily plot the color texture space on two dimensional images ‘I’
   Step 5: Check to see that if two pixel points, ‘a’ and ‘b’ is within the cycle of the plotted points
   Step 6: If pixel point weight (a>b)
   Step 6.1: then the pixel point ‘a’ is chosen for segmentation process
   Step 7: Else
   Step 7.1: then the pixel point ‘b’ is chosen for segmentation process
   Step 8: Until all pixel points in the cycle of ‘I’ use MSF procedure
Output: MSF reduces the computational time of segmenting multi-class ‘I’
End

The above algorithmic step describes the minimum spanning forest procedure for segmenting the regions by travelling through shortest distance. The edges of the poorly bounded images are also segmented effectively in MICIA method. Regional minimal result with minimal computation time is
produced in MICIA method. The weight of each pixel points helps to plot the effective segmentation regions.

An input pixel vector points in MICIA method, is observed at each time point t, such that the regions of the observed vector are no longer dependent. The regions of c (t) are designed in such a way that if one source pixel points are normally distributed, then it is possible to extract the remaining pixel points to be segmented from image ‘I’. With this, the multi-class normal distribution point is formulized as,

\[ I(c_1, c_2, c_3, \ldots c_n) = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} p(c_1, c_2, c_3, \ldots c_n) \cdot \log \frac{p(c_1, c_2, c_3, \ldots c_n)}{\prod_{i=1}^{n} p(c_i)} \text{ dimension}_{n \times n} \]  

(4)

The component independency is checked through (4) where the regions ‘c_1, c_2, c_3, \ldots c_n’ on the two dimensional vector are mutually independent. The above equation in Infomax method on independent component analysis is formulized as,

\[ I(c) = \int p(c) \log \frac{p(c)}{\prod_{i=1}^{n} p(c_i)} dc \]  

(5)

From above, the mutual information in MICIA method is always positive and also equals to zero only when the components are independent on mapping the segmented regions.

Maximum likelihood function in MICIA method achieves richer segmentation processing signal with lesser dependency rate. MICIA picks up the higher order values of the normal distribution and perform redundancy reduction.

\{c_n\} \in \{\text{argmax likelihood } c: c_1, c_2, c_3, \ldots c_n, 0\} \]  

(6)

In order to form richer segmentation, with the application of maximum argument likelihood ‘c_n’ in (6) is the identified regions. Maximum likelihood enables to separate independent components in MICIA method input data with normally distributed function value. Maximum likelihood provides the unified result for richer segmentation without dependency rate.

Result Analysis of MICIA

Multi-Class Independent Component InfoMax Analysis (MICIA) on multi-class high quality color images is compared against the existing Histogram-based Image Segmentation (HAIRIS) [1] and Unsupervised Image Segmentation (UIS) [2]. The evaluation value given below with the help of table and graph describes the MICIA on multi-class high quality color images improve the sub pixel accuracy rate.

Fig. 2: Measure of sub pixel accuracy rate with respect to number of sub pixel

Figure 2 describes the sub pixel accuracy rate based on the number of sub pixel being measured in the range of 100 and 700 taken for experimental purpose using MATLAB. The application of mathematical morphology on High Quality texture image reduce the computational time on multi-class images and improves the sub pixel accuracy rate on segmenting by 6 – 11% when compared to HAIRIS [1]. Furthermore with the application of color dilation and erosion of points on two dimensional multi-class images separately increases the sub pixel accuracy rate by 20 – 33% when compared to UIS [2].
Figure 3 depicts the rate of color texture segmentation efficiency with respect to the number of regions. From the figure it is illustrative that with the increase in the number of regions, the color texture segmentation efficiency is improved using the proposed MICIA when compared to the two other existing methods namely, HAIRIS [1] and UIS [2]. Independent Component Analysis based on InfoMax achieves the richer segmentation of color textures with maximum likelihood function improving the color texture segmentation efficiency by 5 – 8 % when compared to HAIRIS [1]. ICA based on InfoMax handles multiclass texture images and as a result, the Maximum likelihood ensures higher independency on segmentation cuts improving the color texture segmentation efficiency by 13 – 22 % when compared to UIS [2].

Conclusion

The MICIA method based on Watershed cuts principle and Independent Component Analysis based on InfoMax provides an efficient means of richer segmentation of color textures with maximum likelihood function. First, we study the use of watershed cut principle minimum spanning forest method that measures the computation time on multi-class images and propose to use color dilation and erosion points on two dimensional multi-class images for measuring relative minima distance for mapping the pixel points in MICIA method. Second, multi-class independent component analysis is performed using Infomax method to assess multi-class normal distribution point with varying regions to maximize the true positive rate using Corel Image Features Data Set extracted from UCI repository. The experiment conducted using Corel Image Features Data Set shows that the MICIA method achieves up to 17.25 percent improvement on color texture segmentation efficiency compared to the existing methods.

References
IMPACT OF ELECTRONIC WORD-OF-MOUTH ON PURCHASE INTENTION

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Abstract
The trend of e-commerce has increased swiftly in recent years with the development of internet due to the easy accessibility. Over the last decade maximum business organizations are running with technological change in order to persuade the desires of the customers, and it leads to the emergence of the electronic word of mouth (eWOM), considered one of the most influential informal media among consumers, businesses, and the general population at large, with this background the objectives for the study is framed to analyse the factor influencing the respondents towards purchase intention. Primary data were collected from 67 respondents using a structured questionnaire. The Convenient sampling method was adopted in the study. The collected data were analysed using Descriptive statistics and Factor analysis. The study found that Flipkart website was preferred by majority of the respondents and it is also identified that word-of-mouth was the effective media in promoting online shopping and Customer Reviews influenced the purchase intention of the respondents to a great extent.

Keywords: Electronic Word-of-mouth, Purchase Intention, online shopping.

Introduction
Over the last decade utmost business organization are running with technological change in order to persuade the desires of the customers and the rise and spread of the Internet has led to the emergence of a new form of word of mouth (WOM): the electronic word of mouth (eWOM), considered one of the most influential informal media among consumers, businesses, and the general population at large. “eWOM communication refers to any positive or negative statement made by potential, actual and former customers about a product or a company via the internet (Hennig Thurau 2004).” eWOM communication has taken on special importance with the emergence of online platforms, which have made it one of the most influential information sources on the web (Abubakar and Ilkan 2016).

Review of Literature
Word of mouth is more trusted, credible and persuasive than commercial information (Manuela, etal 2014). There is a relationship between consumers Internet experience and e-WOM influence (Manuela, etal 2014). Satisfied customers spread positive image about the product or service and recommend their near and dear ones to buy them (Paul Oyer, 2014). The consumers product selections are influenced by the online recommendations (Senecal, etal 2013). Online WOM has a significant impact on tourists destination image, attitude and travel intention in the tourism industry (Jalilvand, etal 2012). Brand credibility had a positive impact on WOM through Customer satisfaction and loyalty (Zahra seyed 2012). Online WOM is the most attested source of information for consumers and it is more inspiring than traditional advertisements (Hungetal, etal 2007). eWOM generated in social networking is a reliable predictor of market success (Ravi, etal 2007).
Objectives of the Study

The objectives of the study are

- To find out the most preferred online shopping website by the respondents.
- To find out the effective media in promoting online shopping, and
- To analyze the factors influencing the purchase intention of the respondents.

Research Methodology

In tune with the objectives of the study, survey of customers of online shopping was conducted in Coimbatore city with a structured questionnaire to assess the impact of electronic word-of-mouth on purchase intention. Descriptive research was used for the study. Primary data was collected from 67 respondents, who have already experienced the online shopping were selected on a Convenient sampling method. Secondary data were collected from published reports, journals and books. The primary data were analysed using the statistical tools namely Percentage analysis and Factor analysis.

Socio – Economic Profile of the Respondents

The distribution of the respondents based on their socio-economic profile were analysed and presented in table 1.

Table 1: Socio-Economic profile of the Respondents

<table>
<thead>
<tr>
<th>Source: Primary Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variables</strong></td>
</tr>
<tr>
<td><strong>Age (In Years)</strong></td>
</tr>
<tr>
<td>Upto 30</td>
</tr>
<tr>
<td>30-40</td>
</tr>
<tr>
<td>40 and above</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
</tr>
<tr>
<td>Single</td>
</tr>
<tr>
<td>Married</td>
</tr>
<tr>
<td><strong>Educational Qualification</strong></td>
</tr>
<tr>
<td>School Level</td>
</tr>
<tr>
<td>Graduates</td>
</tr>
<tr>
<td>Post graduates</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
</tr>
<tr>
<td>Government employee</td>
</tr>
<tr>
<td>Private employee</td>
</tr>
<tr>
<td>Own Business</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td><strong>Monthly Income (In Rs)</strong></td>
</tr>
<tr>
<td>Below 25000</td>
</tr>
<tr>
<td>25000-45000</td>
</tr>
<tr>
<td>45000 and above</td>
</tr>
</tbody>
</table>

Table 1 shows that most of the respondents (47.76%) belongs to the age group of up to 30 years and 31.34 percent of the respondents belongs to the age group of 30-40 years, followed by 20.90 percent of the respondents belonging to the age group of 40 years and above. This shows that the younger generation people are more attracted towards the online shopping. Female respondents (58.20%) occupy the major proportion and about 41.80 percent of the respondents were male. About 64.18 percent of the respondents were married and the rest 35.82 percent of the respondents were single. About 34.33 percent of the respondents were graduates, 28.36 percent of the respondents falls under the category of others(Diploma/ any other additional courses), and 20.89 percent of the respondents have completed their school level education and about 16.42 percent of the respondents were completed their post graduation. About 38.80 percent of the respondents were private employees and 31.34 percent of the respondents were belonging to the category of others (Students, House wife), 19.40 percent of the respondents were doing their own business and the rest 10.45 percent of the respondents were government employees. Most of the respondents (40.30%) were
earning a monthly income between Rs.25000-45000, 32.84 percent of the respondents were earning a monthly income below Rs.25000 and about 26.86 percent of the respondents were earning a monthly income of Rs.45000 and above.

**Distribution of Respondents based on their Shopping Activities**

The distribution of the respondents based on their shopping activities were analysed and presented in table 2.

**Table 2: Distribution of Respondents based on Shopping Activities**

**Source:** Primary Data

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Respondents (n=67)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Purchased</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durable goods</td>
<td>14</td>
<td>20.90</td>
</tr>
<tr>
<td>Non durable goods</td>
<td>31</td>
<td>46.27</td>
</tr>
<tr>
<td>Both</td>
<td>22</td>
<td>32.83</td>
</tr>
<tr>
<td><strong>Websites Preferred for Shopping</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amazon</td>
<td>17</td>
<td>25.37</td>
</tr>
<tr>
<td>Flipkart</td>
<td>34</td>
<td>50.74</td>
</tr>
<tr>
<td>Paytm mall</td>
<td>9</td>
<td>13.43</td>
</tr>
<tr>
<td>Others</td>
<td>7</td>
<td>10.45</td>
</tr>
<tr>
<td><strong>Recommendation Seeking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Reference</td>
<td>17</td>
<td>25.37</td>
</tr>
<tr>
<td>Website reference</td>
<td>21</td>
<td>31.34</td>
</tr>
<tr>
<td>Other Recommendations</td>
<td>29</td>
<td>43.28</td>
</tr>
<tr>
<td><strong>Recommendations Provided for Online Shopping</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>54</td>
<td>80.60</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>19.40</td>
</tr>
<tr>
<td><strong>Recommendations Provided To</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends &amp; Relatives</td>
<td>26</td>
<td>48.14</td>
</tr>
<tr>
<td>Peer group &amp; Neighbours</td>
<td>17</td>
<td>31.48</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>20.37</td>
</tr>
<tr>
<td><strong>Period of Usage (In Years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>26.86</td>
</tr>
<tr>
<td>3-5</td>
<td>36</td>
<td>53.73</td>
</tr>
<tr>
<td>More than 5</td>
<td>13</td>
<td>19.40</td>
</tr>
<tr>
<td><strong>Promotion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Television</td>
<td>25</td>
<td>37.31</td>
</tr>
<tr>
<td>Word-of-Mouth</td>
<td>34</td>
<td>50.75</td>
</tr>
<tr>
<td>Newspaper &amp; Magazine</td>
<td>8</td>
<td>11.94</td>
</tr>
</tbody>
</table>

Table 2 shows that while shopping online, majority (46.27%) of the respondents purchase non durable goods, 32.83 percent of the respondents purchase both durable and non durable goods and about 20.90 percent of the respondents purchase only durable goods. On the basis of websites preferred for shopping, majority (50.74%) of the respondents prefer flipkart, 25.37 percent of the respondents prefer amazon, 13.43 percent of the respondents prefer paytm mall and the rest 10.45 percent of the respondents belongs to the category of others. On the basis of recommendation seeking, about 43.28 percent of the respondents were shopping through online because of the recommendations given by others which includes the recommendations from their friends, relatives, neighbours and peer groups, about 31.34 percent of the respondents seek reference from the websites and the rest 25.37 percent of the respondents were shopping through online by their own reference. Majority (80.60%) of the respondents have recommended the online shopping to others, which includes friends and relatives (48.14%), peer group and neighbours (31.48%), others (20.37%) and the rest 19.40 percent of the respondents have not recommended the online shopping to others. On the basis of period of usage, majority (53.73%) of the respondents were purchasing through online for a period between 3-5 years, about 26.86 percent of the respondents were purchasing through online for a period of 2 years and the rest 19.40 percent of the respondents were using the online shopping services for a period of more than 5 years. On the basis of Promotion, majority (50.75%) of the respondents thinks that word of mouth is the effective media in promoting online shopping, 37.31 percent of the respondents thinks that
television is the effective media in promoting online shopping and the rest 11.94 percent of the respondents thinks newspaper and magazines as the effective media for promoting online shopping.

Factors Influencing the Respondents towards Purchase Intention

In order to find out the factors of eWOM influencing the purchase intention of the respondents, their intention were gathered through five point likert scale. The data so collected were subjected to factor analysis, in order to bring out the underlying factors, Varimax Rotation with Kaiser Normalization were used. The principle component analysis was used for extraction purpose. The criteria for selecting number of factors were based on Eigen value, and all these factors which have Eigen value more than one were included. Six factors have Eigen value more than one. The KMO and Bartlett’s brings out the sample adequacy and are highly significant as shown in the table 3.

Table 3: KMO and Bartlett’s Test

| Kaiser –Meyer-Oklin Measure of Sampling Adequacy | .484 |
| Bartlett’s Test of Sphericity | Approx.Chi-Square | 119.504 |
| Df | .000 |

Table 4: Factors Influencing Respondents towards Purchase Intention

<table>
<thead>
<tr>
<th>Variables</th>
<th>Factors</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Characteristics</td>
<td>.005</td>
<td>-1.08</td>
</tr>
<tr>
<td>Interpersonal Influence</td>
<td>.006</td>
<td>.784</td>
</tr>
<tr>
<td>eWOM Quality</td>
<td>.214</td>
<td>-.079</td>
</tr>
<tr>
<td>Viral Marketing</td>
<td>-.071</td>
<td>-.025</td>
</tr>
<tr>
<td>Customer Review</td>
<td>.014</td>
<td>.025</td>
</tr>
<tr>
<td>Perceived Value</td>
<td>.708</td>
<td>.210</td>
</tr>
<tr>
<td>Product Review Rating</td>
<td>.648</td>
<td>.436</td>
</tr>
<tr>
<td>Experience with Online Review</td>
<td>.014</td>
<td>.373</td>
</tr>
<tr>
<td>eWOM Creditability</td>
<td>.221</td>
<td>.044</td>
</tr>
<tr>
<td>Message Trustworthiness</td>
<td>-.018</td>
<td>.718</td>
</tr>
<tr>
<td>eWOM Quantity</td>
<td>.257</td>
<td>-.444</td>
</tr>
<tr>
<td>Visual Cues</td>
<td>.805</td>
<td>-.016</td>
</tr>
<tr>
<td>Cumulative Variance (%)</td>
<td>18.919</td>
<td>33.824</td>
</tr>
</tbody>
</table>

Source: Computed Data

On factoring 12 variables totally six key factors influenced the purchase intention of the respondents to the extent of 73 percent. The factor one named as “Perception & Recommendation” consists of Visual Cues(.805), Perceived value (.708) and Product Review Rating(.648) influenced 19 percent of the variance. The second factor named as “Trust & Belief” consists of Interpersonal Influence (.784) and Message Trustworthiness (.718) influenced 15 percent of the variance. The third factor named as “Excellence” includes eWOM Quality (.804) influenced 10.65 percent of the variance. The fourth factor named as “Strategy” consists of Viral Marketing (.897) influenced 9.80 percent of the variance. The fifth factor named as “Review Feature” consists of Review Characteristic (.878) influenced 9.60 percent of the variance. The sixth factor named as “Customer Feedback” consists of Customer Review (.962) influenced 9 percent of the variance. The highest communality value of 0.932 indicates that “Customer Review” factor of eWOM influenced the purchase intention of the respondents to a great extent.
Suggestions to Marketers

- In addition to the strategies framed in order to attract the younger generation peoples, promotional strategies should be formulated to entice the old age peoples to involve them in online shopping.
- Providing Value added services like loyalty schemes, free samples and trials, clearance sales etc. will craft repurchase intention among the customers.

Conclusion

Over the last few decades, the customer indeed has become the focus of attention in the world of commerce and moreover, various extreme transformations have been taking place in the retailing sector due to web-based solutions, that are commendable innovations in this competitive world. The study concludes that Flipkart website was preferred by majority of the respondents and it is also identified that word-of-mouth was the effective media in promoting online shopping and Customer Reviews influenced the purchase intention of the respondents to a great extent.

References

IMPACT OF TECHNOLOGY IN E-RETAILING OPERATIONS

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Abstract
From getting product information with the detail process map link to the final minute courier / postal alert has been enriching experience to Indian consumer in recent years. The strengthen belief of consumer on e-operations has been a major breakthrough in Indian retail industry. This has been an outcome of a meticulously designed delivery logistics equipped with technological innovation to provide a new level of consumer experience. This has also led to e-retailing reform in India attracting more investment in technologically driven R&D to enable a super-rich experience to Indian consumers. The impact of technology can be seen in improved performance of sector with a turning point. This paper is an attempt to unpin these technological innovations in product distribution system in E-retailing. It also aims to highlight the mal-practices in E-retailing during pre-technological era and mapping their solution in post technological era.

Keywords: Technology; e-retailing; e-operations; retail; pan shops; kirana stores; pansaari stores; POS.

Introduction
The Indian retail industry is the fifth largest in the world comprising of unorganized sector i.e. local pan shops, kirana stores, pansaari stores in the local market etc and organized sector like shopping malls, company outlets, direct marketing channels and recent trend e-portals. This industry is one of the fastest growing industries in India undergoing a transformation from unorganized sector to organized sector. This transformation is making it obvious to expand horizontally as well as vertically. The vertical expansion leads to side coverage of market and consumer of different strata. The horizontal expansion leads to increased requirement of manpower. Hence, the retail sector has emerged as a potential job provider to the Indian economy boosting its growth. The people are not only becoming aware of various new products and services but they are also becoming quality conscious which has added another dimension to the market competition. The consumers have been made aware of various choices with various advertising strategies by the retail giants in India. Earlier they used publicity of various products by word of mouth. Now, the strategy has shifted from this to promotion of products by credible sources impersonating as experts from various organizations, which in turns influences the consumer to great extent. The consumer has become aware of various products available in the market. They know about the products and want to know more with the help of print media, internet etc. This has necessitated the careful handling of consumer at point of sale (POS) because the consumer of today is well aware of product range both horizontally and vertically. The consumers have developed a habit to enquire about all the aspects before purchasing a product and expect the answer to the satisfaction level by the retailer. The actual purchase depends on the level of satisfaction.

The retail industry comprises 8% of total employment opportunities in Indian economy and contributes approximately 22% of country's GDP. The Indian policy reform on FDI in retail sector has opened avenues to global retail giants to open their stores in India. This will, further, lead to increase in employment opportunities, support to small scale industries and improvisation of logistic and supply systems to Indian retail sector.
Changing Paradigms in Retail Sector

The Indian retail industry has passed through various stages making new milestones to crack and companies have always augmented their strategies to align with these milestones. From street side local retailing to e-retailing via World Wide Web, the only thing that has not changed is consumer satisfaction. The ways of satisfying consumer need have always kept on changing. The technology has played a pivotal role in this whole process. The major milestones have been covered in following manner.

Retail Experience in 1970's

This was a period when the shopkeepers/ producers ruled the market i.e. they had complete control over the products and choices of the consumer. In other words, the consumers had very less or no choice of products. Consumers had to choose among the limited number of products available in the market place at the shopkeeper outlet. Since the shopkeepers had complete control. They used to extract money for the product from the consumer as per they thought and keeping in mind, the social status of the consumer visiting the shop. This discrimination could also be seen in other aspects such as the products availability for the various consumers of various income groups. The products quality would change from superior to inferior as per the decline social status of the consumer. To add to it after sales services and product replacement also used to differ as per the level of consumer purchasing the product.

Retail Experience in 1980's

This was the era of pre-globalization when the retailing of products was centralized. The producers were sending the products as per the demand to distribution centers and the shopkeepers were supposed to take the assorted products as per the need and demand of the various consumer groups of their area. This change helped the consumer. The consumers now had more options than earlier but still the prices were being controlled by the shopkeepers. The services offered were changing, but the technology still had to play a pivotal role in the retail industry which would add a new face to the consumer experience.

Retail Experience in 1990's

This was the era of globalization; it was the period when the global companies were attracted with potential growth in Indian market. These companies started flooding the Indian market with their products leading to price war. These companies also started spending substantial expenditure on advertisements to attract the consumers. The companies started using logistics in a more sophisticated manner to fulfill the needs of consumers i.e. by providing more and more options available at point of sale to the consumers. The concept of consumer care was coined as a strategy to compete in market. The level of service to consumers started becoming upgraded to evolve overlooking the social constraints. The consumers were being treated as equals in all the aspects. But the delivery process was still traditional with dominance of distribution channels in time. In short, the market was developing and the companies had started making use of technology as a tool to serve in a better manner. The optimum use of the technology was yet to be made.

Retail Experience in 2000’s

In this era, the companies have flooded the market with a wide variety of products for the consumer, the consumer is branded as the king and all the companies are at the service of the consumer to provide him/her with the product with whatever specification they desire at genuine cost and at desired place. Here comes the real use of technology, i.e. the consumer can order the product from a wide range on mediums i.e. mobile, SMS, internet etc. while sitting at the home. It helps in knowing the
number of days in which the product would be delivered, the place at which the product is at a particular time. If product is not as per expectations it can be returned without any questions. The payment mode has also got up-gradation in term of cash on delivery, online transfer, mobile payment, card payment and secures payment gateways provided by the banks in collaboration with the companies and various vendors (Flipkart, Amazon, Snapdeal, Jabongetc.). The technology has got so much infused in the retail that can be seen from the moment when a consumer starts searching for a product and orders it a message is sent to the consumer regarding booking of the order to the transit status to the delivery point everything can be traced by the consumer by the help of technology.

Technological Reforms in E-Retailing Operations

Product Survey and Ordering

When consumer thinks to purchase a particular product, the first step an India consumer follow is to check and compare the detail specifications, price etc from the credible source. The traditional method of credibility testing was to get first hand user information and experience from the consumer. With the advent of newer technologies the online product survey and comparison across the different e-portals is very common. The technology has helped the consumer to such an extent that the consumer can very easily compare a couple of products simultaneously on various websites such as junglee.com and through this process the consumer satisfies his cravings to buy the product. Everything is being duly noted in the information system, for the future references to be used by the manufacturer, the e-retailer and consumer.

Once the consumer is through with all the comparing of the product it is directed to the e-retail portal where the consumer finally checks out the product details such as price/ discount structure/ location availability/ delivery option/ mode of payment.

After all the checking the consumer makes up his mind to purchase the product and as the product is ordered, there is a message send automatically to the consumer via information centre that the product order has been placed successfully. The information updating to the consumer is the impact of technology in e-retailing.

Once the product order is placed by the consumer it is directed to the payment option where it gives an option to pay for the product by Debit card/ Credit card or opt for COD options. The online payment is compulsorily through secured payment gateway.

Order Processing and Product Confirmation

Once the product payment has been made the product order is being processed and the supplier/retailer of the product is made aware of the same through an automated system, at this point as well the technology makes its presence felt not directly but indirectly.

Another use of technology which is not seen by the consumer but it happens, as the order is confirmed the retailer is being made aware of the sale of product via the e retailer and the arrangements are being made by the retailer for the movement of the product. The well-defined and efficient system of supply chain makes this process almost error free.

Product Packaging, Logistic and Delivery

As soon as the product is being made available by the retailer, its being packed as per the company standards and nature of the product i.e. products that are of glass/ bone china are packed more securely. Extra cushion is provided so as the product could withstand the journey it has to make and it
does not breaks during the journey or it should not be broken when the consumer opens the packet. Hence the product is being made ready for the transportation. The role of logistics becomes crucial at this stage to stick with the commitment made by e-retailer.

Once the product is packed securely and safely the product is being ready to be shipped/dispatched to the consumer on the desired address, and as soon as the product is dispatched the consumer receives a message stating the confirmation of dispatch of order, and till the time the product is being delivered the consumer can easily track the order and see the current position of the product.

As per the message the consumer is made aware about the tentative delivery date of the product and the product is being delivered to the consumer on the desired address usually on or before delivery date.

The Technology Edge

Right from the product survey till the product delivery, the role of technologically equipped information centre becomes crucial. The consumer’s choice, surveyed products and visited links each information is customized and personalized to remind you in future about your past activity.

The product features, comparison, price analysis, and probable date of delivery have never been so accustomed in past. This update is for a guest visitor to e-portals. Once a product is put in cart, the technology starts chasing you till the order placing.

The best part of e-retailing and technology is to update the consumer about each happening about your order. Each stage is linked to the information centre and consumer can at any time; check the status of product journey. The e-portal also keeps sending SMS and emails to consumer to make him/her part of supply chain.

The technology has played a game changer in retail segment especially e-retailing. The need for technological innovation justify to a great extent the consumer dynamics the e-shopping experience of consumer has become rich as compare to the traditional shopping. Some of the key impacts of e-retailing are listed below:

a) Fast order: Earlier were the days when people used to go in to the markets roam from shop to shop bargain for every chip in the pocket, in the hot/cold/humid weather drenched up to the skin, all of this is changing with the intrusion of technology, now the consumer doesn’t need to go out to the shops/brands, on the contrary shops/brands come to the consumer who is not on the streets but is on his bed/chair in his cubicle/room far away from the hustle and bustle of the market finalizing the product on various shopping sites with a variety of discount structures which are being provided by the companies to its consumers who shop online or the companies have started E-Retailing. This has helped the consumer to order much faster and save both time and money by the use of technology.

b) Competitive rates: When a consumer moves into market to purchase products, the consumer is being made aware of few products and the prices at which they are available to purchase, but technology helps the consumer to search and compare simultaneously a variety of products available on a scale of various qualities, which cannot be done manually and the best part there is no fight between shopkeeper and consumer if the whole deal does not works up.

c) Easy Tracking: Once a product is being confirmed by the consumer to be purchased, a message is being sent to the mobile and email id of the consumer stating the current status of the product. The technology has evolved so much that the consumer can trace its order at every point i.e. from the confirmation of the order, its payment (in case of internet banking), shipping of product from the warehouse, transit status, reaching to the destination warehouse, delivery at the consumers doorstep,
payment (COD), return of the product in case of non-compliance of specifications of the product. The consumer can trace its order from start to finish.

d) Payment gateway: Technology has made money transactions very easy over a period of time, earlier people use to carry money in their wallets, now they carry credit/debit/cash cards and this has helped consumers to pay for the products that they select on various shopping sites through secure payment gateways provided by the banks to these shopping sites. These gateways, sometimes, provide extra discounts to the consumers who use their services, which adds as an additional benefit to the consumer.

e) Impact on society: It’s truly said that an excessive use of anything leads to a negative impact on the surroundings which could be easily seen with the recent activities i.e. fiasco created by FLIPKART. In other words there are so many sites that offer product to the consumers using various advertising techniques, this leads to confusion in the minds of the consumers and very often, many sites misleads the consumers which holds a negative impact on the society.

Benefits of E-Retailing

With the globalization, companies came into the Indian retail sector and elevated the level of services and due to which the traditional shops also had to change the modus operandi of their work, some other benefits of e-retailing are stated below:

a) Business can be done at any given point of time irrespective of time and place.
b) Better buying decisions are made.
c) Wide variety of products are available to choose from.
d) Easiest and cheapest way to do business.
e) Reduction in cost to company.
f) Faster delivery of products.
g) Better paying facilities are made available.
h) Development of infrastructure.
i) Opportunities to SSE to show presence on global platforms.
j) Cash on Delivery (C.O.D)

Conclusion

The retail sector has experienced a remarkable change over a period of last few decades. The journey of consumer from kirana store shopping to e-portal experience has been enriching. The technology has added additional flavor to this experience with a strategic orientation. The innovation in upcoming technologies will definitely make this experience more spicing. The role of consumer and technology will keep dominating in retail sector and companies will require to re-orient their strategies around these factors.

References

INCLUSIVE BANKING THROUGH BRANCHES AND ATMS OF SCHEDULED COMMERCIAL BANKS IN INDIA

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Abstract
Banking sector is one of the most vibrant sectors in India. Rapid economic development presupposes rapid expansion of commercial banks. Initially, the banks were conservative and opened branches mainly in metropolitan cities and other major cities. Branch expansion gained momentum after the nationalization of major commercial banks. Every bank, large or small, closely-held, widely-held or even government-held, its services to customers by introducing new financial instruments and adopting new practices, this paper discussed on inclusive banking through branches and ATMs of scheduled commercial banks in India.

Keywords: Commercial bank, Branches, ATMs, Services, Financial Institution.

Introduction
India is one of the well organized banking systems in the country with more than one lakh branches and extended its activities from traditional to transformed manner. Now a day's banks are performing will due to the advantages of the information technology, global infrastructure and stiff competition. In this regards is article highlights the branches and ATMs of commercial banks in the country as a data as per the report of Reserve Bank of India.

Definition of "Banking" as per the Banking Regulation Act, 1949 says "banking" means the accepting, for the purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise, and withdraw able by cheque, draft, order or otherwise". The Act defined the functions that a commercial bank can undertake and restricted their sphere of activities.

Commercial Banks in India
Under the Reserve Bank of India Act 1934, banks were classified as scheduled banks and non-scheduled banks. The scheduled banks are those which are entered in the Second Schedule of RBI Act, 1934. Such banks are those which have a paid-up capital and reserves of an aggregate value of not less than 5 lakhs and which satisfy RBI that their affairs are carried out in the interests of their depositors. All commercial banks – Indian and foreign, regional rural banks and State co-operative banks – are scheduled banks. Non-scheduled banks are those which have not been included in the Second Scheduled of RBI Act, 1934. At present, there are only three non-scheduled banks in the country. Scheduled banks are divided into commercial banks and co-operative banks. Commercial banks are based on profit, while cooperative banks are based on cooperative principle.

Commercial banks have been in existence for many decades. They mobilize savings in urban areas and make them available to large and small industrial and trading units mainly for working capital requirements. After 1969 commercial banks are broadly classified into nationalized or public sector
banks and its associate banks along with another 20 banks are the public sector banks. The private sector banks include a small number of Indian scheduled banks which have not been nationalized and branches of foreign banks operating in India – commonly known as foreign exchange banks.

The Regional Rural Banks (RRBs) came into existence since the middle of 1970s with the specific objective of providing credit and deposit facilities particularly to the small and marginal farmers, agriculture labourers and artisans and small entrepreneurs. The Regional Rural Banks have the responsibility to develop agriculture, trade, commerce and industry in the rural areas. The RRBs are essentially commercial banks but their area of operation is generally limited to a district.

Branch Expansion

Rapid economic development presupposes rapid expansion of commercial banks. Initially, the banks were conservative and opened branches mainly in metropolitan cities and other major cities. Branch expansion gained momentum after the nationalization of major commercial Banks.

### Table 1: Scheduled Commercial Bank Branches in India – Area Wise

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the Bank</th>
<th>Rural</th>
<th>Semi-Urban</th>
<th>Urban</th>
<th>Metro-Politan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scheduled Commercial Bank</td>
<td>26493</td>
<td>25009</td>
<td>19027</td>
<td>18033</td>
<td>88562</td>
</tr>
<tr>
<td>2</td>
<td>Public Sector Banks</td>
<td>24124</td>
<td>19554</td>
<td>15080</td>
<td>13903</td>
<td>72661</td>
</tr>
<tr>
<td>3</td>
<td>Nationalized Banks</td>
<td>17036</td>
<td>13539</td>
<td>11320</td>
<td>10585</td>
<td>52480</td>
</tr>
<tr>
<td>4</td>
<td>State Bank Groups</td>
<td>7088</td>
<td>6015</td>
<td>3760</td>
<td>3318</td>
<td>20181</td>
</tr>
<tr>
<td>5</td>
<td>Private Sector Banks</td>
<td>2361</td>
<td>5445</td>
<td>3882</td>
<td>3881</td>
<td>15569</td>
</tr>
<tr>
<td>6</td>
<td>Old Private Sector Banks</td>
<td>1069</td>
<td>2332</td>
<td>1514</td>
<td>1132</td>
<td>6047</td>
</tr>
<tr>
<td>7</td>
<td>New Private Sector Banks</td>
<td>1292</td>
<td>3113</td>
<td>2368</td>
<td>2749</td>
<td>9522</td>
</tr>
<tr>
<td>8</td>
<td>Foreign Bank</td>
<td>8</td>
<td>10</td>
<td>65</td>
<td>249</td>
<td>332</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>52986</td>
<td>50018</td>
<td>38054</td>
<td>36066</td>
<td>177127</td>
</tr>
</tbody>
</table>

Source: Reserve Bank of India, 2014-15

Table 1 it is seen from the above table that the branches of scheduled commercial bank that the rural areas, branches for a substantial 26493 of total of all scheduled commercial banks. In semi-urban areas, their share comes to 25009 branches, and in urban & metro Politian, their share comes to 19027, 18033 branches. Public sector banks that the rural area, branches for a substantial 24124 of total of all public sector banks, in semi-urban area, their share comes to 19554 branches, and urban & metro Politian, their share comes to 15080, 13903 branches. Private sector banks that the rural areas, branches for a substantial 2361 of total of all private sector banks, in semi-urban area, their share comes to 5445 branches, and urban & metro Politian, their share comes to 3882, 3881 branches and Foreign banks that the rural areas, branches for a substantial 8 of total of all foreign banks, in semi-urban area, their share comes to 10 branches, and in urban & metro Politian, their comes to 65, 249 branches.

Automatic Teller Machine

In 1939, Luther Simjian patented an early and not-so-successful prototype of an ATM. However, some experts have the opinion that James Good fellow of Scotland holds the earliest patent date of 1966 for a modern ATM, and John D White (also of Docutel) in the US is often credited with inventing the first free-standing ATM design. In 1967, John Shepherd-Barron invented and installed an ATM in a Barclays Bank in London. Don Wetzel invented an American made ATM in 1968. However, it wasn’t until the mid to late 1980s that ATMs became part of mainstream banking.
An Automated Teller Machine or ATM Machine can be used to provide banking services to customers at places which are not bank branches. The services they can provide are Cash withdrawal, Balance inquiry, Pre-paid mobile recharge, Funds transfer, Bill payment and etc.,

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the Bank</th>
<th>On-site</th>
<th>Off-site</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scheduled Commercial Bank</td>
<td>55760</td>
<td>58254</td>
<td>114014</td>
</tr>
<tr>
<td>2</td>
<td>Public Sector Banks</td>
<td>40241</td>
<td>29411</td>
<td>69652</td>
</tr>
<tr>
<td>3</td>
<td>Nationalized Banks</td>
<td>21533</td>
<td>15528</td>
<td>37061</td>
</tr>
<tr>
<td>4</td>
<td>State Bank Groups</td>
<td>18708</td>
<td>13883</td>
<td>32591</td>
</tr>
<tr>
<td>5</td>
<td>Private Sector Banks</td>
<td>15236</td>
<td>27865</td>
<td>43101</td>
</tr>
<tr>
<td>6</td>
<td>Old Private Sector Banks</td>
<td>4054</td>
<td>3512</td>
<td>7566</td>
</tr>
<tr>
<td>7</td>
<td>New Private Sector Banks</td>
<td>11182</td>
<td>24353</td>
<td>35535</td>
</tr>
<tr>
<td>8</td>
<td>Foreign Bank</td>
<td>283</td>
<td>978</td>
<td>1261</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>111520</strong></td>
<td><strong>116508</strong></td>
<td><strong>228028</strong></td>
</tr>
</tbody>
</table>

Source: Reserve Bank of India, 2014-15

Table no. 2 reveals that the highest ATM center in scheduled commercial banks, there are 55760 in on-site and 58254 in off-site, followed by ATM center in public sector banks, there are 40241 in on-site and 29411 in off-site, followed by ATM center in Private sector banks, there are 15236 in on-site, and 27865 in off-site and least ATM center in Foreign banks, there are 283 in on-site and 978 in off-site.

Suggestions

Most of branches well performance in our country but usage is very less because low awareness in rural area people, it must improve through technology and awareness.

Banks schemes are unreached to some area particularly uneducated people so all people should use to all schemes are the banking technology.

Technology adopted in all scheduled commercial banks and well improved in our country, but lack of technology in rural area is a challenge to banking sectors.

Conclusion

Branch expansion scheme of the commercial banks are highly impacted into the inclusive banking concept which attracts more customers to the banks. While establishing more branches, customer can easily approach and access the banking services in their places. ATM is a common system of banks which enables easy access of money withdraws in their nearby places without spending much time. Hence this article concludes branches and ATMs of the commercial banks leads to inclusive banking in the country.

References

ISSUES IN ELECTRONIC FUND TRANSFERS (EFT)

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Abstract

Electronic funds transfer (EFT) payments promise a cashless society in electronic commerce (e-commerce). While technical issues have overcome the legal and practical logistics are being addressed. A background to legal problems is given including liability, certainty of payments and the requirements of mobile commerce (m-commerce). Cybercrime threats such as fraud and abuse of access to automatic teller machines (ATM) are also outlined. Litigation from various common and civil law jurisdictions are described as relevant legislation pertaining to EFT. New technological innovations in mobile banking (m-banking) have introduced new problems that challenge the law. Policy and legislative instruments provide a critical means by which issues may be overcome to ensure that EFT as a generic payments system may yet endure as a sound business model. In recent years the requirement for enhanced security to protect financial transactions has become an issue of growing urgency. The major concern is that of ensuring the integrity of data between parties and the authenticity of the originator. This paper describes the cryptographic controls that GE Information Services uses over its worldwide network to ensure the validity of EFT transactions. The object is to show how keys can be securely administered and distributed in practice.

Keywords: Authentication, Electronic fund transfers, encryption, key management, cryptographic controls.

Introduction

All banks which are using EFT systems and those which are moving towards high level of computerization must formulate a security policy stating the objectives and system controls which could be devised and implemented to protect the integrity of the important information and data. These controls have to be backed by regular monitoring, surveillance and auditing in order to maintain high level of security. The banks should keep upgrading the systems to latest versions which would ensure better security and control. Risk Management Cells should be established in the banks, particularly those which are resorting to EFT systems for making and receiving payments. There are various types of risks associated with E-banking. In many ways EFT can enhance the privacy of financial transactions. An ATM transaction is clearly more impersonal and anonymous than one conducted through a human teller. The coding of information as electronic signals minimizes the possibility of casual or accidental perusal of information.

Electronic Fund Transfer

Electronic Funds Transfer (EFT) represents the way the business can receive direct deposit of all payments from the financial institution to the company bank account. Once the User signs up, money comes to him directly and sooner than ever before. EFT is fast, safe, and means that the money will be confirmed in user’s bank account quicker than if he had to wait for the mail, deposit the cheque, and wait for the funds to be available. The payment mechanism moves money between accounts in a fast, paperless way.

Payment Mechanisms

Automated Teller Machines (ATMs): Consumers can do their banking without the assistance of a teller, or to make deposits, pay bills, or transfer funds from one account to another electronically. These
machines are used with a debit or EFT card and a code, which is often called as a personal identification number or “PIN”.

**Point-of-sale (POS) Transactions:** Some debit or EFT cards can be used when shopping to allow the transfer of funds from the consumer's account to merchants. To pay for a purchase, the consumer presents an EFT card instead of cheque or cash.

**Net Banking:** Internet Banking Is The Latest Wave In Information Technology. It Is Another Electronic Delivery Channel. In Simple Terms, Internet Banking Means Any User With A Personal Computer And A Browser Can Get Connected To His Bank’s Website To Perform Any Of The Virtual Banking Functions.(Electronic Delivery Of Services).It Is Thus Of Facility Provided By Banks That Enable The User To Execute Bank Related Transaction Through Internet. The Greatest Advantage of Internet Banking Is the People Sitting At Home Can Transact business.

**Electronic Cheques:** An electronic cheque is an electronic copy (scanned image) of a real cheque, which is then transferred by email. In addition to the cheque’s 'real' signature, the transfer must be digitally signed using the sender's private key to authenticate the transfer.

**E-cash:** E-cash is used over the Internet, email, or personal computer to other workstations in the form of secured payments of "cash" that is virtually untraceable to the user. It is backed by real currency from real banks. The way e-cash works is similar to that of electronic fund transfers done between banks. The user first must have an e-cash software program and an e-cash bank account from which e-cash can be withdrawn or deposited. The user withdraws the e-cash from the account onto her computer and spends it in the Internet without being traced or having personal information available to other parties that are involved in the process. The recipients of the e-cash send the money to their bank account as with depositing "real" cash.

**E-wallet:** E-wallet is an online prepaid account where one can stock money, to be used when required. As it is a pre-loaded facility, consumers can buy a range of products from airline tickets to grocery without swiping a debit or credit card.

- Plastic cards
- Debit Card

A debit card is basically a better way of carrying cash or a cheque book. It is an electronic card that one can use as a convenient payment mechanism. The card is generally issued by the bank and is connected through the ATM. Debit cards allow the holder to spend only what is in his account and purchases should be kept track of just as if one is writing a cheque.

**Credit Card:** A credit card is part of a system of payments. It is a small plastic card issued to customers. The most point is that the banker who issues card grants a line of credit – a sanctioned limit, up to which the customer can use the card. It is also known as a debt instrument. Its operation is through electronic fund transfer (EFT) installations and interbank network. The objective is to provide convenience and security to eliminate cumbersome cash transactions and protects the holder from the danger of theft of cash.

**Smart Card:** Smart card is an electronic information carrier system that uses plastic cards, about the size of a credit card, with an embedded integrated circuit that stores and process information. It can be used to store personal identification, medical history and insurance information because it has its own micro processing chip; a smart card can store more bits information than a magnetic stripe card, although it requires a special card – reading device.
Various Modes of EFT in India

- **NEFT** - National Electronic Funds Transfer
- **RTGS** - Real Time Gross Settlement
- **IMPS** - Immediate Payment Service

**NEFT:** The National Electronic Funds Transfer is a nation-wide money transfer system which allows customers with the facility to electronically transfer funds from their respective bank accounts to any other account of the same bank or of any other bank network. Funds transfer through NEFT requires a transferring bank and a destination bank. Before transferring funds via NEFT you should register the beneficiary, receiving funds. For this you must possess information such as name of the recipient, recipient’s bank name, a valid account number belonging to the recipient and his respective bank's IFSC code.

**RTGS:** It is a real time funds transfer system which facilitates you to transfer funds from one bank to another in real time or on a gross basis. The transaction isn’t put on a waiting list and cleared out instantly. RTGS payment gateway, maintained by the Reserve Bank of India makes transactions between banks electronically. The transferred amount is instantly deducted from the account of one banks and credited to the other bank's account.

**IMPS:** The National Payments Corporation of India introduced a pilot mobile payment project also known as the Immediate Payment Service (IMPS). IMPS offers instant electronic transfer service using mobile phones. It also features a secure transfer gateway and immediate confirmation on fulfilled orders. To be able to transfer money via IMPS route you must first register with bank. Thus IMPS enables customers to use mobile instruments as an instant money transfer gateway, facilitating user convenience and saving time and effort involved in other modes of transfer.

**Issues in EFT**

**Lack of Usability:** Electronic payment system requires large amount of information from end users or make transactions more difficult by using complex elaborated websites interfaces. For example credit card payments through a website are not easiest way to pay as this system requires large amount of personal data and contact details in web form.

**Lack of Security:** Online payment systems for the internet are an easy target for stealing money and personal information. Customers have to provide credit card and payment account details and other personal information online. This data is sometimes transmitted in an un-secured way, providing these details by mail or over the telephone also entails security risk issues with e-Cash. The main problem of e-cash is that it is not universally accepted because it is necessary that the commercial establishment accept it as payment method. Another problem is that when we make payment by using e-cash, the client and the salesman have accounts in the same bank which issue e-cash. The payment is not valid in other banks.

**Lack of Trust:** Electronic payments have a long history of fraud, misuse and low reliability as well as it is new system without established positive reputation. Potential customers often mention this risk as the key reason why they do not trust a payment services and therefore do not make internet purchases.

**Conclusion**

To ensure security in EFT, establishment of trust among parties is essential. This can be established through a trusted third party designated as a Certification Authority. Digital certificates may play an
important role in authenticating parties and therefore, establishing trust in EFT systems. The protection of data finds its roots in the individual’s right to privacy doctrine. The right to privacy is explicitly contained in or has been inferentially found to exist in the constitutions of most developed nations and the jurisprudential parameters of privacy rights explored in various forums. Privacy is regarded as an attribute of individuals and the focus is on those activities through which they are able to control and restrict access to personal information. Thus, the customers need to know what information is recorded about them and how they can correct inaccuracies.

References
CONSUMER’S SATISFACTION TOWARDS ONLINE SHOPPING –
A STUDY IN ERODE TOWN

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Abstract
The rapid development of the internet has strongly impact upon the worldwide marketing environment. Currently it has become one of the popular approaches for business and customer to perform trade over the internet. Businesses have been coming up with creative ways to promote their product via online. Thus it describes how modern market is replacing the traditional markets. This study is taking place to identify the factors that may influence customer’s online shopping satisfaction. Generally, the success of online shopping essentially depends on the customer satisfaction during their purchase.

Introduction
Online shopping is the process whereby consumers directly buy goods, services etc. from a seller interactively in real-time without an intermediary service over the internet. Online shopping is the process of buying goods and services from merchants who sell on the Internet. Since the emergence of the World Wide Web, merchants have sought to sell their products to people who surf the Internet. Shoppers can visit web stores from the comfort of their homes and shop as they sit in front of the computer. Consumers buy a variety of items from online stores. Nowadays, online shopping is a fast growing phenomenon. Growing numbers of consumers shop online to purchase goods and services, gather product information or even browse for enjoyment. Online shopping environment are therefore playing an increasing role in the overall relationship between markets and their consumers. That is, consumer-purchases are mainly based on the cyberspace appearance such as pictures, image, quality information, and video clips of the product, not on the actual experience. The wide use of internet and the rapid growth of technology have created a new market for both the customers and business. Now day’s internet is not just another medium to get in touch with customers, but it is an important channel to find potential customers as well as channel to continue relationship with existing customers. Essentially, the idea of online shopping is to lead customers to a convenient way of shopping. Customers will be able to save their time and money, plus retrieve all the product information with just few clicks in few minutes. Plus, purchasing can be done anywhere, anytime according to their preferences.

Statement of the Problem
Online marketing has gained a lot of importance in present marketing conditions. But along with its vital growth the number of scamps, fraudulent practices and cheating also increased. Such cheating activities had created fear in the minds of customers and also an adverse impact in the attitude of consumers towards online purchase. The problem area of this survey is consumer’s satisfaction and
attitudes towards online shopping will determine the factors that influence customers to shop online and those factors will help the marketers to formulate their strategies towards online marketing. This study provides answer for the following questions:

1. What type of products the consumers to prefer the online shopping?
2. What are the factors influencing the customers to prefer the online shopping?
3. What is the level of satisfaction of the respondents towards online shopping?

Objectives of the Study
- To know the factors which influence the customers to prefer the online shopping in Erode Town.
- To measure the level of satisfaction regarding online shopping in Erode Town.
- To ascertain the most preferred online shopping websites among the users.
- To identify the problems in online shopping.
- To recapitulate the findings of the study and offer suitable suggestions for improving the quality of online shopping.

Scope of the Study
The study has been undertaken to examine the customers' satisfaction towards online shopping in Erode Town. The scope of the study is restricted to online shopping with the objectives of studying the profile of the respondents, the factors influencing the customers to prefer the online shopping and satisfaction level of the respondents towards online shopping.

Research Methodology
The study on customers' satisfaction towards online shopping has been limited with the respondents located in Erode Town only. In order to realize the objectives, the primary data is used. The required primary data have been collected through a survey method from the respondents during a month of December 2017. Besides the primary data, the secondary data were also collected from various sources like newspapers, magazines and social media sites to make highlight on online shopping. The convenient sampling technique was employed in the selection of the sample. The samples of 30 respondents were selected to carry out the present study in Erode Town. The important statistical tool used in the study is simple percentage analysis.

Limitations of the Study
- The data given by the respondents are limited to their own perception, opinion, emotion, knowledge, feeling and awareness.
- The data collected for the studies are quantitative being subjective personal bias of the respondents.
- Due to time constraint, the sample size was limited to 30 respondents and the finding might not be applicable to the total population.

Results and Discussion
Profile of the Respondents - Percentage Analysis
The profile of the respondents has been presented in two parts. The first part shows the socio-economic profile of the respondents and the second part shows the profile of the respondents based on their buying attributes.
The followings Table 1 shows that the socio – economic and buying attributes of the respondents.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Age</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>upto 20 years</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>21-30 years</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>31-40 years</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>Above 40 years</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Marital Status</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>16</td>
<td>53</td>
</tr>
<tr>
<td>Unmarried</td>
<td>14</td>
<td>47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Educational Qualification</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>School level</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>Graduate</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Professional</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Occupational Status</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>Employed</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Professional</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Others</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Monthly Family Income</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto Rs.20,000</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>Rs.20,001 - Rs.40,000</td>
<td>13</td>
<td>43</td>
</tr>
<tr>
<td>Above Rs.40,000</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nature of the Family</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint family</td>
<td>23</td>
<td>77</td>
</tr>
<tr>
<td>Nuclear family</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Size of the Family</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 3 members</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>3-5 members</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>Above 5 members</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sources of awareness</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic media</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Print media</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Friends/Relatives</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>Others</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Usage of Online Shopping</strong></th>
<th><strong>Number of Respondents</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly once</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>once in a month</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Twice in a month</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Six month once</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>Rarely</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
### Preference of website

<table>
<thead>
<tr>
<th>Website</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flipcart.com</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>Snapdeal.com</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Myntra.com</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Product preference

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic items</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Stationary items</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Cosmetics items</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Dress materials</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Factors Influencing

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Convenience and time saving</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>Quick Delivery</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Product not available elsewhere</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Mode of payment

<table>
<thead>
<tr>
<th>Mode of Payment</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Card</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Debit Card</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Online bank transfer</td>
<td>13</td>
<td>43</td>
</tr>
<tr>
<td>Cash on delivery</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Product matching the expectation

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>20</td>
<td>67</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Visiting different websites

<table>
<thead>
<tr>
<th>Visiting Websites</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>53</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
<td>47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Opinion about online shopping

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Good</td>
<td>13</td>
<td>43</td>
</tr>
<tr>
<td>Average</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>Bad</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Level of satisfaction

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly satisfied</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Satisfied</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>Neutral</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
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</table>

### Problems of online shopping

<table>
<thead>
<tr>
<th>Problem</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product arrive in damage condition</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>High Shipping cost</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>Delivery too slow</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Wrongly Product to be sent</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
The Socio-economic profile of the respondent reveals that,

- The majority (60%) of the respondents are Female.
- The majority (40%) of the respondents comes under the age group of 31-40 years.
- The majority (53%) of the respondents are married.
- The majority (43%) of the respondents are graduates.
- The majority (33%) of the respondents are student.
- The majority (43%) of the respondents family monthly income ranges from Rs.20,001 - Rs.40,000.
- The majority (23%) of the respondents belongs to the Joint family.
- The majority (43%) of the respondents belongs to the family size of 3-5 members.

The profile of the respondents based on their buying attributes reveals that,

- The majority (33%) of the respondents get awareness about websites through friends/relatives.
- The majority (27%) of the respondents are using online shopping once in six months.
- The majority (37%) of the respondents visited Amazon.com for online shopping.
- The majority (30%) of the respondents purchased electronic items through online channels.
- The majority (33%) of the respondents prefer online shopping for convenience and time saving.
- The majority (43%) of the respondents make payment through online bank transfer in online shopping.
- The majority (67%) of the respondents opined that the quality of products matches with their expectation.
- The majority (53%) of the respondents visiting different websites before online shopping.
- The majority (43%) of the respondents' opinion about the online shopping is Good.
- The majority (40%) of the respondents are satisfied with online shopping.
- The majority (37%) of the respondents are facing the problem of shipping cost while shopping through online.

Suggestions

- It was found that the majority of the respondents prefer Amazon.com. Hence, it is suggested that they should concentrate more on the quality of product at reasonable cost to retain their customers.
- The study reveals that, most of the respondents are having awareness about online shopping through friends and relatives. Therefore, it is suggested that the online marketers can use attractive sales promotional measures for increasing more awareness about online shopping.
- It was found that the majority of the respondents are satisfied with online shopping. Hence, it is suggested that the online marketers should monitor the pricing and promotional strategies in order to get the high level of satisfaction.
- It was found that majority of the respondents are facing the problem of shipping cost while shopping through online. Hence, it is suggested that the online marketers need to reduce the shipping cost and also provide a fast mechanism for handling problems that are resolved quickly which can increase the customer satisfaction as well as customer retention.

Conclusion

Online shopping is becoming more popular day by day with the increase in the usage of World Wide Web. Understanding customer’s need for online selling has become challenge for marketers. Specially, understanding the consumer’s attitudes towards online shopping, making improvement in the factors
that influence consumers to shop online and working on factors that affect consumers to shop online will help marketers to gain the competitive edge over others.

From the study, it is revealed that the majority of the respondents prefer Amazon.com. Most of the respondents prefer online shopping for convenience and time saving. Further, the study reveals that the most of the respondents are satisfied with online shopping. Therefore, it can be concluded that variety, quick service and reduced prices are the significant factors that influences the people from all over the world.

References
SUB URBAN TRAIN E – TICKET BOOKING IN RAILWAY SERVICE

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Abstract

Paper tickets are mostly submitted for E-Tickets consequently reduced paper cost and all process made more dynamic. The passenger receives the ticket to his mobile SMS or E-Mail first, In Ticketing therefore Mobile Phone became the major platform to function. But still there how the local train passengers can book the tickets using android mobile with the use of E-Wallet facility of IRTCTC, having been said it’s both positives and negatives.

Keywords: Sub Urban Trains-Ticketing, E-Wallet, Android system

Introduction

With dramatic changes and developments in information technologies (IT) in routing operations, influencing also the various developments on other sources, by the by, Tourism and Transportation is the most affected sector with the use of IT, because now a days it has become a handy work to get information about the destinations and its transport tickets availability, booking accommodations there and even the tourist places’ tickets also with computer or smart phones and internet in it from your sitting place without any temporal restrictions. If same has to be done in paper-bases tickets cause loss of time and chances. Paper tickets are mostly substituted for E-Tickets consequently reduced paper cost and all process made more dynamic. The passenger receives the ticket to his mobile through SMS or E-Mail first, what is required to be produced to the ticket inspector in travel when he is asked to do so. In E-Ticketing therefore Mobile phone became the major platform to function.

As indicated earlier, Tourism and Transport is the widely using field of source in e-ticketing, it can also be used in other fields. Leisure sector has some examples of e-ticketing systems application. They can be used to book sport events or any other kind of live show (Theater like). The above said things are almost on its line in operation but still there is not 100% E-ticketing. It has not achieved because of local transmit of people still bounded with paper tickets or paper passes. This article discusses here the local transit E-ticketing and its consequences. This paper tells how the local passengers can book the tickets using android mobile without standing in long queues and wasting time for completing the ticketing process.

Background

Currently there are various android apps available to find the local train schedule, train stops, routes, passing by trains, etc. But with such apps there is no possibility to book tickets and receive the ticket in SMS to the registered mobile number. If this is done successfully we could achieve ease of ticketing and 100% E-ticketing system in the nation. To overcome this limitation and do ease of operation, E-Wallet system has been developed which is been the easiest and safest local train ticket booking process. This system is entirely new concept because it works for local train ticket bookings especially with E-wallet system.
E-Wallet is the latest developed process of the IRCTC website, which allows the users to use it as their manual pant wallets (User friendly) can deposit amount in to it and use for booking tickets through that, need not wants to feed card details every time, redirecting to the bank website for transaction approval and then to IRCTC site again to confirm bookings, if it is so, that looks similar to the passengers standing in queue for long time. This process is prohibited by the E-Wallet system of booking. It is highly benefit to the frequent train travelers. But the drawback of it is only the PAN verified customers can have wallet and it is in use only for long travel trains but this article is to minimize the ticket booking time of local train travelers using android mobile with E-wallet system and to get the e-ticket to their respective registered mobile number and e-mail id.

Sub Urban Train Services in Indian Railways

The Comptroller and Auditor General of Indian submitted a report on the suburban train services in Indian Railways, between 2010 – 2011 and 2014 -2015, on July 26, 2016. Suburban trains are passenger trains that cover short distances of up to 150 km. These trains help in facilitating movement of passengers within cities and suburban’s. Suburban train services are provided in seven zonal Railways and spread over 1,763 km., providing services to the cities of Mumbai, Kolkata, Chennai, and Secungrabad.

Suburban Passenger Traffic

While suburban passengers comprised about 73% of the total passengers carried by seven zonal Railways between 2010 -2011 and 2014 – 2015. their earnings constitute 14% of the total passenger earnings. In 2014 -2015, Eastern and Southern Railways, and Kolkata during 2014- 2015 was 1% less than the previous year.

Suburban Rail Speed Restrictions

Train speeds get restricted due to

- Weak condition of tracks, point and crossings,
- Encroachment along tracks, and
- Weak bridges. CAG also found that Indian Railways did not initiate effective measures to remove these speed restrictions.
- Withdrawal of speed restrictions.
- Removal of encroachments, and
- Replacement of over –aged rolling stock (wagons, locomotives) should be expedited.

Use of Techniques

1. **Technical components**: in E-Wallet system are of the following
2. **Android**: Operating system, an open Linux kernel
3. **SQLite**: Relational data base in C programming library
4. **Eclipse**: multi-language integrated developmental environment
5. **Android SDK tools**: Set of developmental tools like debugger, emulator etc

Systematic Structure

In E-Wallet system of working it has the following module of functions. Initially the user has to download the latest version of local e-ticketing application from the Google play store. Once user logins and signups he has to transact for initial amount deposit into the wallet and then he can check for the
balance in it. Having sufficient balance in it users can book tickets by entering the required details of their travel and get their e-tickets into their mobile. Users can also view the record of their previously booked tickets.

**Sign up:** Once the user downloaded the application from Google play store, app requires him to full in all required details of registration form in sign up process and saves it in the database and used only during sign in process

**Log in:** User can enter into the app with their respective valid username and password as a process of validating weather user is valid user or not, if user id and password matches then allowed to enter or else not. Log in is divided into user login and admin login, the former is for the end users whereas the latter is only for the administrators.

**User Module:** After sign in and login gets completed the user has to proceed with the user module displayed in application having wallet, booking, transaction, and tickets options. Each one has its respective tasks to do so that ticket can be booked in few seconds or minutes.

**Admin Module:** The admin has freedom to access his account with proper admin log in. Admin has to enter the station details and fair details will be added to the database. Admin can also use update option to alter the station details.

**Booking:** Here the user has to feed in all details of his travel date and time, destination and starting point of stations. After feeding the details of trains and tickets will be shown and if booking confirmed relevant amount is deducted from the wallet.

**Wallet activity:** In this user can check is debit and credit transaction amount when he deposits or books the ticket using wallet.

**Ticket details activity:** After booking activity application shows the data given to it for ticket booking to reconfirm the details and proceed for booking or if any mistakes it lets to alter details for correction.

### Pros and cons of E-Ticket with wallet

The major advantage of this system is reduction of time consumption in booking paper tickets in ticket counters. It does not require to enter you card details every time when you book your ticket in online. Problem of bank server down in transacting the amount can be put to an end science it is not need to get redirected to bank service therefore you can still book tickets even if your bank website is out of service. This system of booking will be much more advantage to the people who does not have their cards at the time of booking tickets. Above all on the other hand it has some draws, only the admin can manually update the station details not the end users and only the android OS users can get benefited out of this system not other OS users which could be solved in future advancements.

### Conclusion

Sub urban train ticket booking was not looked up in development process. It is said that more than the number of long distance travelers the daily routine travelers are more. Every day getting train tickets or pass form is not taken in to account itself in E-modern management of ticketing. In this paper suburban train E-ticket booking system using Android SQLite data base and E-Wallet system has been done having been said it's both positives and negatives.
References
3. http://www.services.irctc.co.in/beta_htmls/irctc_android_app.html
Abstract
Banking sector services have witnessed a rapid change across the globe in last two decades, the focus of e-banking is greater due to increasing competition for growth in e-commerce. Generally, e-commerce focus is to integrate e-banking channel to maximize benefits. On account of growth in technology, e-banking is becoming an extension of banking services. Usage of e-banking has increased the population in recent times. The rapid growth of technology has increased the rates of e-banking services. There is lack of studies analyzing the various aspects of e-banking. This work represents a new contribution in the field of e-banking and analyzing customer’s perception and attitude towards e-banking service. The main objective of the research is to know the preference of customers of choosing e-banking services and to examine the factors influencing customers towards e-banking, customer’s attitude towards usefulness and willingness to use e-banking was identified and measured. The final outcome of the study was that convenience of use was ranked first and similarly security concern followed by transparency in all transactions and service charges was mostly influencing. E-banking services are to be at higher risk than traditional banking services are highlighted under limitations of the study.

Keywords: Customer’s perception, e-banking services, Technology, perception, attitude.

Introduction
The term electronic banking refers to "the provision of information or services by a bank to its customers, via a computer or television"(Allen et al, 2001). Web technology is transforming the business into information-based activities. The emerging electronic commerce made technological and fundamental changes in the economic landscape. Many organizations have implemented online systems. A more developed service is one that provides customers with the opportunity to gain access to their accounts and execute transactions or to buy a product online via the internet (Daniel, 1999). E-banking is being embraced by financial institutions in developed and emerging markets to the extent of explosive growth. There are two different strategies for Internet banking: First, an existing bank with physical offices can establish a website and offer Internet banking to its customer as an additional delivery channel. Second, is to establish an Internet-only bank or virtual bank, almost without physical offices. In Recent years industries are rapidly moving towards a “click and bricks” strategy that emphasizes an online supplement to the conventional banking services. Banking institutions are using their websites not only to provide fund transfer or accounts information, but also to provide stock trading, bill payments, credit card request and investment advice.

websites are often considered as entry points to a company and visitors who typically want to access information about the bank. Contact information for the organization should be displayed on the main menu page and therefore should be easily accessible. Compatible with the revolutionary components of the electronic marketplace, Jordan has actively developed e-banking services since 2004.
Public awareness of e-banking among users has been increased and thus people are ready to shift to technology applications.

Some studies have examined the issues on the evolution of e-banking (Sohail and Shanmugham, 2003) and investigated the success factors in various e-delivery channels in banking scenario (Ong and Cheng, 2003). Some have examined customer preferences of e-banking (Suganthi et al., 2001; Sohail and Shanmugham, 2003).

This study examines the customer's perception and attitude towards e-banking services. Also, this research assesses whether the adoption of e-banking services by customers is constrained by the technology, particularly on the basis of different demographic characteristics, such as different age groups, educational level, income level and etc. Findings of this research are useful both for the banking sector and customers in formulating appropriate strategies to build customer satisfaction, loyalty.

Literature Review

Nikilan raj (2017) in his work demonetization a boon or bane has examined that it has been a boon for Indian E-payment systems. Some of the lead E-payment systems has stated that there is a three times surge in the new users. Moreover, this will help people to overcome the cascades of dealing in cash but also an act as a significant step towards providing India to emerge as a true cashless economy.

Dr.Jayanthi (2017) in the study has study concluded that the use of smartphones, PCs, tablets, and modern technological services rendered by the customers. Further efforts in minimising the cybercrime and network issues would enhance the financing in “eft” to a major extent to regular financing activities by the customers.

Deepika Kumari (2016) in her work Cashless Transaction: Methods, Applications, and Challenges have concluded that government shall take efforts in spreading awareness about cashless transactions and their advantageous through various kinds of advertisements.

Awara, Nsobiari Festus, And Anyadighibe, Joseph (2014) their study reveal that "the banking system to make reforms and train the customer for acceptance and adoption of e-banking customers have fears of hacking of accounts and loss of their funds; hence; hesitate to adopt e-banking. Banks are trying their level best by providing security options to the customers. It must be made friendlier to access their accounts and carry out transactions. And it is one of the reasons for the slow acceptance of e-banking is human tendency to resist change".

Krishna Kishore and Dr.Sanjeev Padashetty (2013) in their study an empirical study on consumer adoption of mobile payments in Bangalore city – a case study has found that teenagers are aggressive in adopting mobile payment system, they recommend that people belonging to another age group can also be slowly pursued carefully planned marketing campaign that can evangelize the non user to users of mobile payments.

Research Objectives

Based on the research questions and relevant literature of the e-banking the research objectives are:
1. To study the banking details of the Customers
2. To investigate the customer’s perception of e-transactions.
3. To identify the preference of the customers for choosing e-banking.
4. To study the factors influencing customers towards the adoption of e-banking services.
Research Methodology

This chapter covers the research design and methodology, Period of the study, Sample design, and Tools used for analysis. The data was collected from Coimbatore city. The study covers the period from December 2016-April 2017. A structured questionnaire was used to collect data from the customers. The research aims to quantify the perceptions of customers towards e-transactions. 150 customers were selected to measure the customer’s perception towards e-banking services. Convenience sampling technique has been used to select the customers. The data analysis tools used were:

- Percentage analysis
- Ranking technique
- Regression analysis

It would be descriptive in nature because it measures the impact of various demographic factors on the customer’s perception while they make e-transaction. The data was collected from the customers in both the public and private sectors. And their responses have been analyzed by using appropriate statistical tools. Thus, the research design adopted for the study is Quantitative Descriptive design to cover the various aspects of the study.

Results and Discussion

Demographic Profile of the Customers  Majority of the Customers belongs to Female category. Customers were from the age group ranging from 21-30 years. Customers have completed their graduation.

Banking details of the Customers Majority of the Customers maintain a savings account. Most of the Customers use debit cards for making payments and also e-services for making payments.

Customers perception towards cashless transactions Maximum customers stated that it is vital and essential to have essential e-banking services. The mean score for the convenience of using the cashless transactions is ranked as the first factor.

Factors influencing customers towards the adoption of e-banking services Regression does a good job of modeling customers acceptance of e-banking; nearly all the variation in customers acceptance of cashless transaction is explained by the model. Service charges have more influence on customers acceptance of e-banking as shown by their large absolute standardized coefficients.

Conclusion

This paper tests customers perception and attitude towards e-banking service, preference of customers of choosing e-banking services and to examine the factors influencing customers towards e-banking. The results interpreted that most of the customers maintain saving account and most of the customers make use of e-banking services for making payments. Maximum customers stated that it is vital and essential to have essential e-banking services. The mean score for convenience to use e-banking services is ranked as the first factor. Finally, Multiple regression analysis is used to show the variation in customers acceptance of e-banking services. A positive and a proactive role of the Government and RBI is essential for a better adoption and innovation of e-banking services that would make our entire economy still smarter to face the challenges posed by globalization, privatization, and automation.

Limitations of the study

The sample of the study is limited to Coimbatore city. E-banking services are considered to be at higher risk than traditional banking services.
**Annexure I**

**Table 1 Demographic profile of customers**

<table>
<thead>
<tr>
<th>Gender</th>
<th>No. of Customers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>68</td>
<td>45</td>
</tr>
<tr>
<td>Female</td>
<td>82</td>
<td>55</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age of the Customers</th>
<th>No. of Customers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30 years</td>
<td>78</td>
<td>52</td>
</tr>
<tr>
<td>31-40 years</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td>Above 40 years</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educational qualification</th>
<th>No. of Customers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>School level</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>Graduate</td>
<td>62</td>
<td>43</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>34</td>
<td>23</td>
</tr>
<tr>
<td>Professionals</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Others</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Table 2 Type of account maintained by the customers**

<table>
<thead>
<tr>
<th>Type of account maintained</th>
<th>No. of Customers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving account</td>
<td>100</td>
<td>67</td>
</tr>
<tr>
<td>Current account</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Others</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Table 3 Mode of Payment adopted by the Customers**

<table>
<thead>
<tr>
<th>Mode of Payment</th>
<th>No. of Customers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Debit card</td>
<td>70</td>
<td>47</td>
</tr>
<tr>
<td>Credit card</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>Cheque</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Electronic fund transfer</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Mobile banking</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Net banking</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Table 4 Customers perception of e-banking services**

<table>
<thead>
<tr>
<th>Customers perception of e-banking services</th>
<th>No. of Customers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is a good decision</td>
<td>40</td>
<td>27</td>
</tr>
<tr>
<td>It is a bad decision</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Good decision but badly implemented</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>bad decision and badly implemented</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td>Neutral</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Table 5 Preference for choosing cashless transactions

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenient</td>
<td>7.37</td>
<td>1</td>
</tr>
<tr>
<td>Acceptability</td>
<td>3.09</td>
<td>10</td>
</tr>
<tr>
<td>Distribution network</td>
<td>4.76</td>
<td>5</td>
</tr>
<tr>
<td>Saving on cost and time</td>
<td>6.81</td>
<td>3</td>
</tr>
<tr>
<td>Effective devices for payment and borrowing</td>
<td>6.29</td>
<td>4</td>
</tr>
<tr>
<td>Influencing of societal change in the attitude of borrowing and spending</td>
<td>4.01</td>
<td>9</td>
</tr>
<tr>
<td>Symbol of social status and pride</td>
<td>4.413</td>
<td>7</td>
</tr>
<tr>
<td>Peer feedback</td>
<td>4.30</td>
<td>8</td>
</tr>
<tr>
<td>Bank recommendation</td>
<td>4.59</td>
<td>6</td>
</tr>
<tr>
<td>Safe and secure</td>
<td>6.88</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 6 Multiple regression analysis for the factors influencing the acceptance of cashless transactions

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.160</td>
<td>.201</td>
<td>.795</td>
<td>.428</td>
</tr>
<tr>
<td>security concern</td>
<td>.190</td>
<td>.051</td>
<td>.386</td>
<td>3.699</td>
</tr>
<tr>
<td>ease of use</td>
<td>.015</td>
<td>.058</td>
<td>.030</td>
<td>.258</td>
</tr>
<tr>
<td>Transparency in all</td>
<td>-4.92</td>
<td>.058</td>
<td>-1.160</td>
<td>-8.514</td>
</tr>
<tr>
<td>transactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>customers accessibility</td>
<td>.596</td>
<td>.003</td>
<td>.000</td>
<td>.003</td>
</tr>
<tr>
<td>customers resistance to</td>
<td>.246</td>
<td>.063</td>
<td>.739</td>
<td>3.924</td>
</tr>
<tr>
<td>change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>customers awareness</td>
<td>-0.083</td>
<td>.057</td>
<td>-0.258</td>
<td>-1.443</td>
</tr>
<tr>
<td>infrastructure</td>
<td>.071</td>
<td>.045</td>
<td>.259</td>
<td>1.557</td>
</tr>
<tr>
<td>Service charges</td>
<td>.254</td>
<td>.050</td>
<td>.797</td>
<td>5.049</td>
</tr>
</tbody>
</table>

a. Dependent Variable: customers acceptance

References

A STUDY ON DIGITAL PAYMENT SYSTEM USING APPLICATIONS

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Abstract

Purpose - The Indian government has made a concerted effort at making digital payments ubiquitous. The rapid penetration of smartphones and spread of internet connectivity on mobiles, digital payment services provided by non-banking institutions and the rise of the fintech sector, consumer expectations of one-touch payments, and progress in regulatory governance and tax breaks, have altogether shaped India’s payments landscape in favor of digital solutions. Through an exhaustive literature review the purpose of the study is to set out the factors which have resulted in favour and against the digital payment system initiated through applications.

Design/methodology/approach - This study is exploratory in nature. In this research extensive review of the available literature has been made to analyse the advantages and disadvantages of the digital payment system and to set out the unexplored areas of research.

Findings - The study has analysed that the applications developed for digital payment system has proven to be safe and economical for both merchants and consumers, results in increase in tax revenue, easier to track the black money and enhance job opportunities in new markets. The cons of the system is that its reach is limited to urban and semi-urban centers, it is very risky and involves some transactions fee.

Keywords - Digital payment system, one touch payments, internet and banking

Introduction

Digital transactions have trebled and quadrupled in volume. Card transactions at point of sale terminals at merchant locations have surged as more people have started using their debit cards for payments rather than for withdrawing cash at ATMs. Debit card transactions rose to more than 1 billion in January from 817 million last year. While ATM transactions have remained constant at around 700 million, the incremental growth has been driven mostly by card swipes at Point of sale terminals. After demonetization, under pressure from the government, banks deployed 1 million additional Point of sale terminals within three months, taking their total number to around 2.52 million. Besides plastic cards, the government has also been promoting smartphone-based transactions through the Unified Payments Interface and the Bharat Interface for Money. Both use the Immediate Payment Service network of the National Payments Corporation of India. IMPS has seen a 160 per cent jump with 67 million transactions in March against 26 million a year earlier. While digital transactions had been consistently growing over the years, demonetization gave it an additional leg up. Digital payment is a way of payment which is made through digital modes. In digital payments, payer and payee both use digital modes to send and receive money. In this study the researcher reviewed the prior study, they discussed various intents about the modes of e-payment, to identify the future of digital payment system in India, to examine the DigiDhanAbhiyan opts for Paytm in Rural in India, to know the problems and challenges of digital payment in rural India, to enlist the prospects and the road ahead of the study and offer appropriate suggestions for an effective implementation of digital payment, customer perception in digital payment system, the present status and growth of online payment systems, digital payment and cashless economy through Aadhaar pay in rural India, study the awareness level of customer and
factors which block them in using digital payment system, aims to collect banks employees perception of the potential benefits and risk associated with digital payment system, the prominence of e-payment system and to explored relationship between e-payment system and economic growth as means of reviewing current transition to cashless.

With the above objective the researches of various study found that the current cashless policy should be tailored towards effective e-payment system and other factors which bear much relevance on successful transition to cashless economy should be prioritized. They perceive electronic banking as tool for minimizing inconvenience, reducing transaction costs, altering customers queuing pattern and saving customers banking time and believed that electronic banking increases the chances of government access to public data, increases the chances of fraud and that there is a lack of information security. It is important or highly important to associate with brand, convenient in use, secured transactions, save time, acceptance of digital wallets at different stores and pricing of transaction (transaction cost, service fee etc.) Majority of the respondents agree that mobile wallet/digital payment provides benefits to individual for purchase of products, improve the quality of decision, helpful in buying products as compared to traditional methods, they offer a wide range of banking services and payment options. They also agree that interaction with mobile wallet is helpful and that they trust the service providers. The Indian economy will digitalize in rural area through mobile based payments that are faster and cheaper to roll out. It is a matter of increasing awareness in rural area. Improved solutions in terms of Unified Payment Interface, mobile wallets, and digital transactions with more secured features, ease of transactions and reduced cost of managing the digital payments could lead to more potential developments and supporting in improved conditions of digital payments processing in rural sectors.

**Unexplored Areas**

Technology has inarguably made our lives easier. It has cut across distance, space and even time. One of the technological innovations in banking, finance and commerce is the Electronic Payments. Electronic Payments (e-payments) refers to the technological breakthrough that enables us to perform financial transactions electronically, thus avoiding long lines and other hassles. Electronic Payments provides greater freedom to individuals in paying their taxes, licenses, fees, fines and purchases at unconventional locations.

The researchers focuses mainly on consumers, yet in fact, in order to make digital payment system widely accepted, it requires much effort in terms of change from many related stakeholders, especially the merchants who will have to adapt and change the traditional way of payment. Future research Digital Payment System is rather a new topic in this technology era. Added to this, success of e-commerce payment systems also depends on consumer preferences, ease of use, cost, industry agreement, authorization, security, authentication, non-refutability, accessibility and reliability and anonymity and public policy. The cons of the system is that its reach is limited to urban and semi-urban centers, it is very risky and involves some transactions fee.

**Conclusion**

To conclude the usage of the digital payment system has brought in more simplicity in the transactions. It is important to build confidence in the system and ensure that all relevant software is tested for cyber security and other security risks. Most of the consumers value security more than convenience when it comes to payment online. It is also observed that the inclination towards
embracing digital payments is higher amongst those from a higher income household. They use digital payments for everyday essentials like shopping at supermarkets, online, department stores and fast food restaurants.

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Cyber security Predictions for 2018

Over the course of December and into the New Year, my inbox fills up with predictions for what 2018 will bring cyber security.

At the end of 2016 we assessed a whole host of industry predictions and determined 12 topics that would dictate 2017: skills gap, ransom ware, poor routine IT practices, political disruption, CIO activities, social media attacks, AI, advanced cyber-criminals, GDPR, a cloud vendor compromise and better security collaboration.

Most of that came true, although the predictions on ransom ware came nowhere close to the impact that WannaCry and NotPetya would come to have. So with an inbox bursting with predictions for 2018, I triaged all of the comments into 11 themes. In no particular order, here are the first six:

Ransom ware

It is no surprise that this features so highly after 2017’s headlines. In terms of evolution, it was predicted that after the mass distribution we would see more targeted attempts, with Eric Klonowski, senior advanced threat research analyst at Webroot, predicting the first health-related ransomware targeting devices like pacemakers. “Instead of ransom to get your data back, it will be ransom to save your life.”

As well as being more targeted, predictions from Trend Micro were that attackers “will run digital extortion campaigns and use ransomware to threaten non-GDPR compliant companies”, while Imperva predicted that extortion-enabled disruption will intensify this year, “manifesting in disabled networks, internal network denials of service, and crashing email services”.

Breaches Get Worse

Instances of data loss at Uber, Equifax and other companies will not end in 2017, and Tyler Moffitt, senior threat research analyst at Webroot, predicted at least three separate breaches of at least 100 million accounts, while Imperva said that with the take-up of cloud computing, we’ll see massive cloud data breaches. Viktors Engelbrechts, director of threat intelligence at eSentire, added: “Politically motivated and espionage cyber-attacks against the critical infrastructure industry will continue to increase. There is also the potential for loss of human life as a result of targeted cyber-attacks, especially in the healthcare sector.” Data breaches are an unfortunate major part of cybersecurity now, and it’s hard to see a world where unsecure data is a factor. One cause for this is the new data protection regulation...

GDPR

That regulation is of course GDPR, which comes into force on May 25 2018. On the minds of most in cybersecurity, it was not a surprise that this featured so heavily in the vendor predictions we received.
Colin Tankard, managing director of Digital Pathways, predicted that the shortage of staff will impact GDPR adoption, “especially in the rise of the Data Protection Officer” and that come May 25, only 10% of companies will be ready for GDPR and, by the end of the year, we will see the first companies closing due to having to meet the considerable fines. To also combine two trends, both Trend Micro and FireEye believed that attackers will run digital extortion campaigns and use ransomware to threaten non-GDPR compliant companies “as attackers seek to capitalize on a potential fear of large fines.”

### Biometric Adoption

The adoption of biometric technology has increased over time and with the introduction of fingerprint and now facial recognition authentication on mobile devices, will we see more adoption of this technology in the enterprise? John Pescatore, director of emerging security trends at the SANS Institute, said that consumer advances will drive workplace change. “Large numbers of consumers now routinely use biometric authentication on their mobile phones and 28% of consumers are using two-factor authentication on at least one personal account.”

Webroot’s Paul Barnes believed that there will be a continued growth in biometric services, and as a result devices with usernames and passwords will become the legacy choice for authentication. However, Klonowski from Webroot believed that we will see the first biometric-access-based exploits using facial recognition or fingerprint access.

### Artificial Intelligence and Machine Learning

Intrinsically different, but often put on the same shelf, are the ‘magic and witchcraft’ of AI and machine learning. There were two different perspectives on these technologies but there was no doubt that there will be a larger uptake: Splunk claimed that the spend on analytics technology will be higher as companies find new ways to make sense of the vast amounts of smart device-generated data. FireEye believed that the security industry will begin to see more automation, machine learning and artificial intelligence used to combat cyber-attacks because of a lack of people.

Patrick Hubbard from SolarWinds said that the integration of AI and machine learning capabilities is widely perceived as critical for business success in the coming years and although this technology is poised to offer breakthrough possibilities to business leaders, artificial intelligence also brings with it widespread uncertainty with respect to the impact on jobs.

However, these technologies were not roundly welcomed. Paul Shomo from Guidance Software/OpenText predicted the return to off-the-shelf SIEMs and detection technologies by the end of 2018, while Pescatore said that these technologies have “vastly overpromised as technology that will eliminate or drastically reduce the need for experienced and skilled cyber security staff."

### More Mobile Threats

A set of predictions would not be complete without some assumption on the device in your hand or in your pocket. Christopher Cain, associate malware removal engineer at Webroot, believed that we will see the first major malware infection in the Android App Store while Klonowski believed that we will see the first widespread worming mobile phone ransomware, perhaps spread by SMS/MMS.

In the second part of this article we will look at the other five trends, comments related to them and whether predictions really do ever come true.
What Can a Hacker Do with Stolen WiFi Credentials?

Recently HTC acknowledged a vulnerability that can expose a user’s WiFi credentials, including the WiFi SSID and security passwords to a malicious app running on some of its Android phones. The vulnerability was discovered by the security architects Chris Hessing and Bret Jordan, and is published on the US-CERT website also.

The vulnerability is due to an issue in certain Android models that allow an Android application with basic permissions (particularly ‘android.permission.ACCESS_WIFI_STATE’) to access all the stored WiFi credentials, including the respective SSIDs, user names and security passwords, belonging to various WPA/WPA2-PSK/802.1x based Wi-Fi networks. On the top of this, if an application also has internet permission (‘android.permission.INTERNET’), it can transfer the accessed list of WiFi credentials to a remote server. Exposing the list of WiFi credentials to an unintended party or person without the user’s knowledge can have serious security implications if the former has malicious intent. Some of these include:

Unauthorized access to private WiFi networks

Gaining access to the list of WiFi credentials from a user’s mobile device, the simplest for a hacker to do is to intrude into corresponding private WiFi networks. The private network can be a home, campus or a corporate WiFi network. The intrusion will allow a hacker to carry a host of malicious activities on the network, such as installing malware on the network and scanning the network for confidential information/security vulnerabilities. Many corporates are adopting the BYOD (Bring Your Own Device) initiatives nowadays, giving access to corporate WiFi to the employee’s personal mobile devices.

But, since personal devices lack strict corporate controls, vulnerabilities similar to this recently discovered one can be a serious security threat for corporates adopting BYOD schemes. All WiFi networks requiring a security passphrase (in case of WPA/WPA2-PSK security) or a combination of username and password (in case of WPA/WPA2-802.1x) can suffer intrusion by the potential exploitation of discovered vulnerability. In contrast, WiFi networks requiring digital certificates or SIM based authentication (in case of WPA/WPA2-802.1x) are potentially safe to intrusion attacks launched via vulnerability exploitation.

Eavesdropping/Session hijacking on secured WiFi networks

Loosing the WiFi credentials of a WPA/WPA2-PSK WiFi network can be more damaging compared to WPA/WPA2-802.1x Wi-Fi network, because in the former all the WiFi clients of a particular network share a common security phrase. Therefore, an attacker having gained the SSID and security passphrase through the discovered vulnerability can sniff all the private encrypted WiFi communications happening over the associated WiFi network (using easily available hardware and software) and decode the same afterward or simultaneously using the available credentials. With the decoded traffic that can potentially reveal browser cookies, a hacker can potentially hijack an authorized user’s web session also. WPA/WPA2-PSK networks are popular among home and SOHO users, and therefore user’s online traffic, even though encrypted, is susceptible to eavesdropping and session hijacking when a hacker has gained necessary credentials illegally by exploiting the discovered vulnerability.

Man-In-the-Middle attack on WiFi users

Loosing the WiFi credentials also enables a hacker to launch man-in-the-middle attack on connected users of affected WiFi network. The attack can potentially hurt the users due to leakage of
confidential data or malware implantation. Although WPA/WPA2-PSK networks are more susceptible to man-in-the-middle, but exploiting the Hole196 vulnerability, one can also do this attack on WPA/WPA2-802.1x networks too.

Potential loss of personal information

People often use WiFi hotspots for broadband access on their devices while they work, travel or visit various public places. And, many WiFi hotspots contain identity of their location in their SSID, therefore loosing the WiFi credentials also, including the SSID details, can potentially reveal a lot of information about a user to third-parties like company name, travelled places, etc. The personal information details can motivate crimes such as stalking.

Looking at the damages of loosing out the list of WiFi credentials, the vulnerability discovery is very important from user’s security perspective considering the growing usage of Android-based mobile devices and WiFi networks across the world. Moreover, considering the open nature of Android market, malware exploiting the vulnerability can be easily developed and targeted toward the users of affected devices, posing a greater security concern for them. A fix for the vulnerability is already available and HTC has already said that many phones have received the fix through regular updates, but some users may need to manually update their phones. Hopefully, acknowledging the list of potential damages of the discovered vulnerability, mobile device users would be a bit more careful while selecting and installing an app on their device.

The Rabid Ransomware Bunnies Behind

After the drama caused by the Wanna Cry and NotPetya earlier this year, was there ever any doubt that a fresh ransomware campaign would emerge at some point? The answer came in the form of 'Bad Rabbit', which reportedly shared code used in the NotPetya variant but was from a previously unknown ransom ware family, according to Kaspersky. According to Group-IB, Bad Rabbit was spread via web traffic from compromised media sites, from where the visitor was encouraged to download the rogue Flash update. Kaspersky said that the ransom ware was distributed when the target visited the threat actor’s infrastructure. “No exploits were used, so the victim would have to manually execute the malware dropper, which pretends to be an Adobe Flash installer,” Kaspersky said.

As for who was affected, Malwarebytes Labs said that there were initial impacts in Russia, Ukraine, Turkey, Bulgaria, and Germany, with attacks centered on targets as wide-ranging as infrastructure, transportation, and media outlets. So far there have been only two payments to one of the Bitcoin wallets earning the attackers around $500, suggesting that this is not as fruitful as other campaigns.

Is this a ransomware campaign too far, and has the security community seen enough to realize that this is nothing new? Also, have the general public heard enough about this that the national press are no longer interested unless a major institution faces downtime? Info security gauged some views from industry figures on the capabilities and impact of this new variant.

Adam Meyers, VP of Intelligence, Crowd Strike

“To date, Crowd Strike Intelligence has found that Bad Rabbit and NotPetya DLL (Dynamic Link Library) share 67% of the same code, giving us reason to believe the same actor is likely behind both attacks. Bad Rabbit is likely delivered via the website argumentiru[,] com which is a current affairs, news and celebrity gossip website focusing on Russian and near-abroad topics.
“Crowd Strike Intelligence can confirm that this website was hosting a malicious JavaScript inject as part of a strategic web compromise attack on 24 October 2017.”

Patrice Puichard, senior director EMEA, Sentinel One:

“From our analysis, 'Bad Rabbit' was a new and unknown ransom ware as of yesterday, but contains code from Petya ransom ware. The dropper is downloaded by users when they visit infected websites and appears as a Flash Player installer (install_flash_player.exe). Once executed, it behaves like a traditional ransom ware, encrypting files and asking for a ransom to decrypt them.

“The ransom ware started in Russia and Ukraine: according to ESET, 65% of the victims are from Russia, 12.2% in the Ukraine and has targeted countries in Eastern Europe, Turkey and Japan. As Russia was the origin of the attack, by the time it takes to reach the US it's a known and blocked attack by signature-based anti-virus, as well as already having been detected by solutions which are not signature-dependent.”

Andrew Clarke, EMEA director, One Identity

"Source code analysis contains references to Game of Thrones dragon characters, Drogon; Rhaegal and Viserion. Bugs in file encryption have now been fixed and use DiskCryptor, an open source legitimate software used to do full drive encryption. Keys are generated using CryptGenRandom and then protected by hardcoded RSA 2048 public key. A powerful upgrade now being unleashed with organizations in Russia, Ukraine, Bulgaria and Turkey at the top of the hit list. This time a fake "flash" update appears to be implicated but it seems that as the organizations were hit around the same time that the attackers likely had a foot in their network already.

"Once hit; their data gets encrypted and for a bitcoin fee of 0.05 — approximately $280 - the affected company has the chance to acquire the decryption keys but only before a countdown of 41 hours expires. Despite industry warnings issued after the Petya, and not-Petya outbreaks earlier this year, this variant which spreads laterally using SMB shares – could be blocked by denying this communication channel [ports 137, 138, 139 and 445] on their firewalls.”

Matthias Maier, security evangelist, Splunk

"It appears that Bad Rabbit creates three new scheduled tasks on a system, including a forced restart - by searching for this specific occurrence in monitored log data from endpoints, an organization will be able to identify patient zero earlier, and act to isolate the impact.

“The current situation with Bad Rabbit is once more a reminder of how important it has become for organizations in the digital age to have a skilled security team on standby, with the right technology in place to access the right information and take the right decisions quickly to avoid any business impact. A robust security strategy has become a competitive advantage.”

Amichai Shulman, CTO, Imperva

"At the end of the day, all Ransom ware is basically the same. Hackers via the ransom ware malware are making files unavailable to users and as a consequence disrupt the operations. As long as the infection and effect of ransom ware is constrained to endpoints, the damage to organizations should be minimal. “Some might say – why after WannaCry and NotPetya are systems still unpatched? The issue of patching is irrelevant when looking at a potentially self-replicating malware like Bad Rabbit because in any large network there will be some unpatched devices. By protecting file servers (e.g. deploying File
Firewall solutions) rather than focusing on endpoints organizations can minimize the effect of such incident and avoid disruption to business.”

Nick Pollard, director, security & intelligence, Nuix

“What’s needed is a fresh approach in this escalating arms race. We need to place on each and every endpoint a means to prevent self-harm and block a user’s attempt (though very often inadvertent) to infect the machine and, by extension, the rest of the network. Relying on rapidly-outdated anti-virus definitions and operating system patches simply isn’t enough. Furthermore, we have to address the gap that exists between these traditional, and still necessary, defenses.

“The only way to win the cyber security war is to prevent the attack from happening in the first place. Organizations must change their security posture. Prevention needs to be at the forefront of any ransomware strategy. Since the endpoint is ground-zero for ransomware attacks, what organizations need is the ability to detect and put a stop to malicious behavior as early as possible in the kill chain.”

Cyber-Crime Poses Threat to e-Commerce

The past 12 months have been a banner year for cybercrime. And that could be bad news for the future of e-commerce.

"At current trends, in three or four years people will start to think twice about transacting on the Web, individuals and businesses,” said Michael Fraser, director of the communications law centre at the University of Technology Sydney.

"The way it’s trending now, the Web could be so full of rubbish that people won’t trust it," Fraser said. "That could destroy the potential of the whole knowledge economy, which so many developed economies are counting on for the competitive advantage."

According to antivirus maker Symantec, 87 percent of e-mail traffic in the past year was spam, compared to just under 70 percent in 2008. More than 40 trillion spam messages were sent according to Symantec, which monitors about a third of the world’s e-mail traffic. That’s about 5,000 spam messages for every person on the planet.

More of that spam is harboring malicious software, or "malware," -- 2 percent of spam contained malware, a 900 percent increase from the previous year.

Malware comes in a variety of forms that can search computers for bank information and personal details for identity theft, or hijack computers to become foot soldiers in a spamming army of zombie "botnets" -- often unbeknownst to the owner. In Australia alone, an estimated 10 percent of computers are infected with malware, Fraser said. "And we're relatively low because we have less (broadband penetration) than many other countries,” he said.

The past year saw an explosion of individuals on social networking sites such as Facebook having their accounts compromised and spam being sent to friends within their network.

In this way, cyber criminals have made the attacks more personal because they are sending out messages appropriating victims’ names, says Marian Merritt, an Internet safety advisor for Norton, the antivirus brand produced by Symantec. “In the past, people felt annoyed by spam, they didn't really feel a sense of being attacked,” Merritt said. "But if your Facebook account is hacked, it’s embarrassing."

The past year has seen the rise of "scareware" -- malware that parrots a legitimate antivirus software program and then infects the computer with "the very malware it purports to protect against," a Symantec report said. For a 12-month period ending June 30, Symantec received 43 million reports of scareware installation attempts.
"That took a lot of us in the industry by surprise the past year," Merritt said. "You get a pop-up ad saying, 'you have multiple viruses' then asks you to download the antivirus software. Once you download those programs, they hold you hostage."

The speed of news

The past year saw the rising speed and popularity of malware spam and Web sites with touts related to current events and celebrity news. "Who killed Michael Jackson?" "Get swine flu medicine here" and "Full eBook Harry Potter" were some popular online traps to open dangerous e-mail attachments or be directed to Web sites' malware.

"If you want to know what spam will be hitting tomorrow, look at Google Trends today," said Merritt, referring to Google’s site that shows hot topics and searches by its users.

One of the most alarming incidents in 2009 for governments and policy makers was the July 4 attacks on U.S. government sites, such as the White House, the New York Stock Exchange and Nasdaq -- followed a few days later by similar attacks on Web sites in South Korea. According to a research paper by antivirus maker McAfee, both attacks were made by the same "botnet" of 50,000 computers, which spammed targets with so many e-mails their IT systems were overwhelmed.

North Korea was suspected as the originator of the attack, leading Dmitiri Alperovitch, vice president of threat research at McAfee, to suggest one motivation of the attack "could have been to test the impact of flooding South Korean networks and the transcontinental communications between the U.S. government ... (which) would provide them with a significant advantage in case of a surprise attack."

The attack highlights the problem of security on the Internet -- a transnational attack, using commercial services and tens of thousands of personal computers. To fight the attacks would take strong local and international laws on cyber security, a great deal of cooperation among commercial providers and effective systems to report the crimes -- none of which is happening today, Fraser said.

"The community doesn't know where to turn to when these crimes occur, and the police don't know how to report it or record it, and prosecutors and court systems have a hard time coping with cases that involve gigabytes of evidence," he said.

Looking ahead to 2010, antivirus maker Trend Micro predicts that there will be more attacks on Mac operating systems. Previously ignored by malware makers because of its relatively low market share, the booming popularity of iPhones is drawing the attention of cybercriminals.

"As the mobile OS landscape changes, and with devices comprising a huge amount of memory and storing a host of sensitive data, devices such as the iPhone and Google Android may increase as popular targets for bad guys," Trend Micro reports in its December report, "the Future of Threats and Threat Technologies."

The introduction this year of domain names in languages other than English -- such as Russian, Chinese and Arabic -- will also expand the hunting grounds for cyber-crime, Trend Micro reports.

Best ways to protect Ecommerce site from cyber criminals

With the festive season fast approaching, online retailers everywhere will be busily preparing themselves to meet the bulk demands of customers but another community is also waiting in the wings. The festive season is a primetime for nefarious cyber criminals or hackers looking to steal important data of your customers. With passage of time, hackers are improving their skills and are founding quite innovative ways to trace online behavior and steal credentials of the customers.
From stealing debit/credit card information to attacking privacy and poaching ecommerce data, this online nuisance has many shapes and names. But, with the right security approach you can save your e-commerce website from these cyber criminals. In this article, you can read some effective ways to protect your Ecommerce site from these cyber criminals. Let’s start.

**Choose ecommerce web hosting service provider wisely**

People often think that the e-commerce site security is mainly based on the software they write. Although the web application itself must also be secure, the other chief factor is the Web Hosting being used. Between shared and dedicated hosting, dedicated is more secure and ideal for ecommerce business. Shared hosting has multiple users all are accessing the same server: running under the same operating system, using the same resources, etc. Dedicated hosting plan, whether it be a co-located server, a dedicated server, or a VPS, only a single user is using the server (or in the VPS case, the virtual server).

Having multiple users on the same server (shared hosting) is dangerous in two ways. First, if any of the shared users has wrong intentions, he could exploit what your site has to offer. For example, if your site has a world-writeable directory, that directory is writable by some other users on the server (unless extra steps are taken). Second, if any of the shared users has right intentions, but is running a website or software that has security flaws, your website is also vulnerable to the threats. Therefore, it is recommended to choose dedicated VPS hosting providers. In addition to this, you must know how to secure virtual private server so that no hacker can break into it.

While selecting good web hosting service providers, you should also check out the type of software and hardware that they use. Those hosting service providers which use advanced and updated software should be your prime choice because this software is not easy to hack and comprise all essential security features. Similarly, you should be well aware of your web host’s hardware. Web hosting hardware requirements include storage and it is imperative to know what kind of storage hardware your service provider is offering. If you are planning for e-commerce website, then hardware plays a crucial role in it.

**Keep Data Encrypted**

All the data that flows between the web server of company and the website of customers should have encryption in order to stay away from eavesdropping or a phishing attack. SSL authentication is a must-have for e-commerce sites from small as well as large retailers. SSL effectively protects sensitive data that travels across the web and encrypts sensitive information such as credit card details and passwords. The SSL certificate makes these important data unreadable to everyone apart from the intended recipient, protecting it from cyber criminals and hackers.

**Be PCI Compliant**

In addition to using SSL protection, it is recommended to ensure that your ecommerce website is PCI compliant. Any merchant who accepts debit/credit cards, both offline and online, must be compliant with the PCI Security Standards Council and meet all the regulations in order to ensure they are keeping the payment data of customers secure. Merchants who are not in compliance with PCI Security Standards Council face tough penalties.
No Need to Store Sensitive Data

It is quite risky to keep confidential information, such as credit and debit card details, of your customer on your server because it can possibly entice an attacker to steal such sensitive information. Further, in accordance to PCI Standards it is forbidden to store such sensitive data. You should keep only the minimal amount of data to complete refunds and charge backs, and clear out stores regularly so as to comply with the PCI Standards and to give identity thieves nothing to steal. You can also prevent online fraud by verifying addresses and CVV2 codes for all the online transactions.

Insist on Strong Passwords

Many people fail to create a strong password that is designed to protect. As an online retailer it is your responsibility to insist on strong passwords when your customers set up accounts on your site. It'll not only protect all the sensitive information retained at the back end of your ecommerce website, but also minimize site breaches. A strong password has a minimum amount of characters and contains a mixture of symbols, letters and numbers.

Penetration testing

Penetration testing or ethical hacking is a necessary step in ensuring your ecommerce site is inaccessible to the hackers and fraudsters. There are many penetration testing companies out there offering the services you need to put protection and customer privacy at the top of your agenda as a retailer. The ethical hackers will attack on your server with the intention of finding security weaknesses. After the penetration testing, they will make a report to enlist all the weakness in your security threats. This report helps to make your website completely secure and keep your web assets safe.
Abstract

Databases are growing in size to a stage where traditional techniques for analysis and visualization of the data are breaking down. Data mining and knowledge discovery in databases (KDD) are concerned with extracting models and patterns of interest from large databases. Data mining techniques have their origins in methods from statistics, pattern recognition, databases, artificial intelligence, high performance and parallel computing, and visualization. In this article, we provide an overview of this growing multi-disciplinary research area, outline the basic techniques, and provide brief coverage of how they are used in some applications. We discuss the role of high performance and parallel computing in data mining problems, and we provide a brief overview of a few applications in science data analysis. We conclude by listing challenges and opportunities for future research.

Introduction

Data Mining is the computing process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems. It is an essential process where intelligent methods are applied to extract data patterns. It is an interdisciplinary subfield of computer science. The overall goal of the data mining process is to extract information from a data set and transform it into an understandable structure. Data mining is the analysis step of the "knowledge discovery in databases” process, or KDD.

Each of the following data mining techniques caters to a different business problem and provides a different insight. Knowing the type of business problem that you’re trying to solve, will determine the type of data mining technique that will yield the best results.

Classification Analysis

This analysis is used to retrieve important and relevant information about data, and metadata. It is used to classify different data in different classes. Classification is similar to clustering in a way that it also segments data records into different segments called classes.

Association Rule Learning

It refers to the method that can help you identify some interesting relations (dependency modeling) between different variables in large databases. This technique can help you unpack some hidden patterns in the data that can be used to identify variables within the data and the concurrence of different variables that appear very frequently in the dataset. Association rules are useful for examining and forecasting customer behavior. It is highly recommended in the retail industry analysis.
Anomaly or Outlier Detection
This refers to the observation for data items in a dataset that do not match an expected pattern or an expected behavior. Anomalies are also known as outliers, novelties, noise, deviations and exceptions. Often they provide critical and actionable information. An anomaly is an item that deviates considerably from the common average within a dataset or a combination of data.

Clustering Analysis
The cluster is actually a collection of data objects; those objects are similar within the same cluster. That means the objects are similar to one another within the same group and they are rather different or they are dissimilar or unrelated to the objects in other groups or in other clusters. Clustering analysis is the process of discovering groups and clusters in the data in such a way that the degree of association between two objects is highest if they belong to the same group and lowest otherwise.

Regression Analysis
In statistical terms, a regression analysis is the process of identifying and analyzing the relationship among variables. It can help you understand the characteristic value of the dependent variable changes, if any one of the independent variables is varied.

Data Mining System Classification
A data mining system according to the kind of databases mined. Database system can be classified according to different criteria such as data models, types of data, etc. And the data mining system can be classified accordingly. The data mining system is classified on the basis of functionalities such as:
- Characterization
- Discrimination
- Association and Correlation Analysis
- Classification
- Prediction

Clustering
Clustering is the process of making a group of abstract objects into classes of similar objects.

Applications of Cluster Analysis
- Clustering analysis is broadly used in many applications such as market research, pattern recognition, data analysis, and image processing.
- Clustering can also help marketers discover distinct groups in their customer base. And they can characterize their customer groups based on the purchasing patterns.

Requirements of Clustering in Data Mining
The following points throw light on why clustering is required in data mining –
- **Scalability** – We need highly scalable clustering algorithms to deal with large databases.
- **Ability to deal with different kinds of attributes** – Algorithms should be capable to be applied on any kind of data such as interval-based (numerical) data, categorical, and binary data.
• **Discovery of clusters with attribute shape** – The clustering algorithm should be capable of detecting clusters of arbitrary shape. They should not be bounded to only distance measures that tend to find spherical clusters of small sizes.

• **High dimensionality** – The clustering algorithm should not only be able to handle low-dimensional data but also the high-dimensional space.

• **Ability to deal with noisy data** – Databases contain noisy, missing or erroneous data. Some algorithms are sensitive to such data and may lead to poor-quality clusters.

• **Interpretability** – The clustering results should be interpretable, comprehensible, and usable.

**Knowledge Discovery Data Mining**

Knowledge Discovery and Data Mining (KDD) is an interdisciplinary area focusing upon methodologies for extracting useful knowledge from data. The ongoing rapid growth of online data due to the Internet and the widespread use of databases have created an immense need for KDD methodologies. The challenge of extracting knowledge from data draws upon research in statistics, databases, pattern recognition, machine learning, data visualization, optimization, and high-performance computing, to deliver advanced business intelligence and web discovery solutions. There is a large variety of data mining systems available. Data mining systems may integrate techniques from the following –

- Spatial Data Analysis
- Information Retrieval
- Pattern Recognition
- Image Analysis

**Conclusion**

The challenge of extracting knowledge from data draws upon research in statistics, databases, pattern recognition, machine learning, data visualization, optimization, and high-performance computing, to deliver advanced business intelligence and web discovery solutions. It is an essential process where intelligent methods are applied to extract data patterns. It is an interdisciplinary subfield of computer science. The overall goal of the data mining process is to extract information from a data set and transform it into an understandable structure. Data mining is the analysis step of the "knowledge discovery in databases" process, or KDD.

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PROFESSIONAL INCORPORATED MODEL FOR IMAGE FEATURES DETECTION AND DESCRIPTION

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Abstract
Feature finding, description and similar are vital mechanism of a variety of computer vision applications, thus they have received a significant consideration in the previous decades. In this paper a new incorporated framework has been proposed to identify the features of hand vein images and identify the individual images with classification method. The framework consists of three key components called Feature Extraction, Dimensionality Reduction, and Texture Classification. The feature extraction part is based on Weber Differential Orientation Local Binary Pattern where as the feature reduction is based on Principal Component Analysis (PCA) and the texture classification component is based on nearest neighbour classification.

For each pixel of the input image, descriptor is computed with two features called differential Orientation (DO) and Local Binary Pattern (LBP). By combining DO and LBP features (called Weber differential orientation local binary pattern feature) per pixel. Feature diminution element is required to decrease the dimensionality of feature images in a histogram. In this work, PCA is suggested to decrease the features of images which then can be used in Classification. The final element is a classifier is based nearest neighbour classification method.

Keyword: Weber Local Binary Pattern, Feature matching, Feature Descriptor, Feature Reduction, Classification

Introduction
Authenticated safety access system has becoming rising requirement of every system or organization. Biometric recognition of hand vein features has attracted significant attention in the research community newly. Special infrared devices are used to capture the hand vein images for biometric analysis. As the captured image contains a large noisy and unnecessary data, pre-processing methods such as image filtering, normalizations are required to figure the image data which are then applied for further biometric analysis. Hand vein biometric recognition system requires the components such image acquisition, image pre-processing, feature descriptor, feature reduction and classification.

Feature descriptor is a model to represent the characteristics of images. Main purpose of this paper is to represent the hand vein images in a feature descriptor and categorize them for a biometric authenticated system. Feature descriptors can be categorized into sparse descriptor [2] and dense descriptor. Sparse descriptor detects the interesting points in the images and then samples local patches and describes its invariant features and dense descriptor extracts local features pixel by pixel over the input images [5]. Scale Invariant Feature Transform (SIFT) and Histogram of Oriented Gradient (HOG) are based on sparse descriptor where as Gabor Wavelet and Local Binary Pattern (LBP) are based on dense descriptor. Recently Chen et al [2] proposed a robust local descriptor, called the Weber Local Descriptor (WLD). In this scheme, the image patterns based on human perception is represented by original intensity and change of intensity in stimulus (such as sound, lighting).

WLD descriptor consists of two components: differential excitation and orientation. It is inspired by Weber’s Law, which is a psychological law [3]. Differential excitation component of Weber Local Descriptor (WLD) is computed based on the ratio between relative intensity differences of a current
pixel against its neighbours and the intensity of the current pixel. Differential orientation components in WLD is computer based on gradient orientation of given pixel.

**Differential Orientation (DO) and Local Binary Pattern (LBP)**

Weber Differential Orientation Local Binary Pattern Image Descriptor image descriptor consists of two components called Differential Orientation and Local Binary Pattern (LBP). For a given image, the pattern value of each pixel is computed through LBP operator and intensity of each pixel is computed by differential Orientation model. Images from these two components are combined to construct a model based on histogram. Several of the most widely used feature descriptors are local binary pattern (LBP), HOG, and scale-invariant feature transformation (SIFT). LBP features are usually applied to face detection and recognition. HOG features are often used for pedestrian detection and tracking. SIFT features are more widely used in target recognition and location.

**Weber Local Descriptor**

Differential Orientation is one of the subcomponents of Weber Local Descriptor (WLD). It is based on the fact that human perception of a pattern depends not only on the change of a motivation (such as sound, lighting) but also on the original intensity of the stimulus. The orientation component of WLD is the gradient orientation of pixel, which is computed as: for a 3 x 3 patch of image

\[
\begin{array}{ccc}
X_a & X_b & X_c \\
X_d & X_e & X_f \\
X_g & X_i & X_j
\end{array}
\]

It is clear that LBP makes full use of the nine pixels while Orientation operator only utilizes four pixels. Thus orientation component is calculated as the ratio of difference between the neighboring pixels.

**Characteristics of Feature Detectors**

The feature detectors and extractors must have certain property maintenance in brain that the importance of this property depends on the actual application settings and compromises require to be made. The following properties are important for utilizing a feature detector in computer vision applications:

- **Robustness**, the feature recognition algorithm should be able to detect the same feature Location self-sufficient of scaling, rotation, shifting, photometric deformations, Firmness artifacts and noise.
- **Repeatability**, the feature recognition algorithm should be able to detect the same Features of the same picture or object repeatedly under variety of viewing conditions.
- **Accuracy**, the feature detection algorithm should accurately localize the image Features (same pixel locations), specially for image matching tasks, where precise Correspondences are needed to estimate the well-liked geometry.
- **Generality**, the feature recognition algorithm should be able to detect features that Can be used in different applications.
- **Efficiency**, the feature recognition algorithm should be able to detect features in new Images quickly to support real-time applications.

Quantify, the feature recognition algorithm should be able to detect all or most of the Features in the image. Where, the density of detected features should reflect the Information content of the image for on condition that a compact image representation used to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables. It performs a linear mapping of the data to a lower-dimensional space. PCA identifies the subspace of image represented in a histogram and decor relates the pixel value. The reduced dimensionality features are considered as
image data for classification. It reduces the time and storage space required. Removal of multi-co-linearity improves the performance of the machine learning model. It becomes easier to visualize the data when reduced to very low dimensions such as 2D or 3D.

**Image Feature Detectors**

Feature detectors can be broadly classified into three categories. Single-scale detectors, Multi-scale detectors, and affine invariant detectors. In a nutshell, single scale means that there is only one representation for the features or the object cento

Image Features Detection, Description and Matching using detector’s internal parameters. The single-scale detectors are invariant to image transformations such as rotation, translation, changes in illuminations and addition of noise. However, they are incapable to deal with the scaling problem. Given two images of the same scene related by a scale change, we want to determine whether same interest points can be detected or not. Therefore, it is necessary to build multistage detectors capable of extracting distinctive features reliably under scale changes.

**Experimental Result**

In this proposed work, dorsal hand vein database is used to experiment the performance.

In the classification model, K fold cross-validation (Kohavi Ron, 1995) is applied. The 10 samples of 102 subjects are divided into 5 equal parts. The classification model is trained on 4 set of dataset and tested on the remaining one part. Average error rate of different execution of algorithms is considered as generalization error.

The presentation of the framework of the proposed work is evaluated with quantifiable measurement. A smallest amount distance classifier is used to classify the test image data to classes. Similarity between histogram is measured by finding distances. The distance is defined as an index of similarity so that the minimum distance is identical to the maximum similarity. The following distance measures used to identify the distance between two histograms. Table 3.1 shows the recognition rate of various nearest neighbour classification algorithm. The Chi – Square classification have high recognition rate

<table>
<thead>
<tr>
<th>Distance Measure</th>
<th>Chi - Square</th>
<th>Cityblock</th>
<th>Euclidean</th>
<th>Minkowski</th>
<th>Chebychev</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left</td>
<td>Right</td>
<td>Left</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td><strong>K Fold Cross Validation</strong></td>
<td><strong>Testing Images</strong></td>
<td><strong>Recognition Rate (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K=1</td>
<td>206</td>
<td>96.59</td>
<td>95.2</td>
<td>87.75</td>
<td>93.63</td>
</tr>
<tr>
<td>K=2</td>
<td>206</td>
<td>96.2</td>
<td>96.08</td>
<td>93.63</td>
<td>95.59</td>
</tr>
</tbody>
</table>
Table 3.2 shows the comparisons of various pattern representation methods with different distance measure algorithms. The result shows that the performance rate for feature descriptor contains WDOLBP (DO & LBP) with PCA is high.

### Table 3.2 Feature Descriptor Comparison – NCUT hand vein database

<table>
<thead>
<tr>
<th>Feature Descriptors</th>
<th>Recognition Rate (%)</th>
<th>Chi-Square</th>
<th>Cityblock</th>
<th>Euclidean</th>
<th>Minkowski</th>
<th>Chebychev</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBP</td>
<td>90.68 92.25 87.35 90.88 80.39 84.71 74.80 79.71 76.54 50.80</td>
<td>90.68 92.25 87.35 90.88 80.39 84.71 74.80 79.71 76.54 50.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WDOLBP</td>
<td>94.79 96.07 93.32 92.05 79.21 50.80 68.03 39.20 74.80 46.70</td>
<td>94.70 96.27 91.82 93.82 88.92 91.86 86.96 89.50 75.25 71.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOG</td>
<td>94.70 96.27 91.82 93.82 88.92 91.86 86.96 89.50 75.25 71.07</td>
<td>94.70 96.27 91.82 93.82 88.92 91.86 86.96 89.50 75.25 71.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WDOLBP with PCA</td>
<td>95.74 97.33 93.39 95.22 75.25 76.35 77.21 80.02 71.46 73.91</td>
<td>95.74 97.33 93.39 95.22 75.25 76.35 77.21 80.02 71.46 73.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An accuracy of classification is given as a percentage of correct classifications. Performance of the classifier is evaluated with biometric evaluation schemes like FAR and FRR, ROC curve, and error rate. The biometric authentication system compares enrolled biometric data with identity of a person he claims. The matching is closer then the match score is higher. If the match score exceeds a given threshold then the person authenticating is accepted. If the threshold is set too high, genuine users will be rejected. If it is set too low, impostors will be authenticated. The system will generate two types of errors called FRR and FAR.

![Fig 3.1 FAR and FRR for left and Right Hand Vein Dataset](image1.png)

**Table 3.2 Equal error rate for NCUT hand vein dataset left hand images**

Table 3.2 gives the EER obtained from NCUT hand vein dataset left & right hand images. It shows that Chi-square approach works in a very robust way in comparison to other methods.

**Conclusion**

In this paper, a support for biometric categorization system using dorsal hand vein patterns is proposed with fusion of the mechanism such Feature Descriptor, Feature reduction and Pattern
Identification. Feature Descriptor is constructed by combining the benefits of WLD differential orientation and LBP feature. This method uses various distance measures such as Chi-square, Cityblock, Euclidean, and Minkowski as similarity measure between training and testing images. The experimental results show that Chisquare distance measure outperforms other distance measures with the recognition rate of 98.72% for NCUT Dataset. Also the results are examined with state-of-art algorithms LBP and WDOLBP, the proposed work outperforms the existing methods.

References
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"QUALITY OF WORK LIFE AMONG CONSTRUCTION INDUSTRY EMPLOYEES”
A STUDY WITH REFERENCE TO KOLHAPUR CITY OF MAHARASHTRA STATE

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Abstract
The success of any construction industry is highly dependent on how it attracts, recruits, motivates and retains its workforce. Quality of Work Life is the gradation to which individuals are able to fulfill their important personal needs while engaged by the firm. Construction industries concerned in improving employees Quality of Work Life generally try to inculcate in employees the approaches of confidence, fairness, pride, internal equality, possession, independence, accountability and flexibility. Quality of Work Life is the presence of a convinced set of administrative form or practices. This description repeatedly resists that a high quality of work life occurs when independent management practices are used, employee’s jobs are enhanced, employees are treated with pride and harmless working environments exist. Quality of Work Life refers to the level of contentment, inspiration, participation and commitment of individuals’ involvement with respect to their lives at work.

Keywords: Construction industry, Employees, Quality of Work Life

Objectives
- To assess the quality of work life among employees in construction industries.
- To identify the importance of work environment towards the performance.

Hypothesis
1. The employee’s opinion about the quality of work life is the same irrespective of their interpersonal relationship and age.
2. The employee’s opinion about the quality of work life is the same irrespective of their job security and experience.

Need for the Study
Quality of Work Life program has become important in work place for the following reasons:
1. To study the inspiration level and increase in demands at work.
2. To study the need for improved work place skills.
3. This study helps to measure the mental state of workers regarding salary, welfare schemes and better working background.

Importance of Quality of Work Life
Improved Quality of Work Life was not considered as important factor in India until recently as there were important impending factors like resource deficiency, environmental threats and some services of financial problems. Quality of Work Life program has become important in work place for the following reasons:
1. Increase demands at work
2. Loss of long term employee guarantees
3. The need for enhanced work place skills
4. Greater competition for talent
5. Increased women in work force

Good quality of Work Life leads to an atmosphere of good impersonal dealings and greatly inspired employees who struggle for their growth. Though financial benefits still inhabit the first place in the cost of fundamentals like physical working conditions, job restructuring and job re-designing, career development, promotional opportunities etc. are gaining importance rapidly. As such, workers presume the management to improve all these amenities which thereby increase Quality of Work Life. If provided with good Quality of Work Life, employees focus more on both individual as well as group development which in turn leads to overall expansion.

Problems of Implementing Quality of Work Life Programmes

- Managerial attitudes
- Union influence
- Restrictiveness of industrial engineering

Strategies to Improve Quality of Work Life

By instigating specific changes, the management can generate sense of engrossment, commitment and attachment among the employees which overlays way for better Quality of Work Life.

- Opportunity for growth
- Supportive work culture
- Job security
- Suggestion system
- Flexibility in work schedules
- Employee participation

Research Methodology

Population (N) = 500
Sample size (n) = 50 (10% of the Population)
Research Instrument: Questionnaire

Tools used for Data Analysis

To make an effective research, the following two statistical tools were used to analyze and interpret the collected data.
1. Pearson's Coefficient of Correlation.
2. Chi Square Test.

Analysis using Pearson's Coefficient of Correlation

Hypothesis - There is no significance difference between Inter relationship and Age.

<table>
<thead>
<tr>
<th>Age</th>
<th>Pearson Correlation</th>
<th>Sig(2-tailed)</th>
<th>N</th>
<th>Score</th>
<th>Sig(2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.190</td>
<td></td>
</tr>
<tr>
<td>Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.093</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pearson Correlation</td>
<td>1</td>
<td></td>
<td></td>
<td>.190</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig(2-tailed)</td>
<td></td>
<td>50</td>
<td></td>
<td>.093</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>50</td>
<td></td>
<td></td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>
Using SPSS software the significance was tested. From the table it was found that there exist of significant positive correlation between Quality of work life, Inter relationship and Age.

**Conclusion**

Hence there exist of positive correlation between Quality of work life, Inter relationship and age of the employees'. Therefore it can be concluded that the employees' opinion about the Quality of work life is the same irrespective of their inter relationship and age.

**Analysis Using Chi-Square Test**

**Hypothesis** - The employee's opinion about the quality of work life is the same irrespective of their Job security and experience.

<table>
<thead>
<tr>
<th>Value</th>
<th>Level of Significance</th>
<th>D.O.F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Value</td>
<td>3.425</td>
<td>.05</td>
</tr>
<tr>
<td>Calculated Value</td>
<td>3.723</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion**

Table value of Chi-Square test for 1 degree of freedom at 5% level of significance is 3.425. The calculated value of Chi-Square is greater than its table value. Hence null hypothesis is rejected and conclude that the employee's opinion about the quality of work life is the same irrespective of their Job security and experience.

**Findings**

1. From the study it was found that the 45% of the employees' were satisfied with the support from manager/supervisor.
2. From the study it was found that the 37% of the employees' were satisfied with the job satisfaction, challenge and use of skill.
3. From the study it was found that the 48% of the employees' were satisfied with the Wages and Welfare schemes.
4. From the study it was found that the 43% of the employees' were satisfied with the safety measure and good working condition.
5. From the study it was found that the 65% of the employees' were satisfied with QWL.
6. Majority of the respondents were not satisfied with their present wages.

**References**

A STUDY ON CUSTOMER SATISFACTION TOWARDS M-BANKING SERVICES IN HOSUR TALUK

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Abstract
Banking is the backbone of every industry and technology plays an important role in every industry. The liberalization and globalization of our economy took place almost a decade ago. The phrases such as “customer is the kind in our business”, is no more myth but have turned out to be a reality. In other words, we need as much control over our finances as possible and at all-time remote control. This is possible by means of mobile banking. So we can say it as a 24 hours service. In this method the user can able to do all their works without going to bank. The topic that was hence chosen for this research is “A Study on Customer Satisfaction towards M-banking services in Hosur Taluk”. A sample size of 90 account holders with different banks was taken for the study and random sampling method was used. Both primary & secondary data were used for the study. This research is based on the data collected through “Questionnaire” with Mobile banking user.

Keywords: M-banking, Financial Services, Online Banking

Introduction
Mobile banking is a service provided by a bank or other financial institution that allows its customers to conduct some financial transactions remotely using a mobile device such as a mobile phone or tablet. Mobile banking differs from mobile payments, which involves the use of a mobile device to pay for goods or services at the point of sale or remotely, analogously to the use of a debit or credit card to effect an EFTPOS payment.

The traditional brick and mortar is done from fixed branch premises, where the customer has to go personally for carrying out business transactions. Through mobile banking the customer can conduct a host of banking transactions and inquiries through the mobile. Mobile banking can also be carried through a mobile van with or without computerized banking system. The mobile van moves from place to place on designated routes at designated hours and the customers can transact their banking business, such as deposit, withdrawal, cheque collection, draft issuance, pass book updates, etc. Mobile banking helps the customer to do his account management, electronically which was earlier possible through internet banking. Mobile banking service is divided into two categories:

(i) SMS Based: This service can be availed from any mobile having SMS based service. The customer types the required keywords and PIN number and send the message to the predefined number.
(ii) Menu Based: The customer downloads and installs the application on the mobile. Whenever the customer wants any sort of information, he selects the application, selects the request from menu and sends the request to the designated number. This request is internally sent as SMS text. The central computer at bank sends back the result to him.

Functionalities of Mobile Banking
Mobile banking functionalities have been divided into three parts. In public category, the customer can openly access the exchange rates and interest rates of the economy as well as the banks. In private

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category, the customer can check the account balances, can administer the credit lines and can check the transactions. While conducting the transactions, mobile banking helps in transfer of funds, and in paying invoices.

**Flow Chart for Functions of Mobile Banking**

**Figure 1.1**

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**Mobile Banking in India**

Mobile banking has not widely accepted but there is significant growth found in recent years after spread of mobile network. Since 1995 in India, there is found tremendous growth in mobile users in India. In past two years, mobile banking users have increased three times if we compare the use of either debit card or credit card. Now, 32 banks had been granted permission to operate Mobile Banking in India till June 30, 2009, of which 6 belonged to the State Bank Group, 12 to nationalized banks and 13 to private / foreign banks. The RBI has adopted Bank Led Model in which mobile phone banking is promoted through business correspondents of banks. Recently, Indian banks are offering followings facilities through mobile banking: 1) Check account balance 2) Get automatic updates on bill payments 3) Get automatic updates scheduled payments 4) Mini account statement 5) SMS alert about deposit and withdrawal 6) Electronic fund transfer 7) Bill Payment, Donations, Subscriptions etc. 8) Information about new schemes, changes in charges and interest rates 9) Stop payment order and cheque book request 10) ATM and branch locating 11) Mobile Top Up, Recharge of Other DTHs, 12) Merchant payment, SBI life insurance premium 13) De-mat Enquiry Service 14) Real-time stock quotes.

**History:** The earliest mobile banking services used SMS, a service known as SMS banking. With the introduction of smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers. Mobile banking has until recently (2010) most often been performed via SMS or the mobile web. Apple’s initial success with iPhone and the rapid growth of phones based on Google’s Android (operating system) have led to increasing use of special client programs, called apps, downloaded to the mobile device. With that said advancements in web technologies such as HTML5, CSS3 and JavaScript have seen more banks launching mobile web based services to complement native applications.

**Advantages of Mobile Banking**

1. **Time saving:** Instead of allocating time to walk into a bank, you can check account balances, schedule and receive payments, transfer money and organise your accounts when you’re on the go.
2. **Convenient:** The ability to access bank accounts, make payments, and even track investments regardless of where you are can be a big advantage Do your banking at a time and place that suits you, instead of waiting in queues.
3. Secure: Generally, good mobile banking apps have a security guarantee or send you a SMS verification code you need to input to authorize a payment for added security. Mobile banking is said to be even more secure than online/internet banking.

4. Easy access to your finances: with the introduction of mobile banking, you are able to access your financial information even beyond the working hours. It helps to avail banking services even by making a call to the bank.

**Disadvantages of Mobile Banking**

1. Mobile banking users are at risk of receiving fake SMS messages and scams.
2. The loss of a person’s mobile device often means that criminals can gain access to your mobile banking PIN and other sensitive information.
3. Modern mobile devices like Smartphone and tablets are better suited for mobile banking than old models of mobile phones and devices.
4. Regular users of mobile banking over time can accumulate significant charges from their banks.
5. Even though there are 1.5 billion computers on the Internet and 4.5 billion people using mobile phones, there’s currently no significant operating system supporting the mobile space. “Hackers want to do the least amount of work for the biggest gain.
6. Most mobile banking apps need an internet connection to be able to operate, so if you live in a rural area or experience problems with your internet connection, then you won’t be able to access your account. The same applies if your mobile phone runs out of battery.

**Review of Literature**

*Renju Chandran (2014)* founded that new technology has rapidly altered the traditional ways of doing banking business. Customers can view the accounts, get account statements, transfer funds, purchase drafts by just making a few key punches. Availability of ATMs and plastic cards, EFT, electronic clearing services, internet banking, mobile banking and phone banking; to a large extent avoid customers going to branch premises and has provided a wider range of services to the customers. Mobile banking is a system that allows customers of a financial institution to conduct a number of financial transactions through a mobile device such as a mobile phone or personal digital assistant. Banking apps can make bill paying and bank account management incredibly convenient, but the risk of identity theft is a major downside. Fortunately, it's easy to avoid most of the pitfalls with commonsense solutions like strong password protection and secure connections. By keeping these security tips in mind, you can enjoy a safer mobile banking experience.

*ManavAggarwal (2014)* discussed that Banking is the backbone of every industry and technology plays an important role in every industry. The role of technology is increasing very rapidly day by day, which is also promoting the banking industry. Banking is one of the largest financial institutions which regularly explore the opportunity of technology to provide better customer services. In today’s business, technology has been the largest indicators of growth and competitiveness. The banking industry today is in the era of its revolution. The increased dominance of mobile phones provides exciting opportunities for the growth of mobile banking. Mobile banking is a system that helps the customers to conduct a number of financial transactions with the help of their mobile devices. Mobile banking is a revolution that is driven by the worlds one of the fastest growing sector, mobile communication technology.
A recent study (May 2012) by Mapa Research suggests that over a third of banks have mobile device detection upon visiting the banks’ main website. A number of things can happen on mobile detection such as redirecting to an app store, redirection to a mobile banking specific website or providing a menu of mobile banking options for the user to choose from.

**Objectives of the Study**
- To understand the basic concept of Mobile Banking in India.
- To know the satisfaction level of M-Banking among the customers.

**Limitation of the Study**
1. The study is conducted only in hosurtaluk
2. The study is restricted to the limited number of respondents i.e. 90 due to time constraint

**Methodology**
The present study is based on both primary and secondary data. The primary data has been collected through questionnaire from account holders with different banks in Hosur Taluk. The secondary sources have been collected from journals and websites.

**Sampling Design**
Convenient sampling technique was adopted 90 account holders with different banks in HosurTaluk.

**Tools for Analysis**
For the purpose of processing and interpretation of data, the researcher has applied the statistical tools such as; Percentage analysis and Likert scale method is used to analyse the data.

**Results and Discussion**
**Table 1 Gender wise Classification of M-Banking users.**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Gender</th>
<th>No of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>55</td>
<td>61%</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>35</td>
<td>39%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>90</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Primary data*

From the above table 1, Among the total respondent, 61% of respondents are male and remaining 39% are female.

**Table 2 Age wise Classification of M-Banking Customers**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Age</th>
<th>No of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Below 40</td>
<td>40</td>
<td>45%</td>
</tr>
<tr>
<td>2</td>
<td>40-60</td>
<td>35</td>
<td>39%</td>
</tr>
<tr>
<td>3</td>
<td>Above 60</td>
<td>15</td>
<td>16%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>90</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Primary Data*

From the data collected, it is revealed that 45% of respondents are under the age group of below 40 years, 39% of respondents are in the age group of 40 to 60 years and only 16% of the respondents are belong to the age group of Above 60 years.
Table 3: Customer Satisfaction Level

<table>
<thead>
<tr>
<th>S.No</th>
<th>Factors</th>
<th>Opinion</th>
<th>Total</th>
<th>Mean Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HS</td>
<td>S</td>
<td>N</td>
<td>DS</td>
</tr>
<tr>
<td>1</td>
<td>Fund Transfer</td>
<td>30</td>
<td>25</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>IMPS-Immediate payment services</td>
<td>14</td>
<td>22</td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Enquiry services</td>
<td>12</td>
<td>10</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>Bill payment (Unit bill, Cash bill)</td>
<td>30</td>
<td>25</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Security /Safety System</td>
<td>11</td>
<td>15</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Time Savings</td>
<td>20</td>
<td>23</td>
<td>23</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3 shows that the M-Banking service is easy to transfer Fund. So it gets 1st Rank. The Second Rank goes to Bill payment. Also, the Time savings was ranked Third (mean score 3.31) as one of the satisfaction factors of M-Banking. Other factors are followed by IMPS-Immediate payment services, Security/Safety system, and Enquiry Services.

Findings
1. The Study found that 61% of respondents are male and remaining 39% are female.
2. The study found that 45% of respondents are under the age group of below 40 years, 39% of respondents are in the age group of 40 to 60 years and only 16% of the respondents are belong to the age group of Above 60 years.
3. By applying likert scale method, it is found that most of the respondents give the first rank to the fund transfer provided by M-Banking. The second one is Bill Payment facility followed by the Time savings, IMPS-Immediate payment services and Security/Safety system. The last rank is given to Enquiry services by the respondents.

Suggestions
1. The banks must improve its service quality in terms of communication, responsiveness, reliability and understanding.
2. To provide various effective modes for promotional schemes interaction with the customer, more accuracy in billing, financial security and privacy in transactions.
3. If the banks wants to increase the service quality it should enhance level of services in punctuality, transparency and accountability, quality of customers service, safety and confidentiality of transaction, No. of queues in bank branches, 24 hours services to the customers, individualized attention to customers, necessary information to customers, learns the specific requirement of customers.
4. Set standards for on-boarding mobile banking customers.
Conclusions

The role of technology is increasing day by day. The various sectors of India are growing at much faster rate with the help of technology. Mobile banking is also a big mobile telecommunication platform of new technology, which promotes the banking functions in India. Mobile banking also helps the banks to increase their customers. Today, everyone has a mobile phone in his hands. The number of mobile users in India got second position in the world. The increasing frequency of mobile internet users gives the boost energy to the mobile banking. This paper explores the importance of mobile banking in the new era of technology which helps the banking industry to grow at higher speed.

References

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A STUDY ON FINANCIAL PERFORMANCE ANALYSIS IN SUBRAMANIYA SIVA CO-OPERATIVE SUGAR MILL IN PAPPEREDDIPATTI TALUK

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Abstract

Finance is the life blood of business hence the financial requirement of a company is a vital factor to be faced by companies; the companies must be financially sound to meet its short term and long obligations. The accounting has been developed to provide financial information to the management. The basis for financial planning, analysis and decision making is the financial information. This information is needed to predict compare and evaluate the firm’s earning capacity. Sugar industry is the second largest agro-based industry in the country. India is the fourth sugar producing country in the world. The level of performance of a business over a specified period of time, expressed in terms of overall profits and losses during that time. Evaluating the performance of a business allows decision-makers to judge the results of business strategies in objective monetary terms. Hence the accounting is the most important field which is very useful to management.

Keywords: Financial Analysis, Financial Information, Ratio analysis, Performance and Analysis

Introduction

Finance is the life blood of business hence the financial requirement of a company is a vital factor to be faced by companies; the companies must be financially sound to meet its short term and long obligations. Financial performance may be defined as a critical assessment or evaluation of various activities in different areas of operations of an organization. It includes planning a part that what was expected and making a judgment on the quality of the performance having regard to the actual circumstances under which it was achieved. The accounting has been developed to provide financial information to the management. Sugar industry is the second largest agro-based industry in the country. India is the fourth sugar producing country in the world. The level of performance of a business over a specified period of time, expressed in terms of overall profits and losses during that time. Evaluating the performance of a business allows decision-makers to judge the results of business strategies in objective monetary terms.

Statement of the Problem

Many financial performances are calculated on the basis of the balance sheet figures. These figures are as on the balances sheet data only and may not be indicative of the year-round position. Financial performances are calculated on the basis of post data. Therefore, they do not provide complete information for figure forecasting.

1. Financial performances are tools of quantitative analysis; it ignores the qualitative point of view.
2. Financial performances give flash result, if they are calculated form in correct accounting data.
3. Financial performances are generally distorted by inflation.
4. Financial performances may be misleading, if they are pasted on flash or window-dressed accounting information.

Objectives of the Study
The following objectives of the study given below,
1. To evaluate the financial performance of the subramaniya siva sugar mills limited by analysis the solvency and liquidity position of the company.
2. To analyze the financial statements and find out the subramaniya siva Co-operative sugar mills Ltd's financial position.

Review of Literature
Nandi (2011) made an attempt to examine the influence of working capital management on corporate profitability for assessing impact of working capital management on profitability of National Thermal Power Corporation Ltd, during the period of 10 years i.e. from 1999-2000 to 2008-2009 pearson’s coefficient of correlation and multiple regression analysis between some ratios relating to working capital management and the impact measures relating to profitability ratio had been computed and applied. An attempt had been undertaken for measuring the sensitivity of returns investment to changes in the level of working capital leverage of the studying company.

Karaduman, Akbas & calziskan (2011) have tried to send light on the empirical relationship between efficiency of working capital management and corporate profitability of selecte d companies in the Istanbul stock exchange for the period of 2005-2009. The companies should focus on working capital management in order to increase their profitability by seriously and professionally considering the issues on their cash conversion cycle which was derived from the number of days accounts payable, the number of days accounts receivables and the number of days inventories. The findings suggested that it may be possible to increase profitability by improving efficiency of working capital.

Daniel Moses Joshuva stated in his study ‘Financial status of sugar co operatives in papredipatti’ (2012) that company has stable growth and also suggested to reduce the expenditure. Decrease in expenses will increase the profitability. He also suggested that company should utilize its working capital efficiently.

Framework of Analysis
The statistical tools used in this study for the purpose of analysis are percentage, average and growth rate. Further bar chart, graph is also used. The Financial tools, techniques of ratio analysis and percentages make an analysis of the data.

Period of the Study
The study covers the period of five years from 2011-20012 to 2015-2016. The accounting year ending 31st March 2016.

Research Methodology
The present study was undertaken on the basis of secondary data collected from annual reports of the company. In this part we have to consider the methods of data collection tools and techniques which are going to be applied in analysis and interpretation associated with this project work.
Tools for Financial Analysis

Analysis and interpretation of financial statement reveals the financial position of the concern in whole. Various methods are employed by the financial analyst to analysis financial statement of the concern.

The following tools are used for financial analysis
1. Comparative financial statements.
2. Common size financial statements
3. Trend analysis
4. Fund flow analysis
5. Cash flow analysis
6. Ratio analysis
7. Cost volume profit analysis.

Current Ratio

The ratio measures the solvency of the company in the short-term. Current assets are those assets, which can be converted into cash within a year. Current liabilities are those liabilities that are payable within a year. A current ratio of 2:1 indicated a highly solvent position.

Table 1.1 Classification of Current Ratio (Rs in Crores)

<table>
<thead>
<tr>
<th>Year</th>
<th>Current assets</th>
<th>Current liability</th>
<th>Ratio%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>641346879</td>
<td>529397332</td>
<td>1.2114</td>
</tr>
<tr>
<td>2012-13</td>
<td>1155480400</td>
<td>643658065</td>
<td>1.7951</td>
</tr>
<tr>
<td>2013-14</td>
<td>1218334893</td>
<td>695366738</td>
<td>1.7520</td>
</tr>
<tr>
<td>2014-15</td>
<td>1334193670</td>
<td>805283966</td>
<td>1.6567</td>
</tr>
<tr>
<td>2015-16</td>
<td>1473627153</td>
<td>923432320</td>
<td>1.5958</td>
</tr>
</tbody>
</table>

Source: Secondary Data

2012-2013 the current assets is more than the current liabilities.

Table 1.2 Over all current asset Descriptive Statistics analysis

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Asset</td>
<td>5</td>
<td>1.16E9</td>
<td>3.166E8</td>
</tr>
<tr>
<td>Current Liablities</td>
<td>5</td>
<td>7.19E8</td>
<td>1.512E8</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Debt Equity Ratio

This ratio is ascertained to determine long term solvency position of a company dept equity ratio is also called “External – Internal equity ratio”

Table 1.2 Classification of Debt Equity Ratio (Rs in crores)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total long term debt</th>
<th>Total long term funds</th>
<th>Ratio%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>400634000</td>
<td>390895473</td>
<td>1.0249</td>
</tr>
<tr>
<td>2012-13</td>
<td>400629000</td>
<td>391800144</td>
<td>1.0225</td>
</tr>
<tr>
<td>2013-14</td>
<td>367659410</td>
<td>391800044</td>
<td>0.9383</td>
</tr>
<tr>
<td>2014-15</td>
<td>328095902</td>
<td>391800044</td>
<td>0.8374</td>
</tr>
<tr>
<td>2015-16</td>
<td>321502000</td>
<td>391800044</td>
<td>0.8205</td>
</tr>
</tbody>
</table>

Source: Secondary Data

The table 1.2 shows the debt equity ratio of the “sugar mill limited” during the year 2011-2012 the ratio is 0.024. In the year 2014-2015 the ratio was decreased by 1.022. In the year 2013-2014 the ratio was gradually decreased to 0.938, in the year 2014-2015 the ratio was highly decreased is 0.837; in the year 2015-2016 the ratio was gradually decreased is 0.820 when compared to the previous year 2014-2015. It shows that the majority (1.024) in the year 2011-2012.
Properietory Ratio

This ratio compares the share holders’ funds or owner’s funds and total tangible assets. In other words this ratio expresses the relationship between the proprietor’s fund’s and the total tangible assets.

Table 1.3 Classification of Properietory Ratio (Rs in crores)

<table>
<thead>
<tr>
<th>Year</th>
<th>Share holders' funds</th>
<th>Total tangible assets</th>
<th>Ratio%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>390895473</td>
<td>701158587</td>
<td>0.5574</td>
</tr>
<tr>
<td>2012-13</td>
<td>391800144</td>
<td>1216385443</td>
<td>0.3221</td>
</tr>
<tr>
<td>2013-14</td>
<td>391800044</td>
<td>1289815835</td>
<td>0.3037</td>
</tr>
<tr>
<td>2014-15</td>
<td>391800044</td>
<td>1405405549</td>
<td>0.2787</td>
</tr>
<tr>
<td>2015-16</td>
<td>391800044</td>
<td>1554616359</td>
<td>0.2520</td>
</tr>
</tbody>
</table>

Source: Secondary Data

The above table 1.3 reveals the proprietary ratio of sugar mill limited. During the year 2011-2012 the ratio is 0.55. In the year 2012-2013 the ratio was decreased is 0.32. In the year 2013-2014 the ratio was highly decreased is 0.30 compare to the previous year. In the year 2012-2013 the ratio was decreased is 0.27; in the year 2015-2016 the ratio was decreased is 0.25 when compared to the previous year. It is cleared from the study the proprietary ratio (0.55) more in the year 2011-2012.

Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share holders fund</td>
<td>5</td>
<td>3.92E8</td>
<td>404547.632</td>
</tr>
<tr>
<td>Total tangible asset</td>
<td>5</td>
<td>1.23E9</td>
<td>3.239E8</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Findings

1. It is understand that the majority, (1.79) in the year 2012-2013 the current assets is more than the current liabilities.
2. It reveals that the debt equity ratio, (1.024) more in the year 2011-2012.
3. It is cleared from the study the property ratio, (0.55) in more the year 2012-2013.

Suggestion

Now days co-operative sugar factories are incurring heavy loss due to the vulnerable government policies on the sugar sales procedure. During the year 2007-2008. The co-operative sugar factories have lost Rs 10 cores and most of the C.S.M is not able to run in an effective manner. Due to these losses the CSF are facing a huge financial burden. In most of sugar factories, because of the poor payment of salary, the employees lack job satisfaction. Even through the sugar co-operative here the ability and resources to produce more sugar, due to the higher cost of production political influence and government policies, they are unable to meet the demands of the country.

Conclusion

The Dharmapuri district co-operative sugar mills ltd. Is a voluntary association and individuals generally belonging to one more home generous group on the basis of equality for the promotion of their common interest it is mainly started for the weaker session of the formers who has been summarizing mainly by groaning sugar cane and loss applying. It is to the mill. The mill had been producing sugar and had been supplying to the local people at lesser rate lesser rates the Dharmapuri district co-operative sugar mills have been functioning successfully. The sugar cane grower are largely benefited by them the mills has played vital role the development sugar cane production in Dharmapuri district.
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3. www.monycontrol.com
A STUDY ON WOMEN ENTREPRENEURSHIP WITH SPECIAL REFERENCE TO VILLUPURAM DISTRICT

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Prof. Dr. D. Suthamathi
Assistant Professor, Department of Management Studies, AVS College of Arts & Science, Salem

Introduction

Indians constitute one seventh (about 1000 million) of the world’s population. About half of them are women. The total population of women is about 495.74 million as per the 2001 census and it occupies 48.3 per cent of the country’s total population. Swami Vivekananda, while commenting about women, said, “As a bird cannot fly with one wing, no society can make progress unless its women join men in all activities”. The traditional belief in the Indian society is, “Women are supposed to work inside the house”. To empower women, the government is taking different steps to engage women to become entrepreneurs. Though women are having the financial constraint, they are ready to do the business. The small scale industry plays an important role in promoting the country’s economy. According to a report, in the case of small scale industries, 21 persons get the employment opportunity for an investment of Rs. 1,00,000, whereas the same amount of investment offers employment to only 5 persons in the case of large scale sectors.

Women in business are considered a recent phenomenon in India. In India, half of the population comprises females while business owned and operated by them constitutes less than 5 per cent.

Statement of the Problem

Entrepreneurship is one of the important factors of industrialization; in the absence of entrepreneurship, industrialization cannot take place. Entrepreneurs are playing an important role in the economic development of a underdeveloped country. Women’s skills and knowledge, their talents and abilities in business and a compelling desire of wanting to do something positive are some of the reasons for the women entrepreneurs to organize industries. According to World Bank, investing more in business of women rather in men leads to greater development of a nation. A mother’s education in a family is better than the father’s education. And in a family the money controlled by the women is likely to be spent for household needs than the father. Empowering women in entrepreneurship leads to break the inequalities and reduces the poverty. Entrepreneurship plays an important role in developing the society of a fast developing country like India. Nowadays it has been realized that enterprising women have cast entrepreneurial talents which could be harnessed so as to convert them from the position of ‘jobseekers’ to ‘job givers’. The government has realized the importance women entrepreneurship. As a result, it offers a variety of programmers for women entrepreneurs. Villupuram district is the industrially backward area in which some of the entrepreneurs excel in scale industry. Even though the government organizes women by various associations, they are not ready to undertake
the business. As compared to men, women are less motivated to start business units due to some unwanted fear, lack of motivation and the kind of attitudes.

This study aims at understanding the entrepreneurial development among women and highlights their motivational forces and relationship between socio-economic background of women entrepreneurs and motivational factors and their existing entrepreneurial traits.

Objectives
1. To assess the entrepreneurial traits of sample women respondents in villupuram district
2. To analyze the relationship between the level of motivation and socio-economic background of women entrepreneurs in villupuram district
3. To offer suggestions from the present study

Scope of the Study
This study was confined to women entrepreneurs mainly engaged in three types of enterprises such as manufacture, trade and service in villupuram district.

Methodology

Area of the Study
The area of the study refers to villupuram district.

Sources of Data
For this study both primary and secondary data were collected. The data were collected from the 30 respondents by using the interview schedule method. The interview schedule had been prepared in such a way that the respondents were able to express their opinions freely and frankly. The secondary data were collected from books, articles, magazines, government orders and from the websites which deal with women entrepreneurs.

Sampling Technique
For the purpose of the present study, 30 women entrepreneurs were selected. Convenience sampling method was administered in this study.

Tools for Analysis
For analysis, simple statistical tools like percentage and average were used for the interpretation of the data collected.

The chi-square test describes the discrepancy between theory and observation. Hypotheses were made and were tested using chi-square test.

The chi-square value is calculated as below

\[ X^2 = \frac{(O - E)^2}{E} \]

All the tests were carried at 5 percentage level of significance.

In addition to this co-efficient of variance was used to measure the consistency of variables on the entrepreneurial traits. It was calculated by using mean value and standard deviation value.

Garret ranking technique has been used for rating the entrepreneurial traits and the expectations of women entrepreneurs from their business.
Hypothesis
Hypothesis is an assumption which may or may not be true about population parameter

- $H_0$ = Null hypothesis
- $H_1$ = alternative hypothesis

Following are the Null Hypothesis made on analyzing the data

- $H_{01}$ = There is no significant association between age and the motivation level of women entrepreneurs.
- $H_{02}$ = There is no significant association between religion and the motivation level of women entrepreneurs.
- $H_{03}$ = There is no significant association between community and the motivation level of women entrepreneurs.
- $H_{04}$ = There is no significant association between marital status and the motivation level of women entrepreneurs.
- $H_{05}$ = There is no significant association between educational level and the motivation level of women entrepreneurs.

Limitation of the Study
The present study suffers from the following limitations:
1. Due to the paucity of time, data were collected only from limited samples
2. In most cases the women entrepreneurs were non-cooperative in supplying accurate data

Demographic Profile of Women Respondents
Age-wise classification:
The age-wise classification of women entrepreneurs is presented in the following table:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Age</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Up to 30 years</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>30-45 years</td>
<td>13</td>
<td>43</td>
</tr>
<tr>
<td>3</td>
<td>Above 45 years</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data

Community-Wise Classification
The community-wise classification of women entrepreneurs is presented in the following table:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Community</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SC/ST</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>BC</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>3</td>
<td>MBC</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>FC</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data

From the above table, it could be seen that out of 30 respondents, 57 per cent(17) of the respondents are Backward Community group, 23 per cent(7) of the respondent are Most Backward community group, 13 per cent(4) of the respondent are Scheduled Caste and Scheduled Tribes and 7 per cent(2) of the respondents are Forward Community group.

It is found from the above table that 43 per cent(13) of the respondents belong to the age group of 30-45 years, 30 per cent(9) of the respondents belong to the age group of above 45 years and 27 per cent(8) of the respondents belong to the age group of up to 30 years.
Religion - Wise Classification

The Religion-wise classification of women entrepreneurs are presented in the following table,

**Table 3 Religion-Wise Classification**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Religion</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hindu</td>
<td>14</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>Christian</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>Muslim</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data

From the above table, it could be seen that out of 30 respondents 53 per cent (16) of the respondents are Hindus, 33 per cent (10) of the respondents are Christians and 14 per cent (4) of the respondents are Muslims.

Marital Status-Wise Classification

The marital status-wise classification of women entrepreneurs is presented in the following table:

**Table 4 Marital Status - Wise Classification**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Marital Status</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Married</td>
<td>22</td>
<td>73</td>
</tr>
<tr>
<td>2</td>
<td>Unmarried</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Widow</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data

The above table shows that 73 per cent (22) of the respondents are married and 17 per cent (5) of the respondents are widows and 10 per cent (3) of the respondents are not married.

Educational-wise classification

The educational-wise classification of women entrepreneurs is presented in the following table,

**Table 5 Educational-Wise Classification**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Educational qualification</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No formal education</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>Up to 8th</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>3</td>
<td>Up to 12th</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Degree/Diploma</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data

The above table reveals that 33 per cent (10) of the respondents had studied up to 8th, 30 per cent (9) of the respondents had studied up to 12th, 27 per cent (8) of the respondents had no formal education and 10 per cent (3) of the respondents had studied up to Degree and Diploma.

Analysis and Interpretation

Hypothesis Testing:

The personal factors of the respondents have no significant association with the level of motivation.

Chi-Square analysis:

The chi-square analysis is an analysis which is used to test the independence of two factors. In the other words, chi-square test is used to test whether one factor has significant influence oven the other. For this purpose the factors considered in the study are classified into two groups. The first group contains personal factors, such as

1. Age
2. Religion
3. Community
4. Marital status
5. Educational level
The second category contains one very important factor namely

1. Women entrepreneurs’ level of motivation.

Factors in each group are compared with the factors in the other group and chi-square test is applied and the results are given in the following table with suitable interpretations.

**Hypothesis:**

The personal factors of the respondents have no significant influence over the level of motivation.

**Table 6 Chi-Square Analysis – Personal Factors and Women Entrepreneurs’ Level of Motivation**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Personal Factors</th>
<th>Chi-Square Value</th>
<th>Table Value</th>
<th>S/Ns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age of the respondents</td>
<td>8.345</td>
<td>9.488</td>
<td>NS</td>
</tr>
<tr>
<td>2</td>
<td>Religion</td>
<td>3.1306</td>
<td>9.488</td>
<td>NS</td>
</tr>
<tr>
<td>3</td>
<td>Community</td>
<td>8.2563</td>
<td>12.592</td>
<td>NS</td>
</tr>
<tr>
<td>4</td>
<td>Marital Status</td>
<td>2.7225</td>
<td>9.488</td>
<td>NS</td>
</tr>
<tr>
<td>5</td>
<td>Educational level</td>
<td>7.337</td>
<td>12.592</td>
<td>NS</td>
</tr>
</tbody>
</table>

S – Significant; NS – Not Significant; Source: Primary data

It can be inferred from the above table that the hypothesis is not rejected in all cases such as age, religion, community, marital status and educational level. Therefore, it is concluded that the personal factors of women entrepreneurs do not have significant influence over the motivation level of women entrepreneurs.

**Assessment of Entrepreneurial Traits**

Each entrepreneurial trait had been defined on the basis of different variables expected to be present in the respondents to determine whether the respondents would become potential entrepreneurs by right motivation. Each trait was defined as five variables for measuring the existing level of entrepreneurial traits. In order to measure the consistency of each variable on the particular trait, the researcher found out the co-efficient of variance for each variable using its mean value and standard deviation value. The co-efficient of variance for the variable was found and ranked in that order and presented in the following table.

**Table**

<table>
<thead>
<tr>
<th>Traits and Variables</th>
<th>C.V</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Independence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often follow my inner instict</td>
<td>10</td>
<td>I</td>
</tr>
<tr>
<td>I have a strong need to work independently</td>
<td>13</td>
<td>II</td>
</tr>
<tr>
<td>I like to be in control of whatever jobs I am doing</td>
<td>13</td>
<td>II</td>
</tr>
<tr>
<td>I hate being told what to do</td>
<td>21</td>
<td>V</td>
</tr>
<tr>
<td>I like being the master of my own business</td>
<td>14</td>
<td>IV</td>
</tr>
<tr>
<td>2. Self-confidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am good at dealing with ambiguous situations</td>
<td>11</td>
<td>II</td>
</tr>
<tr>
<td>I can find even the most disagreeable people good</td>
<td>14</td>
<td>III</td>
</tr>
<tr>
<td>I can find something positive even in the most difficult situations</td>
<td>4</td>
<td>I</td>
</tr>
<tr>
<td>I am realistic about my strengths and weaknesses</td>
<td>28</td>
<td>V</td>
</tr>
<tr>
<td>I have complete faith in my capabilities/skills</td>
<td>16</td>
<td>IV</td>
</tr>
<tr>
<td>3. Risk taking and tolerance for failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like to take calculated risks in life</td>
<td>11</td>
<td>I</td>
</tr>
<tr>
<td>Others consider my lifestyle wild and exciting</td>
<td>18</td>
<td>IV</td>
</tr>
<tr>
<td>I am comfortable in unfamiliar situations</td>
<td>13</td>
<td>II</td>
</tr>
<tr>
<td>I like challenges and new opportunities</td>
<td>15</td>
<td>III</td>
</tr>
<tr>
<td>I do things that are risky</td>
<td>18</td>
<td>IV</td>
</tr>
</tbody>
</table>
4. Perseverance and hard work
- I hate to lose anything compared to others: 10 (I)
- I am known to be a sticker for fighting for my rights: 13 (IV)
- I set high goals for myself compared to others: 12 (III)
- When faced with difficult problems, I spend a lot of time trying to find solutions: 16 (V)
- I give much effort to my work: 10 (I)

5. Commitment
- I challenge myself: 15 (III)
- I worry about making mistakes: 16 (IV)
- I like to set my own schedules: 11 (II)
- I am a very tactile person: 17 (V)
- Long-term commitment is key to reaching my goals: 4 (I)

6. Leadership and Motivation
- I am a motivated person: 12 (II)
- I always enjoy in telling people what to do: 11 (I)
- I always encourage others to work happily: 12 (II)
- I am able to deal with negative criticism: 17 (IV)
- I tell others when they have not performed as expected: 18 (V)

7. Decision making
- I am making use of talents: 14 (II)
- I don't like to work under others: 15 (III)
- I always make rational decisions: 16 (IV)
- I always make quick and prompt decision: 12 (I)
- I am comfortable in making important decisions by myself at work: 18 (V)

8. Innovative
- I always come up with fresh ideas: 11 (I)
- I am praised and rewarded for being creative: 15 (V)
- I deliberately copy and adapt good ideas from outside our field: 12 (II)
- I find ways to do things for less cost: 14 (IV)
- I take great interest in the latest innovations: 13 (III)

9. Open to learning
- I can calm myself down when I’m under stress: 9 (I)
- I find it easy to prioritize my tasks: 10 (II)
- I find it easy to remember telephone numbers: 11 (III)
- I always try to learn something new: 12 (IV)
- When starting a new task, I gather a great deal of information: 13 (V)

10. Collaborative
- I actively keep in touch with friends and family: 17 (IV)
- I always respect others’ opinions: 10 (I)
- I am a very social person and like being with other people: 12 (II)
- I find it easy to talk to the new people: 16 (III)
- I am very aware of other people’s body of language: 19 (V)

It is found that the lowest and higher co-efficient of variance value of the variables ranked first ranged from 4 to 12. The researchers also found that the lowest and highest co-efficient of variance value of variables ranked five ranged from 13 to 28. The highest co-efficient of variance value of the variables ranked first and fifth ranged from 12 to 28. The study reveals that the value of co-efficient of variance found for the variables do not vary much. The majority of the variable which shows the degree of influence they have on the entrepreneurial traits. A respondent with these variables can be a successful entrepreneur if she is motivated in the right way. The conclusion was that the ten entrepreneurial traits were significant and the levels of existence of these traits were important factors to judge whether the respondent had the inclination for entrepreneurship.
Ranking of Traits

It is found from the above analysis that the above ten entrepreneurial traits are important factors to judge whether the respondent had the inclination for entrepreneurship. Hence, it is decided to rank the traits. The Garret Ranking technique has been used to study the traits.

By using Garret’s formula total score of each item is calculated and ranks are given according to the total value. The results are presented in the following table.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Traits</th>
<th>Total scores</th>
<th>Means scores</th>
<th>Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Independence</td>
<td>1775</td>
<td>59.17</td>
<td>I</td>
</tr>
<tr>
<td>2</td>
<td>Self confidence</td>
<td>1720</td>
<td>57.33</td>
<td>III</td>
</tr>
<tr>
<td>3</td>
<td>Risk taking</td>
<td>1651</td>
<td>55.03</td>
<td>IV</td>
</tr>
<tr>
<td>4</td>
<td>Perseverance and hard work</td>
<td>1450</td>
<td>48.33</td>
<td>VII</td>
</tr>
<tr>
<td>5</td>
<td>Commitment</td>
<td>1321</td>
<td>44.03</td>
<td>IX</td>
</tr>
<tr>
<td>6</td>
<td>Leadership and motivation</td>
<td>1284</td>
<td>42.8</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Decision making</td>
<td>1552</td>
<td>51.73</td>
<td>V</td>
</tr>
<tr>
<td>8</td>
<td>Innovation</td>
<td>1775</td>
<td>59.17</td>
<td>I</td>
</tr>
<tr>
<td>9</td>
<td>Open to learning</td>
<td>1410</td>
<td>47</td>
<td>VIII</td>
</tr>
<tr>
<td>10</td>
<td>Collaboration</td>
<td>1494</td>
<td>49.8</td>
<td>VI</td>
</tr>
</tbody>
</table>

Source: Primary data

From the above table reveals that out of 10 traits, “Independence” and “Innovation” ranks the first (total score 1775) followed by “Self Confidence”, “Risk taking”, “Decision making”, “Collaboration”, “Perseverance and Handwork”, “open to learning”, “Commitment” and “Leadership and motivation”. That is, it is found that the respondents in the study area have talents in the traits of “Independence”, “Innovation”, and “Self confidence”.

Findings

The following are the findings emerged from the study:
1. Majority (43 per cent) of the women entrepreneurs are belonging to the age group of 30 to 45 years.
2. 57 per cent of the respondents are belonging to Backward Community.
3. 47 per cent of the respondents are Hindus.
4. 73 per cent of the respondents are married women entrepreneurs.
5. 33 per cent of the respondents had studied up to 8th standard.
6. From the chi-square test, it is concluded that the personal factors of women entrepreneurs do not have any significant influence over the motivation level of women entrepreneurs. That is the age, the religion, the community; the marital status and the educational qualification of women entrepreneurs do not influence the motivation level.
7. By applying the Garret Ranking technique, it is found that Independence, Innovation and self-confidence are playing a major role in Villupuram district.

Suggestions

1. Starting women co-operative societies: Marketing product is one of the main problems for women entrepreneurs. Here, women co-operative societies can be started to procure the products from women entrepreneurs. They will help them in selling their products at a reasonable price.
2. Conducting training programmers: Most of the women entrepreneurs are of the opinion that because of lack of training, they are not able to survive in the market. Hence, the government should conduct frequent training programmers with regard to new production techniques, sales techniques, etc. This training should be made compulsory for women entrepreneurs.

3. Providing interest free loans: Finance is the first major problem for women entrepreneurs. Hence, the government can provide interest free loans to encourage women entrepreneurship.

4. Increasing the subsidy amount: To attract more entrepreneurs, the subsidy for loans should be increased.

5. Creating awareness program: Since the number of entrepreneurs from scheduled caste and scheduled tribe communities is very low, awareness is to be created among the scheduled caste and scheduled tribe women, by providing special incentives.

6. Encouraging large scale operation: Women entrepreneurs should be encouraged to start their enterprises as joint stock companies rather than as a sole trade and partnership concerns to avail the advantages of large scale operation.

7. Encouraging the parents: Parents of unmarried potential women entrepreneurs should be encouraged in spending money on setting up business rather than giving preference to their marriage.

8. Improper location and inadequate infrastructure facilities are the hurdles in the way of development of women entrepreneurship. Hence, separate industrial estates may be set up exclusively for women entrepreneurs to reduce the initial investment and to create a special environment.

**Conclusion**

Women involved in entrepreneurial activities have gained self-confidence in life and their status in the society has been considerably improved. However, their income from business is very low. Unless proper efforts are taken, it may results in the closure of their industries. Sincere efforts are urgently needed to improve their business which will fulfill the real objective of women entrepreneurship.

**References**

EDUCATION FOR SUSTAINABLE DEVELOPMENT THROUGH E-LEARNING IN HIGHER EDUCATION

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Assistant Professor, Department of MBA, Brindavan College

Abstract
Education for sustainability possess new challenges to higher education as it necessitates various shifts from teacher –to learner –centred pedagogies, from input-to-output-orientation and form a focus on content to problem solving and process orientation. E-learning is essentially the computer and network enabled transfer of skills and knowledge. The study views literature and gives a scholarly background to the study by reviewing some contributions made by various researches and institutions on the concept of e- learning, particularly its usage in teaching and learning in higher educational institutions for sustainable development of education sector. The aim of this research paper is to assess the education for sustainable development effectiveness through e-learning in higher education. The discussion in this paper focused on lessons learned from academics in developing e-learning environment and as reported teachers’ perspectives of the e-learning environment. The data collected for this study included both primary and secondary data.

Keywords: E-Learning, Sustainable Development, Higher Education.

Introduction
Today's Education is an important mechanism of sustainable development that we must focus on. Sustainable Development and Improvement in the education sector is depending on having an appropriate thinking. To achieve this suitable equipment and proper thinking is must. Proper educational environment should be available everywhere to everyone as per the changes in education and market necessity. E-Learning application creates opportunities to learners and provides decision –making chance for learners anytime and everywhere. Achieving Sustainable Development is the single most critical challenge necessary to ensure the wellbeing of our world and its people.

Definition
E-Learning refers to "the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration" (Holmes and Gardner, 2006). E-Learning can take place totally online in virtual environments or in a mix of virtual and face-to-face environments; a mode entitled ‘blended learning’. E-Learning has the potential to impact positively on education. It provides great opportunities for both educators and learners to enrich their educational experiences (Holmes and Gardner, 2006). Individuals who were disadvantaged for geographic, physical or social circumstances have increasingly better educational chances via e-learning. Furthermore, e-learning supports synchronous and asynchronous communications in various formats ranging from text, voice and audio. In addition, supported by the openness and flexibility of the Internet, e-learning provides the teaching and learning transactions with unfathomable amounts of information independent of the pressure of time and the constraints of distance (Holmes and Gardner, 2006).
Sustainability defined

Sustainability, a term often used interchangeably with the term sustainable development, has been commonly defined as “…development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Education for sustainable development (ESD)

Education is held to be central to sustainability (McKeowyn 2002). Indeed, education and sustainability are inextricably linked, but it has to be noted that education for sustainability is a specific concept which differs from education as we know it. All sustainable development programs including ESD must take into consideration the local environmental, economic, and societal conditions. As a result, ESD will take specific forms depending on the local, regional or national implementation concept (United Nations Department of Public Information, 1997)

E-learning course

An e-learning course is usually composed of:  
- A multimedia document, with animations, links, sounds, interactive progression, and so on, that the students have to follow by themselves, in self study.
- Tutoring or follow-up of the students by a team of teachers, to help them in their progression of the course or with some particular points. Tutoring may be carried out via a forum (which may be synchronous—all the students and the teacher have to connect at the same moment-or not), the use of emails, or classical meetings.

Technologies for e-learning

There are numerous technologies that teachers can use as a tool for e-learning or in combination with e-learning: Internet, Intranets, Extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM and many others and learning management systems (also called course management systems or courseware). Such systems are widely used in higher education (Jackson, 2007) and as an example, 95 % of all higher education institutions in the United Kingdom were using such systems in 2005 (Browne et al., 2006).

SWAYAM

Under the ‘Digital India’ Initiative of Government of India, one of the thrust area is ‘Massive Online Open Courses (MOOCs)’. Ministry of Human Resource Development, Government of India has embarked on a major initiative called ‘Study Webs of Active Learning for Young Aspiring Minds’ (SWAYAM), to provide an integrated platform and portal for online courses, covering all higher education, High School and skill sector courses. SWAYAM is an indigenous (Made in India) IT Platform for hosting the Massive Open Online Courses (MOOCs). To improve Gross Enrollment Ratio (GER), from 20% at present to 30% by 2020 SWAYAM promises to be a possible solution with a capacity to revolutionise the education system in India.

Objective

The Objective of this research paper is to assess the education for sustainable development effectiveness through e-learning in higher education.

The study also focuses on evaluating Teachers interest and perceptions on E-learning and also application of E-learning in future.
Literature Review

According to Maltz et al (2005), the term ‘e-learning’ is applied in different perspectives, including distributed learning, online-distance learning, as well as hybrid learning. E-learning, according to OECD (2005) is defined as the use of information and communication technologies in diverse processes of education to support and enhance learning in institutions of higher education, and includes the usage of information and communication technology as a complement to traditional classrooms, online learning or mixing the two modes. Also according to Wentling et al (2000) the term e-learning refers to the attainment and use of knowledge that are predominantly facilitated and distributed by electronic means. To them, the e-learning depends on computers and networks, but it is likely it will progress into systems comprising of a variety of channels such as wireless and satellite, and technologies such as cellular phones (Wentling et al., 2000). In their literature review on definitions for e-learning, Liu and Wang (2009) found that the features of e-learning process are chiefly centered on the internet; global sharing and learning resources; information broadcasts and knowledge flow by way of network courses, and lastly flexibility of learning as computer-generated environment for learning is created to overcome issues of distance and time (Liu and Wang, 2009). Gotschall (2000) argues that the concept of e-learning is proposed based on distance learning, thus a transmission of lectures to distant locations by way of video presentations. Liu and Wang (2009) however claims that the progression of communications technologies, particularly the internet, did transform distance learning into e-learning.

Other researchers also defined e-learning as a revolutionary approach (Jennex, 2005; Twigg, 2002) to enable a workforce with the knowledge and skills needed to turn change into benefit (Jennex, 2005). For instance Twigg (2002) described the e-learning approach as centered on the learner as well as its design as involving a system that is interactive, repetitious, self-paced, and customizable. Welsh et al. (2003) also referred to the term as the use of computer network technology, principally through the internet, to provide information and instruction to individuals.

According to Tao et al (2006), this new environment for learning that is centered on electronic networks has allowed learners in universities to receive individualized support and also to have learning schedules that is more suitable to them as well as separate from other learners. This facilitates a high interaction and collaboration level between instructors or teachers and peers than traditional environment for learning. E-learning in academics which is characterized by the use of multimedia constructs made the process of learning more active, interesting and enjoyable (Liaw et al, 2007). The main constructs that have made e-learning the most promising educational technology according to Hammer and Champy (2001) and Liaw et al (2007) include service, cost, quality, and speed. It is apparent that e-learning can empower students at higher educational levels to acquire their education in while at the same time perusing their personal objectives as well as maintaining their own careers, with no need to attend be subjected to rigid schedule (Borstorff and Lowe. 2007). Kartha (2006) in support of this thought reported that the number of courses online has vividly increased as a result of the attained benefits for both learners and universities. Algahtani (2011) in his evaluation of the effectiveness of the e-learning experience in Saudi Arabia categorized the definitions of e-learning from three different perspectives: the distance learning perspective (Perraton, 2002; Alarifi, 2003; Holmes and Gardner, 2006), the technological perspective (Wentling et al. 2000; Nichols, 2003) and also from the perspective of e-learning as pedagogy (Khan, 2005; Schank, 2000).
Research Methodology

A mixed method approach was followed to evaluate the objectives. Qualitative approach in terms of focus group method was used to collect responses from Teachers in higher education. Focus Group is a qualitative research method whose application is mainly useful in the social sciences. It has been used in areas such as management, marketing, decision and information systems, among others. Graphical representation of the data collected was done and inferences were arrived at. Focus Group Study: Two groups of 12 and 13 in number were interviewed regarding their opinions on E-learning approach. Background information regarding the different aspects of E-learning was shared with the focus groups. Their perceptions of the effectiveness of E-learning was evaluated.

### Analysis

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Questions asked</th>
<th>Focus Group Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Pedagogy</td>
<td>Is it a Student focused tool</td>
<td>20 – Yes&lt;br&gt;4 – No&lt;br&gt;Yes, E-Learning is a student focused tool since e-Learning allows self-pacing. For instance the asynchronous way permits each student to study at his or her own pace and speed whether slow or quick. It therefore increases satisfaction and decreases stress</td>
</tr>
<tr>
<td>Is E – Learning improves relationship</td>
<td></td>
<td>19 – Yes&lt;br&gt;5 – No&lt;br&gt;E-learning motivates students to interact with other, as well as exchange and respect different point of views. E-learning eases communication and also improves the relationships that sustain learning. It is also noted that e-Learning makes available extra prospects for interactivity between students and teachers during content delivery</td>
</tr>
<tr>
<td>Is E - Learning effective in numerical or accounts based problem</td>
<td></td>
<td>21 – No&lt;br&gt;3 - Yes&lt;br&gt;Teachers felt that numerical subjects require teacher learner interaction and also had an opinion that hand holding that teacher offers in a classroom setting would be missed.</td>
</tr>
</tbody>
</table>

---

Focus group response

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is it a Student focused tool</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is E – Learning improves relationship</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Is E-Learning effective in numerical or accounts based problem

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Questions asked</th>
<th>Focus Group Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Effectiveness</td>
<td>It is flexible when issues of time and place are taken into consideration.</td>
<td>22 – Yes 2 – No Every student has right of choosing the place and time that suits him/her. According to Smedley (2010), the adoption of e-learning provides the institutions as well as their students or learners the much flexibility of time and place of delivery or receipt of according to learning information.</td>
</tr>
<tr>
<td>Is it cost effective</td>
<td></td>
<td>15 – Yes 9 – No E-learning is cost effective in the sense that there is no need for the students or learners to travel. It is also cost effective in the sense that it offers opportunities for learning for maximum number of learners with no need for many buildings. E-learning helps compensate for scarcities of academic staff, including instructors or teachers as well as facilitators, lab technicians etc.</td>
</tr>
</tbody>
</table>

**FOCUS GROUP RESPONSE**

It is flexible when issues of time and place are taken into consideration.
Questions asked

Focus Group Response

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Questions asked</th>
<th>22 – Yes</th>
<th>2 – No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning ability, Increased access and flexibility</td>
<td>Is E-Learning increases as per the learning style of students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-Learning increases learning ability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-Learning increases computer capability of students</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E-learning always takes into consideration the individual learners differences. Some learners, for instance prefer to concentrate on certain parts of the course, while others are prepared to review the entire course. Students should be self-motivated and proactive with time management skills.

E-learning enhances the efficiency of knowledge and qualifications via ease of access to a huge amount of information.

Teachers felt that E-Learning increases computer capability of students with the help of the teacher.

Conclusion

Success of E-Learning depends on the students learning style. Students should be proactive and need to be self-motivated learners with time management skills. E-Learning could have potentially major impact on the way higher education is designed, implemented and delivered.
References


CONSUMERS’ BEHAVIOUR TOWARDS ONLINE SHOPPING OF
SMART PHONE IN ERODE CITY

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Abstract
Online shopping is a new experience and has greatly impacted the lines of consumers in its short time of existence. Online consumer behavior is always seeking new products, new attractiveness and the most important thing being price compatibility with their budget. The internet is the best way to save time and money through purchasing online within their range of budget at home or in anywhere. Online consumers don’t have limits to online shopping. They also use internet for comparison of prices of goods and services, news, visit social networks and search information and so on. The recession has so much impact on online consumer behavior. Online shopping behavior depends on variables, internet knowledge and experience and last factor is shopping incentives. These are key determinants to influence the behavior of online consumers. Online seekers are the main sources of online shoppers always want to seek information within few clicks and reach to the most relevant information according to their requirements such as competitive brands, best price offers and product specification. Online retailers need to ensure that the online shopping process in their websites is designed to be as easy, simple and convenient as possible for online consumers to shop online. Growing numbers of consumers shopping online to purchase smart phones. This paper deals with a research study of consumers’ behaviour towards online shopping of smart phone.

Keywords: search engine, review

Introduction
Online shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product’s availability and pricing at different e-retailers. Customers can shop online using a range of different computers and devices, including desktop computers, laptops, tablet computers and smart phones. Online customers must have access to the Internet and a valid method of payment in order to complete a transaction. Generally, higher levels of education and personal income correspond to more favorable perceptions of shopping online. Increased exposure to technology also increases the probability of developing favorable attitudes towards new shopping channels.

Objectives of the Study
The main objectives of the study are,
- To analyze the factor influencing the consumers to purchase Smart phone through online.
- To identify the factors determining the satisfaction and measure their level of satisfaction.
- To examine the problems faced by the consumer while purchasing Smart phone in online.
Research Design

I. Sources of data

The study is based on both primary and secondary data. The primary data has been collected through a well structured questionnaire. Required secondary data has been collected from various sources like Magazines, Books and Websites.

II. Sample size

The number of items selected from the population constitutes the sample size. 50 respondents are used for the study.

III. Sample design

For the purpose of research, convenient sampling technique is adopted in selecting the respondents in Erode city. The respondents are distributed with well structured questionnaire.

IV. Statistical tools

The following statistical tools are used in the study for the purpose of analysis.

- Weighted average ranking analysis and Chi-square test

Limitations of the Study

- The sample size was limited to 50 respondents.
- The study is restricted to erode city with due constrains of time and cost.
- The period of study is limited.

Analysis and Interpretation

The analysis of data collected from primary sources presented in the form of table and interpretation is given in description as required. Analysis refers to the course of finding out answers to the question that had arisen to the study. Interpretation finds out the relationship among the available data and the variables.

<table>
<thead>
<tr>
<th>Table 1 Profile of the respondents</th>
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<tbody>
<tr>
<td><strong>Factors</strong></td>
</tr>
<tr>
<td>Types of online website to purchase</td>
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<td></td>
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<td></td>
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<td></td>
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<td>Sources of information</td>
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<td></td>
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<tr>
<td>Period of doing online shopping</td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td>Frequency of purchase</td>
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<td></td>
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<tr>
<td>Type of payment mode</td>
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</tr>
</tbody>
</table>
The table 1 shows that out of 50 respondents taken for the study,

- Majority 34% of the respondents are purchasing smart phone through Amazon website.
- Majority 38% of the respondents know about smart phones in online shopping through Promotional E-mail.
- Majority 44% of the respondents are doing online shopping for a period of 2 – 3 years.
- Majority 46% of the respondents purchase smart phone only once over the internet.
- Majority 38% of the respondents’ payment mode is cash on delivery.
- Majority 56% of the respondents have not visited retail stores before making online purchase
- Majority 22% of the respondents have seen product details before buying smart phone through online.
- Majority 38% of the respondents discuss with friends and family about the purchased product.

Factors influencing the consumer to purchase smart phone through online

The main factors influencing the consumer to purchase smart phone in online shopping are classified into six groups viz., convenience and time saving, ease of finding products, ease comparison, offers/discounted prices, ease of product return and money refund and non-availability in retail stores and ranks are attributed to each factor. It is shown in table 2.

Table 2 Ranking the factors influencing the consumer to purchase smart phone through online

<table>
<thead>
<tr>
<th>Factors</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Total</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience and Time saving</td>
<td>54</td>
<td>25</td>
<td>64</td>
<td>21</td>
<td>8</td>
<td>9</td>
<td>181</td>
<td>III</td>
</tr>
<tr>
<td>Ease of finding products</td>
<td>66</td>
<td>30</td>
<td>40</td>
<td>18</td>
<td>22</td>
<td>6</td>
<td>182</td>
<td>II</td>
</tr>
<tr>
<td>Ease comparison</td>
<td>42</td>
<td>60</td>
<td>20</td>
<td>24</td>
<td>20</td>
<td>8</td>
<td>174</td>
<td>IV</td>
</tr>
<tr>
<td>Offers/Discounted prices</td>
<td>48</td>
<td>55</td>
<td>8</td>
<td>33</td>
<td>14</td>
<td>6</td>
<td>184</td>
<td>I</td>
</tr>
<tr>
<td>Ease of product return and money refund</td>
<td>48</td>
<td>45</td>
<td>20</td>
<td>18</td>
<td>14</td>
<td>15</td>
<td>160</td>
<td>VI</td>
</tr>
<tr>
<td>Non-availability in retail stores</td>
<td>42</td>
<td>35</td>
<td>28</td>
<td>36</td>
<td>22</td>
<td>6</td>
<td>169</td>
<td>V</td>
</tr>
</tbody>
</table>

From the above table 2, it is clear that offers/discounted prices are the main factor influencing the consumer to purchase smart phone through online.

Level of satisfaction of consumer in purchasing smart phone in online

Majority of the respondents (27%) have medium level of satisfaction in time saving, quality of the product, timely deliver, more varieties & brand items, mode of payment, price and track the order. Table
3 shows the association between various explanatory variables and level of satisfaction while purchasing smart phone, analyzed with Chi-square test at 5% level of significance.

Table 3 Association between demographic factors and level of satisfaction

<table>
<thead>
<tr>
<th>Factors</th>
<th>Degrees of freedom</th>
<th>Calculated value</th>
<th>Table value at 5% level</th>
<th>Ho: Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>2</td>
<td>2.901</td>
<td>5.991</td>
<td>Accepted</td>
</tr>
<tr>
<td>Age</td>
<td>4</td>
<td>5.605</td>
<td>9.488</td>
<td>Accepted</td>
</tr>
<tr>
<td>Educational qualification</td>
<td>4</td>
<td>1.589</td>
<td>9.488</td>
<td>Accepted</td>
</tr>
<tr>
<td>Occupation</td>
<td>6</td>
<td>5.389</td>
<td>12.592</td>
<td>Accepted</td>
</tr>
<tr>
<td>Family monthly income</td>
<td>4</td>
<td>1.297</td>
<td>9.488</td>
<td>Accepted</td>
</tr>
<tr>
<td>Marital status</td>
<td>2</td>
<td>5.266</td>
<td>5.991</td>
<td>Accepted</td>
</tr>
<tr>
<td>Nature of the family</td>
<td>2</td>
<td>3.842</td>
<td>5.991</td>
<td>Accepted</td>
</tr>
<tr>
<td>Size of the family</td>
<td>4</td>
<td>1.170</td>
<td>9.488</td>
<td>Accepted</td>
</tr>
<tr>
<td>Area of residence</td>
<td>4</td>
<td>1.021</td>
<td>9.488</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Source: Survey Data

It is found from table 3 that the null hypothesis relating to gender, age, educational qualification, occupation, family monthly income, marital status, nature of family, size of the family and area of residence are accepted. Hence, it can be concluded that there is no significant association between demographic factors and level of satisfaction of the respondents towards purchasing smart phone in online.

Problems faced by consumer in online shopping

In order to know the problems faced in online shopping, the sample respondents are asked to rank the problems such as, fear of choosing poor product/services, fear of misuse of credit card, fear of on-time delivery after payment, low trust level of online stores and no possibility for touch, feel or see. They are asked to assign the rank 1 to most influencing problem, rank 2 to the next influencing problem and so on up to rank 5 to the least influencing problem based on the significant of each problem. The ranks 1,2,3,4,5 are assigned the weight as 5,4,3,2 and 1 respectively. The problems while facing online shopping is then analyzed by applying weighted average ranking score technique and it is shown in table 4.

Table 4 Ranking the problems faced by consumer in online shopping

<table>
<thead>
<tr>
<th>Weighted score point(W)</th>
<th>Rank Problems</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Total Score (ΣWX)</th>
<th>Weighted Average Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of choosing poor product/services</td>
<td>X 10 WX 50</td>
<td>12</td>
<td>7</td>
<td>9</td>
<td>12</td>
<td>149</td>
<td>9.93</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>Fear of misuse of credit card</td>
<td>X 12 WX 60</td>
<td>9</td>
<td>21</td>
<td>18</td>
<td>12</td>
<td>155</td>
<td>10.33</td>
<td>I</td>
<td></td>
</tr>
<tr>
<td>Fear of on time delivery after payment</td>
<td>X 15 WX 75</td>
<td>8</td>
<td>3</td>
<td>14</td>
<td>10</td>
<td>154</td>
<td>10.27</td>
<td>II</td>
<td></td>
</tr>
<tr>
<td>Low trust level of online stores</td>
<td>X 8 WX 40</td>
<td>8</td>
<td>17</td>
<td>13</td>
<td>4</td>
<td>153</td>
<td>10.2</td>
<td>III</td>
<td></td>
</tr>
<tr>
<td>No possibility for touch, feel or see</td>
<td>X 5 WX 25</td>
<td>13</td>
<td>11</td>
<td>9</td>
<td>12</td>
<td>140</td>
<td>9.33</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

Source: Survey Data
The above table 4 reveals that out of the various problems the fear of misuse of credit card is given first rank with weighted average score of 10.33 and second rank is given to fear of on time delivery after payment with weighted average score of 10.27, it is followed by low trust level of online stores whose weighted average score of 10.2 and secured third rank. The fear of choosing poor product/services is given fourth rank with weighted average score of 9.93, and the fifth rank is given to No possibility for touch, feel or see with weighted average score of 9.33 respectively. Hence, fear of misuse of credit card is the main problem faced by consumer in online shopping.

Suggestions

- Offers/Discounted prices are the main factors influence the consumer to purchase the smart phone in online. So the companies should pay more attention in offers/discounted prices to attract more number of peoples in future also.
- The online stores may take steps to increase online and media advertisements to attract more customers and to increase sales.
- Fear of misuse of credit card information is the main problem faced by consumer in online shopping. So the companies should implement more security measure to solve these problems and shall create consumer confidence on online shopping.
- Fear of on time delivery after payment is a problem faced by the respondents in online shopping. Hence, the company should give responsiveness to consumers of the time deliveries after payment to attract the consumers repurchase intention.

Conclusion

The online shopping is getting popular among the young generation as they feel it more comfortable, time saving and convenient. The main factors influencing to purchase are best price, ease to find new product and convenience & time saving. The best price factor is popular among the consumers because generally in online markets prices are lower as against the physical markets. People compare prices in online stores and then review all feedbacks and rating about product before making the final selection of product and decision.

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VIRTUAL ORGANIZATION

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Abstract
The emergence of virtual organization is related with a fundamental change in organizing and managing daily operations. The role of supporting technologies to underpin the virtual. Entirely, the primary benefit of a virtual organization is that it can highly qualified people without location restrictions. The organization would want to consider being virtual rather than traditional are tenability to Leverage skills throughout the organization, Provide customers with the “best and brightest”, Balance work/home relationship, Save organization overhead costs Virtual teams and virtual organizations obviously face many of the same opportunities and challenges. However, a virtual organization is at greater risk of failure, with more at risk as well. Multiple teams working on multiple projects, and requires even more work at making all teams (including administration, marketing, sales, as well as the numerous project teams) feel more connected. The success of collaborative work relies not merely on the introduction of different technologies, but also on critically analyzing the “human” aspects of organization. Virtual teams bring people together across disciplines, departments, functions, and geographical locations. The virtual teams or e-businesses need to address before moving forward. It includes: information sharing, organizational culture and team working, acceptance of change and training. It explores potential solutions in order to support virtual organizations and e-businesses in dealing with continuous change.

Keywords: Virtual teams and virtual organizations, e-businesses, organizational culture, team work.

Introduction
Virtual organization is used to describe a network of independent firms that join collectively, to produce a service or product. It is often associated with such terms as virtual office, virtual teams, and virtual leadership. The ultimate goal of the virtual organization is to provide innovative, high-quality products or services instantaneously in response to customer demands. When a computer appears to have more storage capacity than it really possesses it is referred to as virtual memory. When an organization assembles resources from a variety of firms, a virtual organization seems to have more capabilities than it actually possesses.

Review of Literature
Wheatley (1994: 50-57) believes that Field Theory offers insights into successful organizations, where organizational space is defined in terms of fields, "with employees as waves of energy, spreading out in the organization, growing in potential". The concepts such as values, vision and ethics can be defined as fields which reach all corners of the organization and can provide a more subtle and effective form of order and control than traditional authority structures: so long as the "space” in an organization is filled with clear and coherent information that employees encounter on a daily basis.
Challenges

Virtual organizations can be very difficult and problematic; often as they succeed. Among the many challenges of the virtual organization are strategic planning dilemma, boundary blurring, a loss of control, and a need for new management skills.

Strategic planning pose new challenges as virtual firms determine effective combinations of core competencies. Common vision among partners is quintessential to cooperating firms. Focused on a common goal, firms develop close interdependencies that may make it difficult to determine where one company ends and another begins. The boundary-blurring demands that these boundaries be managed effectively. Coordinating mechanisms are critical elements for supporting these free collections of firms.

Virtual structure create a loss of control over some operations. This loss of control requires communication, coordination, and trust among the various partners, as well as a new set of managerial skills. Employees are exposed to increased ambiguity about organizational membership, job roles and responsibilities, career paths, and superior-subordinate relationships. This ambiguity requires management to rethink rewards, benefits, employee development, staffing and other employee-related issues. Developing leaders who are able to create and sustain these organizational forms is critical.

Advantage of Virtual Organisation

- It save time, travel expenses and eliminate lack of access to experts.
- It can be organized whether or not members are in realistic proximity to each other.
- Dynamic team association allows people to move from one project to another.
- Employee can be assign to several, concurrent teams.
- Teams’ communication and work reports are available online to facilitate quick responses to the demands of the (global) market.
- Employees can accommodate both personal and professional lives.
- Virtual teams allow firms to expand their potential labor markets enabling them to hire and retain the best people regardless of their physical locations.

Disadvantages

1. The lack of physical interactions with its associated verbal and non-verbal cues and also the synergies that often accompany face-to-face interaction
2. Non-availability of preverbal and non-verbal cues such as voice, eye movement, facial expression, and body language which help in better communication.
3. Facility to work even if the virtual teams are miles part and the member have never or rarely met each other face-to-face.

Features of Virtual Organization

The absence of information and knowledge render virtual teams to emasculate and ineffective. Information technology, i.e., seamless web electronic communication media does not allow happening this and keeps the organization going. According to Pattanayak, following are the salient features of virtual organizations:

Technology

New technology has altered the traditional ways of working. The worlds of computing and telephony are coming together to open up a whole new range of responsibilities. Computer Telephony
Integrations (CTI) will guide in a new revolution to the desktop. The CTI has traditionally been used in all call centre applications.

**E-mail Integration**

Integrating Short Message Service (SMS) into the existing e-mail infrastructure allows the whole organization to take advantages of SMS products such as 'communicate Way'.

**Office System Integration**

SMS technology can greatly improve the existing or new office systems, e.g., phone messages can be sent via SMS rather than returning it in a message book.

**Voice Mail Alert**

SMS technology added to the existing voice mail system builds an effective method of receiving voice mail alerts.

**Mobile Data**

To retrieve information anywhere through the mobile phone network. Mobile data communications revolutionize where and how work is done. In the past, corporate information has been inaccessible from many places where it is needed. One's capability to link laptop to mobile phone keeps one connected to his/her virtual organization from anywhere.

**Types of Virtual Organisations**

- Telecommuters
- Outsourcing employees/competencies
- Completely virtual

**Telecommuters**

These companies have employees who work from their homes. They interact with the workplace via personal computers connected with a modem to the phone lines. Examples of companies using some form of telecommuting are Dow Chemicals, Xerox, Coherent Technologies Inc., etc.

**Outsourcing Employees/Competencies**

These companies are characterized by the outsourcing of all/most core competencies. Areas for outsourcing include marketing and sales, human resources, finance, research and development, engineering, manufacturing, information system, etc. In such case, virtual organization does its own on one or two core areas of competence but with excellence. For example, Nike performs in product design and marketing very well and relies on outsources for information technology as a means for maintaining inter-organizational coordination.

**Completely Virtual**

These companies metaphorically described as companies without walls that are tightly linked to a large network of suppliers, distributors, retailers and customers as well as to strategic and joint venture partners. Atlanta Committee for the Olympic Games (ACOG) in 1996 and the development efforts of the PC by the IBM are the examples of completely virtual organisations.
Conclusion

Virtual organization is often associated with such terms as virtual office, virtual teams, and virtual leadership. The ultimate goal of the virtual organization is to provide innovative, high-quality products or services instantaneously in response to customer demands. The implications of this have to be dealt with urgently in the new millennium, as the adoption of ever newer technologies and the emerging trends discussed earlier will continue to manifest at an exponential rate. What is also clear is that the traditional management framework is increasingly proving itself incapable of satisfactorily dealing with the new market reality: Conventional theories and practices no longer provide the necessary guidance and support for decision-making in a world of change, complexity and uncertainty. It is driving towards a new management will be redefined to take emerging realities into consideration.

References
DATA COMMUNICATION THROUGH LI-FI

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Abstract

Today’s communication is done through wireless network. The most important issue in the communication is the speed of Internet. From the business man to simple man all use the internet for various reasons. As the technology increases the speed of using the internet is also to be expecting to increase, from the technology of Wi-Fi to Li-Fi. The Wireless Fidelity is the communication, where the communication is done without wires. The speed of Wi-Fi is 150 Mbps as per standard IEEE 802.11n. Because of its inadequateness the search of new technology is carried out. The new technology is Li-Fi. Meaning of Fidelity is faithfulness to person, the new technology is fidelity to people by its advantages. This paper show the Li-Fi’s origin to survival.

Introduction

Now a day’s the technology used for communication is Wi-Fi. It is used in places like home, educational institution, hotels, hospitals, airports etc. It uses radio frequency for transmission. Because of the increase in the number of users the radio frequency is blocked. Apart from this, Wi-Fi radiations are harmful to human health, there are some limits to transfer the data and the implementation is very expensive. To overcome these disadvantages the new technology of Li-Fi comes to existence. It starts its work in 2011. It is also Wireless communication system in which light is used as the carrier signal instead of radio frequency. It uses Light emitting diodes to transmit data wirelessly .It uses the visible light communication in the spectrum. The light rays are visible to the human eye. The paper focus on Li-Fi over Wi-Fi.

Working of wi-Fi

Wi-Fi is a high speed internet connection and network connection without use of any cables or wires. The wireless network is operating three essential elements that are radio signals, antenna and router. The radio waves are keys which make the Wi-Fi networking possible. The computers and cell phones are ready with Wi-Fi cards. Wi-Fi compatibility has been using a new creation to constituent within the ground connected with community network. The actual broadcast is connected with in sequence in fact it is completed by way of stereo system surf as well as the worth of wires with monitor to classification prone. Wi-Fi allows the person in order to get access to web any place in the actual provided area. You can now generate a system within Resorts, library, schools, colleges, campus, personal institutes, as well as espresso stores as well as on the open public spot to help to make your company much more lucrative as well as interact with their own customer whenever. Wi-Fi compatibility can make surf with stare to company using their inspiring cable television much a smaller amount force down.

The radio signals are transmitted from antennas and routers that signals are picked up by Wi-Fi receivers, such has computers and cell phones that are ready with Wi-Fi cards. Whenever the computer
receives the signals within the range of 100-150 feet for router it connect the device immediately. The range of the Wi-Fi is depends upon the environment, indoor or outdoor ranges. The Wi-Fi cards will read the signals and create an internet connection between user and network. The speed of the device using Wi-Fi connection increases as the computer gets closer to the main source and speed is decreases computer gets further away.

Fig 1: working of Wi-Fi

Working of Li-Fi

The working of Li-Fi is very simple. There is a light emitter on one end i.e. an LED transmitter, and a photo detector on the other. The data input to the LED transmitter is encoded in to the light by varying the flickering rate at which the LEDs flicker ‘on’ and ‘off’ to generate different strings of 1s and 0s. The on off activity of the LED transmitter which seems to be invisible enables data transmission in light form in accordance with the incoming binary codes: switching ON a LED is a logical '1', switching it OFF is a logical '0'. By varying the rate at which the LEDs flicker on and off, information can be encoded in the light to different combinations of 1s and 0s. In a typical setup, the transmitter is connected to the data network and the receiver on the receiving end receives the data as light signal and decodes the information, which is then displayed on the device connected to the receiver. The receiver registers a binary ‘1’ when the transmitter is ON and a binary ‘0’ when the transmitter is OFF. Thus flashing the LED numerous times or using an array of LEDs will eventually provide data rates in the range of hundreds of Mbps. The Li-Fi working is explained in a block diagram (Fig.6).

Fig 2. Li-Fi workings
(Source: http://www.warse.org/pdfs/2014/icetetssp25.pdf)

Operational Procedure

The operational procedure is very simple, if the LED is ON, you transmit a digital 1, if it is OFF you transmit a 0. The LEDs can be switched on and off very quickly. Li-Fi is a wireless optical networking technology that uses light emitting diodes (LEDs) for data transmission.

Applications

Security

In contrast to radio frequency waves used by Wi-Fi, lights cannot penetrate through walls and doors. This makes it more secure and makes it easier to control who can connect to a network. As long as transparent materials like windows are covered, access to a Li-Fi channel is limited to devices inside the room.
Underwater application
Most remotely operated underwater vehicles (ROVs) use cables to transmit command, but the length of cables then limits the area ROVs can detect. However, as a light wave could travel through water, Li-Fi could be implemented on vehicles to receive and send back signals.

While it is theoretically possible for Li-Fi to be used in underwater applications, its utility is limited by the distance light can penetrate water. Significant amounts of light do not penetrate further than 200 meters. Past 1000 meters, no light penetrates.

Hospital
Many treatments now involve multiple individuals, Li-Fi system could be a better system to transmit communication about the information of patients. Besides providing a higher speed, light waves also have little effect on medical instruments and human bodies.

Vehicles
Vehicles could communicate with one another via front and back lights to increase road safety. Also street lights and traffic signals could also provide information about current road situations.[50]

Industrial Automation
Anywhere in industrial areas data has to be transmitted, Li-Fi is capable to replace slip rings, sliding contacts and short cables, such as Industrial Ethernet. Due to real time capability of Li-Fi, which is often required for automation processes, it is also an alternative to common industrial Wireless LAN standards.

Education
In educational institutions Internet Access Service is done with Wi-Fi. Now the replacement of Wi-Fi with Li-Fi is done for the speed of Internet. Lower Power Consumption LEDs on the other hand use very little power (much less than a fluorescent bulb), meaning Li-Fi also uses very little power. At the same time Li-Fi can also light a room, meaning it can do two jobs for the price of one.

Reduction in accident numbers: At traffic signals, we can use LIFI in order to communicate with LED lights of the cars by the number of accidents can be reduced. Data can be easily transferred by making use of LIFI lamps with the street lamps.

Airlines: Airline Wi-Fi Nothing says captive audience like having to pay for the "service" of dial-up speed Wi-Fi on the plane. The best I have heard so far is that passengers will be offered a "high-speed like" connection on some airlines. United is planning on speeds as high as 9.8 Mbps per plane. Li-Fi could easily introduce that sort of speed to each seat’s reading light.

Conclusion
From the above we came to understand that in future, data from all devices can be transmitted through light in the house ie the LED bulbs. Researchers are working in this area to make small efficient device for the transmission where the flickering is 1000 times quicker than the LED bulbs. Let us welcome the new technology for the future and use the technology to full of its efficient usage.

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TECHNIQUES AND ADVANCES IN JAGGERY PROCESSING: A REVIEW

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Abstract
Jaggery is a natural sweetener made by concentrating the sugarcane juice with clarification to remove impurities and uniform heating in open pan. It is a sensitive product, getting affected by number of factors right from cultivation practices of sugarcane to processing and storage. The jaggery industry is still at cottage level because of some technological drawbacks in its export quality processing and storage. The per cent utilization of sugarcane for production of jaggery and khandisari is considerably declining from 37.20 in the year 2008-09 to about 16.90 in 2011-12. This implies the need of research in jaggery sector to produce a quality jaggery and thus to change the scenario. However, some research workers and institutes like IISR, Lucknow, RSJRS, Kolhapur, RARS, Anakapalle, reported some technological developments in the processing, storage and packaging of jaggery. A value added jaggery, with enrichment of nutritional ingredients such as aonla, milk powder, wheat flour, whey etc., has a great export potential in turn fetching good market prices. The organic jaggery is becoming popular in the market because of its health benefits and good quality attributes, thus herbal clarificants play a key role in jaggery production.

Keywords: Jaggery, clarification, storage, packaging, value addition

Introduction
Sugarcane contributes about 90 per cent of the world’s sweeteners production. The 70 per cent of the world's sugarcane produced is being used for jaggery manufacturing. Jaggery is a natural sweetener made by heat concentration of sugarcane and subsequent crystallization in moulds. India produces more than 70 per cent of the total jaggery of the world [13]. About 32 per cent demand of the total sweetener consumption in the country is met out with jaggery and khandsari, mostly in rural areas. The per cent utilization of sugarcane for production of jaggery and khandisari is considerably declining from 37.20 in the year 2008-09 to about 16.90 in 2011-12 [1]. Uttar Pradesh has the largest area (120.54 million hectares) under sugarcane, which is 35.02 per cent of the total area in the country. However, the production per hectare is the highest in Tamil Nadu followed by Kerala, Karnataka, Andhra Pradesh, Maharashtra and Gujarat [1]. Average sugarcane production of Maharashtra in 2011-12 is 8.982 million tonnes [25]. About 90 per cent of the India's total production comes from Andhra Pradesh, Bihar, Haryana, Karnataka, Punjab, Maharashtra, Tamil Nadu and Uttar Pradesh.

Composition of Jaggery
The proximate composition of sugar, sulphur processed khandisari, non sulphur processed khandsari and jaggery as given by [21] is presented in Table 1. Rao et al. [13] reported that the jaggery is a wholesome diet, that contains 0.6 - 1.0 per cent mineral and some of the important minerals are 11.4 per cent iron, 8.0 per cent calcium and 4.0 per cent magnesium and phosphorous. It also contains reducing sugar including 10-15 per cent glucose and fructose 0.40 per cent protein and 0.1 per cent fat. Jaggery, a product of sugarcane, is such a product which is rich in important minerals (viz., calcium-40-
mg, magnesium-70-90 mg, potassium-1056 mg, phosphorus-20-90 mg, sodium-19-30 mg, iron-10-13 mg, manganese-0.2-0.5 mg, zinc-0.2-0.4 mg, copper-0.1-0.9 mg, and chloride-5.3 mg per 100 g of jaggery), vitamins (viz., vitamin A-3.8 mg, vitamin B1-0.01 mg, vitamin B2-0.06 mg, vitamin B5-0.01 mg, vitamin B6-0.01 mg, vitamin C-7.00 mg, vitamin D2-6.50 mg, vitamin E-111.30 mg, vitamin PP-7.00 mg), and protein-280 mg per 100 g of jaggery, which can be made available to the masses to mitigate the problems of malnutrition and undernutrition [20].

Table 1 Proximate composition of sugar, khandsari (sulphur processed, non sulphur processed) and jaggery (per 100 g og product)

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Centrifugal sugar</th>
<th>Sulphur processed</th>
<th>Non-sulphur processed</th>
<th>Jaggery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose, g</td>
<td>99.5</td>
<td>97.5</td>
<td>96.0</td>
<td>60-85</td>
</tr>
<tr>
<td>Reducing sugars, g</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>5-15</td>
</tr>
<tr>
<td>Protein, g</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.40</td>
</tr>
<tr>
<td>Fat, g</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.1</td>
</tr>
<tr>
<td>Calcium, mg</td>
<td>--</td>
<td>100</td>
<td>100</td>
<td>8.0</td>
</tr>
<tr>
<td>Iron, mg</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>11.4</td>
</tr>
<tr>
<td>Phosphorus, mg</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4.0</td>
</tr>
<tr>
<td>Total minerals, g</td>
<td>0.05</td>
<td>0.05</td>
<td>0.2</td>
<td>0.6-1.0</td>
</tr>
<tr>
<td>Moisture, g</td>
<td>0.2-0.5</td>
<td>0.3</td>
<td>0.5</td>
<td>3-10</td>
</tr>
<tr>
<td>Energy, kcal</td>
<td>398</td>
<td>395</td>
<td>388</td>
<td>383</td>
</tr>
</tbody>
</table>

According to prevention of food adulterates rules (PFA, 1955) of the Government of India, section A. 07.05. Gur/jaggery mean the product obtained by boiling or processing juice crushed out of sugarcane. It shall be free from substances deleterious to health and can confirm to the following standard analysis on dry weight basis.
1. Total sugars not less than 90% and sucrose not less than 60%,
2. Extraneous matter insoluble in water 2.0%.
3. Total ash not more than 6% and ash insoluble in HCl not more than 0.5%.
4. Gur or jaggery other than that of liquid or semisolid variety shall not contain more than 10% moisture.

Medicinal Importance
Rao et al. [13] reported that the dietary intake of jaggery prevents the atmospheric pollution related toxicity and the incidence of lung cancer. Jaggery, a product of sugarcane, is such a product which is rich in important minerals and vitamins. The magnesium strengthens the nervous system, helps to relax our muscles, gives relief from fatigue and takes care of our blood vessels. The potassium and low amount of sodium present in jaggery maintain the acid balance in the body cells, and also combat acids and acetone, and control our blood pressure. Iron helps to prevent anaemia. It also helps to relieve tension and takes care of asthma, as it has anti-allergic properties. The preventive ability of jaggery on smoker's smoke-induced lung lesions suggest the potential of jaggery as a protective food for workers in dusty and smoky atmosphere, even for those who are engaged in woollen industries, the wool dust clogged in the food pipe could be cleared with jaggery. Thus, jaggery helps to breathe easier and counters the pollution problems naturally. The moderate amount of calcium, phosphorous and zinc helps to maintain
optimum health. It also purifies the blood, prevents rheumatic afflictions and bile disorders and thus helps to cure jaundice [20].

**Processing of Jaggery**

The processing techniques of the jaggery are mostly traditional. However, the condition is being changing with some advancement in processing such as new and uniform methods of heating to produce quality jaggery, automatic jaggery manufacturing plant, trend to produce chemical free called as organic jaggery and attempts to produce jaggery [12]. The general traditional unit operations of jaggery making reported by [13, 14, 17] are depicted in Fig. 1.

**Factors Determining Jaggery Quality**

Quality of jaggery is very sensitive to various parameters such as sugarcane variety, cultivation practices, fertilizers used, stage of harvest, method of juice extraction etc. The composition of extracted juice in terms of its pH, purity, TSS affects the quality of jaggery. Juice extracted from the canes turns dark brown and marked sedimentation appears during storage.

Chauhan et al. [3] in his studies reported the range of physiochemical properties of sugarcane juice. Sugarcane juices contained very small quantities of protein (0.39-0.60 %) and fat (0.14-0.19 %). However, it contained very high moisture (80.00-81.70 %), crude fiber (13.24 -16.62 %) and ash (0.2870.48%). Sugarcane juice also contained 18.0-19.5 % total soluble solids which include mainly total sugars (17.6-19.0 %). The sugar was mostly non reducing sucrose and small amount of reducing sugars (0.20-0.65 %) were also present. Sugarcane juice also contained appreciably high content of calcium, phosphorus and iron. Juice was acidic in nature (pH 5.28-5.54 and acidity 0.24-0.39%). The viscosity values of juices obtained from different varieties ranged between 3.64-3.90 Centipoise at 30°C. The studies of Mungare et al. [9] reveals that the sugarcane varieties viz., Co 8041, Co 86032, Co 7527 gave the highest sucrose, purity in juice and good quality jaggery. The Regional Sugarcane and Jaggery Research Station, Kolhapur recommended that the jaggery manufactured from variety Co 92005 fulfils all the quality requirements of the jaggery.
The method of sugarcane juice extraction determines the purity of the juice. The juice purity is amount of sucrose present in total soluble solids. A higher purity level gives better quality jaggery. The juice extracted in sugar industry has higher purity level than the crushers used for jaggery juice extraction. Usually 2 -5 roller crusher is used for extraction of the juice which may be power operated or animal driven. The type of roller may be vertical or horizontal. A vertical three roller has the juice extraction capacity 50- 55 %, whereas, same for horizontal crusher has 55-60 % [14]. The horizontal roller crusher is mostly used.

One of the important steps in jaggery making is juice clarification to remove the chemical impurities. However, the insoluble impurities are removed by physical means such as settling or filtering through muslin cloth of wore mesh. The production of attractive colour jaggery in turn depends on the extent of clarity of sugarcane juice. The fresh cane juice contains appreciable quality of colloidal impurities and these are to be removed for manufacturing the quality jaggery. Different chemical and herbal clarificants are used for the purpose. The chemical clarificants such as hydros (sodium hydrosulphite), lime, sodium carbonate, super phosphate, di-ammonium phosphate and alum are used owing to their easy availability.

However, the trend is now changing to use the herbal clarificants replacing the chemical clarificants especially, hydrous considering its health hazards. Several plant extracts like deola (Hibiscus ficilenues), bark of semal (Bombax malabarium), extracts of groundnut (Arachis hypogea) and caster (Ricinus communis), guar gum powder and bhendi powder are commonly used depending on their availability. Quality of jaggery prepared with guar gum powder was superior, possessed improved overall acceptability and preserved better for 6 months on storage at 27°C compared to those prepared with deola and hydrous ([18]. The synthetic clarificant like bhendi powder or SNi @ 2 ppm with herbal clarificant bhendi plant @ 2 kg/1000 lit. were found effective in improving NRS, colour, jaggery recovery and maximum removal of scum, showing better effect on quality of jaggery and also helped in maintaining higher NRS and better colour jaggery during storage than the control treatment[11]. These herbal clarificants play an important role in the production of organic jaggery. Jain [4] used the moder techniques of membrane separation and centrifugal separation of removing the impurities of the cane juice thus, tried to avoid the use of chemicals. The pH of the juice determines the crystalline texture of the jaggery. The quality crystalline jaggery can be produced by adjusting the pH above 6.0. The natural sugarcane juice has a pH of 5.5. It can be adjusted by using the lime for the purpose. The low levels of pH cause inversion by hydrolyzing the sugar and thus affecting the jaggery quality [7, 16].
Forms of Jaggery

Jaggery is basically available in three forms *viz.*, solid (lumped), liquid and granular jaggery. Of this 80 per cent is in solid lump form while remaining 20 per cent constitute liquid and granular jaggery [13]. The composition of these forms (Table 2) is reported by [14].

<table>
<thead>
<tr>
<th>Table 2: Composition of different forms of jaggery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Composition per 100g</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Water (g)</td>
</tr>
<tr>
<td>Sucrose (g)</td>
</tr>
<tr>
<td>Reducing sugars (g)</td>
</tr>
<tr>
<td>Protein (g)</td>
</tr>
<tr>
<td>Fat (g)</td>
</tr>
<tr>
<td>Total minerals</td>
</tr>
<tr>
<td>Calcium (mg)</td>
</tr>
<tr>
<td>Phosphorous (mg)</td>
</tr>
<tr>
<td>Iron (mg)</td>
</tr>
<tr>
<td>Energy (Kcal)</td>
</tr>
</tbody>
</table>

Plate 1: Jaggery cubes and granules

Manufacturing of solid and liquid jaggery is a conventional practice. The various unit operations such as storage, handling, packaging and distribution are difficult with traditional large sized lumps of jaggery. Hence, emphasis is being given to standardized technology for granular, free flowing jaggery. The Indian Institute of Sugarcane Research (IISR), Lucknow and Regional Agricultural Research Station (RARS), Anakapalle has tried to develop a technology for granular jaggery (Plate 1).

**Solid jaggery in uniform shape and size**

The diversity in shape of single commodity does not attract any one of the development of equipment/gadgets for the product handling, therefore for the uniformity of shape and size jaggery moulding frames were developed at IISR, Lucknow to manufacture brick shaped jaggery weighing 125 g, 250 g and 500 g and 2.5 cm cube weighing about 20 g. The juice extracted through mechanical crushers is boiled, clarified and concentrated. The concentrated semi-solid mass after puddling in cooling pan is poured into these frames and levelled up with ladle. After about 40-45 minutes when jaggery is set, brick and cubes are removed by dismantling the frame, (Technologies developed by IISR, [24]).
Liquid Jaggery

It is an intermediate product obtained during concentration of purified sugarcane juice during jaggery making, and is semi liquid syrup like product. The quality of liquid jaggery largely depends upon quality and composition of cane juice, type of clarificants used, and striking temperature at which concentrating juice is collected. For quality liquid jaggery, the juice concentrate is removed from boiling pan, when it reaches striking point temperature of 103-106°C, depending upon the variety and agro-climatic zone. To avoid crystallization and to make liquid jaggery attractive in colour, citric acid is added @ 0.04% (400 mg/kg of liquid jaggery), whereas, to improve shelf life of liquid jaggery without deterioration in quality, potassium metabisulphite @ 0.1% (1g/ kg of liquid jaggery), or Benzoic acid @ 0.5% (5 g/kg of liquid jaggery), is added. Liquid jaggery is then allowed to settle for period of 8-10 days at ambient conditions. Later after filtration, it is properly packaged in sterilized bottles. Chemical composition of typical liquid jaggery could be: water 30-36%, sucrose 40-60%, invert sugar 15-25%, calcium 0.30%, iron 8.5-10 mg/100 mg, phosphorus 05/100 mg, protein 0.10/100 mg, and vitamin B 14/100 mg [20].

Granular Jaggery

Free flowing nature of granular jaggery with low moisture content (up to 1-2 % d.b.), offers advantages in terms of its increased storage life up to two years [13]. Attempts have been reported by some research workers to develop a technology for jaggery granules. The IISR, Lucknow and RARS, Anakapalle invented a technique of scraping the concentrated syrup to convert the mass into granules. A wooden scraper is used for the purpose. Increasing pH of cane juice with lime, up to 6.0-6.2 and striking point temperature of 120°C was found to yield quality granular jaggery with high sucrose content of 88.6 per cent, low moisture of 1.65 per cent with good colour, friability and crystalline texture [10]. The concentrating slurry was rubbed with wooden scraper, for formation of grains. The granular jaggery is then cooled and sieved. Less than 3 mm sized crystals were found to be better for quality granular jaggery. Jaggery in the form of granules (sieved to about 3 mm), sun dried and moisture content reduced to less than 2 per cent and packed in polyethylene polyester bags or polyethylene bottles, can be stored for longer time (more than two years), even during monsoon period with little changes in quality [14, 20].

Storage and Packaging

Major problem associated with jaggery storage is the presence of inverts sugars and mineral salts which, being hygroscopic in nature absorb moisture particularly in monsoon season when ambient humidity is high, leading to spoilage. It has been estimated that more than 10 % of the jaggery produced in the country worth Rs. 40 crore is lost every year due to spoilage during storage [8]. This calls for serious attention of all concerned. Traditionally jaggery was stored with some easily available material such as plant leaves, gunny bags etc. The effect of some packaging materials on storage stability of jaggery was studied. Said and Pradhan [14] reported that, by using the polythene film of any colour, moisture absorption and liquefaction of jaggery can be avoided. Low density polyethylene film (LDPE) absorbs water less than 0.01 % in 24 hours. The earthen pots can also be used for storage of jaggery. Mandal et al. reported that the heat sealed LDPE packets of 150 gauge was best suitable followed by glass jar and PET jar.IISR, Lucknow has developed a drying cum storage bin for the purposes. The quality deterioration of jaggery stored in drying cum storage bin is less than that stored in polythene bags and open storage. The use of drying cum storage bin reduced moisture content to 6-7 per cent during summer from initial moisture of 13-14 per cent [2]. The storage period can also be increased by
using a low temperature of 7-9°C [23]. Three ply (PET+Al. Foil +PE) packaging material helped more in checking of inversion rate. The lowest inversion of 4.35 and 2.67 % was recorded with three ply followed by four ply packaging material (4.53 and 3.43 %) in lump and brick shaped jaggery, respectively [19]. Superiority of three ply is due to its higher strength with low water vapour transmission rate (0.14 g/m²/24 hr) and low oxygen transmission rate (207.00 ml/m²/24hr). The coarse jaggery powder having particle size in the range 0.500-0.780mm was found more acceptable after six months of storage in three ply and polyethylene of 300 gauge in terms of chemical and organoleptic characters [22]. The use of some advance techniques such as irradiation, modified atmospheric packaging was also found to be successful for increasing the storage period of jaggery. An irradiation dose of 7.0 kGy along with LDPE is best suitable for increasing the storage life of jaggery without deterioration [5, 15]. Modified atmospheric packaging (MAP) techniques have also been used along with packaging materials by some research workers. Jaggery cubes 2.5 cm were stored with MAP technique using LDPE, polypropylene (PP), polyethylene terephthalate (PET) and laminated aluminium film for a period of 210 days, to enhance the shelf life by [6]. Results revealed that the jaggery stored in PET films with MAP (70% N2+30% CO2) at ambient condition was best with all quality parameters including colour. They also reported that PET film with MAP as 100 per cent nitrogen gas is the best combination to enhance the shelf life of jaggery cubes up to 210 days.

Value Addition with Jaggery

Jaggery is called as medicinal sugar because of its richness with minerals and vitamins. Its quality can still be increased by incorporating it with material such as aonla pulp, whey, cashew, almond, groundnut, wheat flour, cocoa powder containing proteins, vitamins and minerals etc. This will not only increase the nutritional potential of the jaggery but fetch more market prices increasing its export potential as well. Utilization of whey, a dairy industry waste containing proteins, lactose and minerals increase the nutritional and organoleptic quality of jaggery on one side and also mitigate the problem of disposal of whey being faced by dairy industry. Good quality jaggery can be prepared from neutralised paneer whey (PW) or neutralised cheese whey (CW). An admixture of PW and CW can also be used in 1:1 proportion. Whey jaggery contained more protein and minerals than pure sugarcane jiggery [7]. Confectionary products such as chocolate, chikki, burfi can also be prepared from jaggery. Chand et al. [2] prepared a jaggery chocolate with addition of milk powder, butter, cocoa powder and coffee powder as ingredients. The study reveals that the sensory attributes, like colour, appearance, taste, texture, flavour and overall acceptability scored good for the samples of chocolates wrapped aluminium foil and stored in refrigerator. The incorporation of jaggery with wheat flour increases the protein content and textural properties of jaggery. Addition of aonla (Emblica officinalis) increases the vitamin C content and thus makes a value added product.

Organic jaggery

Use of chemicals such as hydros, phosphoric acid, for jaggery manufacturing resulted in health hazards. Concept of organic jaggery is therefore emerged with the use of herbal clarifi cants such as bhendi mucilage, deola extract along with lime and citric acid. Jaggery samples prepared organically using citric acid showed superior keeping quality [10].

Institute and Research Stations Working on Jaggery Processing

- AICRP (All India Coordinated Research Project) on Post harvest Technology, RSJRS (Regional Sugarcane and Jaggery Research Station), Kolhapur
Conclusion

Jaggery, called as a healthiest sugar because of its number of health benefits. The sector is expanding now-a-days with some advancement in its processing, storage and packaging techniques. It is trying to be an alternative to refined sugar. Jaggery is very sensitive product, getting affected by number of factors right from cultivation practices of sugarcane to processing and storage. The technology has been developed to produce a quality crystalline jaggery by altering the processing parameters such as pH, striking point temperature and method of clarification. The herbal clarificants have replaced the use of chemicals. Some packaging materials and storage techniques such as MAP enhances the shelf life of jaggery. The granular form offers advantages over lumped jaggery because of its less moisture content and free flowing nature. However, the technology has not commercialised so far. The value added products from jaggery increases the nutritional quality, fetch better market price and inverses the export potential. The organic jaggery is gaining a kind of popularity. The jaggery sector still needs some technological advancement in processing of granular jaggery and its storage and value added products. An automatic jaggery making plant with new uniform heating techniques are also need to be developed.

References

AN ESTIMATION OF DISTRIBUTION ALGORITHM BASED LOAD-BALANCED CLUSTERING OF WIRELESS SENSOR NETWORK

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Abstract

The load-balanced clustering is a most significant problem for WSNs with unequal load of the sensor nodes but it is known to be an NP-hard problem. This paper introduces a new model for the problem in which the objective function is to maximize the overall minimum lifetime of the cluster heads. To solve this model, we propose a novel estimation of distribution algorithm based dynamic clustering approach (EDA-MADCA). In EDA-MADCA, a new vector encoding is introduced for representing a complete clustering solution, and a probability matrix model is constructed to guide the individual search. In addition, EDA-MADCA merges the EDA based exploration and the local search based exploitation within the memetic algorithm (MA) framework. A minimum-lifetime-based local search (MLLS) strategy is presented to avoid invalid search and enhance the local exploitation of the EDA. Experiment results demonstrate that EDA-MADCA can prolong network lifetime, it outperforms the existing DECA algorithm in terms of various performance metrics.

Introduction

Wireless sensor networks (WSNs) is an advanced information acquisition technology. It has got a considerable development in recent years. A WSN typically is equipped with a large number of small, low power and inexpensive communication devices called sensor nodes, which are randomly or manually densely deployed in an unattended target area and harsh environments. A significant class of wireless sensor networks applications is the monitoring area, such as continuous sensing, event identification (ID), event detection, local control of actuators and location sensing [1]. The application needs to deploy plenty of sensor nodes for continuous sensing, data aggregating and communicating. These sensor nodes periodically collect and process local sensing information, and finally send it to the remote processing center which is called base station (BS) or sink.

Generally, the sensor nodes are deployed in desolate area or vile environment, transmitting or receiving data is over the wireless medium, the replacement or recharging of the embedded batteries is a very difficult and impractical process once these nodes have been deployed. Therefore, energy is a very precious resource for WSNs and has to be managed wisely so as to prolong the network lifetime for the duration of a specific mission [2]. For the sake of tackling the challenging issue, various technologies have been studied such as low-power radio communication hardware [3], energy-aware medium access control (MAC) layer protocols [4]. However, hierarchical clustering [5], [6] has been testified to be an effective technique to conserve sensor energy [7], [8] and also be a promising solution to schedulable tasks.

In hierarchical clustering architecture, the sensor nodes are divided into different clusters, each cluster consists of cluster head (CH) and cluster membership. The set of cluster heads forms backbone of
a WSN, providing a scalable solution to organizational networking tasks, and acting as local controllers of network workings [9]. In each cluster, various missions are managed by cluster head, such as data receiving, data aggregation, transmission, authentication, task assignment [5]. However, as the leader of a cluster, cluster head has more energy consumption than cluster membership, it signifies that cluster head bears some extra work load due to various activities compared to their member sensor nodes. These activities include receiving sensed data, sending control message, data aggregation and transmitting data to the base station. In addition, in hierarchical clustering of WSNs, cluster heads are needed to cover a large area of interest without reducing the service quality of the system [10]. But the sensor nodes and cluster heads may be not “well distributed”, some cluster heads may be overloaded owing to connecting too many sensor nodes and long-haul communication with the base station. Such overload not only increases communication delay and decreases performance of overall network, but also shortens the network lifetime. Therefore, load-balanced distribution of cluster heads is one of the critical issues of WSNs, it can efficiently make use of scarce energy resources in battery operated sensor nodes. This problem is also known Load-Balanced Clustering Problem (LBCP), it has been proved to be NP-hard [10], and hence too computationally expensive to find out proper size of cluster for a large-scale WSN by exact algorithms. In this paper, the problem of load-balanced clustering is briefly expressed as a WSN with n sensor nodes S = (s₁, s₂, ..., sₙ) and m cluster heads CH = (ch₁, ch₂, ..., chₘ) (The notation is summarized in Table I.) form the appropriate size of cluster of the sensor nodes around the cluster heads in order to reduce the overall energy utilization and improve the entire network lifetime, this process is not static but rather dynamically adjusted to the cluster sizes according to the remaining energy of cluster heads.

However, since the number of all possible clusterings is very huge, it is impracticable to enumerate. Sampling is a reasonable way to deal with such a kind of problem. Estimation of distribution algorithm (EDA) [11] is a sampling based optimization tool which has been used for various academic and engineering problems [12]. Here, we propose an estimation of distribution algorithm (EDA) based dynamic clustering approach for WSNs called EDA-MADCA. To the best of our knowledge, we are the first to employ EDA to address the load-balanced clustering problem in WSNs.

The remainder of this paper is structured as follows. Section II reviews the related work. Section III describes a new model for LBCP. Section IV presents EDA-MADCA that is tailored for WSNs. Section V demonstrates experiments and simulation results. Finally, Section VI concludes the paper.

Related Work

Many metaheuristic algorithms have been proposed in WSNs and here we survey some promising approaches related to clustering and lifetime maximization. Hussain et al. [13] propose a genetic algorithms (GA) based energy efficiency hierarchical clustering method which increases the network lifetime and they adopt four fitness parameters to define the fitness function. But the method ignores load balancing between sensor nodes and cluster heads Bari et al. [14] present a GA-based approach for data routing by relay nodes in two-tiered WSNs. However, they did not consider data communication between the sensor nodes and the cluster heads within each cluster. Kuila et al. [15] propose a GA based load-balanced clustering method for WSNs. The method forms the proper size of cluster which the maximum load of each cluster head is minimized. The main drawback is that the cluster heads directly communicate with the base station which may be impractical for large-scale network. Besides, the remaining energy of sensor nodes and cluster heads were not considered per round.
Chakraborty et al. [16] present a differential evolution (DE) based memetic algorithm which addresses routing problems with more than a thousand relay nodes. Its goal is to accomplish the cluster heads that minimizes the maximum energy expenditure. Whereas, the method does not considers the cluster formation and inappropriate clustering may cause energy dissipation. Kuila et al. [17] propose a novel DE based clustering algorithm for WSNs. A new fitness function which takes into consideration energy expenditure of both the cluster heads and sensor nodes is derived for prolonging the network lifetime. Meanwhile, the method embeds a local improvement so as to accelerate convergence rate and get better performance. However, it ignores the distance between the cluster heads and the base station and the cluster heads are chose randomly which may lead to energy inefficiency.

Fuzzy method is used in some of research works for load-balanced clustering of the WSNs. A fuzzy logic based cluster-head election is proposed in [18] to reduce the energy consumption and prolong the network lifetime. In this approach, three parameters, i.e., energy, concentration and centrality, are used as input variables. Compared to LEACH, the approach achieved better results. However, it requires centralized means for electing cluster head, hence the algorithm is difficult to scalability.

Singh et al. [19] propose a novel energy-aware cluster head selection in WSNs using particle swarm optimization (PSO), whereas it does not take into account the cluster formation. Wang et al. [20] propose an ant colony (ACO) based clustering routing algorithm in WSNs. For more surveys on evolutionary algorithms for WSNs, they can be found in [21] and the references therein.

In load-balanced clustering problem (LBCP), the residual energy of cluster heads and sensor nodes is the utmost essential factors for balancing load and prolonging the network lifetime. This paper proposes a novel algorithm (i.e., EDA-MADCA) for solving the problem.

A New Model for LBCP

A. Notations

The notations are listed in Table I.

<table>
<thead>
<tr>
<th>Notation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>number of sensor nodes</td>
</tr>
<tr>
<td>m</td>
<td>number of cluster heads</td>
</tr>
<tr>
<td>S</td>
<td>set of sensor nodes</td>
</tr>
<tr>
<td>CH</td>
<td>set of cluster heads</td>
</tr>
<tr>
<td>BS</td>
<td>base station</td>
</tr>
<tr>
<td>s_i</td>
<td>i-th node in S</td>
</tr>
<tr>
<td>ch_i</td>
<td>i-th node in CH</td>
</tr>
<tr>
<td>d</td>
<td>Euclidian distance between s_i and ch_i</td>
</tr>
<tr>
<td>R</td>
<td>maximum communication range roundmax maximum number of rounds l(ch_i) ch_i's lifetime</td>
</tr>
<tr>
<td>c_i</td>
<td>number of sensor nodes which can be assigned to ch_i</td>
</tr>
<tr>
<td>E_{i}(0)</td>
<td>initial energy of s_i</td>
</tr>
<tr>
<td>E_{ch}(0)</td>
<td>initial energy of ch_i E_{residual}(ch_i, r) residual energy of ch_i in rth round</td>
</tr>
<tr>
<td>E_{req}(ch_i, r)</td>
<td>requested energy of ch_i in rth round</td>
</tr>
<tr>
<td>E_{DA}(ch_i, r)</td>
<td>aggregation energy of ch_i in rth round</td>
</tr>
<tr>
<td>E_{d}(ch_i, r)</td>
<td>energy depleted by ch_i during receiving packet in rth round</td>
</tr>
<tr>
<td>E_{T}(ch_i, r)</td>
<td>energy consumed during ch_i transmission to BS in rth round</td>
</tr>
</tbody>
</table>

B. Energy Model

The radio energy dissipation model in [22] is used here. In this model, the energy consumption mainly occurs at the transmitter, the power amplifier, and the receiver to run the radio electronics. It adopts the free space and the multi-path fading channel, depending on the distance between the
transmitter and receiver. The total energy expended to deliver an $l$-bit packet from the transmitter to its receiver over a link of distance $d$ is shown below:

$$E(l, d) = E_T(l) + E_{\text{amp}}(l, d) + E_S(l)$$

(1)

$$E_{\text{elec}} + lE_{\text{elec}} + lE_{\text{elec}} \text{ if } d < d_{TH}$$

$$lE_{\text{elec}} + lE_{\text{elec}} \text{ if } d \geq d_{TH}$$

(2)

In Eq. (2), $E_{\text{elec}}$ is the electronics energy which depends on some factors [22], such as digital coding, modulation, filtering and spreading of the signal, but the amplifier energy may be $s_{sd}d^2$ or $s_{mp}d^4$ depending on the distance between the transmitter and the receiver and the acceptable bit-error rate, $d_{TH}$ is the threshold distance. The energy consumption which aggregates $n$ message signals of length $l$-bit was calculated as:

$$E_{DA} = nE_{da}$$

(3)

where $E_{da}$ is the energy required for data aggregation. The radio channel is assumed to be symmetric.

C. Network Model

As in [17], we assume the WSNs scenario as follows:

- All the sensor nodes are randomly deployed along with a few cluster heads within a square area.
- Cluster heads are chosen prior and the locations of sensor nodes are known.
- The positions of all nodes (i.e., sensor nodes and cluster heads) and base station are fixed once they are deployed.
- The message can be transmitted between a sensor node and cluster head by wireless link.
- Each sensor node has a list of cluster heads and it can be assigned to only one cluster head by single-hop within their communication range per round.
- All sensor nodes have the same initial energy, and all cluster heads have the same energy, but the energy of cluster heads is more than the energy of sensor nodes. The base station has no energy restriction.
- A sensor node is regarded as alive if only its energy is larger than zero and at least one alive cluster heads is reachable within its communication range. In case a sensor node can not find any cluster head within its communication range, even though it may have some remaining energy, it is still regarded as dead in the network model.

The operation of data gathering is divided into rounds as done in LEACH. Each round consists of two stages: set-up and clustering. In the set-up phase, all sensor nodes and cluster heads are assigned to a unique ID. The sensor nodes broadcast message containing their ID by CSMA/CA MAC protocol [23]. The cluster heads within their communication range of the sensor nodes can collect the message and send the local sensing information to the BS. During the clustering phase, the BS receives the data gathering from cluster heads by executing clustering algorithm. Then all cluster heads send an announcement message to their member by single-hop. In each cluster, the communication uses TDMA protocol [23].

D. Problem Representation

1) Definition of Lifetime: The WSNs lifetime is defined in different ways in [24]. Among them, the popular definition of network lifetime is the time until the first cluster head depletes all its energy. The lifetime $l(ch)$ of cluster head $ch$

$$l(ch) = , E_{\text{residual}}(ch, r), E_{\text{req}}(ch, r)$$

(4)
where the $E_{\text{residual}}(ch_i, r)$ and $E_{\text{req}}(ch_i, r)$ can be calculated respectively as follows:

$$E_{\text{residual}}(ch_i, r) = E_{\text{residual}}(ch_i, r - 1) - E_{\text{req}}(ch_i, r)$$ (5)

$$E_{\text{req}}(ch_i, r) = E_{\text{message}}(ch_i, r) + E_{\text{packet}}(ch_i, r)$$ (6)

$$E_{\text{message}}(ch_i, r) = E_{mb}(ch_i, r) + E_{mr}(ch_i, r) + E_{mt}(ch_i, r)$$ (7)

$$E_{\text{packet}}(ch_i, r) = c_i E_{ch}(ch_i, r) + c_i E_{pa}(ch_i, r) + E_{r}(ch_i, r)$$ (8)

The energy consumed by cluster head $ch_i$ denoted by $E_{\text{req}}(ch_i, r)$, is composed of $E_{\text{message}}(ch_i, r)$ which is consumed by broadcasting message and $E_{\text{packet}}(ch_i, r)$ which is consumed during delivering packet each round. They are calculated by Eq. (2) and (3), respectively. Note that $E_{\text{message}}(ch_i, r)$ is composed of three parts: a) $E_{mb}(ch_i, r)$, energy consumption during cluster head $ch_i$ broadcasts message to its member sensor nodes. b) $E_{mr}(ch_i, r)$, energy consumption during sensor node $s_i$ replies with an acknowledgment. c) $E_{mt}(ch_i, r)$, energy consumption during cluster head $ch_i$ sends an acknowledgment message to sensor node $s_i$.

2) **Objective Function:** In [17], the objective function is defined as the standard deviation of the cluster heads lifetime and standard deviation of the average distance between cluster heads and cluster membership in order to keep the load balance between cluster heads and cluster membership. However, this objective function ignores the distances between cluster heads and base station. To optimize such an objective function, some cluster heads far away from base station may be assigned too many sensor nodes, which may lead to more energy consumption and these cluster heads will die earlier.

In this paper, we notice that the remaining energy of each cluster head is critical to prolong the network lifetime and a possible way to predict the cluster head lifetime is to take account of the remaining energy which was also considered in [25]. This motivates us to build the objective function as the predicted cluster head lifetime according to residual energy $E_{\text{residual}}(ch_i, r)$ and request energy $E_{\text{req}}(ch_i, r)$. Each round, starting from each cluster head and ending at the BS, the maximum predicted lifetime $L$ by a cluster head is given as:

$$L = \max \min l(ch_i)$$ (9)

$c \in \Omega$ $1 \leq i \leq m$

where $\Omega$ is the set of all possible clustering, variable $c$ is a clustering, ($ch_1, ch_2, ... , ch_m$) corresponds to $c$, $l(ch_i)$ is calculated by Eq. (4). The goal is to maximize the overall minimum $l$ per round so as to extend the network lifetime.

This objective function takes into account not only the energy expenditure between sensor nodes and cluster heads but also the energy consumption between cluster heads and base station. By optimizing this objective function, it is helpful to adaptively adjust the distance between sensor nodes and cluster heads, distance between cluster heads and base station, and the size of clusters, thereby balancing the load of cluster heads and reducing the data delivering overhead. As a result, the network lifetime could be prolonged.

**Estimation of Distribution Algorithm Based Dynamic Clustering Approach**

Estimation of distribution algorithms (EDAs) [11] are a class of evolutionary algorithms (EAs). Compared to other EAs, EDAs employ neither crossover nor mutation. They build an explicit probabilistic model and sample promising candidate solutions according to the probabilistic model. The probabilistic model will be updated with the generated solutions. The main steps of basic EDAs are described in [26].

As a classic EDA, population-based incremental learning (PBIL) [27] has already attracted significant attentions recently. It is developed by combining genetic algorithms (GA) and competitive
learning for maintaining the stochastic search space and using them to guide the search to explore promising solutions by a probability vector constructed by using the elite sub-population.

In our study, the EDA is incorporated in the Memetic algorithm (MA) framework. Memetic algorithms [28] are widely employed as a cooperation between evolutionary or any population-based method and individual learning or local search procedures [12].

The idea of EDA-MADCA is to balance the energy consumption among the cluster heads which transmit to the cluster membership by adopting dynamically clustering, balancing the load of cluster heads and forming appropriate sized clusters so as to prolong the entire network lifetime. The EDA-MADCA is introduced in the subsections as follows.

A. Generation of Cluster Head List

In this network, since communication range of sensor nodes is limited, the sensor nodes only select neighboring cluster heads to build wireless link. In other words, if a cluster head is beyond the transmitting range, they can not communicate with each other. Therefore, within its communication range, each sensor node corresponds to some reachable cluster heads. The generation of the cluster head list is shown in Algorithm 1.

Algorithm 1 Generate Cluster Head List

Input: $n$, $m$, $S$, $CH$, $round_{max}$ (see Table. 1).

1: while $r \leq round_{max}$ do
2:   for $i = 1$ to $n$ do
3:     for $j = 1$ to $m$ do
4:       if $E_{residual}(s_i, r) > 0$ and $E_{residual}(ch_j, r) > 0$ and $d < R$ then
5:         $count(s_i, r) \leftarrow count(s_i, r) + 1$
6:         $count(ch_j, r) \leftarrow count(ch_j, r) + 1$
7:         $ClusterHeadsList(i, count(s_i, r)) = j$
8:       end if
9:     end for
10:   end for
11: end while

Output: Cluster HeadList

B. Solution Representation

An valid encoding is significance to solve LBCP. It is helpful to avoid producing redundant solutions.

In EDA-MADCA, a solution is denoted by a cluster head vector $CH$ as show in Fig. 1. The elements in cluster heads vector $CH$ correspond to the IDs of cluster heads. The length of each solution is equal to the number of sensor nodes. In detail, the element $ch_i$ means that sensor node $s_i$ is assigned to cluster head $ch_i$ in clustering phase. Some elements may have the same ID, which means that those sensor nodes belong to the same cluster head $ch_i$. 
Sensor node sequence vector
Cluster head vector
$S_1 S_2 S_3 S_4 S_5 S_6 S_7 S_8 S_9 S_{10}$

$3 \ 3 \ 1 \ 2 \ 2 \ 1 \ 1 \ 3 \ 3 \ 1$

Fig. 1. Solution of the example instance

As the length of each solution is equivalent to the number of the sensor nodes, adding or removing any sensor node will change the length of a solution and re-clustering is required.

C. Fitness Function

Fitness function measures the quality of the population of solutions. A well-defined fitness function is always problem dependent and is helpful to increase the chance of searching promising area of the solution space. The fitness function is defined as follows:

$$L = \max_{1 \leq j \leq \text{Popsize}} \min_{1 \leq i \leq m} l(ch_j)$$

From Eq. (10), we can see that the larger value of $L$, the higher the fitness value is.

D. Design of Probability Model

In some sense, the probabilistic model describes the distribution of solution space. The standard PBIL uses a real-valued probability vector and samples solutions according to the probability vector. In general, the probabilistic model is built based on the characteristics of the solving problem. In light of the above cluster heads list and solution representation, a single real-valued probability vector may not be good for delivering the information learnt before. Therefore, the probability model is constructed as a probability matrix $P$, where $P = [p_{ij}]_{n \times m}$, $p_{ij} = 1/count(s_i, r)$, $i \ n, j \ m$. $p_{ij}$ denotes the probability that the sensor node $s_i$ is assigned to the cluster head $ch_j$ and modeled as a uniform distribution within its communication range. Note that if the sensor $s_i$ can not be assigned to the cluster head $ch_j$ in this round, the probability $p_{ij} = 0$.

E. Selection of Elite Solutions

At each iteration of the EDA-MADCA, to generate a new solution, a cluster head vector $CH$ is produced by the roulette strategy via sampling the searching space guided by the probability matrix $P$. To explore the promising searching area, the probability matrix $P$ should be well adjusted by using some elite solutions [12]. The elite solutions form a superior sub-population. Let $ES_{size}$ be the size of the sub-population. In our implementation, $ES_{size}$ is set to $\theta \ Pop_{size}$ where $\theta \ [0, 1]$ is a parameter. Elite solutions are selected from the population according to the tournament selection strategy, then they are employed to update the probability matrix $P$ at next iteration.

F. Minimum-Lifetime-Based Local Search

In order to enhance the exploitation ability, we present a MLLS strategy. The basic idea is to move some sensor nodes from the cluster head with the minimum lifetime to other cluster nodes, thereby delaying the first death of cluster heads. Using each elite solution as input, it works as follows:

- Find the cluster head with the minimum lifetime and the set of sensor nodes assigned to the cluster head.
- Randomly select a sensor node from the set, then reassign it to another cluster head which is closest in its candidate cluster heads list except its previous cluster head.
- Evaluate the modified fitness value of the elite solution. If the new fitness value is better than the
previous one, the elite solution will be replaced by the new solution. Otherwise, the previous
solution remains constant.
This process is described in Algorithm 2.

G. Updating Mechanism
After the superior sub-population have been modified, the the probability matrix $P$ will be updated
by using the historical knowledge of searching and the statistics information of superior sub-
population. The updating process is based on the

$$p_{ij}(g+1) = (1 - \alpha)p_{ij}(g) + \alpha \prod_{j=1}^{ES\text{size}} X_{ij}$$

where $i = 1, 2, \ldots, n$, $\alpha \in (0, 1)$ is the learning rate, implies the maximum proportion of solutions to be
chose. In our paper,

Algorithm 2 Minimum Lifetime Based Local Search

Input: elitesolution, clusterlifetime, ESsize, $n$, $m$ (see Table I)

1: for $i = 1$ to $ES\text{size}$ do
2: \hspace{1em} [clusterlifetime$_{min}$, $N_{min}$] = min(clusterlifetime($i, m$))
3: \hspace{1em} solution = elitesolution($i, n$)
4: \hspace{1em} cluster$_{min}$ = find(solution == $N_{min}$)
5: \hspace{1em} len$_{min}$ = size(cluster$_{min}$)
6: \hspace{1em} if len$_{min}$ = 0 then
7: \hspace{2em} sensorode = cluster$_{min}$ (unidrnd(len$_{min}$))
8: \hspace{1em} clusterhead $\leftarrow$ 0
9: \hspace{1em} $d$ $\leftarrow$ $\infty$
10: \hspace{1em} if $m > 1$ then
11: \hspace{2em} for $j = 1$ to $m$ do
12: \hspace{3em} if $j = N_{min}$ then
13: \hspace{4em} $d$ $\leftarrow$ distance (sensorode, $j$)
14: \hspace{3em} if $d$ $< d$ then
15: \hspace{4em} clusterhead $\leftarrow j$
16: \hspace{3em} $d$ $\leftarrow$ $d$
17: \hspace{2em} end if
18: \hspace{2em} end if
19: \hspace{2em} end for
20: \hspace{1em} end if
21: \hspace{1em} result = find (ClusterHeadsList (sensorode, :
22: \hspace{2em} ) == clusterhead)
23: \hspace{1em} temp = size (result)
24: \hspace{1em} if temp(2) = 0 then
25: \hspace{2em} solution(sensorode) clusterhead
26: \hspace{2em} end if
27: \hspace{2em} end if
28: \hspace{1em} Count(solution($k$)) $\leftarrow$ Count(solution($k$)) + 1
29: \hspace{1em} end for
30: CalculateFitness 
31: if Fitness_{\text{elite}}(i) < Fitness then 32: 
   elitesolution(i, n) = solution 
33: 
   Fitness_{\text{elite}}(i) = Fitness 
34: clusterlifetime_{\text{elite}}(i) = clusterlifetime 
35: end if 
36: end for 
Output: better elite solution 

\[ \alpha = 20\% \]

\[ X_{ij}^k \text{ is the following indicator function within the } \]
\[ k \text{th solution of the superior sub-population:} \]
\[ X_k = .1 \text{ if } ch_j \text{ appears before or in the } i \text{th position} \]
Hebbian-inspire rule [29] which is expressed as follows:
\[ ES \]
\[ i j \text{ 0 otherwise} \] (12)

In Eq. (11), the first term states the information inherited from the parent and the second term states the statistics information learnt from the superior sub-population. The parameter \( \alpha \) controls the contribution of the parent when updating the probability matrix \( P \).

**Experiment Results and Analysis**

In this section, we evaluate the performance of EDA-MADCA by comparing it with DECA [17]. To the best of our knowledge, DECA is the best performance in this network model. To be fair comparison, we run EDA-MADCA and DECA with the same parameters, simulation environment, network topology, fitness function and performance metrics.

**A. Experiment Setup**

We evaluate the performance of EDA-MADCA via simulations in MATLAB (version R2012b). All experiments were run on a PC with Intel (R) Core (TM) i7, 3.60 GHz CPU, 8 G RAM and Windows 7. The values of simulation parameters are listed in Table II, which is similar to the ones in [17], [22]. Specifically, sensor nodes are randomly deployed within a square field of 200 m \( \times \) 200 m, and the maximum communication range \( R \) was set to 150 m. The number \( n \) of sensor nodes was varied from 100 to 500 and the number \( m \) of cluster heads was varied from 30 to 50. The initial energy \( E_{si}(0) \) of each sensor node and \( E_{ch}(0) \) of each cluster head are 1 J and 5 J, respectively.

**Table II Simulation Parameter Configuration**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( n )</td>
<td>100 - 500</td>
</tr>
<tr>
<td>Field</td>
<td>200 ( \times ) 200 m(^2)</td>
</tr>
<tr>
<td>BS</td>
<td>(100, 100), (200, 200), (100, 250)</td>
</tr>
<tr>
<td>( m )</td>
<td>30 - 50</td>
</tr>
<tr>
<td>( E_{si}(0) )</td>
<td>1.0 J</td>
</tr>
<tr>
<td>( E_{ch}(0) )</td>
<td>5.0 J</td>
</tr>
<tr>
<td>( R )</td>
<td>150 m</td>
</tr>
</tbody>
</table>
Experiment Setup

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( n = )</td>
<td>100 - 500</td>
</tr>
<tr>
<td>Field</td>
<td>200 × 200 m²</td>
</tr>
<tr>
<td>BS</td>
<td>(100, 100), (200, 200), (100, 250)</td>
</tr>
<tr>
<td>( m )</td>
<td>30 - 50</td>
</tr>
<tr>
<td>( E_{si}(0) )</td>
<td>1.0 J</td>
</tr>
<tr>
<td>( E_{ch}(0) )</td>
<td>5.0 J</td>
</tr>
<tr>
<td>( R )</td>
<td>150 m</td>
</tr>
<tr>
<td>( E_{elec} )</td>
<td>50 nJ/bit</td>
</tr>
<tr>
<td>( s_{fs} )</td>
<td>10 pJ/bit/m²</td>
</tr>
<tr>
<td>( s_{mp} )</td>
<td>0.0013 pJ/bit/m⁴</td>
</tr>
<tr>
<td>( d_{0} )</td>
<td>87.0 m</td>
</tr>
<tr>
<td>( E_{DA} )</td>
<td>5 nJ/bit</td>
</tr>
<tr>
<td>Packet size</td>
<td>4000 bits</td>
</tr>
<tr>
<td>Message size</td>
<td>200 bits</td>
</tr>
</tbody>
</table>

We take into account three scenarios corresponding to different locations of the base station in the network. In detail, in Scenario 1, the base station is located at the center of the sensing area, i.e., its coordinate is (100 m, 100 m). In Scenario 2, the base station is located at the top right-hand corner of the sensing area, i.e., at the (200 m, 200 m) coordinate. In Scenario 3, the base station is located outside the sensing area at (100 m, 250 m).

To perform EDA-MADCA and DECA, the parameters settings of the two algorithms are shown in Table III. The two algorithms are run 5 times independently on each data point.
B. Performance Measures

There are several metrics to evaluate the performance of the clustering approach [24], [30]. In this study, the following measures are employed to evaluate the performance of the EDA-MADCA:

<table>
<thead>
<tr>
<th>Table III Parameter Configuration of Algorithms</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA-MADCA</td>
</tr>
<tr>
<td>Pop size</td>
</tr>
<tr>
<td>Learning Rate (α)</td>
</tr>
<tr>
<td>θ</td>
</tr>
<tr>
<td>max Iteration (gmax)</td>
</tr>
<tr>
<td>Running Times</td>
</tr>
</tbody>
</table>

- **First Dead Cluster Head** (FDCH) as the number of rounds until the first cluster head drains out of energy.
- **Half Dead Cluster Head** (HDCH) as the number of rounds until the half number of cluster heads drains out of energy.
- **Last Dead Cluster Head** (LDCH) as the number of rounds until all cluster heads drain out of energy.
- **Stability period** as the time between the start of network operation and FDCH.
- **Instability period** as the time from FDCH to LDCH.
- **Balanced degree of energy consumption** (BDEC) is calculated as:
  
  \[
  DEC = \frac{LDCH - FDCH}{LDCH}.
  \]

  (13)

  The BDEC measures the performance of the algorithm to balance the consumed energy.

  - **Number of alive sensor nodes per round** as instantaneous measure the total number of sensor nodes which have not drained out all energy.

C. Simulation Results

According to the performance metrics mentioned above, we study the performance of EDA-MADCA and DECA from the following aspects. For brevity, we only report part of results here and similar results are obtained for different scale network in three scenarios.

1. **Stability Period and Network Lifetime**: Fig. 2 compare EDA-MADCA with DECA with respect to FDCH for different scale networks in three scenarios. As can be seen that for more than 83% data points (except two data points in Fig. 2) EDA-MADCA can obtain better values of FDCH.

2. **Instability Period and Number of Alive Sensor Nodes**: Fig. 3 illustrates the distribution of alive sensor nodes with regards to the number of rounds for two algorithms, i.e., EDA-MADCA and DECA. It can be seen that EDA-MADCA declines slower than DECA. In addition, EDA-MADCA can lead to smaller number of inactive sensor nodes than DECA for different scale networks in three scenarios.

3. **Energy Efficiency**: Energy efficiency is a critical issue in WSNs. In this paper, we study energy efficiency of EDA-MADCA and DECA in terms of BDEC, energy consumption each round.

4. Fig. 4, EDA-MADCA can find smaller values of BDEC than DECA on 9 out of 12 data points. It means that EDA-MADCA can balance better than DECA. In particular, EDA-MADCA works prominently better than DECA when the network size is \( n = 400 \).
Fig. 5 clearly shows the energy consumption of EDA-MADCA and DECA per round for different scale networks in three scenarios. For three different scenarios, we observe that EDA-MADCA consumes less energy than DECA each round. It means that EDA-MADCA is more energy-efficient compared with DECA, because the MLLS strategy considers that the balanced energy dissipation is helpful to improve the lifetime of cluster heads and guarantee the energy consumption of cluster heads evenly. It is noted that the energy dissipation of EDA-MADCA does not vary with the location of the base station. We also notice that similar results are obtained for other scale networks.

Conclusion

In this study, we have introduced a new model for LBCP in which the objective function is to maximize the overall minimum lifetime of the cluster heads in WSNs. We have presented EDA-MADCA, which combines EDA with local search in the framework of memetic algorithm (MA), to optimize the network lifetime in WSNs by load-balanced clustering. This algorithm has some prominent features: It uses a valid vector encoding to represent a clustering solution, and sets up a probability matrix model to guide the individual search. Moreover, it uses a minimum-lifetime-based local search (MLLS) strategy to avoid invalid search. Experimental results confirm that EDA-MADCA can extend network lifetime over DECA in terms of various performance metrics. As future work, we will study multi-hop routing in WSNs.

Acknowledgment

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A STUDY ON INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)
PRACTICES OF DISTRICT CENTRAL CO-OPERATIVE BANKS (DCCBS) IN TAMILNADU

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Abstract

Information and Communication Technology (ICT) is a basic resource in today’s society. Without ICT people cannot live in the society. Today most of the people are sending and receiving the messages through e-mail and internet and it reduces the opportunities of face-to-face communication. Any type of information (or) message can fly round the globe at a fraction of a second through technology tools. ICT is increasingly becoming an invaluable and powerful tool driving economic development with rural development of a nation. Worldwide, banking sector had adopted ICT in all areas of operations. This sector is not lagging behind in adoption of ICT. This sector is front runner in adoption of ICT. The robust growth of Indian banking sector can be attributed to adoption of ICT. Indian commercial banks were able to adopt ICT and were successful in revolutionizing the banking sector. ICT had helped the Indian banking sector to offer value added as well as quality service to customers, reducing cost of operation, better management of risk and security and offering innovative products to customers, reaching global market, increasing productivity and enhancing competitiveness. But, the District Central Co-operative Banks (DCCBs) system in the country found to be lagging behind in adoption of ICT. This study has encouraged the researchers to take up the present study. The key players in DCCBs in few cities of Tamilnadu were selected as sample units. The study aims to find out the awareness level among management of DCCBs about the ICT practices adopted by them. The study reveals that DCCBs have computerized their branches. But, none of the banks had designed its website. The banks have also taken security measures by installing the CCTVs in their branches. It was found that the banks were offering Phone-in-Link services such as inquiry on product and services, change of accounts address, stop cheques instruction, status inquiries on remittance, bank balance, etc.

Keywords: Information and Communication Technology (ICT), District Central Co-operative Banks (DCCBs), ICT Practices.

Introduction

Information and Communication Technology (ICT) is a basic resource in today’s society. Without ICT people cannot live in the society. Today most of the people are sending and receiving the messages through e-mail and internet and it reduces the opportunities of face-to-face communication. Any type of information (or) message can fly round the globe at a fraction of a second through technology tools. ICT is increasingly becoming an invaluable and powerful tool driving economic development of a nation. Today world is passing through the era of ICT. The ICT must be an integral part of our life and organization strategy. Modern day communication service exchange includes electronic mail (e-mail) telefax facsimile transmission, bulletin board service, video tex, voice systems, voice message system and teleconferencing etc. Today e-mail technology enables computer users to send and receive simple messages instantly, documents and reports such as daily, weekly, monthly and annual performance reports created by standard word processing, spreadsheet database, software and even sound animation files. ICT needs are increasing day by day and today every person is intending to be ICT oriented. Any one of the solutions is to encourage promoting ICT leading to sharing of resources by automating all operations of information. It exchange of information and providing every needful
service in all office. ICT has become a vital component of successful business organizations. There are no big organizations at present day without using ICT. Today in big organization ICT can be applied in Production, Marketing, Accounting, Finance, Operation Management, Customer Services, Stocking, flow of goods, Human Resource Management (HRM) etc., Today, small enterprises and petty shops also apply ICT on a scale according to their need. ICT is playing strategic role in organizations in terms of creating new methods of business as well as opportunities for new businesses. Such as E-Commerce, E-Banking, E-Actions and E-Services etc., ICT solutions can help us take problems in core areas of governance and sectors. ICT can handle most advanced computing systems and computing devices. All citizens can go to the window, pay the electricity bill, water bill, telephone bill, house tax bill, medical bill, take a driving licence, get the driving licence renewed, apply for a passport, access land records and get needed information through technology way.

**Information and Communication Technology (ICT)**

ICT has become a key element in economic development and a backbone of banking sector. Any communication is an exchange of data between two computers with a few clicks of the mouse. At present day, ICT wings have embraced various departments such as Railway, Transport, Health care services, Educational institutions, Postal services, Banks, Co-operative department, supermarkets etc. ICT can help to find solutions to management problems like saving time, money, energy, increasing number of members or customers minimizing paper work, members or customers waiting time in queues and good work of efficiency etc., E-banking has provided ease and flexibility in banking operations. Many foreign banks and private sector banks like City bank, ICICI, HDFC banks brought with them ICT based products like ATM, credit cards, debit cards, on-line banking etc., It was observed that the DCCBs system in the country found to be lagging behind in adoption of ICT. ICT offers opportunities for DCCBs to leapfrog earlier stages of development. It is also important to note that the DCCBs need to adopt ICT practices, otherwise, they may fall further behind and the gap they have with the commercial banks could get wider. Therefore, the need of the hour is that DCC banking system in the country need to adopt ICT aggressively to benefit the urban as well as rural India. 60 percent of rural India even today depends on Co-operative banks for their banking needs. The Co-operative banks have responsibility of making rural customers a computer literate.

**District Central Co-operative Banks (DCCBs)**

The co-operative movement in India has a long history of a century with more than 5.49 lakhs total co-operatives, but throughout India have 372 DCCBs. In that we have 23 total numbers of DCCBs in Tamilnadu we have 749 branches of DCCBs throughout Tamilnadu. The leading co-operative banks in India have brought about changes in rural life. The future development of DCCBs will depend upon the proper and effective communication planning and ICTs. India among the developing nations has always adopted innovative approach in the adoption of new ICTs. ICTs can be used as an effective tool for rural development through co-operative banks at rural level. An example is the adoption of ICT by a rural community in the Warna wired village project (WWVP) District Kolhapur, ThasilPanhala in the State of Maharashtra, India.

**ICT in DCCBs**

Today DCCBs can gainfully utilize computers in development work. This system is very useful in mechanized accounting, data processing and communication system. Above all the expectations of customers in terms of speed, quality and convenience of service have gone up. Today with global
scenario the main concern of DCCBs is the use of ICT applications in new economic activities. It has also been visualized that those who are sound in knowledge and decision making process are well ahead in utilizing new opportunities. Under these circumstances, DCCBs cannot keep themselves immune from technological advances. Moreover the co-operatives like IFFCO, KRIBHCO, co-operative Dairy, Sugar co-operative and DCCBs that have provided emphasis to ICT transfer have shown their competitive strength. The computerization in PACS in many states has also been undertaken to support the policy makers in decision making process. Management Information System (MIS) ensures timely flow of information and proper management of data generated in the DCCBs which are improvements necessary for effective project monitoring. Thus a scheme for computerization was introduced in 1984–85 with the objective of motivating federations of banks to go in for computerized MIS. Under this scheme National level federations, State level federations, state level co-operative banks implementing National Co-operative Development Corporation (NCDC) project and District level co-operative societies have been benefited. MIS is an important tool for management in all types of enterprises. The co-operative banks irrespective of their size and structure need to develop their MIS to make the organization more functional and flexible. Without the use of computers, which are aids in MIS, it cannot be conceived to remain in business for a long time. Thus, to achieve organizational goals and fulfill customer’s aspirations developing MIS is a sine qua non for the sustainable competitive advantage for DCCBs aim to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, services and speed etc. The DCCBs in order to achieve their Key Result Areas (KRAs) may adopt business process re-engineering by which organisations are remodeled and strengthened for doing their best. The advantage of ICTs has made storing, retrieving and analyzing data easy. The use of ICTs to unnecessary office wastages and expenses should be reduced. There is greater need for use of ICT in DCCBs.

In India in the early 1970s emphasis was given to education and training for the promotion of co-operative banks. A network of education/training institutes under the umbrella of the National Co-operative Union of India (NCUI) offers a wide range of co-operative development programmes such as computer training for co-operative personnel up to the master level. Some institutes of co-operative management are also engaged in software and network development. Computerization of agricultural co-operatives started 10 years ago in Kerala state and 100% of primary agricultural co-operatives have been computerized and simplified their work. ICT has a lot of influence on DCCBs. It ensures quick services with low transaction cost of the customers. But most of the customers of DCCBs don’t know much about the banks transactions with electronic devices. The success of ICT in banks depends upon the employees and customers awareness about the same. ICT based solutions for any business has become a common phenomenon in today’s age of computers. The DCCBs has also emerged as one needing computerization. Computerization of co-operative banks in all states is a very difficult task. Very few states like Maharashtra, Karnataka, Gujarath and Goa are leading in computerization. Mostly computerized urban co-operative banks have on-line branches and have been successful in taking almost all the operational activities. The Urban co-operative banks are leading in ICT implementation but State and District Co-operative Banks are still lagging in computerization drive and are still in infancy stage in most of the states in the country. The Urban co-operative banks in Maharashtra have started their customer services through telebanking inter branches transactions and providing 24 hrs services through ATMs. In order to improve the performance of co-operatives computerization of all their transactions is a must to cope up with the ongoing revolutionary changes in banking systems such as internet banking, ATMs, anywhere banking and any time banking etc., Hence steps should be taken to
introduce computerization at all levels in all co-operative banks. ICT is changing the way 21st century companies, industries operate, Transport Corporations, DCCBs bringing considerable benefits to both employees and members. ICT should be adopted to cut across urgent need to all small and medium sectors in future. The introduction of modern ICTs in DCCBs can significantly improve results through facilitating collection, analysis, storage and reporting of information much faster and more accurately than could be accomplished using manual systems.

Role of ICTs in DCCBs
- ICT is used in DCCBs to increase the speed and accuracy of record keeping.
- ICT is used in DCCBs to speed up the transfer of money through (e-Transfer) and to have superior cash management.
- ICT is used in DCCBs to improve house record keeping and quick preparation of general ledger and reconciliation statement.
- ICT is used in DCCBs to improve day to day customer services through (E-Services).
- ICT is used in DCCBs to increasing productivity, business process time, re-engineering, quick service of goods, Total Quality Management (TQM) and bench marking.
- ICT is used in DCCBs to increasing inter-branches transactions and quick clearance of cheques.
- ICT is used in DCCBs to increasing job satisfaction of employees and management also.
- IT is used in DCCBs to improve communication between head office and branches office at all levels.
- IT is used in DCCBs attracting foreign investment.

Objectives of the Study
The study had been undertaken with the following objectives:

i. To find out the awareness level among the employees of DCCBs about the ICT practices.
ii. To study ICT practices do adopted by DCCBS.
iii. To know the reasons for adoption or non-adoption of ICT in DCCBs.

Scope of the study
The study is limited to the opinions of employees use of ICT is main constituents of the DCCBs. The study also includes ICT practices do adopted by DCCBs and why the reasons for adoption or non-adoption of ICT in DCCBs, ICT can bring in. The study is not concerned with functioning and working of the co-operative societies.

Review of Literature
The review of literature related to this study reveals that though there are plenty of literature on ICT, District Central Co-operative Banks (DCCBs) and role of ICT in DCCBs, there is no study on the awareness level of the employees with the use of ICT in DCCBs. This study is an attempt to fill this gap. It is based on survey of the employees' opinion level of awareness about the ICT in DCCBs and ICT practices do adoption by DCCBs.

Research Methodology
The study is empirical research based on survey method. The study main purpose is the measurement of the awareness level among the employees about the ICT practices of DCCBs. The data have been collected from primary data. The questionnaire have prepared and it contained questions relating to the awareness level of ICT, ICT practices do adopted and the reasons for adoption or non-adoption of ICT in DCCBs. The questionnaire circulated to the top level and middle level management of
sample DCCBs. The data required for the study have been collected from secondary data such as Newspaper, Journal, Magazines, Research reports; Annual report from DCCBs and website, etc., Percentage method was used to analyze data.

**Sample Scheme**

The need for introducing ICT based system and communication is very essential in DCCBs in order to update their operation and improve their competitive strength. The study is confined to Coimbatore, Erode, Salem and Dharmapuri. Simple random technique is applied in selected employees for the study in DCCBs.

**Geographical coverage**

The study was covers few districts in Tamilnadu such as Coimbatore, Erode, Salem and Dharmapuri. The study only mostly highlighted employees' awareness level with use of ICT, adoption and Non-adoption the ICT practices in DCCBs.

**Limitations of the study**

The study was limited to the opinion of employees to the awareness level about the ICT in their respective DCCBs and the study was ICT practices do adopted by DCCBs and what are the reasons for adoption or non-adoption of ICT in DCCBs. This study only ICT oriented. The entire study was qualitative in nature and quantitative variables have not been taken into consideration because, the impact of use of ICT on quantitative factors cannot be segregated. Further it is the opinion of the concerned parties in ICT, which matters rather than the actual facts. The study is also constrained by the limited extent of technical knowledge of the Researcher in ICT for DCCBs.

**Results and Analysis**

**Awareness level of Management**

<table>
<thead>
<tr>
<th>S. No</th>
<th>DCC Banks</th>
<th>Top Level Management</th>
<th>Middle Level Management</th>
<th>Total no. of Respondents</th>
<th>Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CDCCBs</td>
<td>10</td>
<td>15</td>
<td>25</td>
<td>40.32</td>
<td>40.32</td>
</tr>
<tr>
<td>2</td>
<td>EDCCBs</td>
<td>05</td>
<td>08</td>
<td>13</td>
<td>20.97</td>
<td>61.29</td>
</tr>
<tr>
<td>3</td>
<td>SDCCBs</td>
<td>05</td>
<td>12</td>
<td>17</td>
<td>27.42</td>
<td>88.71</td>
</tr>
<tr>
<td>4</td>
<td>DDCCBs</td>
<td>02</td>
<td>05</td>
<td>07</td>
<td>11.29</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>22</td>
<td>40</td>
<td>62</td>
<td>100</td>
<td>-</td>
</tr>
</tbody>
</table>

*Source: Primary Data*

*Note:*
1. CDCCBs *Coimbatore District Central Co-operative Banks*
2. EDCCBs *Erode District Central Co-operative Banks*
3. SDCCBs *Salem District Central Co-operative Banks*
4. DDCCBs *Dharmapuri District Central Co-operative Banks.*

The above table: 1 depicts that 40.32% of respondents of the CDCCBs were normally aware of availability of electronic banking services (e-banking) and ICT in the banks whereas 11.29% of respondents of DDCCBs were unaware of this technology availability.

**ICT Practices**

It is evident from the table: 2 that the entire surveyed sample DCCBs had not fully computerized their branches and some branches not internet connectivity. 56.7% of the respondents expressed that
Closed Circuit Television (CCTV) technology was adopted DCCBs. 42% of respondents have reported that the DCCBs were offering Phone-in-link services and adopted enterprise risk management tool. None of the bank surveyed had developed their website. DCCBs are not offering the ATM card facility but today one or two banks are made establishment this facilities, SMS alerts and mobile banking services to its customers. But, majority of respondents of the DCCBs were unaware about these services except ATM service. Majority of respondents of the sampled banks were unaware about the tele-banking services offered by DCCBs. They are also unaware of the human sources management software adopted by DCCBs. None of the respondents of the sampled banks were less aware of online banking, Electronic fund transfer, online demand draft, Credit cards, Online account opening facility, E-passbook, Biometric and ATM services as the banks were not offering such services.

Table 2 ICT Practices do adopted by DCCBs

<table>
<thead>
<tr>
<th>S. No</th>
<th>ICT Practices</th>
<th>CDCCBs</th>
<th>EDCCBs</th>
<th>SDCCBs</th>
<th>DDCCBs</th>
<th>Total No. of Respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Computerization all branches</td>
<td>15</td>
<td>10</td>
<td>18</td>
<td>04</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>Internet facilities</td>
<td>15</td>
<td>10</td>
<td>18</td>
<td>04</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>3</td>
<td>Bank website</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>SMS Alert</td>
<td>06</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>06</td>
<td>6.19</td>
</tr>
<tr>
<td>5</td>
<td>Automated Teller machine (ATM)</td>
<td>35</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>35</td>
<td>36.08</td>
</tr>
<tr>
<td>6</td>
<td>Point of sales services</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Online Banking</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Electronic fund transfer</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Online demand draft</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Credit cards</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Mobile Banking</td>
<td>09</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>9</td>
<td>9.28</td>
</tr>
<tr>
<td>12</td>
<td>Banking Kiosk</td>
<td>02</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2.06</td>
</tr>
<tr>
<td>13</td>
<td>Online account opening facility</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Tele Banking</td>
<td>10</td>
<td>05</td>
<td>04</td>
<td>02</td>
<td>21</td>
<td>21.65</td>
</tr>
<tr>
<td>15</td>
<td>Phone in link services</td>
<td>19</td>
<td>09</td>
<td>10</td>
<td>03</td>
<td>41</td>
<td>42.27</td>
</tr>
<tr>
<td>16</td>
<td>E-passbook</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17</td>
<td>Biometric ATM</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>Enterprise Risk Management</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td>06</td>
<td>41</td>
<td>42.27</td>
</tr>
<tr>
<td>19</td>
<td>Human resource Magt. Software</td>
<td>08</td>
<td>06</td>
<td>05</td>
<td>02</td>
<td>21</td>
<td>21.65</td>
</tr>
<tr>
<td>20</td>
<td>CCTV</td>
<td>35</td>
<td>20</td>
<td>-</td>
<td>-</td>
<td>55</td>
<td>56.7</td>
</tr>
</tbody>
</table>

Source: Primary Data.

Non-Adoption of ICT

The table: 3 reveals that major reasons for non-adoption of ICT by DCCBs in few districts of Tamilnadu include: Customer treat services offered by bank as Convenience banking, high cost of technology, limited geographical area and limited business operations. 47 respondents felt that they were unaware of ICT available in the market hence they had not thought of adopting the ICT. The respondents opened opinions that shortage of skilled labours and fear of security threats were not the prime reasons for non-adoption of ICT by DCCBs.

Table 3 Reasons for Non-Adoption of ICT in DCCBs

<table>
<thead>
<tr>
<th>S. No</th>
<th>Reasons for Non-Adoption of ICT</th>
<th>CDCCBs</th>
<th>EDCCBs</th>
<th>SDCCBs</th>
<th>DDCCBs</th>
<th>Total No. of Respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of knowledge about ICT's availability</td>
<td>07</td>
<td>14</td>
<td>16</td>
<td>09</td>
<td>46</td>
<td>47.42</td>
</tr>
<tr>
<td>2</td>
<td>High cost of ICTs</td>
<td>13</td>
<td>18</td>
<td>23</td>
<td>12</td>
<td>66</td>
<td>68.04</td>
</tr>
<tr>
<td>3</td>
<td>Limited business operations (transactions)</td>
<td>02</td>
<td>17</td>
<td>26</td>
<td>14</td>
<td>59</td>
<td>60.82</td>
</tr>
<tr>
<td>4</td>
<td>Limited geographical area</td>
<td>02</td>
<td>19</td>
<td>28</td>
<td>14</td>
<td>63</td>
<td>64.95</td>
</tr>
<tr>
<td>5</td>
<td>Customer treat services offered by bank as convenience banking</td>
<td>06</td>
<td>20</td>
<td>28</td>
<td>14</td>
<td>68</td>
<td>70.1</td>
</tr>
<tr>
<td>6</td>
<td>Shortage of skilled human resource</td>
<td>11</td>
<td>09</td>
<td>13</td>
<td>05</td>
<td>38</td>
<td>39.17</td>
</tr>
<tr>
<td>7</td>
<td>Fear of security threats</td>
<td>04</td>
<td>06</td>
<td>08</td>
<td>03</td>
<td>21</td>
<td>21.65</td>
</tr>
</tbody>
</table>

Source: Primary Data
Suggestions

- ICTs must be to provide access to DCCBs; they must be strengthened by the establishment of an enabling environment, including a legal, policy, banks environment. DCCBs should be provide ICTs, training programmes to the employees such type of training awareness about the operation methods, using application methods and benefits of training in particular job of employees. Young employees learn quickly about the ICTs compare the old employees. ICTs can be made the DCCBs more attractive to lot of new customers.

- To definitely full sufficient technologies initiatives provides by the Govt. and NABARD at the time do develop the DCCBs.

- DCCBs may be customers’ access and use of technologies should be improved, in order to increase their operational efficiency. Ultimately, they can help in achieving poverty reduction and fulfill social development goals of country.

- Govt. must be provides various software and hardware very urgent needs to DCCBs at present day.

- In particular DCCBs can function more efficiently by using ICTs and providing a series of benefits to employees and customers, such as enhanced connections between customers through DCCBs share information and technical know-how, and they remain informed about the performance of DCCBs.

- Improved accounting system and employees’ administration of DCCBs are often responsible for handling very large amounts of money and efficient record keeping allows DCCBs to serve its customers better and the transparency offered by computerization and other technologies enhances trust. DCCBs have invested in modern management and customers’ information systems can improve their image to attract high-quality staff and gain customers trust and confidence.

Conclusion

The study was reveals that the lop level and middle level management team for few district in Tamilnadu, other sample banks respondents were not much aware of availability of banking transactions and communication technology in the market. The DCCBs have not full computerized their branches and were having internet connectivity. But, none of the bank had designed its website. Some DCCBs have also taken security measures by installing the CCTVs in their branches. It was found that the banks were offering Phone-in-link services such as inquiry on product and services, Change of accountants address, Stop cheque instruction, Status inquires on remittance, bank balance, etc. DCCBs are SMS alerts and may mobile banking services to its customers. But, majority of respondents of the DCCBs were unaware about these services except ATM service. Majority of respondents of the sampled banks were unaware about the tele-banking, internet banking services offered by DCCBs and branches. None of the respondents of the sampled banks with branches were aware of Online Banking, Electronic fund transfer, online demand draft, Credit cards, online account opening facility, E-passbook and Biometric ATM services as the banks with branches were not offering such services. The study revealed that high cost of technology (hardware and software), limited geographical areas, limited business operations and Convenience banking was the prime reasons for non-adoption of ICT by DCCBs. The DCCBs should form special awareness programme among the employees about the how to use of ICTs of internet banking services in DCCBs. So, the employees can very well make use of ICT in DCCBs. The banks should be provides innovative banking services used by Biometric Handled basic withdraw money (ATM) and thumb impression scanning or retina defection for uses practices in identification. Because, ICT users most of the rural customers are illiterate (PACBs). The bank employees must be intending to lean on all the applications provides by the online customers services. The banks any sort of queries can be discharged easily using ICT services. Nowadays ICTs services is the extensive use of ICT network with internet. ICT services offer various benefits like cost effectiveness, quick prepared all
ledgers, better customer services, information saving, data protection, time saving and to increased knowledge of ICT.

References
PLASTIC MONEY IN INDIA – BENEFITS, ISSUES AND ITS SECURITY MEASURES

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Abstract

The Government of India announced the demonetisation of all Rs.500 and Rs.1000 bank notes on 8th November, 2016 in order to control the deep-rooted “disease” of corruption and black money. Central bank’s core objective is to move people away from holding cash to the plastic money or virtual world (online banking) where it becomes easy to monitor the source of transaction. Likewise the demonetisation drive has made people cashless on their hands and forced them to go digital and then use alternative payment modes such as plastic money - credit and debit cards to meet their financial needs. A recent survey shows that there is 60% rise on overall growth in usage of plastic money in India and 70% rise in usage of debit cards in our nation. According to the winter survey of Yatra.com, there has been a rise in inclination to use credit or debit cards post demonetisation, as 37.4 per cent Indian travellers choose plastic money over cash for making bookings and during travel. There are various forms of plastic money includes credit cards, debit cards, ATMs, smart cards, charge cards, gift cards, etc. Plastic money has an advantage of eliminating the need for carrying huge cash, which is risky and inconvenient. It also minimizes the risk of loss or theft. In the case of plastic money like debit/credit card, people can report any issue of theft or loss to the bank and block the card immediately for avoiding misuse. This paper highlights the introduction, types, benefits, issues and security measures of plastic money in our nation.

Keywords: Plastic Money, Debit card, credit card, digitalisation

Introduction

Plastic money or polymer money, made of plastic, is a new and easier way of paying for our goods and services. Plastic money was introduced in the 1950s. Now it is an essential form of ready money which reduces the risk of handling a huge amount of cash in hand. Plastic Money includes credit cards, debits cards, ATMs, smart cards, charge cards, gift cards, etc. Plastic money is the substitute to the cash or the standard 'money'. Due to demonetisation and awareness of Government’s Digital payment, people started to use plastic money as casual as money on buying their products and services.

Types of Plastic Money

Plastic money is a term that is used primarily in reference to the hard plastic card in place of actual bank cash notes. Plastic money is available in many different types/forms such as cash cards, credit cards, debit cards, pre-paid cash cards, gift cards and store cards. The followings are the various forms of plastic money and its advantages & drawbacks. Figure No.1 shows the number of plastic cards on usage in the market on bank-wise.
Figure No.2 shows the number of transactions using the plastic money in India for the years 2013-14, 2014-15 and 2015-16 respectively. It clearly explains the tremendous rise in the transactions using the plastic cards.

The followings are the various types of plastic money in the market to fill out the financial needs of the customers.

**Credit Card**
- Cashless payment with a some spending limit
- Payment takes place after the purchase of Goods/Service
- Great flexibility and Long period of repayment
- Most well-known credit cards are American Express, Mastercard, Visa

The advantages of using credit cards are good protection against fraud and it provides an easy way to pay for the unexpected purchases. The drawback of using credit card is that if you don't pay back the full amount there’s usually heavy interest rate on the money we have borrowed.

**Charge Card**
- Cashless payment without a set spending limit
- Payment takes place after the purchase of goods and services
- No credit facility or installment facility
- Most well-known charge cards are American Express, Diners Club

The advantages of using these cards are that they often come with extra perks such as travel insurance or rewards, but usually at the price level of a high annual or monthly fee. The problem is that if you don't pay your bill the charges can be much higher than credit card interest rate and also your card might be cancelled.

**Debit Card**
- Debit Card is directly linked to the cardholder's bank account.
Amount is debited immediately from the bank account.
No credit or installment facility available to the users.
Most well-known debit cards are Maestro, RuPay card, Visa card, Master card, Postcard, etc
The benefits of using this card are there is no borrowing involved but the drawback of using this card is having less fraud protection against unauthorized transactions on this card.

Customer Card / Store Card
- Customer Card with payment and credit function
- Can only be used at specific retailers
- Well-known customer cards: myOne, Globus, Media Markt
The advantage is this card comes with deals and discounts in-store but the interest rate is usually much higher than a credit card, so it will cost you more if you don’t repay in full each month.

Prepaid Card /Gift Card
- Card is topped up with credit before use
- No credit or installment facility
- Open system (American Express, Visa, Mastercard) or closed system (can only be used at specific retailers)
The benefit of using this card is safer than cash notes because you can cancel the card immediately once it gets lost or stolen by others. Also the challenge is that it is not accepted everywhere and you may have to pay fees for using this card or for topping it up.

Issues of Plastic Money
As a contribution of the technological advancements and demonetisation, every nation is making awareness on using the plastic money a lot but it cannot replace the paper money 100% since plastic money comes with lots of issues. Now in this Digitalisation world, we cannot avoid plastic money due to certain socio-economic, demographic, financial, technological and other environmental factors. With the increase in use of e-commerce and plastic cards, online frauds have also been increased due to loss or theft or misuse of plastic cards or involvement of the bank staff or employees at the purchase point of sale counter or their ignorance. Online thieves can easily hack our information from the bank statements or other office documents containing our cards information or even mobile phones or an opened email id in the browsing centre.

If a person lost his wallet, he can manage the loss of cash but loss of cards may lead to the higher risk of misuse. By holding so many cards in the wallet, the weight is increased which is dangerous for health too. Apart from the theft or misuse, use of plastic money also makes us extravagant as we like to pay within few seconds, to get discounts and attractive offers. Surfing the net long hours for schemes and online shopping separate us from our family and friends, turning us into short-lived behavior, impatient and a stressed lifestyle forgetting that these discounts and offers take much from our life which is unrecorded. We are losing or getting out of our traditional, sociable and peaceful life.

In case of stolen cards, cardholders are aware about the loss but in case of application fraud, the cardholders are not aware of it until the misuse of the cards by the forger. Our Plastic cards can be hoarded by the forger for a long time and it is quite difficult to find the source of theft. In that case cardholder has only the option to mitigate risk of fraud by regular checking of the account balances with Updated bank mini statements.
In a report of National Payment Council of India (NCPI), a malware had attacked the servers of HDFC, SBI, YES bank, Axis Bank, and ICICI and also affected more than 32 lakhs credit card which are mostly issued by Visa and Master card and some RuPay cards. Economic times claimed that malware was spread through the ATMs of Hitachi Corporation. Trak.in website announced that a malware was spread into ATM of Yes Bank in Himachal Pradesh and servers of other banks. In general, a malware in an ATM can enter in the server of the bank and can access all the details about the bank transactions, users’ details and other information such as username, Password, PIN numbers, Aadhar card and Pan Card numbers, etc. Due to the networked branches, malware is further crept into other bank’s servers and get affected there also.

Security Measures of Plastic Money

One of the key security to the plastic money thefts or frauds is the implementation of smart money by the use of smart phones as the consumption of smart phones is increasing rapidly in India, the market is huge for the smart phones in which manufacturer provide inbuilt security, biometrics system, passwords and other android application that are free of cost and can be downloaded easily.

Set an Unpredictable Pin Number (Log in and Transaction) and Protect It

Do not set your name, date of birth, address, phone number or any other personal information when you are creating your new PIN for login and transaction of your bank transactions in mobile banking or online banking. Create a unique mix of numbers and memorise it securely. You should not write it down anywhere. Generally we should change our PIN periodically for further security. Also, When we use your cards at ATMs or supermarkets or stores, ensure that you are not being shoulder surfed by any others.

Create a Strong and Unjudged Password

Create a password using a long mix of alphabets, numbers, alphanumeric and special characters with upper and lower case so that it cannot be easily judged by others.

Swipe Carefully

Be aware of various forms of ATM theft through media. Watch out for some electronic devices like skinners and scammers at your ATMs and bugged point-of-sale machine at shopping outlets, as your debit and credit card information can be stolen and misused later. As the process of our cards takes a few seconds only, it often goes unnoticed by the card-holder. When you are using your cards, make sure that you use your cards at secure outlets and ATMs.

Beware of Malware/Virus

Our electronic devices (Computer desktop, Laptop and Mobile phones) are the gateway to your banking account transactions. We should be careful about the files we download and install. By mistake, we may click any malware link that could potentially spy on your bank details and steal your personal data and bank account information like Aadhar card, Pan Card, Online bank username and Password, PIN numbers. Keep your operating system and antivirus software updated to battle the different digital vulnerabilities. If you log on to your bank account from a public computer, try to use the virtual keyboard in order to thwart key loggers Which may be installed on the electronic devices to steal keyboard inputs for login and passwords, PIN numbers, etc.
Beware of Fraudulent Attacks

Stealing of sensitive information through fraudulent mobile calls or e-mails is regularly used to find out the OTP numbers, passwords, PIN number and other bank account details of a customer, which are then used to make unauthorised transactions or online purchases or any money transfers. So customers should avoid responding to this fraudulent calls and emails from unofficial sources to prevent the misuse of our bank account. In addition, don't disclose your personal information, Mobile OTPs and PIN even if someone claims to be a bank staff.

Be Vigilant While Disposing of Documents

Your old bank statements, credit card bills and insurance premium details can be visible to the people who can use it wrongly. It may lead to misuse of your personal financial information and transactions details. You must dispose such personal documents or bank details immediately once you have done the transactions to avoid the identity theft.

Report Misuse/Loss of Card Immediately

Contact the banker or card issuer immediately as you realise that your card has been lost or stolen or misused by anyone. Banker and Card-issuing companies should provide their toll-free numbers and 24X7 hour customer services for reporting missing or stolen or misuse of the cards. Once you report the stolen or loss or theft of your card to the banker, you won't have any additional responsibility for the charges you didn't transact.

Conclusion

As there is a need of digitalization and growth of our Indian economy, we have to change our traditional way of cash transactions (cash notes) to the modern way of cash transactions like using plastic money for our financial needs. Nowadays there are various forms of plastic money in usage especially debit cards and credit cards in the payment of mobile recharge, online purchasing, electricity bills, telephone bills, travel bookings, temple dharshan bookings, room bookings and also even offline purchasing using our plastic money/cards. The use of plastic money has been using predominantly by the people as it is convenient and necessary to this digital world. Since the usage of cards is increasing, the misuse and fraudulent activities on these cards are increasing. People have to be well secured in using their cards in order to avoid the loss/theft of their hard-earned-money.

References
A STUDY ON PRIVACY-PRESERVING LOCATION PROOF FOR SECURING LARGE-SCALE DATABASE–DRIVEN COGNITIVE RADIO NETWORKS

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Abstract

The latest FCC ruling has enforced database-driven cognitive radio networks (CRNs), in which all secondary users (SUs) can query a database to obtain Spectrum Availability Information (SAI). Database-driven CRNs are regarded as a promising approach for dynamic and highly efficient spectrum management paradigm for large-scale Internet of the Things (IoTs). However, as a typical location-based service (LBS), before providing services to the user, there is no verification of the queried location, which is very vulnerable to Location Spoofing Attack. A malicious user can report a fake location to the database and access the channels that may not be available for its location. This will introduce serious interference to the PUs. In this study, we identify a new kind of attack coined as location cheating attack, which allows an attacker to spoof other users to another location and make them query the database with wrong location, or allows a malicious user to forge location arbitrarily and query the database for services. To thwart this attack, we propose a novel infrastructure-based approach that relies on the existing Wi-Fi or Cellular network Access Points (or AP) to provide privacy-preserving location proof. With the proposed solution, the database can verify the locations without knowing the user’s accurate location. We perform comprehensive experiments to evaluate the performance of the proposed approach. Experimental results show that our approach, besides providing location proofs effectively, can significantly improve the user’s location privacy.

Keywords: Location cheating attack, location proof verification, database-driven CRNs.

Introduction

The rapid advancement of the emerging wireless technology and the ubiquitous computing applications has significantly increased the demand for the communication media resource, wireless spectrum. According to the conventional static spectrum allocation paradigm, most of the spectrum resources have been assigned to the existing primary users (e.g., such as Military communications and broadcast TV). To address the ever increasing demand for spectrum resources and allow more and more Internet-of-things applications, cognitive radio networks (CRNs) have been proposed to improve the efficiency of spectrum utilization. In CRNs, primary users (PUs) are licensed users who have exclusive privilege to access the licensed channels that have been pre-assigned whenever they need. Secondary users (SUs) are unlicensed users who are only allowed to opportunistically access the channels when the channels are not occupied by the PU.

Database-driven CRNs are regarded as a promising approach to allow the dynamic spectrum sharing in many large-scale IoT applications. In database-driven CRNs, all SUs can query a database to obtain Spectrum Availability Information (SAI). Instead of spectrum sensing, SUs are required to submit a request containing its current location information to the database. Until now, FCC has designed several entities as TV band database administrator. Though database-driven CRNs are considered as a promising approach to improve the efficiency of spectrum utilization, they face serious security challenges. Most of the existing research focus on the location privacy issue. But as a variant
of location-based service (LBS), we focus on another security challenge that the user may cheat about its location when querying the database for services. Since there is no location verification for database-driven CRNs, the user can report a fake location information to the database and access the channels that are not available for its location, which can cause serious interference to the PUs. For instance, the United States has announced the spectrum sharing between federal government including military and non-government systems in 3.5GHz band, which is used by the U.S. Department of Defense (DoD) for critical radar systems. Therefore, location spoofing attack will lead to the unauthorized spectrum access of SUs and thus introduce serious interferences to the PUs, which are not acceptable for CRNs. Therefore, location verification in database-driven CRNs is highly desirable.

On the other hand, privacy issue is another important issue in CRNs. As pointed out by the existing researches, the attacker can geo-localize the SUs by tracking the users’ spectrum query or spectrum utilization history. The existing researches pointed out that, in an anonymized trace data set, four spatiotemporal points are sufficient to uniquely identify the individuals and little outside or social network information is needed to re-identify a targeted individual or even discover real identities of users. Further, loss of location privacy can expose users to unwanted advertisement and location-based spam’s, cause social reputation or economic damage, and make them victims of blackmail or even physical violence.

In this study, we study the problem of location proof in Database driven CRNs without leaking the users’ accurate location information. A straightforward solution against location spoofing attack is to enforce the users to provide location proof while querying for services. A location proof is a piece of electronic data that certifies someone’s presence at a certain location for some duration.

As Wi-Fi APs become increasingly prevalent, using Wi-Fi AP for location proof will be fairly effective, especially in urban areas. Different from the previous researches, we propose a novel hybrid infrastructure-based approach that relies on the existing Wi-Fi AP networks or the cellular networks to provide secure and privacy-preserving location proof. In the case of presence of Wi-Fi APs, the users can prove their locations under the help of Wi-Fi APs. However, in the case of unavailable Wi-Fi APs nearby, the users can turn to the cellular tower to request location proof, since the latter can provide a much larger coverage. To protect their location, we adopt the private proximity testing technology to allow the users to query the database for service without leaking their accurate location. Further, we discuss how to achieve the tradeoff of the user privacy and localization accuracy via various system settings.

The contributions of this paper are summarized as below:

- We identify a new kind of attack coined as location cheating attack in database-driven CRNs, which allows an attacker to mislead a user with a fake location and make them query the database with fake locations, or allows malicious user to claim a location arbitrarily and query the database for service.
- We propose a novel infrastructure-based approach that relies on the existing Wi-Fi AP network or cellular network to provide guarantees for location cheating prevention and location privacy for the users. The users can choose the location privacy level as he needs, and enable the user to prove his location without leaking his accurate location. We also discuss how to find the user’s optimal choice to maximize the location privacy while ensuring the service quality.

We perform the comprehensive experiments to evaluate the performance of the proposed approach. Our experimental results show that our approach, besides providing location proofs effectively, can significantly improve the user’s location privacy and also demonstrate the effectiveness of the optimal strategy.
Background and Attack Model

Overview of Database-Driven CRNs Service

The Database-driven CRNs are normally comprised of three components: a set of primary users (PUs), set of secondary users (SUs), and the database. The Spectrum Availability Information (SAI) is calculated and stored in the database based on the knowledge of status of PUs and terrain parameters. In order to obtain the SAI before starting to access the channels, the SUs should query the database. The database query process has three phases:

- **Query Phase**: An SU sends a query that contains his current location obtained from his built-in GPS location readings to the database for services. Note that, an SU can query the database for SAI of multiple locations around, i.e., in the vicinity of his current location.
- **Response Phase**: The database calculates the SAI that contains available channels and corresponding maximum transmission power (MTP) for the SU’s locations and sends it back to the SU.
- **Notify Phase**: After receiving the SAI from the database, the SU chooses an available channel from the SAI and registers the chosen channel in database. Note that, the notification message is optional. However, the notification phase is important based on the fact that the database can leverage the notification message to manage the system more efficiently.

Location Cheating Attacks in Database-driven CRN

As mentioned above, an SU receives the SAI from the database by sending a query containing its current location. Since this happens completely on the SU side, it is relatively easy to launch the attack. In what follows, we define the attack in two cases as summarized below and present more details about the possible damage.

*Active Location Cheating Attack*: A malicious SU can simply launch an active location cheating attack by reporting a fake location to the database according to his own wish. His goal is to obtain the SAI for the reported fake location to gain more advantages.

From the system implementation point of view, there are several ways for a malicious SU to forge a location and make the device believe that it is really in the fake location. In a Location Faker is developed as a system device to conduct a fake location arbitrarily which can be accepted as a real location by Android device. Figure 1 shows the concept of such location cheating. Thus, a malicious SU can implement this kind of component to forge a location as they wish, and then report it to the database to obtain the SAI for the fake location.

In database-driven CRNs, a mobile SU prefers to choosing a channel with better quality and stable available time to achieve larger communication throughput when it is moving.

According to FCC ruling, the system allows an SU to load SAI for multiple locations around, i.e., in the vicinity of its current location and use such information to obtain one or multiple available channels within that area. If the location is a little far away from his current location and also on its moving route, malicious SU can obviously launch an active location cheating attack to occupy the channels with better quality in advance and gain more benefits. For example, he obtains the SAI for location B while actually is located at location A.

![Fig. 1 Illustration of active location cheating. Location Faker generates location B and makes the device believe it is really in location B.](image-url)
(see Fig.1). Then, he chooses a channel with better quality and sends a notification message to the database, thus making the database believe that he is accessing this channel while he is actually not. If the attacker chooses several channels, this introduces Denial of service (DoS) to other SUs in location B, and also causes loss of the quality of service.

**Passive Location Cheating Attack:** The attacker is another malicious attacker that is located in the same cell with the victim who is launching a query towards the database for SAI. The attacker’s goal is to mislead the victim that he is located in a wrong location and obtain the wrong SAI, which will introduce the interference to the PU.

As pointed out in [12], an attacker can use GPS spoofing device (like a GPS signal simulator) to generate and broadcast fake GPS signals synchronized with the real GPS signals to the target receiver. Then, the fake GPS signals gradually overpower the real GPS signals and replace it. Finally, the target receive locks on the fake GPS signals. After replacing the real GPS, the attacker can fool the target receivers to an arbitrary location. If all victims receive the fake signals from the same attacker, they are all spoofed to the same location $L'$ as shown in Fig.2. Thus, a malicious SU can launch such an attack to spoof SUs that are located in the same cell and make them query the database for services by reporting the spoofed location.

Then, the attacker can occupy the available channel with better quality for location L as his exclusive channel to achieve better transmission throughput. The SUs who query the database for services with spoofed location $L'$ may also cause interference to the primary users, since they access the channels that may not be available for location L.

### System Architecture

To prevent SUs from cheating their reported locations, we propose a novel infrastructure-based approach which is based on an infrastructure of Wi-Fi APs or cellular towers to provide secure and privacy location proofs, such that the database can verify the reported location before providing spectrum services. In this section, we describe the different entities involved in our system: SUs, a Wi-Fi AP network operator or a cellular network, and the database that contains SAI provider database, location proof server, and certificate authority (CA). Figure 3 depicts the overview of the system we consider.

### The Users

We assume that some users are going to obtain the Spectrum Availability Information (SAI) from the database when they are moving. According to the latest IETF paws-protocol, a user is allowed to query the database for the SAI by submitting a region that contains his location [1]. To protect the location privacy, we assume that the location submitted to the database by the users specifies a region. These users are equipped with GPS, Wi-Fi, and Cellular-enabled devices, and are capable of connecting to the Internet through WiFi or Cellular networks. We also assume a unit-disc model for Wi-Fi APs and cellular towers, that means a user can communicate with a Wi-Fi AP or a cellular tower only if the distance between them is lower than a given radius $R$, which is equal for all users, Wi-Fi APs and
cellular towers. Before querying the database for services, the user should obtain the location proof from a Wi-Fi AP or a cellular tower firstly.

To protect the user’s privacy, the users will register to the Certification Authority (CA) with some randomly generated pseudonyms and they can use such pseudonyms to protect their privacy while gaining location proof. A pseudonym contains a public/private key pair \((K_{\text{pri}}, K_{\text{pub}})\), generated with a public-key encryption scheme. The public key \(K_{\text{pub}}\) serves as the pseudonym of the user, while the private key \(K_{\text{pri}}\) enables the user to digitally sign the message. We assume that users do not give their pseudonyms to other users, and the pseudonyms also should not be easily spoofed and cloned. While registering, we also assume that the CA can generate some other public/private key pairs \((PK_{\text{pri}}, PK_{\text{pub}})\), in which \(PK_{\text{pub}}\) is given to the user and \(PK_{\text{pri}}\) is kept by the CA.

**Wi-Fi AP network and Cellular network**

We assume that there are one or multiple Wi-Fi AP networks or cellular networks and each network contains a set of fixed Wi-Fi APs or cellular towers deployed in the area. Each Wi-Fi AP or cellular tower knows its geographic position and its transmission range and can embed its location information into the location proof. All Wi-Fi APs or cellular towers have synchronized clocks within a few hundreds of milliseconds (this can be achieved by using the NTP [3]). Each Wi-Fi AP or cellular tower from the same network shares a public-key group key pairs \((ttK_{\text{pub}}, ttK_{\text{pri}})\), in which \(ttK_{\text{pub}}\) is known to the users and the database, whereas \(ttK_{\text{pri}}\) is only known to the Wi-Fi APs or the cellular towers.

We assume that the Wi-Fi AP network and cellular network are honest but curious, which means that they will obey the rules that we proposed and also may be interest in tracking the users’ locations based on the collected information. We also assume that the Wi-Fi AP network and cellular network do not collude with the database.

**Database**

To prevent users from cheating about their location, we need to add the location verification functionality in the database’s side, thus in our system we make a little change to the database and divide it into three parts: Location Proof Server, Certification Authority (CA) and SAI Provider Database.

1. **Location Proof Server**: Location proof Server directly communicate with the users who submit their location proofs. The goal of the Location proof Server is to collect location proofs. As the identities of the location proofs are stored as pseudonyms, even though the Location proof Server is compromised by the attacker, it is impossible for the attacker to know the real identity of the location proof.
2. **CA**: As commonly assumed in many networks, we consider an online CA run by a trusted party. CA is the only party who knows the mapping between real identity and pseudonym. CA also knows

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the secret key $PK_{pri}$ corresponding to the user, since the location proof is encrypted with $PK_{pub}$, thus it can use $PK_{pri}$ to verify the location proof. We assume the CA is trusted and does not collude with the WiFi AP network.

3. **SAI Provider Database:** The SAI Provider Database is more similar to the traditional database described in the previous database-driven CRNs system. After the verification of location proof is pass, the Location Proof Server will submit the region in spectrum request to the SAI Provider Database. Then, the SAI Provider Database will calculate the SAI for the region and send it back to the user.

### The Proposed Privacy Preserving Location Verification Scheme

In this section, we present our approach for privacy-preserving location verification (PPLV) scheme. First, we give an overview of the proposed approach and define the main processes it involves. Subsequently, we present the detailed work flow. Finally, we analysis the security and privacy. **Fig.3** shows an overview of the approach and main processes involved.

#### Overview of PPLV

As Wi-Fi APs become increasingly prevalent and can provide more accurate location proof, in our scheme, the users prefer to requesting location proof with Wi-Fi AP; while there are no Wi-Fi APs nearby, then the users choose the nearby cellular tower to request for location proof. To protect the location privacy, we adopt a grid reference system with different levels to represent locations, and users can choose appropriate level to query for location proof.

In the case of cellular tower, since the cellular tower can provide a larger coverage, the user does not need to specify the region. He specifies a granularity of level to protect his location privacy, and requests location proof with the cellular tower. Then the cellular tower embeds its coverage to the location proof and sends back to the user. Then the user can query the database for services by submitting the location proof containing the cellular tower’s coverage. Finally, the database calculates the SAI for the coverage and sends back to the user.

In the case of Wi-Fi AP, since the Wi-Fi AP’s coverage is much smaller than the cell size, the user not only specifies the granularity of level, but also specifies the region. To further protect the location privacy (i.e. enable the user to prove his location without leaking the accurate cell to the database), we adopt private equality testing to determine if two cells match without revealing the exact cell number. The basic idea is that if the user is located at cell $a$ and Wi-Fi AP is located at cell $b$, CA learns if $a = b$ and nothing else.

#### System Initialization

**Global setup:** The location of a user can be defined with different granularities. The user may want to define their location in appropriate granularity under different situations. For example, the user may be willing to use fine-grained location information in urban area while using coarse-gained location information in countryside. As show in Figure 4(a), the system adopts a grid reference [9] to represent locations,
where grid indices represent areas covered by grid cells. All users, all Wi-Fi APs, all cellular towers and the SAI provider Database share a list of coordinate-axis aligned grid system denoted by $\Gamma(l)(l = 0, 1, 2, \ldots)$ of different levels. For each level $l$, the grid cell size, i.e. width and height, is fixed and equal. The grid cell size at level 0 is equal to $250m$, and the size at level $l - 1$ is always lower than that at level $l$. Every grid cell $c \in \Gamma(l)$ is identifiable by an index $id(c) \in N$ and is fully contained by several grid cells $c \in \Gamma(l - 1)$.

Here, $P_{user}$ denotes the user’s pseudonym; $n$ denotes the beacon’s sequence number or preamble’s random number; $l$ denotes the granularity of level. $t$ denotes the request time. $R_{user}$ is a set of cell ids that denote the region that the user queries for. $C_{loc user}$ encrypted with the public key $P_{Kpub}$ contain the user’s location information.

**Conclusion**

The proposed system identify a new kind of attack coined as location cheating attack in database-driven CRNs, in which users can cheat their locations to gain more advantages, and this can cause interference to PUs. To thwart this attack, we propose a novel infrastructure-based approach that relies on the existing Wi-Fi AP network or cellular network to provide secure and privacy location proof. On the one hand, we use a grid reference system with different granularities to represent locations, on the other hand, we adopt the private proximity testing technology to further improve the user’s location privacy. We conduct the program to find the optimal strategy to maximum the user’s location privacy. Simulations well demonstrate the effectiveness and efficiency of the proposed approach. Experiments by using the SAI of Atlanta in white space database release on TV Fool show the tradeoff between location privacy and service quality and demonstrate the effectiveness of the optimal strategy. Our future work includes other security issues in database-driven CRNs.

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