Opportunities and Challenges of the Adopting of National Electronic Payment Switch System in Private Commercial Banks: The Case of Wolaita Sodo City, Southern Ethiopia

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Abstract
The introduction of an efficient national switch payment system ensures speed, and convenience, reduces cost, lowers payment risk and directly affects the efficiency of the circulation of goods and services and the overall development of the economy. The main objective of this study is to assess the major opportunities and challenges of adopting the national switch system in the case of selected Ethiopian private commercial banks. The research is designed as an assessment of the payment system through seven selected private commercial banks so that the findings give insights into other commercial banks operating in the country. Both primary and secondary data are issued as sources of information. A questionnaire was issued as the main instrument to collect primary data, and secondary data was reviewed from various publications. Regarding methodology descriptive with survey method applied. The target population for the study is 120 and also used for the study. Data is analyzed using SPSS tools and results are present based on statistical mean and standard deviation values. The finding from the analysis shows that: the National Switch System updates or improves payment instruments, significantly lowers or impairs commercial banks' cost to introduce new services to their customers, and saves customers resources in terms of time and money furthermore having recently discovered services and functionalities, assist to the NBE's financial addition strategy and can be taken as a tool to create a cashless society, and it is also one of the path for income generation for commercial banks. On the opposite, the National Switch System is subjected to challenges like: Network and power fluctuation, poor settlement and chargeback process when there is a disputed transaction, poor collaboration between commercial banks to answer customers requests, and lack of proper call centre to handle customer complaints in quickly, lack of confidence and fear from customers, poor awareness by customers, recognized complexity and cost.

Keywords: Ethswitch, National Switch System, Banking operations, Customer Adoption, Challenges

Introduction

Background of the study

The world changes every day. That change brings many new things that can change people's way of life. Every technological change comes to the society. From one of them, the banking industry is the most one. In the world finance sector payment system is changing at a high speed in Ethiopia cash is still the most dominant medium of exchange and other payment systems are not well known, but switch payment is produced to reduce the transactions made by physical cash. A payment switch is an independent entity, a provider of software that assists in communication between various providers and performs payment and settlement processes.

The main functions are to facilitate real payment processing between providers, accept payment requests, choose the provider it needs to route a transaction to according to the payment request, format and send a message to the provider, receive a response generally format the response and issue it back to the caller. A payment switch no longer processes only credit card or debit card authorization transactions. Nowadays, we have more payment options, so a payment switch must adjust to changes. Apart from debit cards and credit cards, a payment switch has to process the transactions based on prepaid or loyalty services, value-added services (VAS) such as immediate payments, premium payment recharges and other token vaults, merchant and support services, devices management system (ATMs, POS, MPOS), key management (key handling, key rotation and key sharing), dynamic currency conversation to support foreign currency transaction and reconciliation and settlement.

New payment modes with growing complexities are being introduced. Cell phones and Prepaid cards can be used as digital wallets and contactless payments will soon be introduced. Internet-based shopping can be made by credit cards or alternative online payment options like PayPal, Google Checkout, etc. These are just a few examples of the change and complexity in retail payments, all in the name of cashless transactions.

The national financial switches enabled the interconnectivity between the bank's switches such that the transaction made at any ATM could be routed to the connected banks. This is done to connect all the ATMs in the country and facilitates easy banking for the common man residing anywhere in the country.

The customer always wants new technology. Because the customer interacts with many innovations an outdated one is not needed by the customer. As a result, any bank should serve its customers in the way they want with the improved technology. Nowadays in Ethiopia there are 16 private commercial banks. This payment system trying to connect all of them with its opportunities and challenges. So, the study will try to look at those details.

Background of the Organization

A Payment Switch is a system that can interface with any POS system, Automated Teller Machine (ATM), Mobile Payment System and Internet-based commerce portals, consolidate all electronic transactions and then intelligently channel them to one or more payment processors for authorization and settlement. The National Payment Switch will be a new feature in the card payment system. It will offer an option to route transactions made with locally issued cards to a central point (the Switch), for settlement at the Bank instead of being routed through the network of international card schemes. The National Payment Switch will have a single interface with those global card payment processors which agree with the National Payment Switch for processing the transactions of their locally issued cards.

Here in Ethiopia, every bank started electronic banking service with the system so-called EthSwitch system. EthSwitch would now like to modernize its operations and thus needs to acquire state-of-the-art ICT infrastructure and solutions to meet the requirements of a robust national payment switch company. EthSwitch S.C (the national payment switch of Ethiopia) was established as a share company owned by all banks operating in Ethiopia and the National Bank of Ethiopia (the central bank). EthSwitch was established mainly to provide simple, affordable, secured and efficient retail e-payment infrastructure service, particularly payment switching and clearing services that ensure interoperability, to payment service providers.

EthSwitch s.c is committed to digitising Ethiopia's national retail payments to transform it from the current risky, unsafe and unsound traditional legacy system to a modern efficient, secured and safe system that uses several convenient payment instruments. To fulfil its commitment, the company has prepared an EOL document. EthSwitch through this EOL will start the process of selecting a service provider (system integrator) that can provide state-of-the-art interoperable digital finance and payment systems. These payment systems are intended to facilitate multiple interoperable retail transactions, whether big or small. This may include: payments to buy goods and services, pay salaries and subsidies, pay taxes, make remittances, pay utility bills, and pay traffic penalties.

This national payment system is implemented in three phases. The first phase includes the go-live of two ATM products: cash withdrawal, balance inquiry, and reversal; and the go-live of six POS products including pre-authorization, purchase, refund, reversal, balance inquiry, and pre-authorization completion.

Statement of the Problem

Even if the national switch system is highly developed in the world our country is still underdeveloped and lacks acceptance by the customer, ignorance, infrastructure issues (Network and Power), dispute and chargeback handling process, settlement and others.

By nature, human beings are not interested in accepting new or strange things and stopping old things. Because of that the customers hesitate to accept the new technology and to stop the old way of payment system. They do not believe and feel fear for the new payment system. Lack of Technical support unavailability, lack of trained human resources, lack of coordination and cooperation among banks (issuer and acquirers), branches, districts and EthSwitch process is highlighted together with lack of clear legislation on consumer protection., technological and network problems specifically network failure and system failure, payment modality, security, infrastructure, foreign dependent technology, legal, regulatory issues and users' resistance to change are among the major challenges in adoption of the National switch payment system.

The system by itself is not well cleared for the customer. That means how to use it. They fear to ask the employees of the bank who know about the technology. Even the sector is not much studied to a great extent from the perspective of e-banking.

There is no detail or much studies have been conducted on the challenges and opportunities associated with it. Thus, this study tries to fill this gap and contribute to the literature on electronic banking services in Ethiopia.

Objectives of the study

General objective

The general objective of this study was to assess the opportunities and challenges of the National e-payment switch system in the private commercial bank of Ethiopia.

Specific Objectives

The specific objectives of the study are:

1. To identify the existing opportunities realized by private banks for the adoption of a National e-payment switch system and
2. To examine the challenges that hinder while adoption of national e-payment switch systems in private commercial banks.

Literature Review

According to (Kabir et al.) in the last two decades, National Switch Payment Systems (NSPS) have attracted much attention from researchers and information system designers due to their vital role in modern electronic commerce. This led to wide and in-depth research that produced different perspectives on e-payment definitions among others. These definitions were mainly viewed from different perspectives ranging from scholars in the field of accounting and finance, and business technology to those in information systems. A switch is a device in a computer network that connects other devices. Switches manage the flow of data across a network by transmitting a received network packet only to one or more devices for which the packet is intended. A switch is a device for making and breaking the connection in an electric circuit. It enables/disables the flow of current to the device so that it can be used whenever necessary. A switch can be used to turn on

and turn off a device. It completes the flow of current in a circuit or keeps it open.

A payment occurs when one party, the payer, transfers an asset to another party, the payee, to discharge a debt incurred by the payer. Or, a payment may consist of the payer's instruction to a third party to make such a transfer. While in principle a payment may be made with any asset, in practice virtually all modern payments involve transfers of debt claims on either a central bank ('outside money in the form of both currency and deposits') or private banks ('inside money', today almost always in the form of deposits). A payment system, in turn, consists of a set of technologies, laws, and contracts that allow payments to occur and determine when a payment constitutes settlement. Payment systems include currency, checks, credit and debit cards, electronic funds transfers, internet banking, and so on. Developed economies depend critically on the efficient functioning of such systems. On the one hand, by offering debtors low-cost and trustworthy means of settling their debts, payment systems stimulate the use of credit, and thus economic activity more generally. On the other hand, unsafe and inefficient payment systems may hamper the efficient transfer of funds among individuals and economic actors

Since the 1960s the payment systems have grown complexity in operations and have been expanding rapidly. People overcoming barter in history, trade regularly involves the exchange of goods and equal conceptual values, such as money.

(Foster et al.) examined the consumer payment methods concerning cash holdings and withdrawals which have been decreasing since 2010. There was an increase in the card payment system concerning 2009 in the year 2010, which resulted in less usage of paper currency. Since 2010 there has been an increase in the usage of debit and credit cards compared to cash transactions which slowly took a decline giving rise to prepaid payments.

National Payment Switch Concept

One of the objectives of the NPS-inter-bank switching platform for various payment channels. The switch was designed in the ISO 8385 messages format (card messages). Demand from banks to have a direct interface with core banking.

Value Added Service of the NPS

Revenue generation opportunities. POS become an active device and merchants propose switch-supported payment services such as phone cards, and gift card trees. Administrative efficiencies (centralized reporting, integrated POS). Low-cost sharing Of ATMs. National cards and store value pension cards, transport cards and other social benefits. Digital integration services.

Benefits to Corporates

Shifts from a product-centric to customer customer-centric approach. Ability to choose the service of another operator without changing banks. Wider choice of payment options- Direct credit and Direct Debits, instant credit and debits. Bill payments, person-to-person payments. Wider choice of payment acceptance options (POS, QR code, online payment gateways). Avenue for other players such as POS providers, network providers, and value-added switch-enabled services. National payment systems are the conduits through which buyers and sellers of financial products and services make transactions and are an important component of a country's financial system. Global financial liberalization and advancements in information technology have enabled significant updates to the architecture of large–value, retail and securities payment systems as well as the process and procedures carried out by operators, administrators, regulators and users of the systems. In a large number of countries, a significant measure of responsibility for the integrity of the national payment system exists within the central banks. A country's payment systems are the financial technological infrastructure that allows commercial and financial transactions to operate efficiently and unimpeded. These payment systems also connect a country's financial activity to the global economy. Because of their critical nature, these payment systems are maintained by a country's central banks and overseen by government regulators. A National Payment System (NPS) is a configuration of institutions supported by an infrastructure of technology-driven processes and practices to facilitate commercial and financial transfers between buyers and sellers. A country's payment system reflects its banking and financial history and the

development of supporting communications and technology platforms. The market for payment system services operates according to supply and demand as with any market On the demand side, users seek easy availability of payment instruments and services to meet their various financial transactions from large-scale bank transfers to point-of-purchase transactions with retail credit instruments such as credit and debit cards. Users favour low transaction costs, interoperability between different systems, security, privacy and legal protection. On the supply side, payment services provide a source of revenue for banks and other financial organizations and open up markets for providers of technology and communications products and services.

Benefits of National Switch System to the society

Modern technologies change everything and money is not an exception. The digitalization of financial services is on the rise and people are quickly adopting new ways to pay. Cash is losing its position as the predominant payment method, being replaced by E-money which is gaining increasing popularity among people.

Cost saving

In Mauritius, the current setup of card-based payments in Mauritius is based on the concept of a one-to-one direct relationship with the payment processors resulting in multiple investments and processing costs. Switches are designed to be payment processor neutral and are therefore easily interfaced with virtually any payment processor. This processor neutrality, combined with insulation of the POS from payment processor connections, will give merchants as well as card issuers maximum flexibility when it comes to evaluating their payment processing relationships. Cost savings will therefore be achieved on multiple fronts, namely: Switch will allow direct routing of authorization requests and elimination of intermediate arrangements and related processing costs. The switch will also allow batch settlement of transactions instead of single transaction processing. The Switch will have a direct connection with the credit card associations, thus eliminating per-transaction conveyance fees (estimated at 10% per total merchant fee) charged by processors to route these transactions.

Speed

Also Electronic transactions are carried out instantly, eliminating problems such as long queues in stores and waiting for changes. In addition, money transfers between virtual accounts take a few minutes, while a wire transfer may take days.

Consumer Convenience

National switch payment can be used anytime, anywhere. It removes the hassle of currency exchange and this is why it's ideal for international transfers and remote payments.

Security

With National Switch, you are guaranteed your personal information is not shared with anyone, thanks to advanced security measures like authentication and tokenization. What's more, it cannot be copied or reused once it's been spent and the risk of losing cash is eliminated.

Revenue Generation Opportunities

Payment switches are typically integrated and certified with multiple processors across numerous tender types and payment products. Merchants can offer a wider range of payment and service options to customers. This will allow merchants to attract more customers and propose switch-supported payment services such as phone cards, and gift card trees. There will be a revenue opportunity cost if merchants fail to rapidly adopt such new payment products.

Record of all Transactions

Unlike cash payments, digital transactions are recorded and you can keep track of every payment and expense. Leopard, for instance, provides comprehensive reporting of all account activities as well as real-time monitoring.

Unifying E-Payment platform for Ethiopia

Ethswitch is an offspring of the national payment systems development strategy of Ethiopia. It also fully aligns with the financial inclusion strategy of the country. These strategies are both crafted and led by the National Bank of Ethiopia. Ethswitch main rives are developing an efficient, reliable and safe e-payment platform infrastructure for Ethiopia

that complies with international standards and best practices, Fits into the Ethiopian environment by providing due consideration to the Ethiopian customs and business practices and supporting the needs of its participants and users, is cost-effective to its participants and users and affordable to end users, improve financial intermediation through enabling effective and efficient collection and payment mechanisms, buoys up international and local remittances, helps expanding access to financial services and is conducive to the development of the Ethiopian economy. In its day-to-day operation, Ethswitch provides the following for all interbank transactions passing through the Ethiopay infrastructure: Instant payment to the bank customers, Next business day settlement between banks, based on the calculated net settlement position of each bank obtained through an automated multilateral netting process. Online dispute management and settlement. Here it should be noted that, EthSwitch doesn't directly provide cash-out, remittance, bill payment, fee payment, top-up, direct debit/credit, e-commerce, and the like access level services, but enable such services to be given by financial institutions or third-party service providers to the entire Ethiopian financial industry customers. Through this approach, Ethswitch also helps to strengthen competition, thereby innovation, to bring the Ethiopian e-payment landscape to a fundamentally higher level, with a wider opportunity for sustainable growth, in population of 100+ million.

Challenges of the National Switch Payment System

The changing financial landscape has brought with it new challenges for bank management and regulatory and supervisory authorities. The major ones stem from increased cross-border transactions resulting from drastically lower transaction costs greater ease of banking activities and the reliance on technology to provide banking services with the necessary security.

The infrastructure is not good enough. There has to be collaboration between banks, central banks, telecom service providers and the government to promote mobile/ internet payments and thereby contribute to the economy.

The internet is ubiquitous and global by nature. It is an open network accessible from anywhere in the world by unknown parties, with the routing of messages through unknown locations and via fast-evolving wireless devices. Therefore, it significantly magnifies the importance of security controls, customer authentication techniques, data protection, audit trail procedures and customer privacy standards. Lack of network infrastructure, security problems awareness level of users, and inadequate law and regulation are the major challenges that banks these days face to make payments electronically in Ethiopia. The payment system of any country, though advanced and sophisticated, does face various risks, viz. bank failures, frauds, counter-party failures, etc. Such aberrations could trigger a chain reaction that might ultimately result in disruption and distrust of the payment system.

There is not too much knowledge about it in the society. Limited vision, leadership and trust among the principal stakeholders. pport and commitment to reform from public and private stakeholder groups due largely to inadequate consultation, limited expertise and financial resources for developing and implementing reform initiatives, legal, regulatory and other public policy impediments to development that compound the natural risk aversion. The important issue is privacy. Currently, online merchants usually require consumers to fill in detailed private information, including address and credit card information. Consumers do not like to have their shopping activities easily traceable. Consumers want easy access to premium content without the hassle of disclosing personal credit card information to unknown sites or going through a tedious registration and authorization process. According to the users, payment needs a network to provide services to the users. Most of the machine fails to provide a service because of poor network connection and also frequent power interruptions: lack of reliable power supply is a key challenge (Sherferahu and Gezu).

Opportunities of the National Switch System

It greatly increases payment efficiency by reducing transaction costs and enabling trade in goods and services of very low value. They may also increase the convenience of making payments

by enabling them to be swiftly and remotely from various devices connected to global networks.

Benefits to the Customer

It offers substantial advantages to customers in the form of convenience, time-saving and easy access to banking services. The customers can transact in their account at any time and anywhere throughout the country or outside the country. There is no time and place restriction. The customers need not visit a branch for every transaction and no need to wait in long queues. By this, they can save time. The customers can avail 24 hours a day and 7 days a week access to banking services anywhere. With the help of e-banking, easy access to the banks will be another advantage to the customers. Thus e-banking provides sophisticated services to the customers.

Ease of carrying out Transaction

For those who carry out transactions daily to buy some, or another product or service, going digital is quite beneficial. It aids the users by giving an option that is safer, quicker and more convenient during travelling time. It helps the users be free of carrying wads of cash, and plastic cards (debits, credited.) and even helps in letting go of queues for ATM withdrawals. Moreover, during times of emergency, it does not require one to be physically present anywhere for the money to be paid. E.g. Digital wallets: Digital wallets provide a quick, seamless and convenient way for merchants as well as customers. This also helps save immense time for the users so that the users can utilize time for other important tasks/ aspects.

Option to deactivate in case of theft or any accident

Digital payments have the upper hand over making cash transactions since a digital payment platform can be blocked immediately in case of theft. But it is not the same with cash payments, since the cash once gone, has minimal to zero possibility of coming back to you. Moreover, carrying bundles of cash with oneself while travelling is never recommended and neither is easy.

Benefits to the Economy

As national switch payment provides an opportunity for the banking sector to enlarge its customer base, it has a consequence to increase the volume of credit creation which in turn results in better economic conditions. The positive impacts of electronic banking are immense for the economic development of a nation. Some of the economic benefits of e-banking as identified are as follows:

Reduction of the cost of printing cash notes and its related distribution: In a cash-based economy, governments are required to invest a great deal of funds in printing cash notes and distributing same to the public. Due to the manual transfer of currency between individuals, the life of cash notes is very minimal. As a result of this frequent wear and tear, the magnitude and frequency of the investment in cash note printing as well as its related distribution is significant. In the case of electronic payment systems, the transaction values are transferred from one account to another using electronic means, reducing the need for cash note distribution. Thus, by encouraging the acceptance of payment cards, governments can achieve huge cost savings for their economy in terms of reducing cash note printing and related expenditures.

Enhancement of Aggregate Deposit: When people start to increase the proportion of their savings compared to their daily consumption, the saved money can be utilized for investment purposes that in turn will create employment opportunities. This is a great benefit for the economy as a whole. However, individual savings could not bring this kind of impact. The benefit can only be obtained when savings are made in a banking system whereby the saved fund can be deployed to the economy in the form of a loan to encourage the required investment. In national payment card infrastructure, people do not need to carry cash notes for their day-to-day expenditures as well as contingencies. They rather are encouraged to deposit their fund in the banking system and obtain a single plastic to access this fund at any time of the day when the need arises. This implies that unused funds are always in the banking system which helps to facilitate economic growth.

Banking the unbanked: While the electronic payment card infrastructure is diversified, payroll

for employees can be handled through this system. Besides creating ease and convenience, both for the employer as well as the employee, it enables individuals to enter into the banking system which they may not be interested in otherwise. Such impact of banking the unbanked population also has a benefit in increasing aggregate deposits as indicated above. In general, a safe and efficient national payment system supports a smooth flow of money in an economy to help create new opportunities for commercial and financial transactions that would not otherwise exist and lower the real and financial costs of all transactions.

Historical Review of National Switch Payment

Throughout history, human beings have relied on some sort of payment system to purchase the goods or services we wanted or needed. Starting with the bartering system, humans began to use livestock, grain, shells, metal coins, pieces of white deerskin, wampum, gold, gold-backed dollars, charge cards, credit cards, the us dollar and most recently, electronic payments. If there has been one consistent theme regarding the evolution of payments, it's that we prefer payments that are convenient and transactional. These preferences began to take shape in the early 20th century with the introduction of the charge card. Soon after, department stores, service stations and hotels also began offering charge cards to customers so they didn't have to travel to their hometown bank. After the introduction of the diners' club card in 1950, the credit card industry began to resemble what we are familiar with today.

The history of the national switch system can be traced back to 1918 the time when the currency was first moved in the United States (U.S.) by the Federal Reserve Bank with the aid of a telegraph. However, that technology was not widely used in the US until the time when Automated Clearing House (ACH) was incorporated in 1972. Since that time, electronic currency has become widespread. This enabled U.S commercial banks and its central treasury with an alternative to cheque payment.

Empirical review

National Switch Payment System in Ethiopia

According to EthSwitch, the development of the Ethiopian banking system has largely been affected by the dominance of cash. In Ethiopia, cash is "king" since the bulk of personal consumption is done through the medium of cash. For big companies in particular, this has resulted in the problems of cost and delay, arising from the counting, bundling, transporting and depositing of large volumes of cash, as well as the risk and inconvenience of dealing with counterfeiting and the treatment of notes. Though there are no official statistics on the banking services of the country, it is estimated that out of a total population of 100 million, less than 10 per cent are getting banking services. Cash remains the main method of payment especially among individuals. Although the number of bank account holders has been increasing since the liberalization of the banking industry in the country, the account holders are mainly high-income earners in urban areas. This may be due to the concentration of bank branches in the major cities and towns. The payment system is manually handled using papers that move from banks to the National Bank of Ethiopia. To improve the payment system of the country, the National Bank of Ethiopia (NBE) is working on the modernization of the National Payment System project that encompasses the following components:

1. RTGS (Real Time Gross Settlement);
2. ACH (Automatic Clearance House);
3. Central/ National Switch; and
4. Central Security Deposit (CSD).

From the experience of other countries' banking services, electronic payment systems are found to benefit commercial banks by extending the bank customer base; reducing operating costs; enhancing customer service and improving banks' competitive advantage. For example, some proactive banks have considered cards as strategic products to broaden their customer base, cut down paper-work, invoices and cashier's service, and build a competitive advantage over other banks without card products.

Even if there is much research done. Challenges and opportunities are still unseen. However this paper tried to identify the challenges and opportunities.

Central Bank of Turkey

The growth and spread of Internet banking services have been unexpectedly strong, reflecting a high degree of public acceptance. First, introduce introduced in 1997, internet banking is now provided by all deposit-taking banks, allowing consumers to make account balance enquiries, transfer funds (including transfers to third-party accounts with other banks), trade mutual funds or stocks, apply for loans, pay credit card balance or bills and trade or transfer foreign exchange. In addition, other services, such as operations related to insurance and pension funds, are increasingly available via Internet banking.

Research Methodology

This chapter describes the research methodologies for the study to respond to the proposed research questions and objectives. It covers research approach, design, types, sampling techniques, samples, procedures, instruments and methods. Research validity and reliabilities as well as ethical considerations are specified here.

Research Approach

To achieve the main research objectives, a quantitatsive research approach was employed for this study. The researcher collected quantitative data concurrently and compared the data to determine if there were differences.

This study is quantitative research because opportunities should be described and it can be measured by numbers. The research involves the administration of a set of structured questions with predetermined response options for a large number of respondents.

Research Design

Research design represents the major methodology driving the study. It was a distinctive and specific research approach. This is best suited to answer the research question. The study used a descriptive type of design to answer the objective of the research. And it is quantitative. Descriptive research design is used to describe an event or phenomenon as it exists at present and aims to accurately and systematically describe a population, situation or phenomenon. It can answer what, where, when and how questions. Descriptive research was used to obtain information concerning the current status of the phenomena and to describe "what exists" concerning variables or conditions in the situation.

Population of the study

The study considered relevant employees involved in e-banking departmental arrangement, card operations unit, merchant management unit, mobile banking and internet banking management unit, dispute and chargeback management unit, account settlement management unit, and system administration units of the banks. E-banking employees from selected seven private commercial banks, which were categorized under three major groups as Switched, PSS and hosted members were considered. Therefore, employees from Bank of Abyssinia, Dashen Bank, Awash International Bank, Cooperative Bank of Oromia, Nib International Bank, Oromia International Bank and Buna International Bank were considered. The total population selected from a given private commercial banks and Ethswitch for this study is 120.

Sampling Technique

Convenient sampling techniques were employed by the researcher. The total population selected from a given private commercial bank and Ethswitch for this study is 120. These representative commercial banks were chosen based on their system interfacing with the national payment system i.e. a Switched member, PSS member Banks and Hosted member Banks.

Table 1 Selected Private Commercial Banks

Number of Private Commercial Banks and EthSwitch	Size of E-banking employees
Bank of Abyssinia	20
Dashen Bank	14
Awash International Bank	19
Cooperative Bank of Oromia	16
Nib International Bank	12
Oromia International Bank	17
Buna International Bank	10
Ethswitch	12
Total population size n = 120	

Instrumentation

During the study primary data was used and this data was collected by using structured questionnaires intended to collect participants' opinions on the statement which stated to assess what opportunity the national switch system has brought to society at large and the country in general and the challenges from there. Questionnaires were designed and arranged based on the relationships of the specific assessment questions and in a way that enabled respondents to answer questions accordingly. Therefore, the first section of the questionnaire contains questions to collect background information of the participant. The second part of the questionnaire emphasizes those opportunities about the national payment system, while the third and final part of the questionnaire was challenging on the subject matter.

Method of Data Collection Techniques

The primary data were collected using self-administered questionnaires which is drop and drop-and-pick method to and from the branch of each selected private commercial bank by the researcher. The scaling approach used five-point Likert scale with response categories (Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree) as it is the most widely used approach. A questionnaire was delivered to respective private commercial banks, which from there, was distributed through immediate supervisors. The data was gathered from a total of 120 employees working at the e-banking operational area of seven selected private commercial banks and Ethswitch.

Analysis of data

The software so called Statistical Package for Social Science was used to present and analyze the data that the researcher obtained from questionnaires. For measuring the average opinion that is given by the respondents on the subject is provided by the questioner's standard deviation and the mean were used to show how the value is obtained by the participant's opinion dispersed from the mean. For interpreting the data, Frequency, Percentage, Mean Score and Standard deviation values were used.

Result and Discussion

To assess the opportunities and challenges that resulted from the adoption of the National Switch System, in the case of selected private commercial banks in Ethiopia. Therefore, this part of the paper tries to analyse, summarize and present the result of the collected data from e-banking employees of seven selected private commercial banks operating in the country and Ethswitch. In addition to this, background information of respondents is presented. Employees who are working on e-banking operations and technical personnel were only chosen.

Demographic Profile

This part presents the demographic profile of respondents, which relates to their age, group, gender, educational level, service year and private commercial bank that they are representing. The profiles of the respondents who participated in the study were analyzed using descriptive analysis with the help of SPSS.

Table 2 Gender Composition of Respondents

S. No.	Gender	No.	%
1	Male	75	62.5
2	Female	45	37.5
Total		**120**	**100**

Source: Survey result

As the table above shows us, from the total respondents male respondents obtain the largest parts of respondents, which is about 62.5% of the sample size, while female respondents cover 37.5% of the total.

Table 3 Age Category of Respondents

S. No.	Age	No.	%
1	20-30	64	53.3
2	31-40	42	35.0
3	41-50	14	11.7
Total		**120**	**100**

Source: Survey result

The demographic data on the respondents' age show that 64 respondents representing 53 (%) have their age fall within 20-30 years of age; 35 (%) respondents have their age fall within the age group of 30-40 years; 11.7 (%) respondents have their age fall within the age group of 40-50 years.

The relevance of the age range here helps whether youngsters or old age groups are included within the sample size.

Table 4 Academic background of respondents

S. No.	Categories of Academic Qualification	No.	%
1	First Degree	104	86.7
2	Master Degree	16	13.3
Total		**120**	**100**

Source: Survey result

Table 4 explains the academic background of the respondents in the study area. Most of them 104 (86.7%) are first-degree holders and the rest of them 16 (13.3%) are Master's Degree holders and there is no diploma holder in the study area.

Table 5 Position of Job

S. No.	Categories of Jobs	No.	%
1	Junior Officer	17	14.2
2	Officer	48	40.0
3	Senior Officer	39	32.5
4	Manager	9	7.5
5	Director	7	5.8
Total		**120**	**100**

Source: Survey result

Table 5 indicates the categories of Job positions of the respondents. In ascending order of the respondents categorized 48 (40%) are Officers followed by 39 (32.5%) are Senior Officers, Junior Officer 17 (14.2%), manager 9 (7.5%) and only 7 (5.8%) are Director category.

Table 6 Selected Private Commercial Banks covered in the study

S. No.	Types of Private Banks	No.	%
1	Bank of Abyssinia	20	16.7
2	Awash International Bank	19	15.8
3	Oromia International Bank	17	14.16
4	Cooperative Bank of Oromia	16	13.3
5	Dashen Bank	14	11.7
6	Nib International Bank	12	10.0
7	EthSwitch	12	10.0
8	Buna International Bank	10	8.3
Total		**120**	**100**

Source: Survey result

Table 6 shows that the selected Private Commercial Banks have been categorized in descending order according to the numbers. The Bank of Abyssinia stood first rank 20 (16.7%) in the Private Commercial Banks followed by Awash International 19 (15.8%), Oromia International Bank 17 (14.16%), Cooperative Bank of Oromia 16 (13.3%), Dashen Bank 14 (11%), Nib International Bank 12 (10.0%), EthSwitch 12 (10.0%) and Buna International Bank 10 (8.3%) respectively.

It has been concluded that Private Commercial Banks are competitively progressing in technological adoption of modern ATM Machines etc accordingly. It showed that the above-switched members of the Commercial Banks represented the largest portion of the customer base and year of work experience.

Table 7 Respondent experience in the bank

S. No.	Service Years	No.	%
1	Less than 5 Years	38	31.7
2	6-10 Years	42	35.0
3	11-15 Years	32	26.7
4	16-20 Years	8	6.7
Total		**120**	**100**

Source: Survey result

Concerning respondents' years of service in the bank, around 65% of them have less than five years' experience, which has direct relevance to the research topic, and the remaining 35% of respondents have 6-18 years' work experience in the Banking sector.

Assessing the National e-payment Switch System: Opportunities and Challenges

The main focus of this study is to assess the opportunities and challenges in relation to the adoption of the national switch system in Ethiopia. Despite its infant operation in the country and a long period which has taken to implement, the researcher has used various variables as measuring statements to assess its prospects and challenges.

Assessing the National Switch System: Opportunities

Respondent's idea or opinion about the opportunities of the national switch system is reviewed in this sub-section of the study. A Likert scale was used to measure the scales.

Table 8 Opportunities from a Technology Point of View

Categories of Opportunities from Technology	No. & %	Opportunities from Technology Level of Agreement					Mean	SD
		SD	D	U	A	SA		
Making the payment system modernised by bringing new technology	No.	4	6	1	61	48	4.19	0.938
	%	3.3	5.0	0.8	50.8	40.0		
Using the resource efficiently	No.	22	15	11	49	23	3.35	1.37
	%	16.7	12.5	9.2	42.5	19.2		
The national switch system is very flexible for introducing new services	No.	9	12	16	42	41	3.78	1.23
	%	7.5	10.0	13.3	35.0	34.2		
The system is flexible enough to go with various protocols that are to integrate selected private commercial banks. For instance with (ISO8583)	No.	2	8	25	58	27	3.83	0.911
	%	1.7	6.7	20.8	48.3	22.5		

Source: Survey Result

Table 9 Opportunities from a Customer Point of View

Categories of Customer Opportunities	No. & %	Opportunities from a Customer Point of View Level of Agreement					Mean	SD
		SD	D	U	A	SA		
E-banking service is available any time anywhere and the customers can use it in any commercial bank terminal	No.	11	6	18	54	31	3.73	1.172
	%	9.2	5.0	15.0	45.0	25.8		
By making the customers use any terminals available nearby the switch system saves costs of transactions	No.	24	21	9	37	29	3.22	1.49
	%	20.0	17.5	7.5	30.8	24.2		
Because of its availability for a 24/7 national switch system creates convenience	No.	6	2	5	75	32	4.04	0.911
	%	5.0	1.7	4.2	62.5	26.7		
Making banking transactions is too simple for customers provided by the National Switch System	No.	3	7	0	69	41	4.15	0.885
	%	2.5	5.8	0	57.5	34.2		

Source: Survey result

Table 10 Opportunities from a Service Delivery Point of View

Categories of Service Delivery Opportunities	No. & %	Service Delivery Opportunities Level of Agreement					Mean	SD
		SD	D	U	A	SA		
Accessibility to finance is increased by the National Switch System	No.	1	3	28	59	29	3.93	0.796
	%	0.8	2.5	22.5	50.8	23.3		
Easy access to the National Switch System is better for Customers than visiting a branch	No.	0	15	0	64	41	4.09	0.917
	%	0	12.5	0	53.3	34.2		
There are other services and features brought by the National Switch System like (TOPUP and other bank transfers)	No.	6	11	16	70	17	3.68	0.9997
	%	5.0	9.2	13.3	58.3	14.2		
There is a properly maintained procedure for handling customer complaints in the time of problem faced by the service	No.	20	34	7	38	21	3.05	1.407
	%	16.7	28.3	5.8	31.7	17.5		

Source: Survey result

Table 11 Opportunities from an operation point of view

Categories of Opportunities from Operation Point of View	No. & %	Opportunities from Operations					Mean	SD
		Level of Agreement						
		SD	D	U	A	SA		
National Switch System cannot be acquired by the Bank itself because it is capital intensive. That is addressed by the National Switch System	No	17	13	32	43	15	3.22	1.224
	%	14.2	10.8	26.7	35.8	12.5		
The selected private commercial banks can generate income by transaction fees that is using Acquiring other bank cards	No.	0	6	8	7	33	4.11	0.731
	%	0	5.0	6.7	60.8	27.5		
Investment and foreign currency of the country and bank can save	No.	28	4	28	47	13	3.05	1.407
	%	23.3	3.3	23.3	39.2	10.8		

Source: Survey result

Assessing the National Switch System: Challenges

Table 12 Challenge from technology

Categories of Challenges from Technology	No. & %	Opportunities from Technology					Mean	SD
		Level of Agreement						
		SD	D	U	A	SA		
Selected private commercial banks their payment system is less to cop with a system of national switch	No.	16	21	10	42	31	3.42	1.388
	%	13.3	17.5	8.3	35.0	25.8		
It isn't enough that the technological capability of national switch system to introduce and implement new service and features to customers	No.	24	33	0	28	35	3.14	1.573
	%	20.0	27.5	0	23.3	29.2		
Because of not enough technology skill the knowledge transfer is less	No.	12	25	4	59	20	3.42	1.267
	%	10.0	20.8	3.3	49.2	16.7		
The national switch system has faced problems from network and power fluctuations and not providing proper e-banking service	No	0	7	12	56	45	4.16	0.83
	%	0	5.8	10.0	46.7	37.5		
Implementation of new services is tough considering the mobilization of each selected private commercial bank to actively engage in the Integration	No.	18	37	23	26	16	2.71	1.118
	%	15.0	3.08	27.5	21.7	5.0		
Single point of failure: If the interface of the National Switch System is down, no selected private commercial bank can support transactions of other commercial bank customers	No.	23	6	20	45	26	3.38	1.391
	%	19.2	5.0	16.7	37.5	21.7		
The ATM has high downtime	No.	0	0	27	61	32	4.04	0.703
	%	0	0	22.5	50.8	26.7		
There isn't enough monitoring tool for ATM	No.	15	8	19	51	27	3.56	1.262
	%	12.5	6.7	15.8	42.5	22.5		

Source: Survey Result

Table 13 Challenges from Customers

Categories of Customer-related Challenges	No. & %	Customers related Challenges					Mean	SD
		Level of Agreement						
		SD	D	U	A	SA		
Lack of knowledge from customers about the service provided by the national switch system.	No.	6	9	16	57	32	3.83	1.064
	%	5.0	7.5	13.3	47.5	26.7		
There is no comfortable commission in each transaction for customers to use the national switch system.	No.	0	7	8	59	46	4.20	0.85
	%	0	5.8	6.7	49.2	38.3		
The security of their account given by the bank also makes the customers concern.	No.	3	10	7	54	46	4.08	1.001
	%	2.5	8.3	5.8	45.0	38.3		
The quality of the network provided by Ethio-Telecom doesn't satisfy the Customers	No	5	17	16	50	32	3.73	1.130
	%	4.2	14.2	13.3	41.7	26.7		
Customers haven't enough knowledge about what they should do at the time of transaction failure. Like card captured, wrong PIN, cash not dispensed etc.	No.	9	19	12	43	37	3.67	1.272
	%	7.5	15.8	10.0	35.8	30.8		

Source: Survey result

Table 14 Challenge from Service Delivery

Categories of Service Delivery Challenges	No. & %	Service Delivery Challenges					Mean	SD
		Level of Agreement						
		SD	D	U	A	SA		
Customers can't tolerate interruption of Service	No.	0	0	10	63	47	4.31	4.2
	%	0	0	8.3	52.5	39.2		
The call centre isn't properly entertaining customer requests	No.	0	2	13	64	41	0.619	0.693
	%	0	1.7	10.8	53.3	34.2		

Source: Survey Result

Summary

a) Opportunities of the National Switch System

The first assessment was made to measure the main opportunities that can be observed in the adoption of the national switch system in Ethiopia. Accordingly, four variables were presented so that respondents can evaluate using five Likert scales about the opportunities in the system. The summary is discussed below.

Technology

Resources are utilized more efficiently than the older way of using resources in the bank. Banking services delivered by the national switch system are developed in technology or modernized. The national switch system made it easier for selected private commercial banks to introduce new services and features because of its flexibility in adopting various protocols.

Customer

Making transactions in the bank through the national switch system is easier. By providing terminals near the vicinity of customers it tried to save the cost of the transactions. It provided convenience since it was available 24/7.

Service Delivery

The national switch enables the creation of easy access to financial services and the introduction of new financial products, to the largest population. Visiting a branch is tiresome. Instead customers choose to use the national switch system.

Operation and others

It curves the cost of acquiring an independent switch by all commercial banks, which is capital-intensive to do so and becomes a source of revenue as well. Investment and foreign currency of the country and bank can save

b) Challenges of the National Switch System

Technology

The existing infrastructure of the country both in terms of ICT and power supply is seen as the main challenge for the operation. As a result of limited skill in terms of technology, there is minimal knowledge transfer. Lack of collaboration from one bank in support of other bank transactions in the time of a single point of failure. High ATM downtime.

Customer

Limited awareness about the overall service, which triggered customer resistance to the change, for the operation of the national e-payment switch system. Limited awareness of how to raise a disputed transaction from the customer side and in the case of the failed transaction.

Service Delivery

Lack of a proper call centre to entertain customer's requests. Customers are unable to accept service interruption, Operations and others. Inefficient chargeback management processes from the service provider were a concern of the respondents NSS is highly subject to fraud. The cooperation among selected private commercial banks is less or not enough.

Conclusion

According to the above summary of the major findings, on the study made on the challenges and opportunities it can be concluded that the adoption of the national e-payment system can have various opportunities which mainly address the cost of investment in acquiring independent switch system by commercial banks, bringing the users into the new service or features that provided by itself and also helps to efficiently utilize the country's resource and provide access to financial service fair, transparent and equitable manner at an affordable cost. It allows customers to use their time and resources effectively by providing a wide range of ATM terminals. Speed up the creation of a cashless society which helps financial inclusion.

Based on the empirical analysis the main challenges for the successful operation of the national switch system are infrastructure (network and power fluctuation are the major ones), customer support, security or operational risk and chargeback management. Because of poor cooperation between selected private commercial banks, there is a lack of proper handling of customer complaint.

Finally, it is concluded that the national switch system is still at its early age to satisfy what the customers expect from e-banking service. This is because the existing service provision mainly relies on limited card banking service, while customers and the public at wide expect further system-integrated e-banking channels i.e. mobile banking, internet banking agent banking, mobile top and bill payment services.

Recommendations

Considering the findings from the analysis of the collected data, the following recommendations are forwarded.

- Telecommunication infrastructure and uninterrupted power supply is a necessary or a prior condition for making the national switch system operation successful. Because of that, the government should support NSS by investing greatly in previously mentioned infrastructure development.
- The selected private commercial banks should train their employees deeply about the operation and service of the national switch system. This will help to solve the rising compliance from customers.
- There should be collaboration among the selected private commercial banks.
- The customers should be fully aware of the service given by NSS. Awareness creation should be organized by Ethswitch and member commercial banks for customers so that it will be used for them to stay parallel with the main operations. (Cash Withdrawal, Balance Enquiry, Filing a dispute, and others)
- The current dispute management system has to be observed in such a way that satisfies the requirements of member commercial banks and their customers. The current automated dispute management system is inefficient or it isn't satisfactory. It should be improved to shorten the response time for customer compliance. This can form successful chargeback management in the national switch system.

- Still, the national switch system provides or delivers very limited service and it should be improved by introducing mobile, internet, agents and the delivery of another service.

Conflict of Interest

The authors have declared that they have no conflict of interest.

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