

THE INDUCTION OF BANKING TECHNOLOGY ADOPTION IN ETHIOPIA: EVIDENCE FROM PUBLIC BANK

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Abstract

The banking industry is one of highly influenced service sector by the advancement of information technology in the world. As the result, the emergence of innovative terms became common to express in daily financial transactions such as; e-banking, e-finance, digital cash, e-money, and even cryptocurrencies get popularly accepted across the world. The advancement of such banking service technology ended in creating a cashless society particularly in the developed world. However, the adoption of those technologies is suffering from the chunk of challenges in developing countries like Ethiopia. The aim of this study was intended to describe the status of banking technology adoption in Ethiopia with special emphasis on a public bank. 240 bank customers have participated in a questionnaire through a multistage sampling process. The study descriptively presented the result and forwarded implementation directions for the concerned body.

Key words; banking, technology, induction, adoption, Ethiopia

1. Introduction

The advancement of information technology is profoundly influencing the daily activity of every individual almost across the world. The banking industry is one of the major affected service sectors that investing huge amount of capital for adopting new technologies. Banking technologies intended in this study only focused on self-managed technologies like ATM, mobile, internet, SMS banking. However, its induction is still infancy in developing countries like Ethiopia. In Ethiopia from the total population only 18% are bank account holders in one of it's the largest public bank whereas among those customers only 9.8% are electronic banking technology users in the same bank. In some African countries it was criticized even there was no attempt of introducing technology as of 2016 in Eretria, the most neighbor to Ethiopia in Northern part (Gvozdanic & Solomon, 2016). It was reported that the adoption of electronic banking suffering from infrastructure challenges, illiteracy, low internet penetration and high service charge of using technologies (Teka, 2017; Worku, 2010). The absence of strong legal framework was also confirmed as the challenging factor in both developed and developing country due to fear of financial risk and security concerns (Hussain et al., 2017; Sayar & Wolfe, 2007; Vijay & Asefa, 2011).

The adoption of those banking technologies resulted in customers satisfaction and loyalty in many countries (Jo, 2018; Kaur & Kiran, 2014; Sathiyavany & Shivany, 2018). It witnessed that positive motivation from bank customers side helps the bankers to achieve their market penetration strategy and as well as organizational profitability (Anderson, Fornell, & Lehmann, 1994; Luo & Homburg, 2007). However, the acceptance of those banking technology is not easy from customers' point of view especially in developing countries. The challenges can be summarized as internal and external factors. The external factors more concerned with poor infrastructure while the internal factors more of related with bank customers perception or belief about using the technology. During early emerge of the technology, bank customers afraid of adopting the technology for security concern (Lee, 2008; Yan, 2013; Zhang, Weng, & Zhu, 2018) and its complexity to use (Abbad, 2013; Olatokun & Igbinedion, 2009; Yaghoubi & Bahmani, 2011). Therefore, the aim of this study was to explore the status of banking technology induction in Ethiopian public bank scenario.

2. Review of Literature

2.1. Concepts of Electronic Banking Technology

The concept of banking technology is related with the expansion of internet and other information communication innovated devices. Following the technology advancement, the banking service terminologies are dramatically shifted to e-banking, e-finance, digital finance, digital cash, e-money, e-payment and so on. Electronic banking was defined as financial service or information delivery channels of banks that may through computer or other devices by help of remote access technologies (Daniel, 1999). Others mentioned it as "online banking" or "internet banking" (Pikkarainen, Pikkarainen, Karjaluto, & Pahnala, 2004). Therefore, e-banking technology means any technology that banks provide to its customers to access their account or other financial service from remote area without visiting bank branch for bricks and mortar services. Such technologies include; card

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banking, internet banking, mobile banking and any other technologies that can be self-managed by the customer for banking services.

The evolution of introducing modern banking technology passed through many phases to overtake the today's position. The traditional banking service was based on "dial-up connection" to facilitate the banking services (Lockett & Littler, 1997). However, it demands to install a special software (Yiu, Grant, & Edgar, 2007) to use the technology, which was very expensive but inefficient enough compared to recent technologies. The evolution of banking technology was classified in four generation periods; "early adoption" (1864-1945), "specific adoption" (1945-65), "emergence" (1965-1980) and "diffusion period" from 1980 up to 1995 (Bátiz-lazo & Wood, 2002). The first phase (1864-1945) known by the expansion of "telecommunication in banking sector" while in the second period computers and other accountancy computation machines were introduced. In the "emergence" stage the hardware technologies were integrated with software and characterized by wave of technology. It was the first time that online banking technology began in UK and disseminated to USA later (Bátiz-lazo & Wood, 2002). The "diffusion" (1980 - 1995) period was characterized by diffusing self-administered technologies like internet banking using personal computers. In this period banks were shifted their internal technology to external customers technologies.

2.2. The overview of Modern Banking History in Ethiopia

The modern banking system in Ethiopia begins since 1906, when the first bank called "Bank of Abyssinia" launched by emperor Minilik II (Mauri, 2003). Its major share was owned by foreign bank from Egypt but was not welcomed by the society until 1919, the first time became profitable. Till that it was expanding branches in different regions of the country and it was investment period. However, later on after the fall of the first government, in August, 1931 Emperor Haileselassie inaugurated the first African domestic bank named "Bank of Ethiopia" with initial capital of £750,000. 60% of its share was owned by public capital and it was totally controlled by Minister of Finance. After long unsuccessful attempt of Italian and British troops to evade the people of Ethiopia, the name of "Bank of Ethiopia" changed to "State Bank of Ethiopia" April, 1943.

The public bank was involved in both commercial and financial regulatory activities during early commencement of modern banking. However, in 1963 Ethiopian banking and monetary law enforced and separated commercial banking activity and central banking activity. Accordingly, State Bank of Ethiopia divided into "National Bank of Ethiopia" (NBE), to perform central banking duty and "Commercial Bank of Ethiopia" (CBE), for commercial banking function. In 1964 the National Bank of Ethiopia (NBE) started its operation as a central regulatory body and according to proclamation No.207/1955, Commercial Bank of Ethiopia continued the commercial function of State Bank of Ethiopia. The first domestic private bank was Awash International Bank that inaugurated in 1994 and followed by Dashen Bank in 1995. During the survey of this study, there were about 16 private and 1 public bank commercial banks. However, the public bank, Commercial Bank of Ethiopia is the dominant banks almost in all aspects of banking services.

3. Methodology

This study was descriptive nature that was intended to present the banking technology induction status in Ethiopia. Therefore, primary source of data was collected from bank customers through questionnaire and secondary data was collected from bank report and its web-site.

3.1. Sampling Techniques and Method of Data Analysis

The target population of the study was public bank customers who have adopted banking technologies like ATM, mobile banking, internet banking and other that self-manageable by customers. Since due to its confidentiality of identifying each branches subscribed technology users list, the researcher adopted unknown population statistics to calculate the sample size at 95% confidence level. It was resulted the sample size 385 and 385 copies of questionnaire was distributed to bank customers from 10 public bank branches from two big cities. The sampling technique adopted in this study was multi-stage sampling technique. Data was analyzed using descriptive statistics; frequency, charts and graphs.

4. Discussion of the Result

The demographic characteristics in table 1 shows that majority of respondents were male (63.8%) and categorized under age of 18 up to 29 (80%). The educational level of bank customers revealed that majority were first degree holders (65%) and followed by college diploma (12.9%). The respondents occupational frequency indicates that only 31% of respondents were government employees and majority were students (44%). This indicates that young age group customers are dominantly adopting banking technologies and bank customers who attended better education level more flexible to accept new electronic banking technologies. Similarly, students and customers those had regular income are highly motivated to use the technology in relative to less educated and customers who had no regular income. Respondents' relationship to bank revealed as majority (53%) of customers had experienced from three to six years and followed by below two years (26%). Therefore, respondents' participated in this study had sufficient experience about their custom bank.

Table 1: Characteristics of Respondents

Gender	N = 240	%	Education	N = 240	%
Male	153	63.8%	Elementary	6	2.5
Female	87	36.3%	High School	29	12.1
Age			College Diploma	31	12.9
18-29	192	80.0	First Degree	156	65.0
30-40	37	15.4	Second Degree	16	6.7
41-55	9	3.8	PhD and Above	2	.8
Above 55	2	.8	Occupation		
Bank Experience			Student	106	44.2
Below 2 years	63	26.3	Gov't Employee	75	31.3
3 - 6 years	128	53.3	Private Employee	39	16.3
7 - 10 years	38	15.8	Business man/woman	14	5.8
11 - 15 years	9	3.8	Unemployed	6	2.5
Above 15 years	2	.8			

Commercial Bank of Ethiopia, the only public bank provided different banking technologies to customers. However, ATM or card banking is the most popular technology that accepted by bank customers. As it was depicted in table 2, 145(60.4%) of respondents were adopted solely ATM service while 60.8% of respondents adopted both card banking and mobile banking technologies in combination. It is clear that the acceptance of internet banking is the least technology that not has got positive motivation from bank customers. This might be due to poor internet penetration in Ethiopia. The internet penetration in Ethiopia in 2018 shows it covers only 15% of the population using internet (Internet Stats, 2018).

Table 2: Banking Technologies Adoption Status

Which banking technology are you using?	N = 240	%
ATM (1)	145	60.4
Mobile Banking (2)	11	4.6
Internet Banking (3)	2	.8
Agent Banking (4)	46	19.2
ATM & Mobile Banking [1&2]	146	60.8
ATM, Mobile & Agent [1,2,4]	46	19.2
Others (more than three tech)	49	20.4

Table 3 shows that majority of bank customers (60%) experienced the banking technology from two up to four years. This implies that respondents` had good experience about the banking technology they have been adopted. The descriptive analysis also indicated that about 35% of respondents using the technology for cash withdrawal and about 15% were using both for cash withdrawal and balance inquires. However, only 35% of respondents using the banking technology for cash withdrawal, balance inquiries, money transfer and making utility payments together. This implies that majority of bank customers using banking technology for cash withdrawal and very limited number of customers using for multiple purposes. This result is consistent with majority were adopted ATM banking. It is obvious that most of the time customers using ATM for cash withdrawal purpose.

Table 3: Customers` Experience of using e-banking Technology

How long have you been using e-banking?	N = 240	%
< 1 year	60	25.0
2 - 4	144	60.0
4 - 6	29	12.1
6 - 8	2	.8
> 8 years	5	2.1

4.1. Electronic Banking Induction in Public Bank

Commercial Bank of Ethiopia is the only public bank that started its operation in 1942. The bank was introduced the first ATM banking in 2001 but have got accepted after 2005 in Addis Ababa, the capital city of Ethiopia (Worku, 2010). However, the expansion of the technology is disseminated to outlet branches after 2010. The introduction of internet and mobile banking was delayed until 2012 in the same bank. Commercial Bank of Ethiopia (CBE) currently introduced card banking (ATM), internet banking, mobile banking and agent banking almost in all branches. The trends and adoption of each technology in CBE was presented in the following part of this section.

The number of card banking (ATM) users (see figure 1) has been growing from time to time and it was indicated significantly grown from the year 2015 onwards. As it was depicted in figure 1, the number of dormant users decreased after the year 2015.

The result implies that as customer more aware about the technology, they more motivated to use the technology actively. In the early distribution of the technology from Addis Ababa to other regional branches, the number of dormant users was high but later on customers started to use the technology intensively. The number of active card banking users was 1,845,382 in 2018 while in active users were 90,363. This implies that number of inactive card banking users was decreased from 75% as of 2015 to about 5% during 2018. In other way the technology adoption growth rate was declined from 607% in 2013 to 22% as of 2018. This clearly depicts that the distribution of the technology was significantly intensive from 2013 to 2015 especially in regional branches.

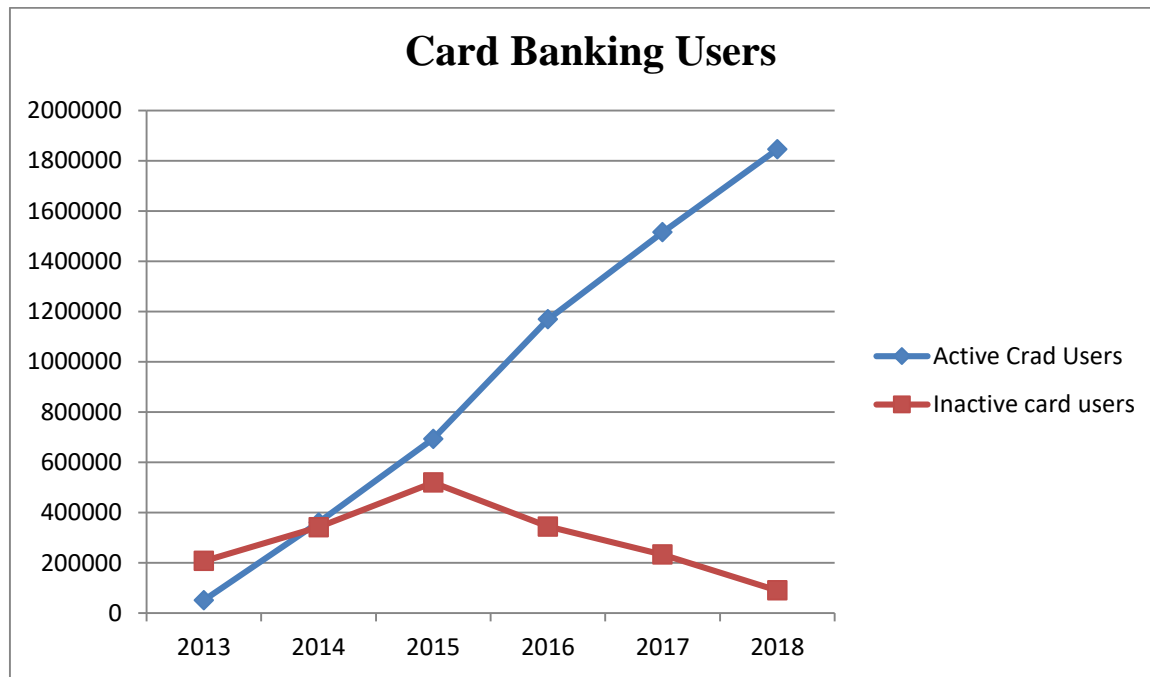


Figure 1: Card Banking Users in Public Bank

Among the total of 18,804,270 customers as of June 30, 2018, only 1,845,382 customers were adopted card banking, which covers only 9.8% of its total customers. But the adoption proportion was grown from 8.35% in 2013 to 9.8% in 2018, which shows it was not increasing significantly. The adoption trend by district shows (see figure 2) that the technology was expanded to regional districts after 2015. In the last three years from 2016 to 2018 significantly grown in regional districts. However, the proportion of card banking users in Addis Ababa district to other district adopters' covers more than 49%.

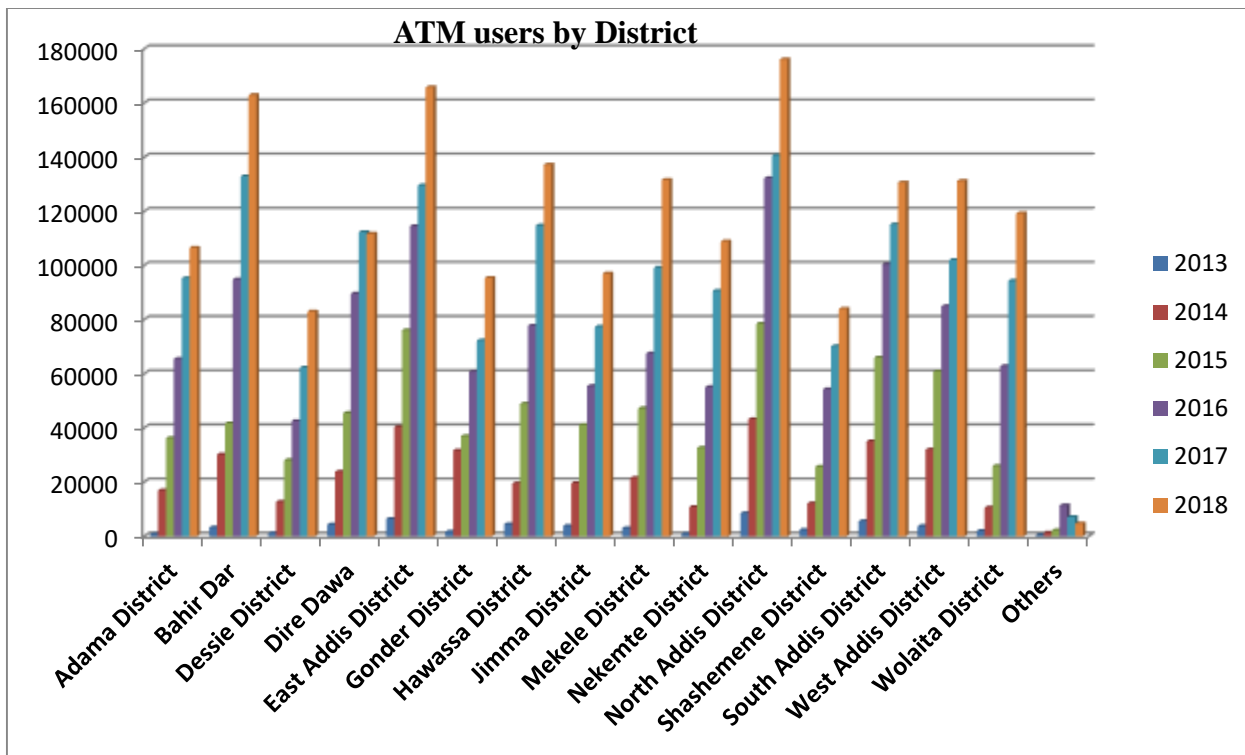


Figure 2: Card Banking Users by District

Internet banking was introduced in 2012 in CBE but it has got acceptance after one year. Before duplicating its expansion to regional and zonal towns, it was tested in Addis Ababa for customer adoption. As it was depicted in figure 3, the number of internet banking users dramatically increased for the last three years from 2016 to 2018.

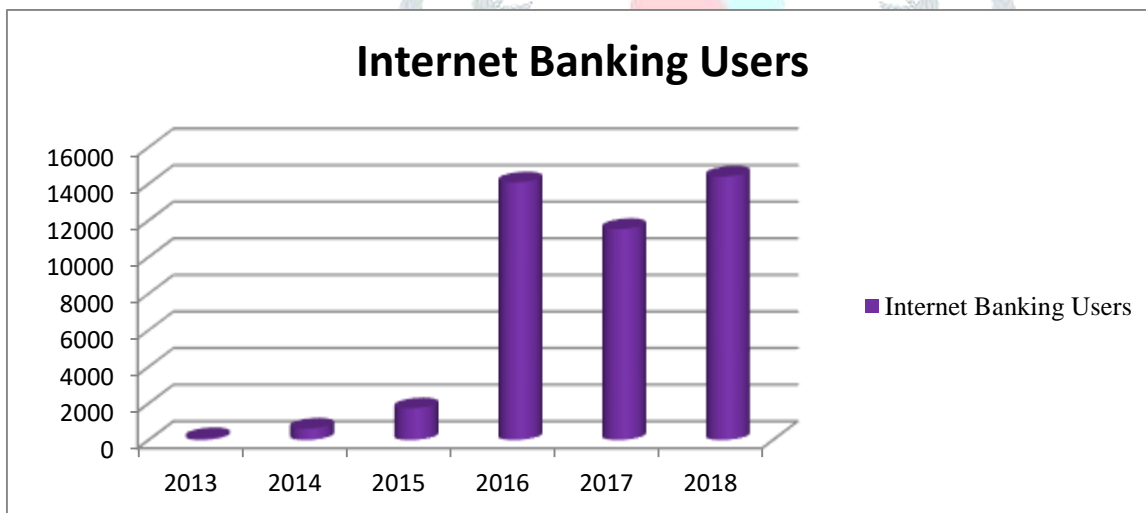


Figure 3: Internet Banking Users in CBE

This was due to the technology was expanded from Addis Ababa to other branches in different districts. However, the expansion was less in the year 2017 as compared to 2016 and 2018. This was might be due to internal political instability in the country. Since 2016, there was declaration of state emergency two times and the first was longed for more than nine months and the later was about three months. During this period internet service was totally banned by the government. However, internet penetration was poor in the country and highly charged. According to internet society report, internet users` ratio to the total population was 15.3% in the beginning of 2018. However, among this 27.38% were face book subscribers. Though there was large number of internet users, the majority has been using for social media adoption particularly face book. Accordingly, the proportion of internet banking users to the total number of bank customers in 2018 was only 0.077%, which shows very insignificant number of adopters. But in the same year card banking users were 9.8% of the total bank customers.

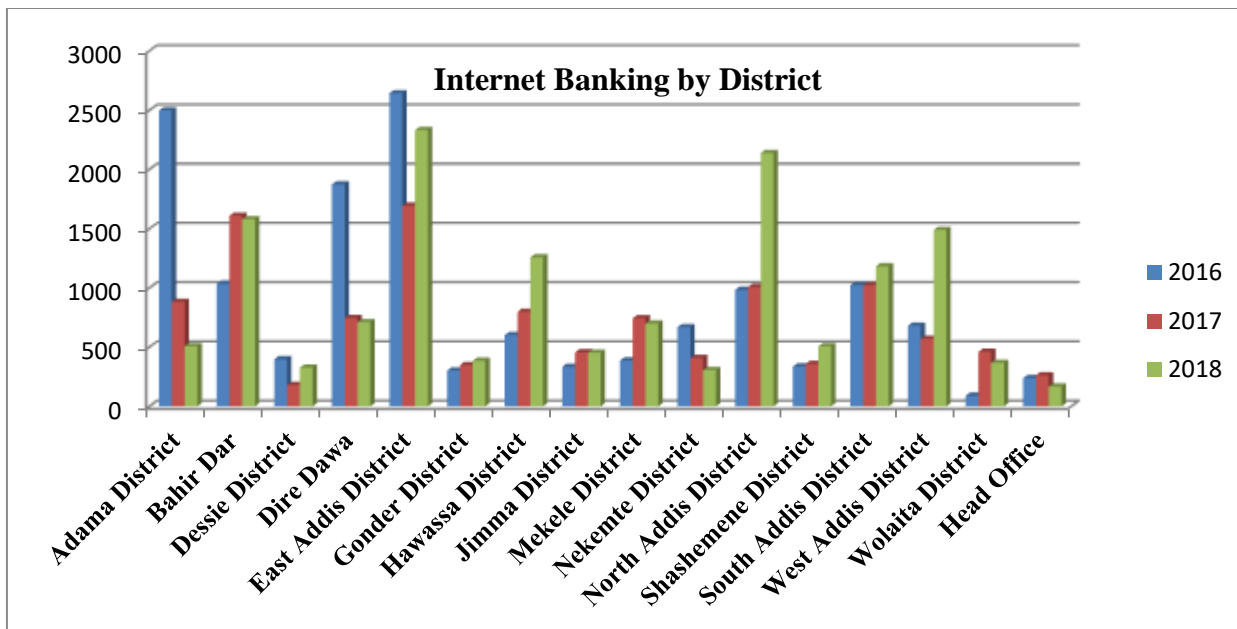


Figure 4: Number of Internet Banking Users by District

Internet banking by district shows that the majority of internet banking users was from Addis Ababa, the capital city of Ethiopia. As it was presented in figure 4, the first three years from 2013 up to 2015 was the introduction of technologies from Addis Ababa to other regional districts and after 2015 it was expanded dramatically. Accordingly, internet banking users in the year of 2015 and in the early 2016 was increased significantly. But after the year 2016 up to 2018 it was declined both in Addis Ababa and other regional districts in the country due the aforementioned reasons. In 2018 internet banking users in both capital city and other regional districts have been at equivalent adoption rate. However, the adoption in Addis Ababa covers more than 50% of the total internet banking users (see figure 5).

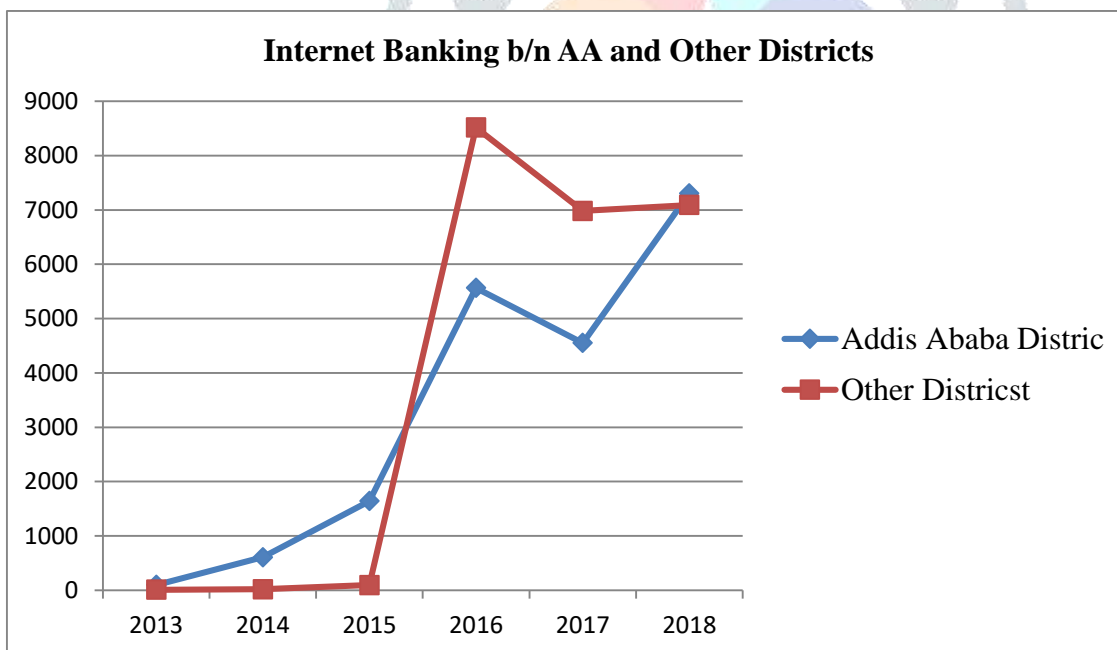


Figure 5: Internet Banking b/n AA and Other Districts

Mobile banking is the second widely accepted electronic banking technology in CBE next to card banking. Similar to other banking technologies, mobile banking was also well introduced to regional districts after the year 2014 and the number of mobile banking customers increasing from year to year. Surprisingly, the number of dormant users was also increasing from time to time. The proportion of dormant mobile banking users to active users shows 31.82% in 2018. As the result active mobile banking users' number was declined from 721,800 in 2017 to 562,144 in the year 2018. But the number of active users` was significantly increased from 114,322 in 2015 to 721,800 in 2017, which implies bankers played significant role in introducing the technology to their potential users.

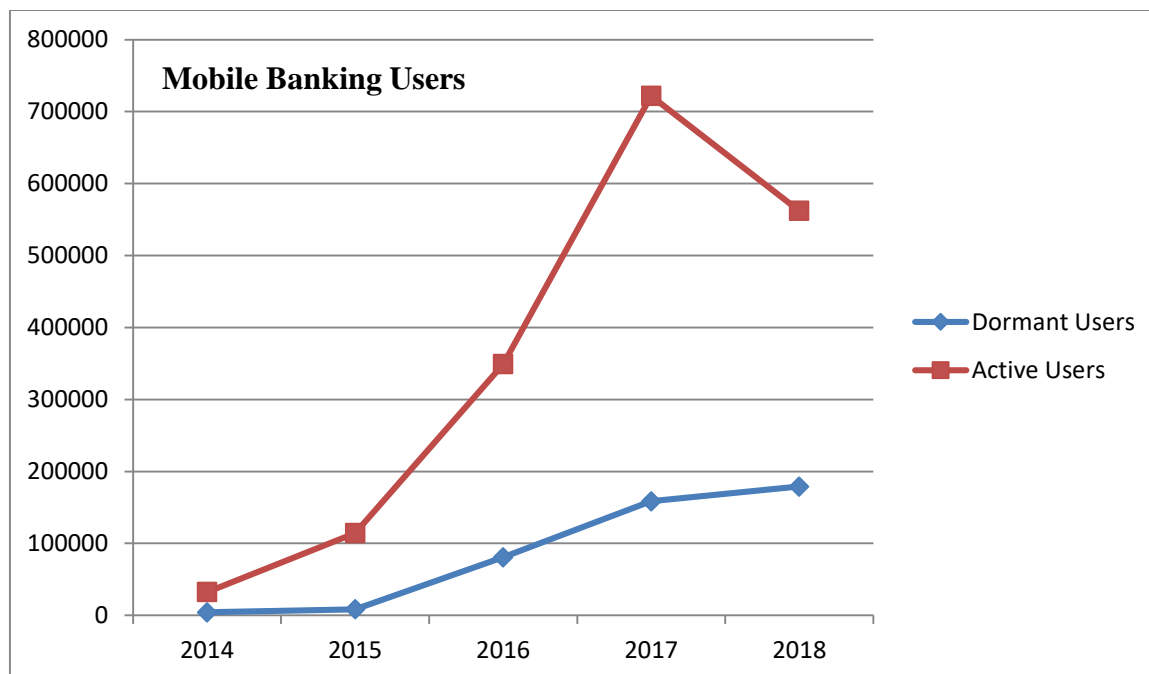


Figure 6: Mobile Banking Users in CBE

The reason for increasing large number of dormant users from year to year may be due to users' hesitation to use mobile banking for fear of security and its complexity to manage. This is because of mobile banking application was designed only in English language, which demands reasonable knowledge and skill to operate it. Moreover, majority of customers might not use smart phone that could be used for internet services. In other way, in case of Ethiopian customers the majority of banking technology users adopts technologies for cash withdrawal purpose rather for other services like utility payment and fund transfer. This is due to Ethiopian business system is totally cash dependent and no adoption of e-commerce like online shopping. If there were e-commerce system or e-payment system that oblige customers to make payments online, customers might actively use banking technologies like mobile banking.

5. Conclusion and Recommendation

The induction of electronic banking technology was for the first time started by commercial bank of Ethiopia in 2001, introducing the first visa card service but it was not successful since 2005 due to infrastructural problem (Worku, 2010). The most dominant banking technology adopted by customers was card banking (ATM) and the number of users dramatically increasing from time to time. This distribution of banking technologies still highly saturated in Addis Ababa and other major regional cities in Ethiopia. In case of Commercial Bank of Ethiopia (CBE), the North East Addis Ababa district is the leading district in expanding the banking technologies like card banking, internet banking and mobile banking. Among outlet districts, Adama district is the leading one in number of banking technology users.

This is might be due to bank customers in urban area more educated and aware about the benefit of the banking technology. As the result people who are resigning in major cities and business area want to save their time and avoid long waiting time to get financial services. However, the adoption of internet and mobile banking is still at introduction stage among bank customers. The attempt of introducing e-commerce like air ticket booking, mobile phone air time recharging and online shopping might ignite the expansion of agent banking in the country. Therefore, expanding other banking technologies like mobile and agent banking would enhance customers' saving habit and as the result it will contribute positively for financial inclusion of rural community. Banks should focus on expansion of simply manageable technologies and create awareness to increase the number of technology adopters.

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