E-BANKING SERVICES AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

Odhiambo Solomon Olwande
Master of Business Administration (Finance), Kenyatta University, Kenya
Dominic Ngaba
Department of Business Administration, School of Business, Kenyatta University, Kenya

International Academic Journal of Economics and Finance (IAJEF) | ISSN 2518-2366

Received: 20th September 2019

Published: 24th October 2019

Full Length Research

Available Online at: http://www.iajournals.org/articles/iajef_v3_i4_132_153.pdf

Citation: Odhiambo, S. O. & Ngaba, D. (2019). E-banking services and financial performance of commercial banks in Kenya. *International Academic Journal of Economics and Finance, 3*(4), 132-153

ABSTRACT

Financial performance of Commercial banks has been mixed in the past few years despite the advent of technology. Banks assaulted by the pressure of globalization and competition from nonbanking functions must find new ways to add value to the services. Substantial research efforts have gone into addressing this question, starting from the strategic level and going down to operational details. The rapid advancement in technology and increased forces of competition has remained challenging to performance of commercial banks. This situation is worsened by the ever changing business environment and the dynamic legal environment resulting from formulation of different regulations and policies governing the way banks. Several regulations for instance the capping of the interest rates and increasing the minimum capital requirement have been passed in the recent past that have called on these institutions to come up with innovative strategies and ways of survival. Thus, as a response to these changes, most commercial banks have embraced e-banking strategies. Most commercial banks have adopted e-banking majorly to serve customers better, widen the revenue channels and grow the level of profits. However, the pace at which each bank is investing and adopting innovation is alarming. Most commercial banks have invested in agency banking model, internet banking, ATMs and mobile banking. With time, the marginal benefits and costs of adoption of e-banking strategies are likely to be neutralized if no new e-banking strategies are formulated. This study sought to establish the effect of e-banking strategy on the financial performance of commercial banks in Kenya. The specific objectives of the study included; to establish the effect of mobile banking, agency banking, internet banking and use of ATMs on financial performance of commercial banks in Kenya. The study was anchored on the diffusion innovation theory, technology acceptance theory and agency theory. A descriptive research design was employed. The population of the study was the 43 commercial banks in Kenya whose headquarters are in Nairobi City. The unit of analysis was the 124 operations and e-banking managers at the banks' headquarters. A census was adopted. The study used both primary and secondary data. Data was analyzed using both descriptive and inferential statistics with the aid of SPSS. The analyzed data was presented using tables, charts, graphs, frequencies and percentages. The study established that mobile banking, agency banking, internet banking and use of ATMs as e-banking services were sufficient embraced by commercial banks in Kenya and significantly influenced the financial performance of the financial institutions. The study concluded that mobile banking, agency banking, internet banking and use of ATMs had a positive and significant effect on the financial performance of commercial banks in Kenya. The study recommends that the commercial banks should invest more on new technology, innovations and capacity building to improve the uptake of e-banking services. The study recommended that the banks should sensitize, inform and remind their clients on the availability, accessibility, usage and value of e-banking services at their disposal to improve their uptake and use. Similar study should be conducted among other financial institutions like MFIs and SACCOs to establish whether there is a variance or convergence on the effect of e-banking and financial performance.

Key Words: *E-banking services, financial performance, commercial banks, Kenya*

INTRODUCTION

The business environment that firms operate in has experienced an increase in the level of competition besides the changing needs and wants of their customers. This has forced firms to constantly seek new ways and strategies of remaining viable hence safeguarding their performance. The advancement in technology and the growing forces of globalization have also shaped and transformed the way organizations carry out their operations (Kemunto&Kagiri, 2018).In particular, the rapid advancement of technology has made it possible for organizations to adopt electronic banking strategies for competitive positioning and thus organizational performance. In response to the increasing turbulent business environment, commercial banks have resorted to e-banking strategies with the aim of increasing their alternative channels of revenues and increased customer satisfaction besides better response to the needs and wants of customers (Chedrawi, Harb&Saleh, 2019).

E-banking strategy is a global trend that has been embraced by financial firms to improve on performance. In Canada for instance, close to 60% of customers prefer to carry out banking services and transactions through e-banking channels including the mobile and internet banking (Wayman, 2017). In United States (USA), Wruuck, Speyer and Hoffmann (2013) opine that customers are more happy and satisfied with e-banking strategy. In Ghana, the desire for increased revenue channels has forced commercial banks to adopt Automated Teller Machines, internet banking and agent banking as the only way of remaining competitive. Kenyan commercial banks have not been left behind in the journey of e-banking as mobile banking, agent banking; internet banking and automated teller machines have highly been adopted to remain competitive (Taiwo&Agwu, 2017).This forms the basis of the current study that seeks to determine how adoption of e-banking strategy among these Kenyan commercial banks has impacted on their performance.

Financial Performance

Performance is a general term that covers the financial and the non-financial aspects. In general terms, performance is used in reference to the realization of the set goals and objectives in an organization. An organization usually formulates goals at the start of the financial year which are expected to be realized within a stated timeframe (Alwan& Al-Zubi, 2016). At the end of this established period, the actual goals realized are compared to what was originally planned. Performance is this case arises whenever the actual goals exceed the planned goals. When the planned goals are more than the actual realized goals, this situation can be deemed as poor performance. According to Santu, Mawanza and Muredzi (2017), performance is the underlying objective that drives the existence of organizations.

The evolution of the balance scorecard (BSC) has revolutionized the way organizations measure and determine their performance. The BSC is an important tool for measuring performance because it links the overall strategy of the firm with performance (Cooper, Ezzame l& Qu, 2017).A BSC has four key perspectives that focus on financial, customers, learning and growth and internal business processes. A BSC therefore is an important tool used in linking the measures of organizational performance to the overall corporate strategy (Lubis, Torong&Muda, 2016).

The customer perspective seeks to determine the needs and wants of customer so that an organization may either meet or exceed them. The key measures in the customer perspective of the BSC include customer satisfaction, retention, and loyalty and customer complaints. The financial perspective of the BSC contains quantifiable items like Returns on Assets and Equity (Fooladvand, Yarmohammadian & Shahtalebi, 2015).The internal business processes perspective identifies how activities and operations are conducted within an organization including the design of products, technological capabilities and development of new products. The learning and growth perspective determines the innovativeness and creativity of employees to come up with new ways of carrying out operations (Awadallah & Allam, 2015).

E-Banking Services

According to Agolla, Makara and Monametsi (2018), e-banking is majorly driven by the rapid growth in technologies including the internet. E-banking is therefore accessing the services offered by a financial institution over the internet through an electronic device. Victor, Obinozie and Echekoba (2017) define e-banking by recognizing its key components including mobile banking, agent banking; internet banking and automated teller machines. Mobile banking is accessing the bank services and products through the mobile phone device supported by a telecommunication services like Safaricom, Telecom or Airtel. Customers sometime dial some specific USSD Codes to access banking services for instance *522# for Kenyan Commercial Bank. Besides the use of USSD, mobile banking can also be achieved with the use of playbill numbers like 522522 for the Kenyan Commercial Bank. Mobile banking is convenient to customers as it is available all through and it is more flexible for customers to pay their bills (Kamau & Oluoch, 2016).

Agent banking involves the bank subcontracting and authorizing third parties to offer banking services to customers on behalf of the bank. In Kenya, the agency banking model was introduced in 2010. According to the Central Bank of Kenya, 87% of the agency banking services is taken up 3 larger banks; Equity Bank Ltd, Kenyan Commercial Bank and Cooperative Bank Ltd (CBK, 2018). Different names are used to identify the operations of agency banking models by banks, for instance 'KCB Mtaani' and 'Co-Op kwaJirani' for KCB and Cooperative Bank respectively.

A number of transactions carried out through agency banking include checking of account balance, withdrawals, deposits and payment of utilities (Goh& Kauffman, 2015).

Internet banking is accessing banking services with the reliable data and the computer or any other electronic device. It is also called online banking and it has gained dominance in the current world characterized by rapid changes in technology. Customers using internet banking will either be required to have strong Wi-Fi connectivity or data bundles offered by telecommunication companies (Agwu, 2018).Automated teller machines (ATMs) are other common e-banking channels that commercial banks have invested in. The ATM service requires customers to have with them the ATM card with unique Personal Identification Numbers (PIN). However, some commercial banks have gone a notch higher to reintroduce cardless ATMs where customers can deposits cheque, withdraw and deposit cash and check account balance even without an ATM card. A good example of banks with such an innovation is the Standard Chartered Bank (Kombe & Wafula, 2015).

STATEMENT OF THE PROBLEM

The rapid advancement in technology and increased forces of competition have remained challenging to performance of commercial banks. This situation is worsened by the ever changing business environment and the dynamic legal environment resulting from formulation of different regulations and policies governing the way banks operate (Azeem, Ozari, Marsap, Arhab & Jilani, 2015).Several regulations for instance the capping of the interest rates and increasing the minimum capital requirement have been passed in the recent past that have called on these institutions to come up with innovative strategies and ways of survival. Thus, as a response to these changes, most commercial banks have embraced e-banking strategies (Agarwal, 2016). Most commercial banks have adopted e-banking majorly to serve customers better, widen the revenue channels and grow the level of profits. However, the pace at which each bank is investing and adopting innovation is alarming (Muchiri, 2017).Most commercial banks have invested in agency banking model, internet banking, ATMs and mobile banking. With time, the marginal benefits and costs of adoption of e-banking strategies are likely to be neutralized if no new e-banking strategies are formulated (Özataç&Gökmenoglu, 2017). A growing body of literature suggests that e-banking strategy has an influence on financial performance. Chemirmir (2016) looks at electronic banking as an innovative strategy and how it influences performance of Kenyan commercial banks. The finding was that e-banking has significant influence on performance. Njoroge and Mugambi (2018) examined e-banking and its influence on financial performance of Kenyan commercial banks. The study established that mobile banking, internet banking and agency banking have positive influence on financial performance. The study however focuses on organizational performance and not specifically on financial performance. Gebreslassie (2017) looks at e-business strategy required for adoption of e-banking services. The study was done in Ethiopian context and the identified strategies included mobile banking, agency banking and internet banking. Using a case of Kenya

Commercial Bank, Silas (2016) evaluates e-banking strategies and their influence on performance. The study identifies mobile banking, agency banking and internet banking as they e-banking strategies that have positively influenced performance of banks. Muthoka,Oluoch and Muiruri (2018) examined agency banking and how it influences market capitalization among Kenyan commercial banks. A positive link was established between agency banking and market capitalization. The studies reviewed above imply that e-banking strategy influence financial performance of the banking institution. Some studies on e-banking conceptually relate with organizational performance and market capitalization but not specifically financial performance hence creation of research gap. In order to fill this gap, the current study seeks to determine the effect of e-banking strategy and financial performance of commercial banks in Kenya.

GENERAL OBJECTIVE

To determine the effect of E-banking services and financial performance of commercial banks in Kenya

SPECIFIC OBJECTIVES

1. To establish the effect of mobile banking on financial performance of commercial banks in Kenya
2. To determine the effect of agent banking on financial performance of commercial banks in Kenya
3. To establish the effect of internet banking on financial performance of commercial banks in Kenya
4. To determine the effect of automated teller machines on financial performance of commercial banks in Kenya

THEORETICAL LITERATURE REVIEW

Technology Acceptance Model

The Technology Acceptance Model (TAM) was first developed by Davis (1989) to explain the acceptance of IT for carrying out different activities and to predict the adoption of online banking (Pikkarainen et. al., 2004). The theory establishes that user's adoption of a new information system is determined by an individual's intention to use the systems that is dependent on the user's perception about the system. According to Davis (1989) the two beliefs that determines users' intentions are as follows perceived ease of use of the technology and perceived advantages of using the technology in terms of its usefulness are the basic factors that influences individual's acceptance of an information system.

Perceived usefulness is the degree to which an individual believes that the use of a system will increase his/her general performance in terms of its effectiveness and productivity. The effectiveness and productivity are the ability of a system to be time-saving and to be of relative advantage to individual set targets in terms of work. Perceived ease of use on the other hand is the degree to which an individual believes that minimum or no effort at all is needed for use of a certain system in terms of both mental and physical effort and ease of learning how to use the system (Davis, 1989). In addition, Davis further argues that perceived ease of use influences perceived usefulness. According to (Ajzen, 1991) actual behavior of an observable response in a given situation is manifested with the respect to a given target/goal. Intention on the other hand is an indication of a person readiness to conduct/perform a given behavior. This theory is important because it supports the independent variable under study.

Diffusion of Innovation (DOI) Theory

Diffusion of innovation theory (IDT) was first developed by Everett M. Rogers in the year (1962). According to Rogers (1962) the theory is the pioneering school of thought that laid down a foundation for the future of innovative diffusion research. This theory was grounded on economics, communication, adoption diffusion literature and sociology theories. According to the Diffusion of innovation Theory there are five characteristics of innovation that has an influence ad eventually leads to adoption these five characteristics are compability, observability, trial ability, relative advantage. Relative advantage refers to an individual perception/belief that Internet Banking is way better than any other traditional mode of banking in terms of economic cost, social, satisfaction dimensions and convenience in terms of place constraints, management of bank balances, speed of transactions and a better overview of banking services.

According to Tan and Teo (2000) Relative advantage is the major reason as to why banking clients prefer E-Banking over every other banking mode. On the other hand, compatibility refers to an individual's perception that E-Banking is consistent and matches with the individuals understanding, past experiences, values and needs it can also be defined as the fit that exists between E-Banking and the existing technological and social infrastructure of an individual E-Banking involves the acquisition of a set of devices of complementary technologies, proficiency with internet ,familiarity with technological devices such as computers, laptops ,tablets and mobile devices and engaging with electronic aided communication and transactions.

According to Lee, Miranda and Kim (2004), the willingness of individuals to adopt to new technology is dependent on the pattern of related technologies that were previously adopted and level of compatibility. Puschel, Mazzon and Hernandez (2010) banking customers perceptions of compatibility with electronic device medium (ATM, E-payments and phone banking) is related positively to Internet Banking medium. On the other hand, complexity refers to the degree to which E-banking is perceived by individuals to be difficult to comprehend. Observability refers to as the degree to Internet Banking is visible to an individual. Rodgers (1971) argues that the more visible innovation and its benefits the greater the likelihood of its adoption, because the gains from adopting the technology is likely to yield recognized results.

Several scholars have applied this theory for instance, Aizstrauta, Ginters and Eroles (2015), applied the theory to examine acceptance of technology and its sustainability. The scholars applied the Diffusion of Innovation theories to evaluate technologies with a combination of socio-economic aspects and socio-technical features of technological development and exploitation. Jdanova and Karminsky (2013), applied diffusion innovation theory in examining how the Russian banks accept and adopt innovations.

However, several critics have criticized the theory for instance Black, Lockett, Winklhofer and Ennew (2001) argued that diffusion is difficult to quantify because of the existing complexity between human and human networks. It is almost impossible to measure the exact causes of an individual's decision to adapt to an innovation. Rodgers identifies the four categories that arise with diffusion the individual -blame bias, recall problem-innovation and issues of equality. The one-way information flow is a weakness of the theory. Black *et al*. (2001) argues that social issues and individual differences need to be incorporated into the Diffusion of Innovation framework in order to gain a better understanding of innovation and its adoption. Rodgers did not identify the risks associated with innovation. This theory is relevant to the study because it supports the internet banking variable of the study.

Agency Theory

The theory was proposed by Jensen and Meckling (1986) and view commercial bank as the principle and correspondent bank as the agent whereby problems arise owing to misunderstanding or incongruence of their interest. Agency theory will occur where the bank agency fails to observe the agency regulations as issued by the central bank and hence putting the interest of the bank at risk since it is the one required to ensure that the agents comply with the regulations. Generally, according to agency theory, intermediation places financial institutions (banks and their agents) as intermediating between money and the market or households. Resource (money) allocation based on perfect and complete markets is hindered by frictions such as transaction costs and asymmetric information (Aduda et al, 2013).

According to Jensen and Meckling (1986), an agency relationship exists where one party referred to as the principal engages another party known as the agent to undertake some assigned tasks hence offer services on their behalf. There is a delegation of some decision-making power by the principal to the agent. These delegations of powers serve to promote the efficiency and productivity of the engaged agents. The agents are hired and retained due to the possession of specific knowledge, capabilities and talents that serve to increase the value of assets owned by principal. Such delegation implies that the principal has to place a certain level of trust on their engaged agents. This theory therefore assesses the conflicts of interest that arise in between the agent and the principal specially where motives by agents are questionable. In this regard, principals readily seek to obtain crucial information by way of evaluation and inspection by designing systems that ensures agent's indeed acts in line with the interests of the principal (Jensen &Meckling, 1986).

According to Cetorelli& Goldberg (2012), agency concept is directed at improving the infrastructure that increases efficiency in providing of financial services. In this study, the agency theory is utilized to show how modern E-paying systems has transformed the banking technology and hence facilitated the changes in the strategy and traditional structures of commercial banking sector. By studying the commercial banks resources, competencies and capabilities thus the approach is extended to services and is linked to boosting financial performance and ensuring that bank customers are able to access financial services without having to visit the banks.

Several scholars have criticized this theory for instance Perrow (1986) argued that agency researchers have only concentrated on the agent side of the principal and agent problem and ignored that the problem might also arise as a result of the principal side. According to Donaldson (1990), agents are unknowingly dragged into the working environment where principals are opportunistic. Perrow (1986) further argues that the theory is unconcerned about the principals who exploit the agents. This theory is relevant to the study since it is concerned with the agency banking variable.

Balanced Score Card

The Balanced Scorecard Theory established by Kaplan and Norton in (1992, 1996) model of strategic performance measurement that translates the mission and vision of an organization into action. Measurable indicators are used for setting operational activities to promote comprehension and adapting the selected approach. According to Kaplan and Norton (1992) Balanced Scorecard has four basic viewpoints: the financial perspective which involves tracking financial performance of an organisation. Financial perspective offers a reliable insight into the operational leadership and sustainability of the selected approach for all investors and other economic backers of an organisation (Kaplan, Norton &Rugelsjoen, 2010). Balanced scorecard model offers the company with a general performance perspective by including financial measures with other important indices of performance on client views, inner corporate developments, and organisational development, knowledge and invention (Biazzo&Garengo, 2012).

Customer perspective entails tracking customer satisfaction, attitudes, and market share goals. Organizations should always attempt to meet customersfrequentlychanging expectations. The Internal activities perception involves covering internal functional goal required in meeting client goals while the growth and learning or innovation perception entails intangible practices for future success like organizational, human, and training informational systems etc. The inner view aims to fulfil shareholders and clients by ensuring that the company selects the correct company strategies and procedures to produce their distinctive customer requirements (Niven, 2011). Internal procedures are concerned with adding value within the organisations and what operations within these procedures need to be carried out. Added value is articulated primarily as customer-oriented performance arising from ideal alignment between procedures, operations and choices Internal Company strategies are mostly categorized as mission-oriented, focusing on general organizational mission procedures and support-oriented, focusing on repetitive tasks that staff perform in their job.

This view also guarantees minimizing the duration of prospecting spent and the quantity of rework needed (Hoque, 2014).The model offers the company with a general performance perspective by incorporating financial measures with other important indicators of performance on client views, inner business processes, and organisational development, learning, and innovation (Biazzo & Garengo, 2012). Most organisations traditionally use the balanced scorecard technique to evaluate operational efficiency. Most organisations are currently having issues of taking 360 degree view of performance by focusing on presenting, reviewing and acting on a restricted amount of KPIs that mostly impact the organization's performance. This research used the balanced scorecard model to anchor commercial banks ' efficiency in Kenya.

EMPIRICAL REVIEW

Mobile Banking and Financial Performance

Several studies have been conducted on the effects of mobile banking on bank performance. For instance, Mabwai (2016) conducted a study on the effects of mobile banking on the financial performance of commercial banks in Kenya. The study adopted a descriptive research design and descriptive statistics for analysis. The findings indicated that the number of mobile banking transactions, capital adequacy, markets share and the size of the assets had a positive influence on the financial performance of commercial banks. Hence, the conclusion that mobile banking adoption has resulted to improved financial performance of the commercial banks. The study recommended that commercial banks should increase their focus and investments in mobile banking as this is the future of the banking industry in order for them to remain profitable.

Mutua (2014) carried out an investigation on the effects of mobile banking on the financial performance of commercial banks in Kenya. The study acknowledged that mobile banking offers millions of people a potential solution in emerging markets that have access to a cell phone, yet remain excluded from the financial mainstream. The study employed a descriptive research design and descriptive statistics for analysis. The findings of the study revealed that there exists a weak positive relationship between mobile banking and the financial performance of commercial banks in Kenya. The study recommended that policy makers keep a keen eye on the developments of mobile banking as it is a new platform for competition among commercial banks as the world moves into a digital age.

Juliet (2018) researched on the effects of mobile banking on the financial performance of deposit taking SACCOs in Kenya. The study recognized that mobile banking in Kenya has been widely adapted and embraced in the recent years as it enables the transfer of money from one location or account easy and convenient. Descriptive research design was adopted and descriptive statistics used for analysis. The study found that indeed mobile banking enhances on the financial performance of Deposit Taking SACCOs in Kenya. The recommendation of the study was that the government and the mobile banking providers should reduce the transaction costs involved so as to encourage more customers to use mobile banking as it easy and convenient for the clients.

Bagudu, Shazida and Abdul (2017) carried out an assessment on the effect of mobile banking on the performance of commercial banks in Nigeria. The study acknowledged that mobile banking in Nigeria has completely transformed the banking industry and any commercial bank operating in Nigeria can only ignore that fact at its own risk. The study employed a case study research design and descriptive statistics for analysis. The findings of the study showed that mobile banking positively and significantly affects the financial performance of commercial banks in Nigeria. Hence, the conclusion that mobile banking adoption by commercial bank enhances lead to an increased financial performance. The study recommended that commercial banks should keep adopting and using mobile banking in their operations because the number of people with access to a mobile handset is increasing every day.

Agent Banking and Financial Performance

Various studies have been carried out on the effects of agent banking has on performance of banks. For example, Argamo (2015) investigated on the effect of agency banking on the financial performance of commercial banks in Kenya, using Chase bank a case study. The study acknowledges that agency banking as a replica has been very flourishing in financial inclusion thereby boosting the commercial banks' performance in most developing states. The study used descriptive research design and descriptive statistics for analysis. The study found that agency banking enables accessibility of banking services, low cost of service and customer transactions hence enhancing financial performance of Chase Bank. The study recommended that commercial banks in Kenya should increase the number of agents in estates and in the rural areas and also lower the charges of making transactions in agency banks.

Simboley (2017) conducted a study on the effects of agency banking on the financial performance of commercial banks in Kenya. The study acknowledged that the cost of travelling to a bank was often higher than the cost of making a transaction in a brick and motor institution but since 2010 bank have adopted agent banking which has convenience banking services. The study adopted a descriptive research design and descriptive statistics for analysis. The findings of the study indicated that there was a significant growth in customers as a result of agency banking and that it reduced on cost that would have been incurred building another building. The recommendation of the study was that customer care needs should be improved as services are being relayed to customers and also there should be development of new products and services so as to reach more customers.

Aduda, Kiragu and Ndwiga (2014) assessed on the relationship between agency banking and financial performance of commercial banks in Kenya. The study employed a descriptive research design and descriptive statistics for analysis. The findings of the study showed that agency banking is continuously improving which led to a significance increase in financial performance in those banks that have rolled up the service due to its convenience and efficiency in operation. The study recommended that regulations be efficient to enable more banks to embrace agency banking service and that commercial banks should fully embrace agency banking through adoption of improved technology for information security to make it more reliable to the customers.

Chude and Chude (2014) carried out an investigation on the impact of agent banking on performance of deposit money banks in Nigeria. The study acknowledged that agent banking has become an essential practice of financial institution in bringing their services closer to the people at the grass root. The study employed a descriptive survey research design and content analysis in analyzing the work. The findings of the study revealed that agent banking has proved to have essential role to play in improving customers' satisfaction and bank profitability. Hence, the recommendation that agent banking should be adopted by the deposit money banks who have not adopted it so as to enjoy the benefits.

Internet Banking and Financial Performance

Kagendo (2015) conducted a study on E-banking strategy and performance of commercial banks in Kenya. The findings of the study showed that the connection among e- banking infrastructure, e-banking efficiency strategies, and e-banking quality improve the performance of Kenya commercial banks. this research recommended that banks should improve devices for more e-banking approaches that address the needs and wants of the customers in a timely and manner that is important. E-banking approaches should be more than ICT infrastructures, competencies and quality but again customers value addition through the e-banking approaches.

Asia (2015) conducted a study on electronic banking and financial performance of commercial banks in Rwanda: A Case Study of Bank of Kigali. The findings showed that banks in Kigali has diversities of e-banking services for their customers in order to offer effective and competence service delivery. These include: ATM that is one of the e-banking services that is commonly used by e-banking by the customers of bank of Kigali, pay direct that let you approve particular deposits, phone banking that let you call your financial institution with instructions to pay certain bills or to transfer funds between accounts after an agreement with the institution to make such transfers and many others. The various electronic banking endorses effectiveness and competence in service delivery since customers can be able to withdraw and deposit money, approves payments and check account balance.

Cheruiyot (2015) conducted a research on the impact of internet banking on financial performance of commercial banks in Kenya. The findings show that online clients deposits and banking transaction has important connection with ROA while internet fees and commissions and internet banking expenditure had a negative connection with ROA in commercial banks. This study concluded that ROA in banks enlarged in upwards trends because of the internet banking. This research further concluded that there is a correlation between online client deposit and ROA that is strong, important and positive. The study recommended that the management of the banks should improve internet banking to advance financial performance in commercial banks.

Kombe and Wafula (2015) conducted a study on effects of internet banking on the financial performance of commercial banks in Kenya a Case of Kenya Commercial Bank. From the findings of the study, there is an important connection between financial performance of the commercial banks and internet and the income of mobile banking. This can be as an outcome of a rise of transactions in internet and mobile banking following the rise advancement of the yields of internet and mobile products by the commercial banks that are local and the growth in the number of people that are using the technology. The study recommended that banks should invest hugely in the innovations of technology that would improve their clients to continuously use mobile and internet banking. The study further recommended that those who make policy should be keen and control advancements of internet and mobile banking to make sure that those who make plans do not lose their significance and important regulatory duty in their advancement.

Ogare and NO (2015) researched on the effect of electronic banking on the financial performance of commercial banks in Kenya. The findings show that e-banking has a strong and important influence on the profitability of commercial banks in Kenya in the industry of Kenyan banking. The research recommended that the administration of those type of banks that are slow in adopting innovations, should move in and adopt different innovations in their workings in order to show their profitability. The study further recommended that the policy makers of the government should assess policies that are related to promotion of adopting innovation and transfer of technology.

Automated Teller Machines and Financial Performance

Jegede (2014) did a study on effects of automated teller machine on the performance of Nigerian banks. The findings show that the positioning of ATMs terminals have enhanced averagely the performance of Nigerian banks due to the ATM fraud that is at an alarming rate. ATM service quality is less correlated to security and privacy of those who are using and the providers. This study concludes that banks should strive to grow their security layers to undermine the tricks of web scammers, reduce the amount that clients may be permitted to withdraw at a time and offer electronic attention to clients phone for all the transactions that have been carried out on their bank accounts through ATMs and the provisions of extra security layer that can prevent third party to utilize ATM card that belongs to someone else for illegal withdrawals electronically.

Murigu, (2016) conducted a study on the usage of automated teller machines case study: Barclays Bank of Kenya. The findings showed a devastating preference for the ATM against the choice of using bank cashier to withdraw cash. The findings further showed that the factors that influence the ATM usage comprise of the presence of a guard at ATM location, the preference for ATMs that are located at the branch of the bank, procedures that are taken to make sure there is sufficient security at the location of ATM, the dependability of ATM to offer services, the length of the queue at the ATM, the cleanliness of the ATM location, sufficient lighting at the ATM location, the choice of the ATM location aligned to customer preferences, the surveillance camera deployed at ATM locations and ATM located within a lobbyare preferred.Banks and Financial Institution need to ensure they implement the factors that affect the usage of ATMs by reviewing each ATM location before and after installation, to ensure they realize the maximum benefit from their investments.

Automated teller machine banking has become a significant channel for banking products and services behind branch banking in Malawi and banks continue to invest in new and efficient technologies that can handle more functions that include cash depositing to attract more customers and achieve customer satisfaction with the banks. 353 respondents participated in this study to assess the impact of Automated teller machine banking performance on customer satisfaction with banks. The study adopted a performance only approach to measuring customer satisfaction. A self-administeredquestionnaire containing multi-dimension and multi-attribute Likert measurement scales was used where respondents rated the performance only and their satisfaction with Automated teller machine banking and satisfaction with their respective banks. Using SPSS, regression analysis of satisfaction with Automated teller machine banking performance and satisfaction with the bank was conducted and the results indicate that performance of automated teller machine banking has 40 percent predictive capability of customer satisfaction with the bank. The study further found that despite influencing customer satisfaction with the bank, Automated teller machine banking has no capability to attract customers to switch banks. Therefore banks could improve their customer satisfaction ratings through improvements in Automated teller machine banking services but where the banks wish to attract customers from rivals, alternative marketing strategies should be sought

Mwatsika (2016) conducted a study on impact of ATM banking performance on customer satisfaction with the bank in Malawi. ATM banking has become an important channel for banking products and services behind branch banking in Malawi and many banks continue to invest in new and competence technologies that can handle more events that involve depositing of cash to attract many clients and gain the satisfaction of the clients with the banks. The study adopted a performance only approach to measuring customer satisfaction. A self-administered questionnaire containing multi-dimension and multi-attribute Likert measurement scales was used where respondents rated the performance only and their satisfaction with ATM banking and satisfaction with their respective banks. The findings indicated that the performance of ATM banking has 40% predictive ability of client's satisfaction with the bank. The research further discovered that despite affecting client's satisfaction with the bank, ATM banking has no ability to attract clients to switch to the banks. Therefore, banks should enhance their client satisfaction ratings through enhancements in ATM banking services but where the banks wish to attract clients from opponents, substitutes marketing approaches should be sought.

Mutiso (2017) conducted a study on Effect of Automated Teller Machines on the Return on Assets of the Listed Commercial Banks in Kenya. The study realized that ATM had a positive an important effect on ROA of customer banks in Kenya in the period 2007-2016. All the variables met the classical linear regression model diagnostic tests meaning that they were normally distributed, homoscedastic and had no autocorrelation. Further, there was a positive correlation between automated teller machines and return on assets implying a strong relationship between the two variables. The study recommended that commercial banks should grow their efforts towards adoption of ATM to mechanize their service delivery to clients.

RESEARCH METHODOLOGY

Research Design

This study was studied through descriptive research design because the target respondents were required to provide more information in relation to what, where, when how and who of the e-banking and performance of banks in Kenya. Descriptive design has successfully been applied by previous scholars like Njenga, Litondo and Omwansa (2016) to study the determinants of successful implementation of mobile banking platforms in Kenya. The design is appropriate for this study because the study involved observing and describing the behaviour of a subject matter without influencing it.

Target Population

The elements sharing the observable characteristics that are of interest to a scholar or a researcher make up what is called population. The population of this study comprised all 43 commercial banks in Kenya as at December 2018 (CBK, 2018). The unit of analysis was the 124 operations and e-banking managers based at the headquarters among the 43 commercial banks in Kenya (KBA, 2018). The banking institutions were selected because they are the ones implementing e-banking services that enable customer's access financial services remotely.

Sampling Procedure

Sampling is done to ensure that the elements selected for inclusion in the study is not biased. Several sampling techniques and procedure exist which scholars can use. For the purposes of this study, all the target population elements were included in the study because they are not many and have a representative office in Nairobi. The study was therefore a census.

Data Collection Instruments

A questionnaire was applied to collect primary data required for this study. The questionnaire was selected as the study instrument because of the advantages associated with it in terms of being cheap, ability to collect huge amounts of data within a short period of time, and the fact that it requires little effort to complete it. The questionnaire was organized in such a way as to contain sections distinct for each of the objectives. The questionnaire made use of both open and closed ended questions. Open ended questions were used to elicit more insightful information from the respondents while closed ended questions were used to standardize the responses (Salganik& Levy, 2015).

Data Collection Procedure

The study applied a drop and pick later method which allowed the targeted respondents some time to fill in and return the questionnaires. This method is preferred because of its advantage in that it does not cause much disruption in the daily schedule of the respondents. It also helps in ensuring a high response rate.

Data Analysis and Presentation

Collected data was coded before being captured in the statistical software for analysis. Descriptive statistics were computed whereby frequencies, percentages, means and standard deviations were clearly shown in the form of both tables and figures. In order to draw conclusions, inferential statistics were computed. A regression model was used to determine the nature of the relationship between dependent and independent variables. The multiple Regression analysis was used to test for the relationship between the independent variables (internet banking, mobile banking, agent banking and automated teller machines) and the dependent variable (bank performance). The regression model adopted was:

$$\mathbf{Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon}$$

Where: Y = Bank performance; X_1 = mobile banking; X_2 = Internet Banking; X_3 = agent banking; X_4 = Automated Teller Machine Banking; β = constant ; $\beta_1\beta_2\beta_3\beta_4$= Régression Coefficients ; ε = Error Term

RESEARCH RESULTS

The purpose of the study was to find out the effect of e-banking services on the financial performance of banks in Kenya. The study objectives were to establish the influence of mobile banking, agency banking, internet banking and use of ATMs on the financial performance of commercial banks in Kenya.

Mobile banking and Financial Performance of Commercial Banks in Kenya

The study established that mobile banking to a great extent affected performance of the banks. The respondents agreed that the banks have increased their focus and investments in mobile banking, their policy makers are keen on the developments of mobile banking, the banks keep on adopting and using mobile banking in their operations and that mobile banking has improve their financial performance. The respondents strongly agreed that the banks have reduced the transaction costs involved in mobile banking. This indicates that mobile banking is significantly embraced by commercial banks in Kenya and has a positive relationship with performance and operation cost of the banks.

Agency Banking and Financial Performance of Commercial Banks in Kenya

The study established that agency banking significantly influenced financial performance of commercial banks in Kenya. The stud respondents agreed that the banks have increased the number of agents in estates and in rural areas, they have lowered the charges of making transactions in agency banks, they have improved their customer care needs in the organization, there is development of new products and services in the banks and the regulations are efficient to enable more banks embrace agency banking service. This indicates that to a significant extent the banks embraced agency banking as an e-banking service and this positively improved their performance.

Internet Banking and financial performance of Banks in Kenya

The study established that internet banking services had a positive and significant effect on the financial performance of the banks. The study respondents agreed that the management of the banks have improved internet banking to advance financial performance, the banks have invested hugely in the innovations of technology that would improve their clients to use internet banking continuously, the bank policy makers are always careful and control development of internet, the banks are very quick in adopting innovations and the policy makers assesses policies that are related to promotion of adopting innovation and transfer of technology. This indicates that most banks have adopted internet banking and this has significantly improved the performance of the commercial banks in Kenya

Use of ATMs and Financial Performance of Banks in Kenya

It was established that the use of ATMs by banks had significantly improved their financial performance. The study established that to a moderate extent the banks have grown their security layers to undermine the tricks of web scammers, they have enhanced their clients' satisfaction ratings through improvements in banking ATM services and that the banks are affected by the length of the queue at the ATMs. The respondents agreed that the banks have grown their efforts towards adoption of ATMs to mechanize their service delivery to clients and improved their security layer to reduce the amount that clients may be permitted to withdraw. This generally indicates that a significant number of banks use ATMs as a form of e-banking service and this has positively improved the performance of commercial banks in Kenya.

INFERENTIAL STATISTICS

Inferential statistics were used to determine the degree of relationship between e-banking services and financial performance of commercial banks in Kenya. The findings of Model Summary, ANOVA and Regression Coefficients are indicated in subsequent sections below. The summary of findings of coefficient of determination and coefficient of adjusted determination are as shown in Table 1.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.874[a]	.856	.845	1.85132

The findings found out that coefficient of correlation R was 0.874 an indication of strong positive correlation between the variables. Coefficient of adjusted determination R^2 was 0.845 which changes to 84.5% an indication of changes of dependent variable can be explained by (mobile banking, agency banking, internet banking and use of ATMs). The residual of 15.5% can be explained by other factors beyond the scope of the current study.

The study carried out an ANOVA at 95% level of significance. The findings of $F_{Calculated}$ and $F_{Critical}$ are as shown in Table 2.

Table 2: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	851.221	5	170.244	42.659	.000[b]
Residual	379.126	95	3.9908		
Total	1230.347	100			

The findings show that $F_{Calculated}$ was 42.659 and $F_{Critical}$ was 6.5114, this show that $F_{Calculated} > F_{Critical}$ (42.659>6.5114) an indication that the overall regression mode was significant for the study. The p value was 0.000<0.05 an indication that at least one variable significantly influenced performance of the commercial banks.

The study ran a regression establish the individual influence of the variables to bank performance. The findings are indicated in Table 3.

Table 3: Coefficients of Regression

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
(Constant)	5.649	0.745		4.316	.000
Mobile banking	0.891	.133	.012	10.422	.000
Agency banking	0.859	.105	.014	12.119	.000
Internet banking	0.791	.114	.024	10.341	.000
Use of ATMs	0.799	.153	.107	8.044	.000

The resultant equation was

$$\mathbf{Y = 5.649 + 0.891X_1 + 0.859X_2 + 0.791X_3 + 0.799X_4}$$

Where: Y = Financial Performance of commercial banks in Kenya; X_1 = Mobile banking; X_2 = Agency banking; X_3 = Internet banking; X_4 = Use of ATMs

The study found out that by holding all the variables constant, bank financial performance will be at 5.649. A unit increase in mobile bankingas an e-banking service when holding all the other variables constant, financial performance would be at 0.859. A unit increase in agency banking while holding other factors constant, financial performance of the bankswould increase by 0.859. A unit improvement in internet bankingwhile holding other factors constant, financial performance would be at 0.791. A unit increase in use of ATMs among the commercial bankswhile other factors are held constant, financial performance of the firms would be at 0.799. The findings pointed out that the independent variables had a p value of $0.000<0.05$ an indication that the e-banking significantly influenced financial performance among the commercial banks in Kenya.

CONCLUSION

The study concluded that mobile banking, agency banking, internet banking and use of ATMs had a positive and significant effect on the financial performance of commercial banks in Kenya. The study concluded that mobile banking is significantly embraced by commercial banks in Kenya. It was concluded that to a significant extent the banks embraced agency banking as an e-banking service and this positively improved their performance. The study concluded that most banks have adopted internet banking and this has significantly improved the performance of the commercial banks in Kenya and that a significant number of banks use ATMs as a form of e-banking service and this has positively improved the performance of commercial banks in Kenya.

RECOMMENDATIONS

The study recommends that the commercial banks should invest more on new technology, innovations and capacity building to improve the uptake of e-banking services. The study recommended that the banks should sensitize, inform and remind their clients on the availability, accessibility, usage and value of e-banking services at their disposal to improve their uptake and use.

REFERENCES

Aduda, J., Kiragu, P., &Ndwiga, J. M. (2014).The relationship between agency banking and financial performance of commercial banks in Kenya. *Journal of Finance and Investment Analysis*, *2*(4), 97-117.

Agarwal, R. (2016). Payment Banks Redefining Indian Banking: An Empirical Study. *Journal of Applied Management-Jidnyasa*, *8*(1), 1-8.

Agolla, J. E., Makara, T., &Monametsi, G. (2018). Impact of banking innovations on customer attraction, satisfaction and retention: the case of commercial banks in Botswana. *International Journal of Electronic Banking*, *1*(2), 150-170.

Agwu, E. (2018). The role of e-banking on operational efficiency of banks in Nigeria.

Alwan, H. A., & Al-Zubi, A. I. (2016). Determinants of internet banking adoption among customers of commercial banks: an empirical study in the Jordanian banking sector. *international journal of business and management*, *11*(3), 95.

Argamo, H. H. (2015). *The Effect of Agency Banking on The Financial Performance of Commercial Banks in Kenya in 2014: A Case Study of Chase Bank* (Doctoral dissertation, United States International University-Africa).

Asia, N. M. (2015). Electronic Banking and Financial Performance of Commercial Banks in Rwanda: A Case Study of Bank of Kigali. *Research Project Report submitted to the Department of Business Administration in the School of Business in partial fulfillment of the requirement for the award of Master Degree in Business Administration (Finance Option) of Jomo Kenyatta University of Agriculture and Technology*.

Awadallah, E. A., &Allam, A. (2015).A critique of the balanced scorecard as a performance measurement tool. *International Journal of Business and Social Science*, *6*(7), 91-99.

Azeem, M. M., Ozari, A., Marsap, P., Arhab, P., &Jilani, A. H. (2015).Impact of E-Commerce on Organization Performance; Evidence from Banking Sector of Pakistan.

Bagudu, D. H., Shazida, J., & Abdul, R. (2017). The effect of mobile banking on the performance of commercial banks in Nigeria. *Unpublished Master of Business Administration.*

Bashange, L. (2015). Assessment of the risk awareness for mobile banking users in Tanzania, a case of CRDB Mbagala branch Temeke Municipality Dar Es Salaam, The Open University of Tanzania.

Black, N. 1., Lockett, A., Winklhofer, H., &Ennew, C. (2001). The adoption ofInternet financial services: a qualitative study. International Journal of Retail and Distribution Management. Vol. 29 (8), pp. 390-398.

Chedrawi, C., Harb, B., &Saleh, M. (2019). The E-Banking and the Adoption of Innovations from the Perspective of the Transactions Cost Theory: Case of the Largest Commercial Banks in Lebanon. In *ICT for a Better Life and a Better World*(pp. 149-164). Springer, Cham.

Chemirmir, R. J. (2016). *The Effects Of Electronic Banking As An Innovation Strategy On Performance Of Commercial Banks In Kenya* (Doctoral Dissertation, School Of Business, University Of Nairobi).

Cheruiyot, S. K. (2015). Impact of internet banking on financial performance of commercial banks in Kenya (*Doctoral dissertation, University of Nairobi, Kenya*).

Chude, N. P., &Chude, D. I. (2014).Impact of agent banking on performance of deposit money banks in Nigeria. *Research journal of finance and accounting*, *5*(9).]

Cooper, D. J., Ezzamel, M., &Qu, S. Q. (2017).Popularizing a management accounting idea: The case of the balanced scorecard. *Contemporary Accounting Research*, *34*(2), 991-1025.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319-34

Eriksson, K., & Nilsson, D. (2007). Determinants of the continued use of self-service technology: The case of internet banking. Technoinnovation 27 (4), 159-167

Fooladvand, M., Yarmohammadian, M. H., &Shahtalebi, S. (2015). The application strategic planning and balance scorecard modelling in enhance of higher education. *Procedia-Social and Behavioral Sciences*, *186*, 950-954.

Gebreslassie, T. W. (2017). E-Business Strategy to Adopt Electronic Banking Services in Ethiopia.

Goh, K. H., & Kauffman, R. J. (2015). Investments in internet-based innovations for financial services: strategic advantage or strategic necessity?. *International Journal of Business Excellence*, *8*(4), 378-395.

Hess, T. J., McNab, A. L., &Basoglu, K. A. (2014).Reliability generalization of perceived ease of use, perceived usefulness, and behavioral intentions. MIS Quarterly, 38(1)

Jdanova, O. R., &Karminsky, A. (2013). The diffusion of banking innovations: bank cards on Russian market.

Jegede, C. A. (2014). Effects of automated teller machine on the performance of Nigerian banks. *American Journal of Applied Mathematics and Statistics*, *2*(1), 40-46.

Juliet, B. M. (2018). Effects of Mobile Banking On The Financial Performance Of Deposit Taking Saccos In Kenya.

Kagendo, F. K. (2015). E-banking strategy and performance of commercial banks in Kenya. *Unpublished MBA project, School of Business, University of Nairobi*.

Kagendo, F. K. (2015). E-banking strategy and performance of commercial banks in Kenya. *Unpublished MBA project, School of Business, University of Nairobi*.

Kamau, D. M., &Oluoch, J. (2016).Relationship between financial innovation and commercial bank performance in Kenya. *International Journal of Social Sciences and Information Technology*, *2*(4), 34-47.

Kamau, J. G., Senaji, T. A., Eng, R., &Nzioki, S. C. (2019). Effect Of Information Technology Capability On Competitive Advantage Of The Kenyan Banking Sector. *International Journal of Technology and Systems*, *4*(1), 1-20.

Kemunto, E. R., &Kagiri, A. (2018). Effect Of Implementation Of FINTECH Strategies On Competitiveness In The Banking Sector In Kenya: A Case Of KCB Bank Kenya. *European Journal of Business and Strategic Management*, *3*(3), 29-40.

Kombe, S. K., &Wafula, M. K. (2015).Effects of Internet Banking on the Financial Performance of Commercial Banks in Kenya a Case of Kenya Commercial Bank. *International Journal of Scientific and Research Publications*, *5*(5), 1-10.

Lee, J.N., Miranda, S. M., & Kim, Y.M. (2004).IT Outsourcing Strategies: Universalistic, Contingency, and Configurational Explanations of Success. Information Systems Research, 15(2): 110-131.

Lubis, A., Torong, Z. B., &Muda, I. (2016). The urgency of implementing balanced scorecard system on local government in North Sumatra–Indonesia.

Mabwai, F. (2016).Effects of mobile banking on the financial performance of commercial banks in Kenya. Unpublished MBA project.

Muchiri, F. (2017).Strategic alternative banking channels and performance of commercial banks in Kenya.

Murigu, A. H. (2016). The Usage of Automated Teller Machines Case Study: Barclays Bank of Kenya (Doctoral dissertation, University of Nairobi).

Muthoka, N. I., Oluoch, O., &Muiruri, P. M. (2018). The Impact of Agency Banking Financial Innovation on Market Capitalization of Commercial Banks Listed in NSE, Kenya.

Mutiso C. (2017) Effect of Automated Teller Machines on the Return on Assets of the Listed Commercial Banks in Kenya

Mutua, R. W. (2014). Effects of mobile banking on the financial performance of commercial banks in Kenya. *Unpublished MBA Thesis, University of Nairobi*.

Mwatsika, C. (2016). Impact of ATM banking performance on customer satisfaction with the bank in Malawi. *Int J Bus Econ Res*, *5*(1), 1-9.

Njoroge, M. N. &Mugambi, F. (2018). Effect of electronic banking on financial performance in Kenyan commercial banks: Case of Equity bank in its Nairobi Central Business District branches, Kenya. *International Academic Journal of Economics and Finance*, 3(2), 197-215

Ogare, H. O., & NO, R. (2015).The effect of electronic banking on the financial performance of commercial banks in Kenya. *Unpublished MBA project. Nairobi: University of Nairobi*.

Özataç, N., &Gökmenoglu, K. K. (Eds.). (2017). *New Challenges in Banking and Finance: 2nd International Conference on Banking and Finance Perspectives*. Springer.

Puschel, 1.,Mazzon, 1. A., &. Hernandez, 1. M. C (2010). Mobile banking: Proposition of an integrated adoption intention framework. *International Journal of Bank Marketing*, Vol. 28, No.5: 389-409.

Rogers, E.M. (1962). Diffusion of Innovations. Glencoe: Free Press.

Santu, T. V. C., Mawanza, W., &Muredzi, V. (2017).An Evaluation of the Agency Banking Model Adopted by Zimbabwean Commercial Banks. *Journal of Finance*, *5*(2), 58-66.

Shah, M. S., &AkanshaTyagi, M. (2017).HR Challenges and Opportunities in Banking Sector.

Silas, M. E. (2016). *Evaluation of e-banking strategies on organization performance: case of Kenya Commercial Bank*(Doctoral dissertation, Mount Kenya University).

Simboley, B. C. (2017). *Effects of Agency Banking on the Financial Performance of Commercial Banks in Kenya* (Doctoral dissertation, United States International University-Africa).

Taiwo, J. N., &Agwu, E. (2017).The Role of E-Banking on Organization Performance in Nigeria-Case Study of Commercial Banks.

Tan, M., &Teo, T. S. (2000).Factors influencing the adoption of Internet banking.*Journal of the Association for Information Systems*, 1 (5), pp. 1-42.

Victor, O. I., Obinozie, H. E., &Echekoba, F. N. (2017). The Effect Of Information Communication Technology And Financial Innovation On Performance On Nigerian Commercial Banks (2001–2013). *International Journal of Contemporary Applied Sciences (ISSN: 2308-1365) Vol*, *4*.

Wruuck, P., Speyer, B., AG, D. B., & Hoffmann, R. (2013).Pricing in retail banking. *Scope for boosting customer satisfaction.–Frankfurt am Main: Deutsche Bank AG*, 1-20.

Zahid, M. J. A., et al. (2013). Information communication technology (ICT) for disabled persons in Bangladesh: Preliminary study of impact/outcome. International Working Conference on Transfer and Diffusion of IT, Springer