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## **Contextual Effects on Online Banking Implementation Process and Service Content: A Case Study in Ghana**

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### **Abstract**

The purpose of this study is to understand how context shapes online banking implementation process and service content in a developing country environment. Information systems studies on online banking has focused more on adoption and use in context and not how the context shapes the innovation process and the content. Less is therefore known about context as an active agent in online banking initiatives. To address this gap, this study followed the context, content and process framework as theoretical lens and interpretive case study methodology to trace an online banking implementation in a developing country. The findings reveal contextual factors that shaped the process and forced it to deliver basic information and account services rather than the intended advanced transactional, investment, interbank and payment services. The paper's contribution stems from its unveiling of context as an active agent in online banking innovation.

**Keywords: Online Banking; Context; Implementation Process; Online Service Content; Contextualist Approach; Developing Country; Ghana**

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## **INTRODUCTION**

The purpose of this study is to understand how organizational context of developing country banks shapes online banking implementation process and service content. In this study, online banking is viewed as the delivery of banking services via the Internet. Traditionally, banks offer services through physical branches [1,2]. However, the emergence and diffusion of information technology has enabled novel e-banking service delivery channels such as via desktop computers, digital television, ATMs and in recent times Internet and mobile platforms [3,4]. E-banking is the broad term used to describe these multiple, computer-based bank delivery channels [1,5].

This study focuses on Internet banking, also called online banking [6], as a form of e-banking [1,7] to understand how developing context shapes online banking implementation and service delivery content. Implementation process is here conceived as the series of activities involved in acquiring and getting an information technology integrated into an organization [8,9].

The rapid expansion of online banking is most noticeable in the developed world such as USA and Europe, where availability of computers and easy access to the Internet facilitate the implementation of online services [10]. Nevertheless, some developing countries such as India and Malaysia have experienced an appreciable level of online banking services [11,12]. Banks in other developing country contexts such as Africa and Latin America are also increasingly initiating projects to implement such services [13].

However, the developing country online banking literature has focused more on adoption and use [7,12,14,15] and less on implementation. Little research therefore exists on how developing country context shapes online banking implementation process and service content. Context refers to environmental factors that have the potential to influence organizational behaviour [16-18]. These factors include both internal and external elements within and outside the organization [19].

The research question that motivated this study therefore concerns how the context of developing country banks shapes online banking implementation process and service content. To address this question, the study employs context, content and process framework [19,20] as the theoretical lens and qualitative interpretive case study [21,22] as the methodology to investigate an online banking implementation process in Ghana. Ghana is a developing country located in Africa. Before 2004, online banking was largely unavailable in Ghana [23]. However, by 2008, online banking was gradually picking up in the country [15]. In recent years, there has been a considerable increase in online banking implementation. Ghana was therefore selected as a developing

country setting to understand how context shapes online banking implementation process and service content. The study is considered important because it can help to understand the effects of context on online banking initiatives in developing countries.

The rest of the paper is organized as follows. Section 2 reviews the literature on online banking and developing country context. Section 3 explains the content, context and process framework as the analytical lens for the study. The research setting and the methodology are discussed in Section 4. Section 5 presents the case study findings followed by analysis and discussion of the findings in Section 6. Finally, Section 7 concludes the paper, outlines its contribution, implications and limitations and makes recommendations for future research.

## **ONLINE BANKING, IMPLEMENTATION AND DEVELOPING COUNTRY CONTEXT**

Based on the Internet, online banking affords banks the opportunity to provide services through computer networks [24-26] and customers the opportunity to access services without physical contact with bank branches [27,28]. Online banking has therefore been considered as a portal for delivery and consumption of banking services [29].

Online banking includes a number of services delivered by banks and consumed by customers via the Internet [24,28]. Such services can generally be categorised into: account services, request services, third party payments, funds transfer and investment [30,31]. Online account services involve self-service technology that enables customers to open, amend, close and retrieve information from their accounts without physical contact with bank branches [32-34].

Third-party payment services allow customers to instruct their banks to make electronic payments on their behalf. Online payment services include bill and standing order payments that customers can setup and amend by themselves [25,35]. Fund transfer services allow customers to transfer funds from one account to another. An online transfer can be inter- or intra-bank [13,32]. Unlike traditional transfers where customers visit bank branches to complete forms, online banking enables them to do so via the Internet without physical contact.

Online request enables customers to request for products and services by completing online forms. Examples include cheque book requests, credit/debit card requests and loan requests [13,35]. Finally, online investment services support customers to electronically instruct their banks to perform investment activities [32,36].

Implementation involves the process of integrating an information system artefact into an organizational context. Metwally et al. [37] classifies online banking implementation activities into five phases of planning, implementation, user acceptance testing and training, and post implementation audit. The main activities in the planning phase include decisions on key players' responsibilities, coordination among departments,

decisions on technical issues, security issues, and management of logistics. In the implementation phase, developed online banking applications (websites) are installed on web servers and integrated with already deployed database management systems and communication software. The various modules in the online banking applications are then activated and executed. User acceptance testing are carried out to ensure that various components perform to their functional and technical specifications [38].

In developing countries, online banking is being used as a major penetration and competitive strategy for foreign banks; this situation has forced local banks to adopt online banking [11]. Banks in developing countries have therefore begun to use online banking to create strategic advantage, position themselves as innovators of high technology adopters, penetrate new markets and extend their geographical reach [7,39,40]. Thus, online banking is being utilized as a medium for customized services for Internet users in developing countries who are considered as educated and wealthy [41].

However, online banking in developing countries is constrained by a number of factors. Among such constraining factors are lack of appropriate government policies and laws, lack of infrastructure, and Internet fraud [42,43]. Legislations on the Internet and online financial transactions are unstable, vague, and incomplete [43,44]. These affect the provision of online banking services by reducing customers trust and willingness to use the service [45,46]. Furthermore, unstable political situations in many developing countries negatively affect banks and customers' decisions to offer and use online banking services [47]. Moreover, Internet infrastructure in most developing countries has been poor [45,48] and therefore a disincentive for the adoption and use of online banking [49] and e-business innovation in general [50,51].

Notwithstanding the growing literature on online banking in developing countries, empirical research from the region has so far paid less attention to how context shapes implementation and service content. This study thus investigates a case in Ghana on how the context of the bank shaped the online banking implementation process and the services that go implemented or not.

## **THEORETICAL FOUNDATION: CONTEXT, CONTENT AND PROCESS FRAMEWORK**

Context, content and process (CCP) [19,20] offers a useful contextualist framework [18] for explaining how organizational context influences behaviour and outcome. The theory posits that organizations are shaped by their internal and external contexts, which determine how activities are conducted and outcomes emerge. CCP was originally developed by Pettigrew [18] as a theoretical lens for explaining organizational change. The framework has been considered useful for information systems research regarding the evaluation of organizational context on information system components and innovation processes.

The first concept of the theory is context. Context is defined as environmental factors that have effects on organizational activities, events and outcomes. The notion of context therefore helps to address questions on why organizations exhibit certain behaviours [16,17]. In this study, context refers to the key environmental factors within and outside the case bank that influenced the online banking implementation process and the service content that got implemented or not.

As the second concept, content refers to social and technical elements that are affected by contextual factors [19]. The notion of content therefore helps to identify and explain changes that result from contextual effects [17]. In this study, content refers to the service components of the online banking application which were subjected to the contextual factors of the bank and thus got implemented or not.

As the third and final concept, process, refers to the steps in organizational initiatives intended to bring about changes [18]. In relation to information systems, process refers to implementation as a series of activities to bring about organizational changes [19]. In this study, process refers to the implementation process, the sequence of activities from requirement specifications to deployment of specific service components.

The fundamental principle of the context, content and process framework is that analyses of organisational change should involve interplay between context of change, the process of change and the content of change [52]. It is thus important to see organisational change as emergent and not divorced from the context. The CPP framework has been considered useful for information systems research that accounts for organizational context and change. This study considers it appropriate for investigating contextual effects on online banking implementation and service content.

## **RESEARCH SETTINGS AND METHODOLOGY**

### **Research Setting**

This research was conducted over a two year period starting from 2013 and ending by 2015. The setting for the study is Ghana, a developing country in Africa. Ghana's banking industry has been undergoing many transformations intended to improve service quality and delivery to customers. Traditionally, banks were serving their customers through the manual system from brick-and-mortar branches. However, e-banking innovations, including branch networks, ATMs, telephone, PC banking and in recent times internet and mobile banking have been embraced by most banks in the country.

The case organization for this study is CBank (pseudonym), a commercial bank in Ghana with over 50 year existence. In line with the research focus on understanding how context shapes online banking implementation, CBank was selected through purposeful sampling [53,54] because it had completed an internet banking implementation process amidst contextual issues that delayed the process and shaped

the deployed service content.

## **Methodology**

Qualitative, interpretive case study [21,22,55] was the chosen methodology for the study. Qualitative research was chosen because it was considered appropriate to help gather rich data not only on the research phenomenon, but also on the broader organizational context in which it is embedded. Qualitative methodology is considered appropriate for gaining context sensitive and rich insight about an organizational phenomenon such as online banking in information systems research [56].

This study's philosophical perspective is based on the interpretive paradigm [52]. Interpretive paradigm seeks to understand a research phenomenon from subjective and contextual perspective [57] This paradigm therefore follows subjective rather than objective methodology. The ontological and epistemological perspective of interpretive research is that both the phenomenon and the resultant knowledge are socially constructed between the researcher and the participants [21,22,55]. Therefore, interpretive case study research seeks to understand how people make sense of a research phenomenon within a real-life context [52]. In line with the research purpose, the researchers find interpretive case study as the appropriate research method to understand how context shapes online banking implementation process and service delivery content.

## **Data Gathering**

The researchers gained initial access to CBank through personal contacts. This was however followed by a formal introduction letter for management approval, which was granted on condition of anonymity for the bank and its staff. Data for the study came from multiple sources, including interviews, informal discussions, documents and artefact analysis. This is in line with the interpretive research tradition [58].

Purposeful and snowball sampling [54] were used to select interview participants. This was done by identifying personnel of the bank who were knowledgeable about and/or participated in the online banking implementation project. Participants came from three of the main units of CBank. These units are: IT and Operation Supports; E-business, E-banking and Internet Banking; Corporate/Retail. Semi-structured interviews were conducted by the second author with 28 participants purposefully selected from units of the bank that participated in the online banking initiative (Table 1).

Because the online implementation occurred at the head office of the bank in Accra, the capital of Ghana, all the interviews were conducted there. Interview questions focused on implementation activities from requirements analysis and specifications to service activation and how the bank's legal, technological and project environment shaped the process and the outcome.

**Table 1:** Interview participation

<b>Units</b>	<b>Participants</b>	<b>Total</b>
Information Technology	Manager (1), Employees (3)	4
Operations Support	Managers (3), Employees (2)	5
E-Business	Managers (1), Employees (2)	3
E-Banking	Managers (1), Employees (2)	3
Internet Banking	Managers (2), Employees (3)	5
Corporate Banking	Managers (2), Employees (2)	4
Retail Banking	Managers (1), Employees (3)	4
	<b>Total</b>	<b>28</b>

On the average, each interview lasted between 30 minutes and 1 hour. Depending on the consent of the participants, some interviews were tape recorded. Tape recorded interviews were later transcribed while notes taken were written up as soon as possible. Informal discussions and clarifications through personal visits, telephone conversation and e-mail were also used to gather additional data.

Existing documented materials including requirement specifications, manuals, flyers, brochures, and projects reports that were offered by the participants were also analysed to identify the expected services, the standard modules of the online banking application and those that got deployed. The second researcher also had an opportunity to observe the services content of the demo application and the implemented one. The latter was organized by a staff of the Internet banking unit who walked the researcher through the services that got activated. Additional data were gathered from the bank’s Internet as well as from general Internet search regarding the industry and technological environment in the country at the time of the online banking implementation. Data gathering however continued after the fieldwork through follow-up interviews via e-mail for clarification on emerging issues during data analysis.

**Data Analysis**

The data analysis was interpretive in nature [59,60] and informed by the CCP framework. The aim of the analysis was to 1. Identify the environmental factors that influenced the implementation process and service content and how they were influenced. 2. Understand how the implementation process was carried out. 3. The online banking services that were implemented and those that were not. Following the interpretive tradition, data analysis occurred alongside data gathering without a clear cut

separation [21,61]. Using the CCP framework as a lens, we followed the interpretive mode of analysis [55,59,62] through an inductive process that involved continuous reading of the data gathered from various sources to understand emerging issues related to the online banking application, the implementation process and significant elements of the environment. We individually analysed the data separately but met frequently to compare and discuss emerging issues and findings until an agreement was established. Where necessary, we got back to the participants for verification and confirmation. Feedback from such interactions was used in improving the findings, analysis as well as the discussion as presented below. To ensure ethical compliance based on the anonymity agreement, all references to the identity of the bank and any information that would make it possible for readers to identify it were removed from the results.

## **CASE STUDY DESCRIPTION**

CBank is a parastatal, jointly owned by government and private investors. The bank provides both personal and corporate banking services to individuals and organizations in Ghana. CBank provides a wide range of products including current and savings accounts, money transfer and loan services. Other services include bill payments, standing orders and investments. Over the years, CBank had taken advantage of information technology innovation to deploy e-banking channels including branch networking, ATMs, point of sales (POS) systems and SMS. However, the move by other banks to deploy online banking as a competitive tool forced CBank to initiate an online banking implementation project. As a parastatal, the bank several levels of governance structure sometimes stifle quick decision making. A number of managers interviewed described the governance and management structure of the bank as very bureaucratic, especially regarding decisions on ICT innovation.

### **Context of CBank**

CBank initial computerization began in 1995 with a core banking software. The core banking software, which was acquired in 1995, had several modules including customer account management, remittances, SMS, internet banking, mobile banking and ATM. However, only the account management and ATM modules were fully deployed at the time. The failure to implement other modules such as internet and mobile banking were attributed to lack of appropriate infrastructure in the country at the time. This was noted by the Head of IT as follows:

*At the time we were deploying the core banking software, the country lacked the appropriate infrastructure to implement the modules that were not deployed.*

By 2005, when the bank decided to implement online banking, it had established a data centre at its headquarters in Accra and networked all of its branches across the country via a wide-area-network (WAN). Customers could therefore conduct transactions from any branch without the need to go to their own branch. Before then, customers could



only transact from their branches. The bank had also deployed ATMs in all of its branches and connected them to the WAN. Although Internet infrastructure in the country had improved at the time, it was only being used for communication and not for core banking services. Before the online banking, CBank had an IT department at the head office responsible for supporting the branch networking and the ATM infrastructure. Branches had no IT units and thus had to depend on the central unit at the head office for IT support. Concerning the existing internal IT infrastructure at the time of the online banking implementation, a staff at the IT department noted.

*Before we decided to offer our services onto the Internet platform, we had a significant level of ICT facilities in the head office as well as our branches.*

A significant part of CBank's external context is the regulatory and the competitive environment. Ghana's banking regulatory environment has been highly restrictive and thus affects technological innovation in the industry. The public procurement law and the Central Bank's regulation such as know-your-customer (KYC) policy, processing of paper-based forms and physical signature requirements are among the principal regulations that shape e-banking innovation in the industry. As a parastatal, CBank is obliged to comply with the public procurement law which is considered by a number of officers as rigid and too restrictive due to its stringent tendering process. Moreover, the KYC policy, which requires banks to have physical knowledge of their customers and their location, mandatory completion of paper-based forms and physical signature have established regulatory norms backed by the central bank. The head of the Corporate Banking unit observed that

*The regulatory environment of the banking sector is very restrictive and sometimes made it difficult for banks to implement important decisions. This is because the Central Bank always disapproves decisions that go contrary to its directive.*

By the time CBank decided to implement online banking, some banks had already deployed the innovation and were promoting it as a competitive tool to attract customers. Such banks had already transferred a number of their services online, enabling some of their customers to transact services electronically. However, CBank was still operating all services from its physical branches.

## **Online Banking Implementation**

In 2005, management of CBank decided to implement online banking. This was based on three main aims: (1) respond to growing competition with online banking as a competitive tool; (2) offer convenience to customers to be able to access banking services without the need for physical presence at bank branches; (3) decongest banking halls by directing customers from offline to online platforms. Following the decision, a project office was setup at the Bank's head office to manage the planning and implementation process. The team, which was led by the head of IT who became the project manager comprised members from IT, operations support, e-business, e-

banking as well as corporate and retail banking units.

The team conducted a requirement specification exercise to identify which services to offer online and the necessary technical specifications. From the exercise, the team produced a functional specification document that required that all the existing offline banking services be replicated online. Management approved the functional specification document, paving the way for the online banking project to proceed.

In line with the public procurement law, the project team and the legal department of the bank developed a tender document and invited vendors to bid for the project. Four organizations submitted their tender proposal and went through the bidding process. As part of the selection process, each respondent was given the chance to demonstrate their software to the project team and executive management of CBank. After the demonstration, an India company was chosen for the online banking implementation. The head of operations support unit cited the following reasons for choosing a vendor outside Ghana.

*The country lacked the right software companies and the technologies needed to develop such an application at the time. Moreover, the core banking software posed challenges at the time since it was deployed just two years before. Therefore management decided that a new vendor should handle the online banking project.*

The vendor was given the requirement specification document after which an implementation team was formed with the consultant and the original project team. Based on the functional specifications, the implementation team was expected to replicate all the existing offline services onto the online platform. The head of e-business commented on the planned online services as follows:

*These expected services are basically the ones that we were providing at our branches. We therefore wanted to migrate all of them unto our internet platform.*

The actual online banking implementation started six months after the requirement specifications were handed over to the vendor. Before installing the developed application, the project office in collaboration with the vendor had to reconfigure the existing servers and network infrastructure. The vendor came along with a new minitower computer. The minitower had Windows 2000 advance server operating system installed on it. The vendor installed and configured IIS Web Server on the minitower to provide web services. The minitower was then connected to the ISP Server for Internet connectivity after which the project office and the vendor installed the online banking application on the minitower. Subsequently, the minitower was connected to the main banking software and the database servers. The installed online banking application was then configured with the main banking software and relational database management system of CBank.

There were challenges with some of the IT devices at the time of implementation. These

challenges include, low storage capacity on the webserver designated to host the online banking software, and the low internet bandwidth. The low storage capacity prevented some of the installed services from starting while the low internet bandwidth made it difficult to access running services. The vendor and the internal project team had to stop the implementation in order to solve these challenges. This therefore delayed the implementation beyond the time allotted for its completion.

Changes were made to the online banking application during the implementation. These changes include: limits on funds transfer; reduction in the number of steps to be used to perform a transaction; the online banking application language of communication and appearance; and account number format updates. Other changes were the disabling of the following services: interbank transfer; insurance services; brokerage and mortgage services; credit card services; online accounts integration and reconciliation; and cross currency transfer. The vendor ensured that Ghana's currency (both the cedi symbol and its various denominations) were inserted into the implemented online banking application.

Furthermore, though the demonstrated prototype had no limits on funds transfer, the project office had the application interface updated in order to allow change to limits on funds transfer whenever the need arises. Therefore any time the central bank changes the limits on funds transfer the administrator can implement the required change through the appropriate interface on the online banking software. In addition to the above, the project office and the vendor ensured that the number of account number digits on the implemented online banking application became consistent with that of CBank. They also ensured that the implemented online banking software had the required administrator interfaces to implement such changes in the future. A staff of the operations support department observed:

*All these changes were made to the implemented online banking application to ensure that it operates without many problems within our context.*

After the installation, the project office and the vendor tested the online banking application against user and performance requirements on a pilot basis. The pilot testing was carried out for 6 months with staff members. Some corporate customers were also asked to test the online banking platform with their systems. A situation arose during testing where some implemented services did not work to expectation. The vendor then made the necessary updates to the online banking software which ensured that such mal-functioning services worked to expectation.

After the vendor and the project office got convinced that the implemented online banking platform was working as expected, they allowed the full use of the platform by interested individuals and corporate customers. This was after the project office had carried out a series of training sessions for interested customers. The training sessions involved issues such as how customers could log in to the online banking platform, use the implemented services and how challenges on the platform must be handled. The

online banking application that was implemented at CBank was made up of various services. These services can generally be categorised into accounts, transfers, requests, payments, and investments. Table 2 below shows the services, their categories and the ones brought online or retained offline.

As can be seen in Table 2, while some of the services on the online banking application were implemented, others were not. The reason why some services were not implemented is that the country lacked the infrastructure to run them. Hence, it was expected that customers physically visit CBank branches to access these unimplemented services. According to the head of internet banking:

*We were not able to implement all the services because the country lacked the infrastructure that was needed to operate the unimplemented services*

**Table 2:** Online banking application services and categories

Service Type	Offline	Online
Account Management	Accounts Opening	N
	Accounts Closing	N
	Account Amendments	N
	Account Statements	Y
	Account Balances	Y
Service Requests	Loan Request	N
	Cheque Book Request	N
	Standing Orders	N
	Credit/Debit Cards Request	N
	Account Reconciliation and Integration	N
Transfer services	Intra Bank	Y
	Inter Bank	N
Payment services	Bill Payments	N
	Tax Payment	N
Investment services	Insurance	N
	Mortgage	N
	Brokerage	N

## ANALYSIS

This section employs the context, content and process framework as a lens to analyse contextual effects on CBank’s online banking implementation and the service content.

## Implementation

CBank’s online banking implementation process began from project initiation and included functional requirement specification, software procurement and selection, installation and service activation. The significant contextual factors that influenced the implementation activities were the competitive environment, type of ownership and

regulatory environment, lack of attention to requirement specifications.

As described in the case description, the growing internet banking competitive environment at the time influenced CBank to begin the online banking initiative. At the time, a number of banks in the country had already implemented online banking and were advertising it to the general public as a competitive tool to attract Internet savvy customers. Thus, the existing and growing online banking competitive environment was what caused CBank to begin the implementation process by forming an internal team to take charge of the initiative. The project team then proceeded to conduct requirement analysis. The project team focused on the internal environment of the bank and developed a functional specification document that identified the existing offline services as those to be replicated online. The team however did not conduct technical requirements regarding the IT infrastructure to support the online banking application.

The implementation process encountered delays due to the ownership type and public sector procurement regulations. As a parastatal, CBank had no option than to go through the public procurement process. Despite the desire of management to complete the project in one year, the bureaucratic nature of the procurement process contributed to delays for over 2 years. As part of the project plan, the project was expected to begin within 3 months after completion of the requirement specifications. However, the procurement process delayed the installation activity for over six months due to the rigid nature of the tendering process. Also internal approval processes and the overbearing governance and management structure led to delays in releasing funds for purchasing resources and for paying the consultant equally delayed the implementation process.

Failure of the internal project team to conduct and specify technical requirements also delayed the implementation. First, the team failed to assess the internal technical infrastructure such as such as Internet, database and Web servers as well as bandwidth required for successful implementation of the online banking application. Second, the team also failed to assess external technical requirements in relation to e-payment and third-party internet infrastructure that enable inter-organizational transactions. Consequently, the bank had to go through another procurement process in order to upgrade hardware and communication infrastructure. The failure to assess the external technical infrastructure also led to time wasting for configuring advanced functionalities that support third-party transactions. Had the project team paid attention to the internal and external technical environment, such delays could have been avoided.

## **Service Content**

At the end of the implementation, intra-bank transfer, access to account balances and statements were the only services brought online. These can be described as basic online services. However, relatively advanced services such as account opening, account closing and amendments, interbank transfers, third party payments, requests and investment services were all not activated for the online platform. The contextual factors that influenced which service content got deployed and which did not were

central bank regulations and lack of national online payment infrastructure.

Despite CBank's initial intention to activate all services on the online banking application, it did implement only those related to information and failed to implement account related activities such as opening, amendment and closing as well as all third-party related services. One factor that stopped the bank from deploying the advanced services online was lack of national online payment infrastructure for interbank transactions. As a result, services such as interbank transfer, third-party payments, investments and standing orders could not be replicated online.

Another contextual factor that prevented the bank from deploying account related activities such as opening, amendment and closing was the KYC regulation as well as the use of paper forms and physical signature as source of transaction evidence. As a result of such regulations and practices, customers were required to show themselves in person at the branches before they can undertake such activities. Thus despite the online application having the required functionalities to support these activities, the bank could not deploy them.

## **DISCUSSION**

In response to the research question of how context shape online banking implementation and service content, this section discusses the findings of the study on how the contextual factors of CBank influence the implementation of online banking and the services that got deployed or not.

### **Contextual Effects on Implementation**

As noted in the findings, the significant contextual factors that influenced the implementation process were competition, existing infrastructure and ownership type, regulatory requirements and bureaucratic management and approval process. As a competitive factor, the use of online banking by other banks was what pushed management of CBank to initiate the implementation process. This finding suggests that continuous environmental scanning can be a useful tool for banks to monitor and adopt innovations in the external environment. Internal planning has been identified as the trigger for online banking adoption and implementation [10]. This study argues for the need to consider environmental triggers for internet banking innovation and implementation.

The inappropriateness of the existing hardware and communication infrastructure and the need to procure new servers and communication infrastructure equally delayed the implementation process. Since it became clear during installation that the existing hardware infrastructure could not accommodate the online banking application, it became necessary to procure new servers to host the application. The effect on the situation was delays in the implementation process. This problem can however be traced to the failure of the project team to assess the hardware infrastructure during the

requirement specification or before the installation. So far, research on e-banking implementation pay less attention to the role of existing infrastructure on the new system. In relation to technological context, previous studies rather discuss external infrastructure in developing countries as impediments to e-banking initiatives [35]. The findings from this study thus show the significance of existing organizational infrastructure on implementation and therefore the need to pay attention to its assessment before installation.

Other contextual factors that were found to have affected the implementation by causing delays include ownership type, public procurement regulatory environment and bureaucratic management and approval process. As found in the analysis, the bank had to go through a very inflexible procurement process as a parastatal. The mandatory bidding and selection process delayed the start of the implementation for over six months due to frustration in the public procurement process. Moreover, internal rigidity in management and approval process caused much delay in approval and release of funds for buying resources and paying the consultant. Together, these contextual factors caused delays in getting the implementation completed on time. The existing e-banking literature has largely focused on private sector banks. Hence not much has been discussed on parastatals and their bureaucratic context. The findings here thus reveal bureaucracy as an important contextual factor for banking innovation in the public sector.

### **Contextual effects on Service Content**

The contextual factors that influenced the service content include regulatory environment, manual forms and signature requirements, and lack of online infrastructure. The findings show that despite the bank's initial desire to replicate all offline services on the online platform, it could only do so for just the basic and informational services but not for advanced transactional, interbank and third party services. After the implementation, the only service content that got deployed were account information access and intra-bank transfer.

Interbank transfers and third-party payments could not be deployed due to lack of national online payment infrastructure. Lack of online payment infrastructure has been cited as a key constraint to e-commerce and e-banking in developing countries [63,64]. Thus until developing country governments ensure the availability of such infrastructure, banks would have it difficult to provide interbank and third-party transactions. A related issue is that these advanced transactional services require connection to banks back end infrastructure, databases and interaction with third-party information systems [65]. Due to connectivity between devices that customers use and the third-party information systems, such systems are usually prone to high security risk. This implies that CBank's security risks may be low due to its failure to implement the more transactional services. However, the aim of migrating customers online thereby decongesting the banking halls could not be realized by CBank. Customers still had to go to branches to make payments and conduct third-party transactions.

Another contextual factor that prevented the bank from implementing account management services such as opening, closing and amending accounts online were central bank regulations and requirements. The central bank's policy on know-your-customer (KYC) has been interpreted to mean the need for customers to present themselves face-to-face to bank officials when opening, amending or closing accounts including bio-data. For this reason, the bank could not provide such services online to avoid violation of the regulation. Also, the central bank requires that account management activities and various investment transactions be backed by paper-based forms and physical signatures or thumb-print. Thus the KYC and the paper-based forms with physical signatures were the key contextual factors that prevented the bank from offering account management online. Thus, even where forms are offered online, they are made to be printed, completed, signed and physically submitted to bank branches for processing. The failure of central banks in developing countries to update laws and regulations to fit digital environments has been identified as a key impediment to online banking and payment systems [63].

## **CONCLUSION**

This study investigated an online banking implementation process in the developing country context of Ghana to understand how the context shaped the process and the service content. The findings highlight online banking competition, use of internal team for requirement specifications, parastatal ownership, procurement law and technological environment as the key factor that influenced the implementation process and the service content that got deployed or not. For implementation process, the findings highlights how use of online banking as a competitive tool by some banks can be the motivating factor for other banks to initiate online banking implementation process. The study also shows how internal team for requirement specifications can lead to biased focus on existing services without accounting for service annotation outside the internal context of a bank. Another key finding is how the use of internal team and their failure to interpret procurement laws, inefficient technological environment and bureaucratic approval and funds release processes can result in delays in implementation.

In relation to service content, the study highlight central bank regulations including the need to physically know-your-customer and physical signatures, and lack of online payment infrastructure as contextual factors that forced the bank to deploy basic information and intra-bank transfers but failed to deployed advanced services such as online payments, interbank transfers and investments which was contrary to the initial intention to replicate all offline services on their online banking platform.

In terms of contribution, the originality of this paper stems from the use of a contextualist theoretical foundation based on the context, content and process frame to uncover the effects of context on online banking innovation process and the outcome of which services get implemented or not. By this, the paper highlights context not just as a boundary within which activities occur but as an active agent that can influence the



implementation path and which functionalities get deployed. Previous studies generally described context from a neutral perspective as a space within which online banking innovation occurs but not as an active agent that shape the implementation process and its outcome.

The study also contributes to information systems research in general and online banking research in particular by offering rich insight into the experience of a developing country bank's online initiative and how the organizational context influenced the implementation and the online services that got deployed or not. The paper also contributes to research by offering implications for research, practice and policy. In terms of research, the paper highlights the need for IT implementation studies to account for context not as a neutral setting but as a transformative environment that has the potential to shape implementation, people and the outcome. The context, content and process framework is therefore considered as a useful theoretical lens to investigate such research phenomenon. In terms of practice, the paper highlights the need for practitioners to account for internal as well as external context of organizations throughout an innovation process from requirement specification through implementation given its potential to shape the process and result in unintended consequences. For policy implication, the study highlights the need for regulators in developing countries such as central banks and procurement agencies to enact and revise laws that can promote online banking innovation in order to address traditional practices such as physical form filling and signature requirements so as to encourage banks to offer online services.

One limitation of the study is its use of single case study in one developing country. However, from interpretive perspective, such findings are not meant to be generalized geographically to all developing countries setting. Therefore the findings can be generalized to context of banks in other developing context that share similar situation and can thus apply the knowledge to their own online banking initiatives. Another limitation is application of a particular theoretical lens for the data analysis in that using another theory could have shaped the research focus and yielded different findings. Again, the results present the findings from the perspective of the theory. In terms of future research directions, other researchers can focus on the effects of context on the online banking use processes and which services get used or not.

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