



CLOUD COMPUTING ADOPTION CHALLENGE IN CASE OF COMMERCIAL BANK OF ETHIOPIA

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ABSTRACT

Cloud computing will be the rapid revolution in the Computer Science and Information Technology field. It represents the development trend in the IT industry from hardware to software, software to services, and distributed service to centralized service. Following the vision of CBE to be a world class bank in 2025 G.C the growth of the internet, mobiles and communication technology has added a different dimension to banking technology. The bank with growing demand of the business expands and maintenance its IT infrastructure for excellent service provision to its customers. Cloud computing creates cost savings, improves speed of service, expands operational flexibility for users and reduces risks in information technology (IT) deployment. The papers also address the banking application software's company experience in cloud computing environment to boost the banking service. In this paper, aim to pinpoint the challenges and issues of cloud computing security and privacy issues, availability of strong bandwidth telecom service present a strong barrier to adopt cloud computing systems in Commercial bank of Ethiopia. We identified several challenges from the cloud computing adoption perspective and issue that deserves substantial further research and development.

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INTRODUCTION

Commercial Bank of Ethiopia, which is striving to become a world-class bank, is rendering state-of-the-art and reliable services to its millions of customers, both at home and abroad. The business strategies of the Bank focus on the interest of the public it serves. Currently, the Bank had 1,456 branches stretched across the country, and CBE has more than 22 million account holders and the number of Mobile and Internet Banking users also reached more than 2.5 million as of June 30th 2019. Active ATM card holders reached more than 8 million. Its strong capital base, close to eight decades of rich experience in the market and wide branch network throughout the country have enabled the bank to accommodate the large demands for its services, and increase its overall revenue on sustainable basis. This makes it the leading African bank with assets of 711.96 billion Birr as on June 30, 2019 (Annual report, 2019). Following the vision of CBE to be a world class bank in 2025 G.C the growth of the internet, mobiles and communication technology has added a different dimension to banking. The information technology available today is being leveraged in customer acquisitions, driving automation and process efficiency, delivering ease and efficiency to customers.

It here outright shortcomings among CBE banking systems as well as known cases of system rigidity that do not allow the banks to effectively meet their customer's demands particularly when they want to access banking services from home via the internet, mobile or use of the debit/ATM cards. Majority of banking customers do unfortunately experience long and undeterminable transaction process and long turnaround times within the banking service areas. This could be partly due to inadequate computing resources, slow systems due to capacity caused by inadvertent customer demand at certain times of the business putting services delivery in disrepute. In addition to that internal communication media for employee like Enterprise resource planning, CBE mail and Hyperion are also slow and interrupted. This is why applications ranging from email to large banking software in developed nations were shifting to Cloud-based delivery. Cloud computing shifts these costs to remote data centers which benefit from significant economies of scale and scope (Alison, 2012). It also allows significant flexibility in the choice of terminal device linking the user to information applications. Doing so creates cost savings, improves speed of service, expands operational flexibility for users and reduces risks in information technology (IT) deployment. Beyond these operational efficiencies, the Cloud enables a new range

of ICT service offerings supporting a new ecosystem of innovation of high-value applications can advance economic growth and social goals (Iwuchukwu, 2017).

Objective of the study: The main objective of the study is to discuss challenges regarding cloud computing adoption in Commercial bank of Ethiopia.

Study Methodology: The researchers followed the analytical descriptive approach to extrapolate written intellectual production and analyze the reality to show the role of cloud computing in commercial bank of Ethiopia that create robust and cost effective technology to solve current problem using case study of large banking software companies like Temenos and Oracle.

Cloud computing: Cloud computing is not a new concept; it is originated from the earlier large-scale distributed computing technology. However, it will be a subversion technology and cloud computing will be the rapid revolution in the Computer Science and Information Technology field. Which represent the development trend in the IT industry from hardware to software, software to services, and distributed service to centralized service. Cloud computing is also a new mode of business computing is virtualization. It will be widely used in the near future. As per the definition provided by the National Institute for Standards and Technology (NIST) “Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction”.

“Cloud” is a virtualized pool of computing reusable resources. It can:

- Control or customizing a variety of different workloads.
- Batch update of back-end and front-end operations with GUI applications.
- Rapidly deployment and increase workload by physical or virtual machines.
- Support for redundancy, self-healing and highly scalable API.
- Real-time monitoring resource usage.(Rajendra,2013)
- Cloud computing is categorically divided into three major segments: (Ab Rashid, 2018)

Software-as-a-Service (SaaS): It is a software distribution model where a third-party provider hosts applications and makes them available to customers over the high-speed internet connection.

Platform-as-a-Service (PaaS): It is a middle layer which gives the organizations, institutions or companies a freedom and framework for developers to develop their own applications and deploy them and make customers within their company to access the resources.

Infrastructure-as-a-Service (IaaS): Infrastructure is most vital among the three service models because it is the basic need to launch the organization's services over the internet in a cloud platform, to make their services available to clients and applications to run them smoothly. Each segment serves a different purpose and offers different products for businesses

and individuals around the world. The server administrator monitoring traffic and client demands to ensure everything runs accurately. It follows a set of rules called protocols and using software is called middleware.

Cloud Computing Deployment Models

Public Cloud: The cloud services are easier to install and less expensive or even charge free, the applications, hardware and bandwidth are provided by the service provider, and are scalable, the user avail can only those services that they are interested.

Private Cloud: As the name suggests, its services, infrastructure is solely operated and maintained by an organization. The services are made available on proper authentication; priority is being given towards the client's data security.

Community Cloud: Here the cloud resources are shared by an organization which is of common interest for every participant which is being part of a community, whose needs are similar.

Hybrid Cloud: It is a combination of two or more cloud deployment models like (public, private, community) it enables cloud application portability, multi-tenant, resource sharing.

Cloud Computing Solution to CBE: Companies who early adopters of cloud are computing will obtain cost savings and innovation gains that the laggards will not yet be reaping. Speculatively, by 2020 the playing field will have evened out and few companies will be overpaying for their computing resources. However, the opportunity to run computing more effectively than others for even a few years is something that no organization should ignore (Barnatt, 2010).

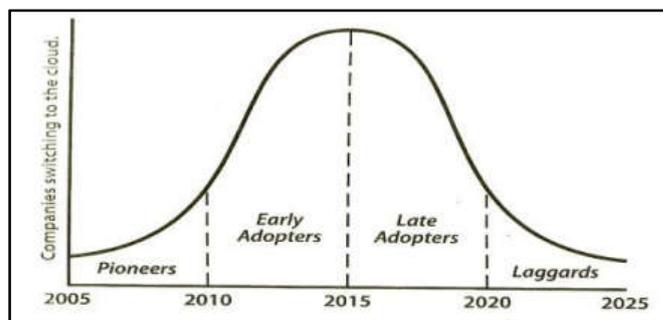


Figure 1. Cloud Adoption curve (Barnatt, 2010)

Currently, most northern parts of the world banking industries introduce with this technology. Commercial bank of Ethiopia as giant and with a vision to be a world class bank it needs adoption of new technology to be competent in global market. Cloud computing adoption has following advantage for CBE.

Cut costs: cloud computing means banks will not have to invest heavily in dedicated hardware, software and related manpower. It is much easier for them to update their IT infrastructure and the cloud's modular, pay-on-demand model means they pay only for the hardware and software they need.

Improve flexibility and scalability: the cloud gives bank the ability to respond quickly to changing market, customer and technological needs. They can scale up and scale down

technology according to requirement. The ability to respond quickly will be an important competitive edge.

Increase efficiency: banks will enjoy improved efficiency ratios and operating leverage. The standardization inherent in the cloud could make it easier to integrate new technologies and applications in the future. Because technology and business operations can be much more closely aligned, the cloud gives bank a golden opportunity to drive out complexity.

Serve clients faster: cloud computing makes new and bundled products and services easier to develop and launch, either on a stand-alone basis or in partnership. It eliminates procurement delays for hardware and software. Banks will be able to boost computing power to meet demand peaks and provide the latest treasury solutions without needing to worry about whether the technology is up to date. Corporates will be able to access bank systems using web browsers from anywhere at any time.

Create strong client relationships: The combination of big data and potentially unlimited computing power will allow banks to develop systems capable of providing better insight into clients and make better decisions on their behalf. Services could become more customized.

Bring clients closer to their clients: transaction banking eases payments between buyers and sellers. At the moment the activities needed to process payments are inherently inefficient because they use different technology. But buyers and sellers could be brought together on shared applications in the cloud.

Banking Software's companies experience in Cloud computing

Temenos in cloud environment: Temenos was the first vendor, in 2011, to put a core banking system onto the public cloud at a time when there were still skeptics who doubted the wisdom of the move. Since then, cloud providers kept enhancing their technology and widening their service offering. In parallel, we reengineered our software to deploy natively within a cloud infrastructure, in order to leverage these new capabilities for our clients.

The Temenos Value Benchmarking Program using data-driven analysis reveals for the first time how technology is dramatically improving banks' profitability and performance levels. The program reveals five drivers of high performing banks that are enabled by transforming to modern, packaged software running on the latest cloud-native, cloud-agnostic, API-based technology. Drivers of high-performing banks in Temenos benchmark: According to (Annual report, 2019) Temenos Value Benchmark has revealed that top performing banks that have digitally transformed their business and moved away from legacy-systems are able to differentiate across five key areas:

- **Product innovation and growth:** They launch products and services faster, which result in higher customer growth. These banks can focus their IT spend on growth and innovation rather than maintenance.
- **Customer centricity:** They engage digitally with more of their customers, cross-sell more and on-board customers faster. All of these contribute to higher customer satisfaction.

- **Operational efficiency:** They have higher levels of automation driven by straight through processing both, in the front and the back office allowing support of more customers with fewer staff.
- **Effective risk and compliance:** They have more efficient and effective compliance functions, leading to better staff productivity and more efficient operations. They also spend less of their IT budget on regulation.
- **Advanced analytics:** They use analytics widely and effectively with a higher proportion of self-service reports and a greater proportion of business users using analytics. They also have a stronger data foundation in terms of lower data duplication across their systems.

Oracle in Cloud computing: Oracle examines several real world implementations to reveal the benefits of customers are realizing with Oracle Cloud solutions. Specifically, as a result of Oracle's uniquely comprehensive, modern approach to cloud applications services, these customers can (Wang, 2012).

- **Quickly execute complete and integrated business Processes-**Access market leading capabilities at their fingertips to solve an end to end business problem, coupled with unified execution, visibility, and control
- **Innovate faster with less Risk-**Roll out solutions faster with less burden on IT and in incremental steps, accelerating time to value and flexibly responding to changing market conditions
- **Transform user experiences and Insight-**Deliver greater value to their teams and their own customers with advanced, embedded reporting and social capabilities accessible anywhere, on any device.

RESULTS

Major factors that affect cloud computing adoption in CBE identified in this study were:

Cost efficiency: due to large amount of budget expend for the purchase of banking software's and for expansion of current IT infrastructure it will take long time for adoption of cloud.

Security and compliance: maintain at all times the security of data. Banks need to demand stringent safety measures from suppliers and ensure new applications meet the latest and most rigorous security standards must be developed in the country. Service Level Agreements (SLAs) are a must.

Reliability: ensure that applications and data are always available in the event of a natural disaster or an unpredictable event. Banks need to have stringent SLAs in place, complete with guarantees, end-game scenarios and remedies if a provider fails to meet service levels.

Interoperability: banks will need to ensure data and applications can be moved across cloud environments from a number of providers. They should look to develop a single interface and management layer that can work across different platforms internally and externally.

Regulation: the rules governing the cloud vary from country to country. Many countries' data protection laws impose

constraints on where data is kept, limiting take-up. This is why the move to regulate the cloud is welcome. In Ethiopia also there must have a regulatory framework in banking regulation.

Conclusion

Commercial bank of Ethiopia is one of a giant bank in Africa. Cloud computing is a game-changing paradigm of banking sectors that acquire and leverage IT resources. The key to competitive advantage will lie in the know-how brought to bear on behalf of clients. All this momentum is building at a time when banks are under increasing pressure to use their IT budgets more efficiently and excellent service provision. It also provides a high level of redundancy and back-up at lower price than traditional managed solutions. It is the solutions for the demand of technology in term of efficiency, agility and transparency. A comparison of the findings of current study with the previous work on cloud computing adoption shows that some issues found in the current study match with the findings of previous work of (Solomon, 2017).

Recommendations

Building on the lessons from the advances made in promoting higher investment, lower prices and faster innovation

- The introduction of competition in telecommunications and information service markets,
- Sound decision-making processes are essential to making the markets work for the public interest.
- Suggests that transparent rules and decision processes with multi-stakeholder participation are critical. When possible, governments should rely on multi-stakeholder groups to craft many of the detailed policies necessary to maximize the benefits from the Cloud.
- A national strategy for addressing legitimate policy concerns about the privacy of user information and security of information works best within a framework of global principles and policy approaches consistent with competitive markets and flexible implementation strategies that can cope with rapidly changing technology.

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