IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 6.252
Volume 2, Issue 1, August 2022

Empowering Finance: Cloud Computing Innovations in the Banking Sector

Vinay Kumar Kasula
Operations Analyst, VISA Inc, Ashburn, VA, USA
vikasula@visa.com

Abstract: *Over the past decade, cloud computing technologies have completely changed the way banking industry works. This research paper studies how finance finds innovation in the cloud, allowing process and business model improvements to increase the efficiency, agility and customer centricity. The paper analyzes the place of cloud computing in the digital economy, which is capable of stimulating and advancing new models of economic growth based on information and communications technology. The paper then reviews through a systematic review of the literature methods and concepts needed to adopt cloud computing in banking business processes towards a trading up of collaborating, scalable and delivery of innovative customer value propositions*

Keywords: Cloud Computing, Banking, Finance, Digital Economy, Business Process Management

I. INTRODUCTION

The banking and finance industry always strives to make use of technological advancements. Operations are therefore important for the banking and financial industries as well as help give the greatest customer experience and a competitive edge over rivals as they offer technological advancements. The cloud computing has turned out to be a revolutionizing force in a digital era making it possible for financial institutions to save infrastructure costs, improve operations and create new value opportunities [1]. However, the cloud computing sector has expanded so rapidly yet several challenges exist. Specific barriers include insufficient knowledge about the outcomes of cloud solutions, and the high cost of migrating from an on-premises system to a cloud driven one. However fundamentally, cloud technologies have the ability to radically change competitive landscapes by creating and distributing corporate value on a new platform.

According to research from Eurostat, Deloitte, and Statista, this will be a barrier because while the cloud computing industry has grown quickly, many businesses are still unaware of the move, and it could also be costly to make the move from current infrastructure. Cloud technologies have potential, after all, to fundamentally change competitive landscapes as a new platform for creation and delivery of business value as analyzed in [2]. This paper therefore explores how cloud computing is driving change in the finance sector, looking at its effect at the level of bank operations as well as the customer experience, and the wider digital economy.

II. LITERATURE REVIEW: THE IMPACT OF CLOUD COMPUTING IN THE BANKING SECTOR

Existent literature shows that cloud computing is likely to improve the banking and finance industry over time. Finally, one study studies the influence of big data and their analytics over banking domain and concludes that availability of big data have enabled new avenues for growth and innovation and have also created new challenges [3]. From the study, it articulates how the depth and breadth such a wealth of available data could help banks offer more personalized banking services if they are to compete successfully against increasing regulatory pressures. Another study addresses the notion of business process management as a service on the top of the cloud computing. The authors argue that cloud computing is an important focus for future information system development, with the ability to help enterprises to improve business processes, collaboration, and create new customer value propositions [4]. A third study delves into how cloud technologies are taking part in the digital economy and how vast its influence is with other sectors. According to the authors, most of the biggest sectors of the global economy are already heavily digitized, and cloud

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 6.252
Volume 2, Issue 1, August 2022

technologies can help reduce costs and introduce a more efficient value creation mechanism in the context of the digital economy [5].

Cloud Computing in the Digital Economy

With digital tools, mechanisms and platforms in place, most large sectors are increasingly linked on the digital economy, transforming business to consumer interaction. But this digital shift is enabled and sped up by cloud computing, through provision of scalable, agile, and cost-effective infrastructure which makes possible new innovative business models and new customer value propositions [6]. According to Levina et al., (2019) [7] the enterprises are using cloud computing in today's business where there is need for improvements in their business processes, development of collaboration amongst units as well as extension of customer's value proposition and inventing new ones. Cloud technologies operate based on the principle of platform independence and flexibility, which makes them key elements of the digital economy, helping the organization concentrate on their core business instead of their IT infrastructure maintenance.

The Potential of Cloud Computing in Banking

Financial institutions are easy to enable their business processes and collaborator between units to develop more efficient collaboration among units and extend and even expand new customer value propositions [7]. Organizations use economies of scale to innovate quickly and efficiently for fast adoption of the new technologies and business models [8]. Another powerful advantage of cloud computing in the banking sector is the improvement to process efficiency. Automating and streamlining their core operation like loan processing, account management and risk analysis help them save a lot of time and cost saving. Also, cloud-based platforms allow resources to be scaled up or down whenever required, to support banks in meeting variable customer demand and market scenarios in a more consistent manner. Cloud computing's advantage for financial institutions includes not only operational improvements, but also improving customer experience. Through the use of cloud-based analytics and customer relationship management tools, banks can gain more understanding of their customers' inclinations and conduct, making it workable for them to individualize their administrations and improve client contentment over all [9]. There are economic, operational, and functional benefits to financial organizations from cloud computing. Less capital expenditure, lower maintenance cost, reduced IT labor cost, lower energy bill, the cost list continues. The operational benefits are unlimited computing resources, improved collaboration, 24-hour platform operation, and improved security.

Challenges and Considerations in Adopting Cloud Computing in Banking

While the potential benefits of cloud computing in the banking industry are large, the industry also faces a number of challenges and considerations. Cloud Service Providers, however, store their data on cloud, making it difficult for critical industries such as banking and finance to trust cloud service providers as their sensitive data is stored on cloud without knowledge of data location. Also banking and financial sectors lack transparency about Cloud Service Providers mechanisms used to secure their data and applications, which may lead to critical information leakage. Financial industry is a security and data privacy concern where customers personal data must be protected, and financial transaction is protected. When adopting cloud–based solutions, have to carefully address compliance with industry regulations and standards like the General Data Protection Regulation and the Payment Card Industry Data Security Standard. Nevertheless, financial institutions are beginning to see the benefit of cloud computing and are searching for ways to rise above these barriers to adoption. Moving into the cloud paradigm for the upcoming years is seen to face a variety of challenges despite the evidence that cloud computing is a main business path. Many advantages make them adjust to cloud computing for instance the financial institutions. Though the transition is still incomplete, there are a bunch of still unsolved intrinsic security issues and challenges concerning resource acquisition for uninterrupted services.

Even though cloud computing has potential in the area of banking and finance, it has challenges and issues that are currently facing by them. The major challenge faced is security and data privacy issues. By facilitating technological advancements, banking and financial industries can achieve their goals of operations, the greatest client experience, and a competitive advantage over rivals. In the digital age, cloud computing has emerged as a disruptive force that enables

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 6.252
Volume 2, Issue 1, August 2022

financial institutions to reduce infrastructure costs, optimize operations, and generate new value opportunities [11]. Despite the rapid expansion of the cloud computing sector, there are still many challenges to be solved. Among these are the significant costs associated with moving from conventional infrastructure to cloud-based systems and the ignorance surrounding the effectiveness of cloud solutions. Nevertheless, when adopting cloud-based solutions, you must also carefully address the General Data Protection Regulation and the Payment Card Industry Data Security Standard.

The study shows that healthcare and banking which are capital intensive and very critical industries are reluctant to trust cloud computing because of the fear of losing their sensitive data. The paper on cloud computing points out a 'dark side' of their security and privacy, since the data is on the cloud but there is no knowledge where the data is and there is no transparency on the cloud service providers' security mechanisms. A concern for security and data privacy remains a major inhibitor for widespread adoption of cloud computing by the banks.

Strategies for Overcoming Challenges and Leveraging Cloud Computing in Banking

Despite the challenges with cloud computing, financial institutions are encouraging the usage of cloud because of its ease-of usebut they have to take steps to internally overcome the barriers to embracing it. Although cloud computing is regarded as the main business path for the years to come, the evidence reveals that migration to the cloud paradigm will encounter series of inevitable difficulties.

Among the most important is choosing cloud service providers that can demonstrate good security mechanisms for data security, meet market rules and have good policies on data management and access. But also, financial institutions spend time, money and attention to develop themselves internal expertise and capabilities in order to control and monitor cloud-based services.

A hybrid cloud architecture that includes on premises and cloud capabilities can also be a choice for the banking industry to enjoy the benefits of cloud while having better control over sensitive data.A second common tactic is building cloud-native services and apps — ones built for cloud environments. This strategy provides banks with the ability to leverage the scalability, flexibility and cost benefit of cloud computing along with addressing the key security and legal issues surrounding banks dealing with confidential information.

III. METHODOLOGY AND APPROACH

A literature review was undertaken to examine the existing body of knowledge with regards to the effect of cloud computing in the banking sector, to respond to the research question. The scope of the review was to pinpoint the key advantages, challenges and parameters that an organization needs to consider when adopting cloud technologies in the financial sector.

In the literature review, a search for relevant academic and industry publications on the subject of cloud computing in banking and finance was conducted using a list of keywords: cloud computing, banking, finance, digital economy, business process management. From the selected sources was synthesized the current understanding of the topic, identify the potential opportunities, challenges and best practices on the integration of cloud computing in the banking sector. This research shows that cloud computing can transform the banking and finance industry by increasing process efficiency, delivering better customer experience and enabling rollout of new innovative services. But the adoption of cloud computing by the banking sector must be carefully undertaken while considering security, regulatory and privacy concerns about data.

IV. RESULTS AND DISCUSSION

A literature review performed in the context of this research paper states that cloud computation may bring tremendous contribution in banking and finance. Banks can then rely on cloud-based solutions to cut down on its core operations, automate processes, and improve efficiency on the whole, thus leading to considerable time and cost savings. Additionally, cloud-based analytics and customer relationship management tools can offer the financial institution a deeper insight in to their customers preferences and behavior helping them to tailor their offerings and also improve the overall customer experience [12-13]. Despite this, a number of challenges hinder adoption of cloud computing in the banking sector, amongst them security, data privacy and regulatory compliance. While financial institutions may be

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 6.252
Volume 2, Issue 1, August 2022

required to manage financial transactions on their customers' behalf, they must approach effectively the management of risks by seriously evaluating risks and providing good security measures to protect its customers' sensitive information and the integrity of the financial transactions.

Results of this research indicate that placing cloud computing in banking sector can provide great benefits to the sector by increasing the efficiency of banking processes, improving of customer experience as well as creating new innovative financial services. Cloud based solutions help financial institutions streamline their core operations, automate processes and gain deeper insights into customer behavior thereby enabling them to personalize their offerings and in various degrees remain competitive in digital economy [14-15]. However, the banking sector has many challenges to adopt Cloud Computing. Regarding security, requirements regarding data privacy and the regulatory compliance the financial institutions must pay attention as it remains their main concern since their practice involves handling customer information and financial transactions. All things considered, successful cloud computing integration in the banking sector is best accomplished via a strategic and all-encompassing strategy that addresses the positives and also the demands of security and compliance.

V. CONCLUSION

A major area that draws the attention to capitalize the potential of cloud computing in the banking and financial industry is the focal point of this papers. By leveraging cloud solutions, financial institutions can improve customer happiness, increase operational effectiveness, and offer strategically enhanced services in order to not only thrive, but also survive in the new, fast changing digital economy.Yet, a potential adoption of cloud computing in the banking sector is extending appropriately and takes under consideration of security, data privacy and compliance of regulations. Financial institutions also have to develop stringent security safeguards and assure that their cloud solutions fulfill industry specific criteria and rules.As the digital economy develops, the incorporation of cloud computing in the banking industry will inevitably become significantly more important for banks to keep pace with other financial institutions.

REFERENCES

[1]. Aliu, B. (2019). Big Data Phenomenon in Banking. In Texila international journal of academic research (Vol. 6, Issue 2, p. 81). https://doi.org/10.21522/tijar.2014.06.02.art008

[2]. Kommera, A. (2016). Transforming Financial Services: Strategies and Impacts of Cloud Systems Adoption. *NeuroQuantology*, *14*(4), 826-832.

[3]. Bamiah, M. A., Brohi, S. N., Chuprat, S., & Brohi, M. N. (2012). Cloud implementation security challenges (p. 174). https://doi.org/10.1109/iccctam.2012.6488093

[4]. Berman, S. J., Kesterson-Townes, L., Marshall, A., & Srivathsa, R. (2012). How cloud computing enables process and business model innovation. In Strategy and Leadership (Vol. 40, Issue 4, p. 27). Emerald Publishing Limited. https://doi.org/10.1108/10878571211242920

[5]. Davydov, D. S., A., R. D., Kramarenko, A., & Kvitka, A. (2020). The Role of Cloud Technologies in the Digital Economy. In Business Inform (Vol. 8, Issue 511, p. 171). Research Centre of Industrial Problems of Development of NAS of Ukraine. https://doi.org/10.32983/2222-4459-2020-8-171-177

[6]. Dahiya, S., Singh, S. K., Choudhary, S. K., Ranjan, P., & Cognizant, N. J. (2020). Fundamentals of Digital Transformation in Financial Services: Key Drivers and Strategies. *Han, X., Zhao, X., de Almeida, AL, Freitas, WDC, & Bai, W*, 1655-1659.

[7]. Levina, A., Novikov, A., & Borremans, A. (2019). BPM as a Service Based on Cloud Computing. In Advances in intelligent systems and computing (p. 210). Springer Nature. https://doi.org/10.1007/978-3-030-19868-8_21

[8]. Mahalle, A., Yong, J., Tao, X., & Shen, J. (2018). Data Privacy and System Security for Banking and Financial Services Industry based on Cloud Computing Infrastructure (p. 407). https://doi.org/10.1109/cscwd.2018.8465318

[9]. Mahapatra, P. K., Tripathy, A. R., & Tripathy, A. (2021). Emerging Cloud Computing Trends for Business Transformation (p. 71). https://doi.org/10.1002/9781119785873.ch4

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 6.252
Volume 2, Issue 1, August 2022

[10]. Butler, T. (2020). What's Next in the Digital Transformation of Financial Industry?. *IT Professional*, *22*(1), 29-33.

[11]. Bataev, A. V. (2018, September). Comparative Analysis of Cloud Computing Application in Russian and Foreign Financial Institutions. In *2018 IEEE International Conference" Quality Management, Transport and Information Security, Information Technologies"(IT&QM&IS)* (pp. 578-582). IEEE.

[12]. Pramanik, H. S., Kirtania, M., & Pani, A. K. (2019). Essence of digital transformation—Manifestations at large financial institutions from North America. *Future Generation Computer Systems*, *95*, 323-343.

[13]. Pashkov, P., & Pelykh, V. (2020). Digital transformation of financial services on the basis of trust. *Economic and Social Development: Book of Proceedings*, 375-383.

[14]. Rohmeyer, P., & Ben-Zvi, T. (2015, August). Managing Cloud Computing risks in financial services institutions. In *2015 Portland International Conference on Management of Engineering and Technology (PICMET)* (pp. 519-526). IEEE.

[15]. Lambropoulos, G., Mitropoulos, S., & Douligeris, C. (2021, September). A review on cloud computing services, concerns, and security risk awareness in the context of digital transformation. In *2021 6th South-East Europe Design Automation, Computer Engineering, Computer Networks and Social Media Conference (SEEDA-CECNSM)* (pp. 1-6). IEEE