



OPEN BANKING CONTRIBUTION IN THE DEVELOPMENT OF FINANCIAL DIGITAL BANKING

Case Study: **Mobile Money Rwanda Ltd**

Authors: Tuyizere Majyambere Fabrice, Amiya Bhaumik

Keywords: Open Banking, Financial Technology, Digital Banking

Abstract:

The need to efficiently share vast amounts of data across various departments and with citizens is an issue that faces most government officials today. A key tool to tackling this challenge is the Application Programming Interface (API), which at its most basic acts as a door or window into a software program, allowing other programs to interact with it without the need for a developer to share its entire code. “The company exposes an API that tells a programmer how they will interact with the service. The API could be open to customers or just mobile app, set top box or connected and APIs will play a significant role. The digital financial industry in Rwanda is progressing due to newly improved and innovative facilities by technology. But it impacts on customers in terms of credibility, user engagement, functionality, safety and security.

1. Introduction

When we look at Open Banking, we see a financial innovation in the way people could manage their cash flow. A banking Application Programmed Interface (API) is a method of communicating with an online banking system as well as a third party. This allows the third party to have access to personal information about the

client who has a bank account in the bank regarding independent payment service providers or financial services (Kumar et al., 2020).

API often acts as an attractive tool in the banking system as it can deliver new services to present clients as well as offer something new to attract new clients. They can do this by offering considerable benefits to consumers through increasing their financial activity, and they can do this by providing useful awareness about spending patterns. They can also advise them on money-saving tactics via a systematizing approach in the decision-making process and offering a more sustainable payment method. In simple terms, open banking makes financial activities easy, swift, and more convenient.

However, there is still bad news as consumer experts believe that there are quite a few obstacles that could hinder the full potential of open banking and in return leaving the clients worse off. The obstacles frequently range from several aspects which include creating a larger conflict of interests between consumers and APIs. Another obstacle is exploiting irregularities in consumer's finances or worsen digital and financial barring, which goes to show that although open banking is more convenient, faster, and a much simpler banking method, it still undoubtedly has a huge fallout with severe repercussions of clients losing control on their money, personal data, a reduction in privacy or security, and a more complex financial marketplace.

With the world becoming more digitalized and many aspects of lives becoming more public, some people feel concerned about the impact of financial aid technology on their social or family life. With Open Banking having a platform where consumers can share their data for financial aid, giving a voice to the fears some people have about the invasion of privacy and security.

LITERATURE REVIEW

2.0. The impact Open Banking has on consumer interaction with banks.

Accenture, (2022) is a term that describes the traditional banking system as a 'walled garden' environment. As it has been shown to be uniquely restrained for a 'top-notch associate of well accepted banks'" (Accenture, 2022). Moreover, since the development of Open Banking, there has been a dynamic change in the normalcy of

the banking industry as a change in power has put more control in the consumers' hands. As they are allowed to share their financial data with Tactics, Techniques, and Procedures (TTP's) due to being given veto over it, this allows and helps the TTP's offer new products and services (EU, 2023).

While banks have shed their traditional functions and have been launching, cultivating, and coming out with new types of services to provide to the emerging needs of their customers (Sujatha et al., 2021), there is still a long way to go and room for improvement so that bank restrictions do not always clash with financial policies.

Open Banking offers many benefits for people with low incomes. As Open Banking offers data of individuals who use it and with a proper structure, this data can be used in several ways to increase financial advice as well as increasing financial aid strategies. Such as for one, FinTech institutions and financial institutions having access to the financial data of customers can obligate other financial institutions such as banks to increase in customer awareness and push them to be more lenient. This can lead to current products being more innovative which could lead to the increase in financial management products as well as capital and solvency which would provide improved value for those who are banked but underserved.

It has been shown that the main capability of AISP's is to reform various collections of data while supplying independent clients with concurrent analytics as well as equipping clientele with current perceptions which can affect their etiquette. Moreover, Account Information Service Providers (AISPs) can help with customer-focused suppliers by offering advice about financial strategies deprived of the provision of economic services (hence steering clear of particular burdening administrative conditions, due to the product underwriters).

With PISPs (Payment Initiation Service Providers) offering modern commerce demonstrative openings for advanced installments by permitting third parties to start transactions on the customer's sake from an account the client holds with another institution. This has allowed customers to isolate the involvement of performing an installment (online or in-person) from the supplier that holds their account. An example would be in India, as installment launch functionality has permitted FinTech administrations such as Google Pay to rapidly scale, truant a permit to hold client funds. In other markets, the benefit is giving modern ways for nonbanks to present installments into client items. In each of these cases, stores exchange (clearing and settlement) between

accounts continues to be overseen through existing installment frameworks with suitable administrative oversight (e.g., UPI in India and Faster Payments in the United Kingdom).

Features such as modern items and administrations, expanded client esteem and client information possession (and assent) are usually mentioned. Be that as it may, there are two mentions of information benchmarks (API advancement), which would propose that whereas information is central, the requirement to create standardized access must however be completely considered. Analyzing the precision set out by administrative bodies, it is clear that their center is on expanding competition in the market with all three highlighting the topic. However, it is important to note that this was not specified by the banks. What is moreover striking is the lack of explicit focus on information measures and client information proprietorship in their definitions. Given the role of the controllers in advanced administration, it would be acknowledged that the center of these perspectives of Open Banking accounts would be a top priority.

In numerous developed countries, APIs benefit suppliers moreover encourage information sharing and installment initiation services as an item for authorized financial institutions and third parties. Benefit suppliers such as Plaid in the United States give the “plumbing” where it is very complex or expensive for TPPs to bargain personal contracts (Bank for International Settlements, 2019). This model can have an advantage to information holders themselves (i.e., Settlements, 2019), permitting them to construct modern administrations utilized on their accounts (Reynolds et al., 2020). That said, if the general costs to buyers do not increment, the included time and costs of exchanges by these benefit suppliers (in comparison to transactions under an open account regime) must be counterbalanced by picking up efficiency.

2.1. The contributions that Open Banking has on the banking system

As Jetzek et al., 2020 framework (figure 1) shows that Open Banking is branched out with many subsidiaries such as, Open Government Data which highlight a few components on how maintainable esteem is made, a key angle for the life of the enterprise. Other branches include Digital Governance, Openness of Data, and Digital Infrastructure. These enablers encourage the advancement of computerized resources in the frame of modern items and administrations for retail managing an account which in turn create economic value.

Digital Foundation: a collection of mechanical and human components that contribute to the working of an Open Managing an account platform.

Digital Resources: incorporates

- (i) Shared Advanced Substance, which is keeping money information that has been handled to ended up edible data and at that point shared to outside parties, and
- (ii) (ii) Advanced Items and Administrations, which is the combination of open and exclusive assets to deliver separated items and services.

Sustainable Esteem: a commitment that at the same time conveys both brief- and long-term financial, social, and natural benefits

Adapted to center on Open Banking these concepts are sketched out as follows:

1. **Online Administration:** computerized authority, administrative information and security systems which together reflect the administration viewpoint of an Open Banking initiative.
2. **The Tolerance of Information:** this is the level to which bank account information is accessible, reasonable, and shareable as well as distributed in a usable and consistent order and made both discoverable and accessible.
3. **Electronic Infrastructure:** a selection of automatic and human pieces that donate to the operating of an Open Banking program.
4. **Advanced Resources:** this integrates
 - (i) Shared Computerized Substance, which is managing an accounts' information that has been prepared to become digestible data and at that point shared to outside parties.
 - (ii) Computerized Items and Administrations, which is the combination of open and restrictive assets to create separated items and services.

5. Sustainable Esteem: a commitment that at the same time conveys both brief- and long-term financial, social, and natural benefits.

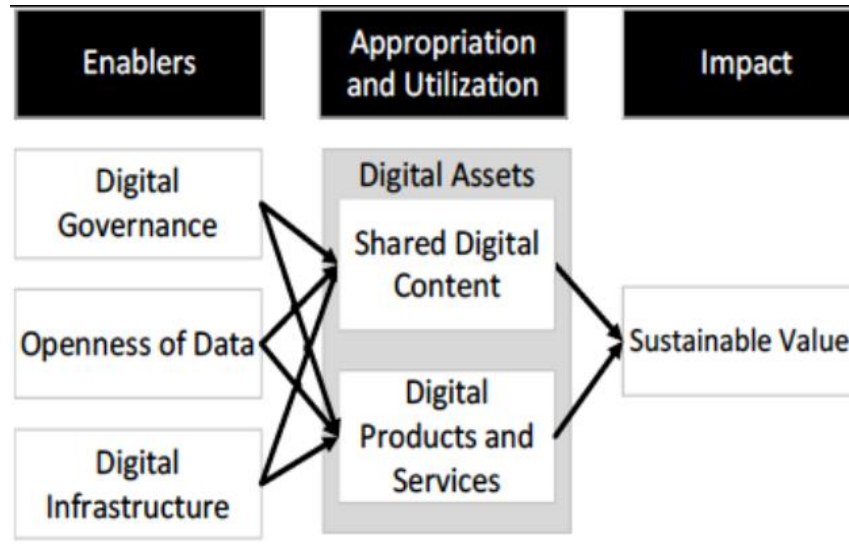


Figure 1. Investigative Prototype (adapted from Jetzek et al., 2020)

While the divide of bank-held client-permission data with middlemen has been proceeding for numerous years, expanded the utilization of advanced gadgets and quickly progressing information accumulation methods are changing sales banking services across the world. This sharing client-acceptance data by banks with intermediaries is utilized to construct a requisition and services that dispense rapid and simple remission, more prominent monetary straightforward choices for account holders, modern and made account services, and promoting and cross-selling openings. Plenty of board authorities have embraced or are thinking of embracing open banking account systems to require, facilitate, or allow banks to share customer-permission information with intermediaries.

Open banking systems predicated on acquiring access to bank account information are not essential drivers of budgetary consideration in terms of account openings. In any case, open banking can assist in the increment of the number of significant administrations and upgrade the standard of said services for individuals who already have a bank account but are underfunded. Furthermore, if the information in range for these administrations go past bank accounts and accounts with other FSPs such as mobile money accounts and incorporate information from segments such as resources and telecoms (what we call 'open data'), at that point these administrations

may indeed get access to accounts and other administrations for the monetarily avoided. It is for that reason that administrations wishing to support budgetary consideration and to go beyond improving the esteem of money related administrations for the underfunded must center on open information and grasp a wide scope of information trade. Other than bank account information, they must include mobile money account information and data from the utilities and telecoms sectors, among others.

2.2. Challenges facing Open Banking

While Open data is data that has been made available to public users, including citizens, businesses, researchers, civil servants, and others, to be freely used, modified, and shared for any purpose. Intellectual property rights are outright relinquished or reduced to a minimum, and often such open data is made available through open APIs in machine-readable formats (Rudmark, 2020). This comes at the prices of exactly what amount of personal data should be provided. As many banks have acknowledged that Open Banking has the potential to transform banking services and bank business models. However, this comes with the importance that would force banks and bank supervisors to pay greater attention to risks that come with the increased sharing of customer permissioned data and growing connectivity between banks and various parties.

While unbanked could benefit if data held by nonfinancial institutions such as utility companies and telecommunications (telecoms) providers also can be accessed. Secondly, market entry by up-to-date varieties of institutions encouraged by Open Banking such as Account Information Service Providers (AISPs) and (PISPs) can expand the rivalry in financial service markets. This can then lead to lower prices and increased product diversity, which would render financial services more affordable to low-income populations. Further, due to their lower cost structures, substances based on these modern commerce models may presently be seen now as beneficial, already unrewarding portions of the population such as the unbanked and the underbanked. These results in an increase in the size of the customer pie, with other financial sector stakeholders incentivized to innovate and reach low-income populations as well.

Not all emerging and developing economies (EMDEs) are in a position to introduce an Open Banking regime, given the capacity and resource constraints as well as legal and institutional requirements. Open banking

regimes, in particular, raise supervisory and enforcement challenges, especially on tech-intensive issues such as quality of service, denial of service, cybersecurity, and so forth. Further, with open banking schemes nascent worldwide, it is too soon to know whether the introduction of open banking regimes would benefit EMDEs in every context or whether certain market contexts would benefit more than others.

Yet there are limits to the applicability of open banking in EMDEs. Many low-income customers currently do not have a digital financial data trail to analyze. For this reason, it is imperative to consider how open information administrations seem to use other examples of computerized information or digital data, whether it be social media activity, location data or airtime use, to extend their benefits to those not financially included via digital payments. Since the players that hold these types of digital data usually are not under the jurisdiction of the financial sector regulator, regulators should collaborate with their respective counterparts in other spaces to decide how a cross-sector open information administration can be set up.

Data sharing brings many benefits but also results in a bigger surface area for cyber-attacks. Data collected by third parties, whether via screen scraping, reverse engineering, or tokenized authentication methods through APIs, can be stolen or compromised. Furthermore, as more data is shared and with more parties, the possibility of a data breach increases, and therefore effective data management has become more crucial.

3. Adopted approach

This research is informative as it highlights the effect that open banking has on customer loyalty towards the banks using Rwanda as a case study. The main focus of this study is quantifiable. However, some qualitative approaches were used to gain a better understanding and possibly enable a better and more insightful interpretation of the results from the quantitative study.

4. Developments of FinTech in Rwanda

In spite of the fact that no African nation has actualized a clear administration or authoritative system for Open Banking, there are promising advancements in numerous nations. Leading the way, the National Bank of Rwanda (BNR) has acknowledged that FinTech and more particularly increasing the availability of digital

customer data can revolutionize financial markets. The growing FinTech market in Rwanda already supports the availability of digital customer data that can be mined and analyzed to gain a better understanding of customer needs, but the BNR has now also published a regulation to formalize the approach and the publication of standards is imminent.

Rwanda displayed its approach on the European Union's PSD2. The enactment makes arrangements for modern sorts of installment suppliers (such as Payments Initiation Service Providers), and the creation of an administrative "sandbox" where controlled testing of modern finance products or services take place. The Open Banking control in Rwanda covers individual consumers and little companies and addresses information sharing and information probability with a view to empowering development, productivity, and advanced product growth as well as new players.

As in the UK and Europe, informed customer consent is required due to the fact that 90-95 percent of Rwanda's residents already have access to budgetary administrations by means of telecommunication suppliers instead of banks. It is crucial that Rwandan enactments and systems must apply to and require cooperation by broadcast communications companies and mobile banking suppliers in addition to traditional banks.

5. Recommendation

1. Rwanda recommends Members states to encourage private sector for financing in 5G Implementation; to foster the public private partnership in order to implement 5G; and to review the National Table of recurrence designation to suit the modern and developing broadcast communications like 5G where necessary.
2. Rwanda also recommends Members States to develop a 5G action plan (implementation) including a spectrum roadmap, call for studies on 5G use cases/applications relevant to Members States and to review/update their national ICT policy, broadband plan/strategy, and/or digital economy strategy to incorporate the needs for new technological development i.e. 5G.

3. Rwanda also recommends a continental and regional organizations to develop a regional/continental Digital Strategy and a Regional broadband infrastructure strategy/action plan; and a regional/continental 5G-action plan.
4. Rwanda recommends that the national development strategies need to include the objective of digital upgrading (value addition) in data value chains, to enhance domestic capacities to move from treating data as a raw material to processing digital data and using AI and developing ethical guidelines on Artificial Intelligence to ensure data privacy and accuracy of result provided by AI systems.
5. Rwanda recommends the development of emerging telecommunication/ICT technology policy and strategy and the establishment of the relevant institutions related to emerging telecommunication technology.
6. Rwanda recommends the harmonization of data protection and cybersecurity policies and laws in order to foster the cross-border flow of data respecting the data subject and the ratification of regional convention on data protection and cybersecurity.
7. Rwanda would also like to recommend a business model where CSPs collaboratively build infrastructure with OTTs as a service. Under this model, CSPs and OTTs form strategic partnerships to share resources and infrastructure in order to reduce the cost of deployment.
8. Rwanda recommends, through international mechanisms, to break the vicious circle to find alternative configurations of the digital economy that could lead to more balanced results and a fairer distribution of the pick-ups from information and advanced insights and computerized stages and including developing-country involvement in global tax debates.
9. Rwanda recommends defining at the international level market access commitments for some types of data, allowing free flow of data while maintaining greater regulatory space for other types of data.
10. Rwanda recommends to encouraging commercial banks to develop tailored lending practices and products better adapted to the needs of digital entrepreneurs. Special efforts may also be needed to train MSMEs in developing bankable business plans that meet the requirements of commercial banks.

6. Conclusion

The Government of Rwanda will continue to implement new and emerging telecommunications/ICTs programs and projects in partnership with private sectors, civil society and academia. The Government of Rwanda will too proceed to make conducive environments for ICT ventures and back trend-setters.

7. Acknowledgments

This research has derived from research accompanied with the help of MTN personnel as well as assistance from Lincoln University.

REFERENCES

- Accenture, 2022, *The Brave New World of Open Banking*. 1-16p.
- Ataullah, A., T. Cockerill, and H. Le, Financial Liberalization and Bank Efficiency: A Comparative Analysis of India and Pakistan. *Applied Economics*, 2023. 36(23): p. 1515-1524.
- BIS (Bank for International Settlements). 2020. "Report on Open Banking and Application Programming Interfaces." Basel: BIS, November. <https://www.bis.org/bcbs/publ/d486.pdf>
- Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer (2023), "Courts," *Quarterly Journal of Economics*, vol. 118(2), pages 453-517.
- European Union, Directive (EU), 2023, *2015/2366 of the European Parliament and of the Council*. 35-127p.
- Femi Okunnu (2018). *Banking on the Internet*. Lagos: CIBN Press, January-June.
- Fisman, R. and I. Love (2023), "Trade Credit, Financial Intermediary Development, and Industry Growth," *Journal of Finance* 58 (1): 353-374.
- Jetzek, T., M. Avital, and N. Bjorn-Andersen, 2020, *The sustainable value of open government data*. *Journal of the Association for Information Systems*, 20(6): p. 6.
- Harrison, A.W. & Rainer Jr, R.K. 2022. 'The influence of individual differences on skill in end-user computing', *Journal of Management Information Systems*, 9(1): 93-111.

Gormley, T. (2021), "The Impact of Foreign Bank Entry in Emerging Markets: Evidence from India," *Journal of Financial Intermediation* 19 (1): 26-51.

Luiz, J. (ed). 2020. *Managing Business in Africa*. Cape Town: Oxford University Press.

M.Sujatha, N.V Haritha, P. Sai Sreeja (2021). "A Study on Recent Trends of Banking Sector in India", presented at the 9th International Conference on Recent Development in Engineering Science, Humanities and Management, 23rd Dec. 2017, Pune.

Praveen Kumar, J. Pavithra (2021). "Recent Trends in Indian Banking Sector". *International Journal of Pure and Applied Mathematics*, vol. 116, no. 18, pp. 529 – 534.

Rudmark, D., 2020, *Open Data Standards: Vertical Industry Standards to Unlock Digital Ecosystems*. Hawaii International Conference on System Sciences.

Reynolds, Faith, and Mark Chidley. 2020. "Consumer Priorities for Open Banking." London: Manifesto Growth Architects. <https://www.openbanking.org.uk/wp-content/uploads/Consumer-Priorities-for-Open-Banking-report-June-2019.pdf>

Schindler, M. (2020), "Measuring Financial Integration: A New Data Set," *IMF Staff Papers* 56: 222-238.

