

Title: **The Benefits of Open Banking to Consumers, Banks and FinTech Companies and recommendations for the RegTech design response.**

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Qualitative Grounded Theory Research Study

Abstract

This paper presents a qualitative grounded theory investigation into the benefits of open banking for consumers, traditional banks and FinTech companies, with the study exploring the impact of open banking regulation on the banking industry. The development of regulation is being seen to occur globally, underpinning rapid transformation in banking and effectively supporting the rise of the FinTech phenomenon.

The general views held by traditional banks on open banking are explored together with the strategic responses available to them, as they seek compliance with recently issued data sharing regulation, and what this may mean for consumers and FinTech companies.

The role played by FinTech companies is also explored, including the possible benefits they derive and contribute to banks and consumers. The benefits to consumers are presented based on the findings and the literature, along with the benefits to banks and FinTech companies, based on the research.

The emergent theory provides a basis for recommendations designed to support banks to identify and extract the benefits to them as they navigate the transformative nature of the open banking regulation before them. These recommendations take the form of a two-part model integrated strategic review process by which banks can make better informed decisions, ensuring improved sustainability and systemic stability. Recommendations are also given for the consideration of FinTech companies.

The benefits presented by FinTech companies illustrate that relevant products are developed, delivering gratifying user experiences whilst also addressing issues concerning financial inclusion; an area banks historically have generally been unsuccessful at resolving.

As regulators grapple with the rapid innovation presented by open banking FinTech companies, significant findings emerged from the data which have been presented in this paper, along with a set of recommendations for the consideration of regulators seeking to develop an appropriate response to this innovation coming from the FinTech companies.

1. Introduction

The rise of financial technology (FinTech) activity across almost all financial markets around the world ushers in a new and exciting environment for consumers of the products and services of these entities, with both individuals and companies benefitting through the collaboration enabled by open banking regulation. This is where an entry point has been created for FinTech companies due to the fact that they bring agility, technology and innovation into the market, responding to the opportunities presented by the relatively poor response from traditional players in the market, mostly due to their legacy core banking systems and high cost structures which limit their ability for an agile on-point response (Hill, 2018).

General observations of the banking industry world-wide reveal that these institutions are not readily able to provide adequate banking services at the bottom end of the market due to their business models and high cost structures which result in their products being premium priced and quite expensive for consumption by consumers generally, and of the underbanked or underserved communities in particular (Vives, 2017).

This unsustainable situation is part of the reason that a gap has arisen in the provision of banking and financial services to these communities, giving rise, in part, to the phenomenon of FinTech companies which are able to develop simpler, more appropriate products to meet the needs of these consumers. This is achieved at a significantly reduced cost based on the low cost structures carried by these companies, with these cost benefits being passed on to consumers (Lee and Shin, 2018). Whilst there may be additional reasons for the rise of FinTech companies to bring innovative services to various customer types, the opportunity presented for financial inclusion is enormous as these companies are able to deliver these products and services efficiently whereas the large traditional banks are unable to achieve the same performance due to their high cost structures, (International Monetary Fund, 2019; G20 Global Partnership for Financial Inclusion, 2017).

In addition to their ability to develop and deliver products at a significantly lower cost point, FinTech companies are also able to respond quite dynamically to the product demands and needs of their customers due to their shorter development and release cycles based on their advanced technological platforms and agile processes.

In a space that is similar to that of the FinTech companies are the new styled digital banking companies that have recently arisen to take advantage of the inflexibility of incumbent banks. These newcomers are often referred to as “challenger banks” or “neobanks”, which tend to adopt a much lighter and cost efficient business model to that of conventional banks. They also locate themselves in the banking industry as licenced banks, often falling under the regulatory structures guiding established banks as regards their deposit taking activities, but employ an advanced technology approach. When compared to the traditional banks, it is quite easy to understand that their low cost model is attributable to their almost non-existent physical footprint and presence, which is coupled with the use of advanced technology to reach their clients and deliver products. This is in stark contrast to the infrastructure heavy channels that the conventional banks use, which still tends to rely extensively on a branch network to reach customers.

The role that FinTech companies expect to fulfil in the banking sector has not generally been investigated, especially as regards their interplay with traditional banks and the resultant benefits to either of these companies as a result of this. Researchers seem to have focused their

attention on what the banks are doing wrong and on what customer sentiment is towards banks, expressing their willingness to consume the offerings of FinTech product providers (Ozili, 2018).

The aim of this research paper was to address the identified gap in the literature by researching the following:-

What benefits accrue to the traditional banks and FinTech companies through open banking and how can these institutions be encouraged to collaborate to take advantage of this, thereby increasing the benefits to consumers?

To achieve this, the study commenced with a literature review, followed by a qualitative grounded theory investigation into the professional practice side, as well as the regulatory side of the FinTech phenomenon. The literature review was undertaken to seek out, discuss and critique the available literature in the emerging industry segment of the FinTech companies, with a particular focus on those that participate in open banking activities, in association with established Banks. Goldstein, Jiang, & Karolyi (2019) make mention of their findings on the available literature regarding the FinTech phenomenon, decrying the “dearth of published academic research” despite the rapid and explosive growth in the global industry. Limited research has surfaced regarding the specific dimension of *open banking*, which is where the greater part of the interaction between incumbent banks and FinTech entities is most likely to take place in terms of the provision of value added banking services to consumers, especially the underserved markets.

The literature has also explored some of the regulatory positions which are driven uniformly by the Bank for International Settlements (BIS) through its arm, the Basle Committee on Banking Supervision (BCBS) across the industry globally (Bank for International Settlements, 2021; Fratianni, 2006). These positions show support for the emerging innovation wave brought on by the FinTech companies. In discussing this point, Yin (2020) posits that the innovation brought about by the FinTech phenomenon should be supported by regulators in a way that provides for real-time systemic risk monitoring so as to surface the as yet unknown risks presented by FinTechs. He goes on to suggest that FinTech entities do have a positive impact on the financial sector by reducing concentration risks, and that through an improvement in efficiencies of financial systems brought about by FinTechs, financial risks would be positively impacted and reduced (Corporate Finance Institute, 2022; Claessens, Frost, Turner & Zhu, (2018).

The study investigates the FinTech phenomenon from a global perspective due to the internationally integrated nature of bank regulation and banking, resulting in a mostly homogenous practice of central bank oversight taking place worldwide (Maume, 2017).

The literature review concluded that the age old traditional practice of banking, especially as it has been undertaken in recent times, has entered a period of significant change brought about by technology on the one hand and increasing sophistication in customer demands, based on newly available technology, on the other.

For a complete read of the literature review related to this research, refer to Zandamela (2021).

2. What is open banking?

A few different definitions of open banking currently exist, with some industry commentators even moving forward to give attention to a more recent term – open finance – whilst suggesting that this is the evolution of, or is the same as open banking, unlikely as this may seem for various reasons, key of which is that the banking industry, at least at this stage, is quite self-contained with its own specific regulatory universe. To maintain clarity in this study, the researcher developed an open banking value proposition framework used in this work to ensure consistency in understanding what is being referred to when the term open banking is used, as shown in the figure below:

Figure 1: Open Banking Value Proposition Framework

The Customer	this element owns the data and gives permission to banks and third parties to access that data; privacy and various other laws protect the customer.
The Bank	at this stage, this element provides the master repository that provides secure custody of customer data and through a regulatory framework, gives access to that data via Open, Partner or Closed APIs;
The FinTech	this element provides advanced technology and enriched data for convenient consumption by the consumer, based on accessing the customer's basic data via API.

Source: Zandamela

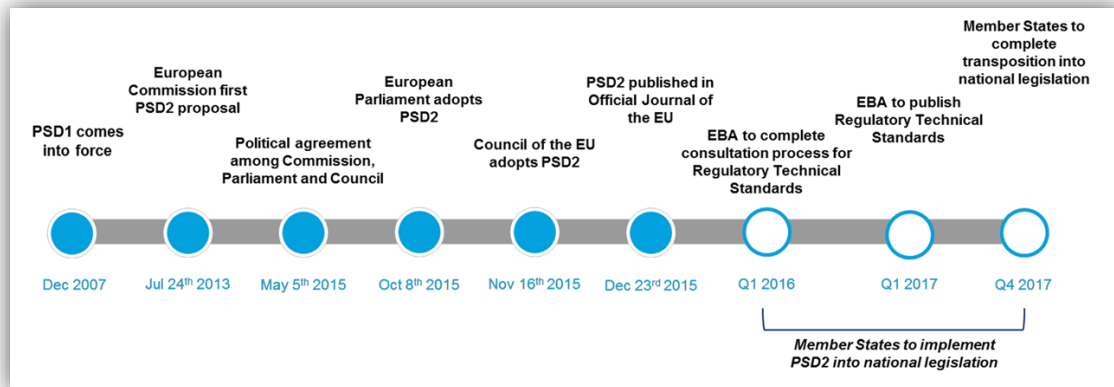
From a global perspective, comprehensive first mover advantage in formalising open banking occurred in Europe, ushering this into existence through the development of regulation encapsulated in the Payment Services Directive 2. The European Commission (2022) describes the Payment Services Directive 2 (PSD2) as being a regulatory framework that was created to bring Europe's payment services up to modern standards, thereby increasing innovation and security across all digital platforms for consumers and companies. Furthermore, the European Commission (2022) states that the framework seeks to increase competition and efficiency through the introduction of new players in the market, commonly known as FinTech companies, or Third Party Payment Service Providers (TPPs) of payment services, allowing for the regulatory framework to extend over these entities as well. Other key benefits of the framework include the prohibition of surcharging, the streamlining of the handling of complaints, the addressing of fraud through the introduction of strong customer authentication processes as well as the increase in consumer rights and protections in the payments arena.

The PSD2 development timeline illustrated by Deloitte (2016) illustrated in the figure below shows that the framework was first proposed by the European Commission on 24th July 2013, politically agreed to on 5th May 2015, adopted by the European Parliament on 8th October 2015, adopted by the Council of the EU on 16th November 2015, with publication of the framework taking place in the official journal of the EU on 23rd December 2015. Following this

development process, the European Banking Authority commenced with the consultation process so as to develop the Regulatory Technical Standards for PSD2, which effectively was the trigger to commence the process for member states to move towards adopting PSD2 into domestic legislation.

The European Commission (2022) suggests that the benefits that are expected to be realised through the introduction of PSD2 will be far reaching in extent, bringing Europe into a single digital market for the benefit of all consumers and businesses.

Figure 2: PSD 2 Development Timeline



Adapted from: Deloitte. (2016)

Outside Europe, open banking frameworks are in various stages of development, with some of these frameworks drawing from lessons derived from the first mover market, the EU, as they develop regulation that meets their particular needs.

3. Research Methodology

The researcher's approach to the research design and methodology aspects of this research has been informed by a certain ontological perspective and epistemological position, both of which effectively support the research (McAuley, 2014). The nature of the investigation required that the researcher sought out and obtained an in-depth insight into the aspects that would be the source of primary data from the field, such as the thoughts, views, experiences and concepts of the various participants. For these to be collected effectively the researcher had selected the inductive qualitative research method as this would also give the researcher the ability to conduct interviews with selected interviewees from amongst the industry participants in banks and FinTech companies, with the objective of the emergence and development of a theory based on the researcher's findings (Creswell, 2014).

With a qualitative approach chosen as the methodology to use, the researcher was then able to select the preferred research strategy, best suited to ensure that the required level of rigour was achieved through the research process. The **grounded theory** research strategy was selected as being the most suitable strategy to achieve the desired goal as this strategy has as its aim the discovery of the concepts and hypotheses that bear relevance to research (Glaser and Strauss, 1999; Martin & Gynnild, (Eds.) 2012).

Charmaz (2006) has gone further to describe grounded theory as having a scientific basis that allows for rigour to be applied in such a process with new insights to assist the understanding

of the various social activities being made evident from the context in which they arise in a natural, unforced manner supportive of the inductive frameworks. This in turn would effectively free up the researcher from having to produce a perfect output of the research area, instead allowing for the identification of an emergent theory once data saturation had been achieved, and no new data or insights were drawn from the interviews.

As a research strategy being used for this research, grounded theory provides a more relevant approach when compared, for example, to that of discourse analysis, which requires a deeper analysis of the language, discourse events and other discourses that arise as instances of sociocultural practice (Cassell & Symon 2004). Data is then collected through a process by which samples of data are driven and guided via the development of the concepts that emanate from the sampling process, referred to as theoretical sampling (Glaser and Strauss, 1999).

Birks & Mills (2015) discuss the 3 critical elements that make for the discovery of a quality grounded theory as firstly comprising the skill of the researcher, which takes into account the ability of the researcher based on experience derived over years spent in the professional arena. The second critical element is the importance of harmony existing between the researcher's personal philosophical position, the aims of the study and the methodological stance taken to execute on the research, which if not congruent, could call into question the quality of the research undertaken (Birks & Mills, 2015 citing Nelson, 2008) and the value of the findings. Procedural precision is the third element in the bid to produce quality research and this takes into account the need to diligently follow the steps and processes of grounded theory to achieve rigour and precision, adding to the quality of the findings.

4. Data Collection and Analysis

Being a study of significant and strategic importance to the banking industry, the requirement for selecting participants for this study was that they be the top decision makers in the entities that are responsible for responding to the new developments in the industry, a great deal of which currently are driven by new open banking regulation, as well as changing consumer demand.

The data was drawn from participants that represented the two different types of organisations, namely traditional banks and FinTech companies. Firstly the traditional banking industry interviewees were active top executives currently operating in the industry, involved in the decision making processes regarding the strategies that their institutions would follow on the question of working with FinTech entities in an open banking format. The sampling method employed in the selection of the participants was purposive sampling as the study did not require a broad representative population sample group, but rather required a focused investigation across a smaller, relatively unresearched group with a high level of homogeneity. Sampling bias is a possible risk in purposive sampling, however, in this study this risk was satisfactorily mitigated by drawing participants from different institutions located in different countries across several different continents (Goulding, 2002).

A further set of data was drawn from participants that represented FinTech companies, these were top executives that were involved in the decision making processes and strategies that have resulted in these companies working with traditional banks in one way or another. Here too the interview sample included participants across 5 different countries, with purposive sampling also employed here. Both sample sizes (banking and FinTech professionals) would

be equal and subjected to the chosen investigation method, being grounded theory, which would determine if saturation was achieved or if the sample size required further expansion.

Creswell (2014) posits that the data analysis process follow the predetermined iterative steps which, whilst appearing to be linear, are not, as the grounded theory researcher is encouraged to utilise several levels of analysis to achieve interactivity with the data, which also provides the process by which reduction of the data is achieved, culminating in the identification and extraction of emergent themes.

The process to select the interviewees made use of the LinkedIn platform to identify the prospects based on how many professional contacts they had in their list and the detail and attention they appeared to put into their listing of qualifications and the extent and relevance of their past work experience, especially with respect to decision making and perceived ability to affect strategy, based on top executive credentials. The process arrived at identifying 47 qualifying individuals (financial service sector “elites”) spread out across all continents and various countries. Through interacting with these candidates in the application of a first-level filter to determine suitability for inclusion in the study, the process saw a reduction down to 32 qualifying candidates. Scheduling challenges and Covid related blockages saw the final list of interviewees settle at 15 participants, split between 8 traditional bank Chief Executive Officers and Chief Information Officers, and 7 FinTech Chief Executive Officers/Founders and Chief Information Officers.

The interview process itself followed a semi-structured process using the Zoom platform with the sessions recorded, having already obtained the consent of the interviewees and discussed and agreed in writing upfront the ethical considerations applicable to the process.

Grounded theory principles were strictly followed with NVivo software employed in the analysis of the data, allowing for the achievement of analytical depth, interview intensity and reflexivity with the data (Charmaz, 2014; Birks & Mills, 2015) being experienced during the sessions, resulting in the eventual generation of codes and the emergence of themes, with data saturation becoming evident.

Glaser & Strauss (1999) point out that mining data further at this point of saturation brings little additional benefit to the research objectives as no additional development of the emerging theory can reasonably take place. The researcher was satisfied with the veracity of the process that had been followed, coupled with the conviction that the data that was drawn from the participants followed an intense process and that the point had been reached showing repetition in the data, signalling saturation. With these attributes having been achieved the researcher was confident in concluding the data collection process.

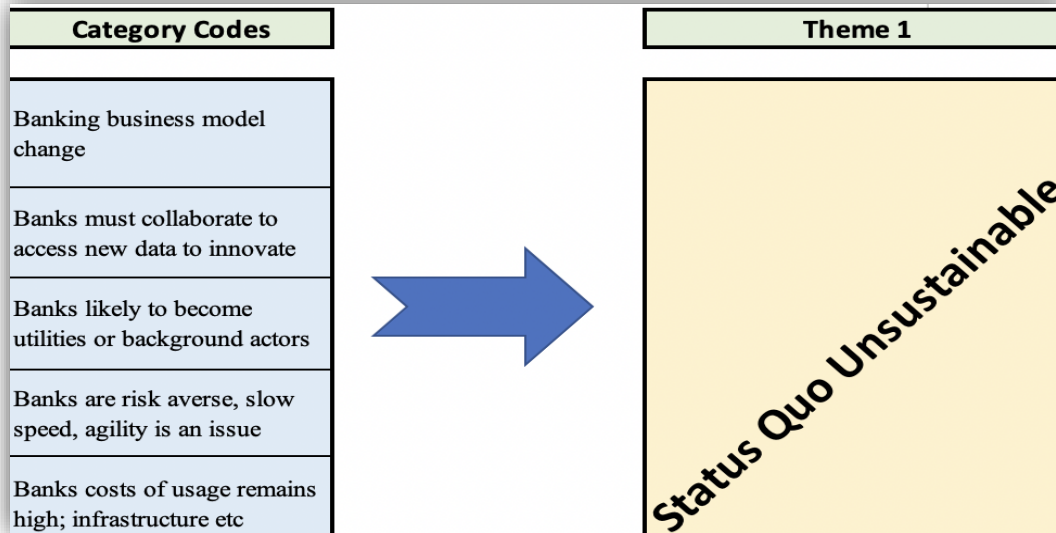
With the drawing of quality data being completed at this point, Charmaz (2014) asserts that proceeding to theoretical coding as the final major coding strategy may have limited benefit to the data. The researcher chose to follow the advice of Charmaz (2014) and allow the process to guide the emergence of the theory at either the focused coding point or by proceeding through to theoretical coding, as demanded by the output and findings revealed in the data. A process of constant comparison of the data was also applied during the analysis process, chunking the data into clusters of categories that describe the data (Goulding, 2002).

The total data pool generated from the coding process yielded 914 reference codes which generated 366 sub-category codes, and these were further reduced to a total of 52 category

codes. This data resulted in the emergence of 4 themes from the study. The top 20 category codes that were distilled into the 4 themes are presented in the next section, together with a discussion on the findings.

5. Findings and Discussion

Figure 3: Theme 1 - Status Quo Unsustainable

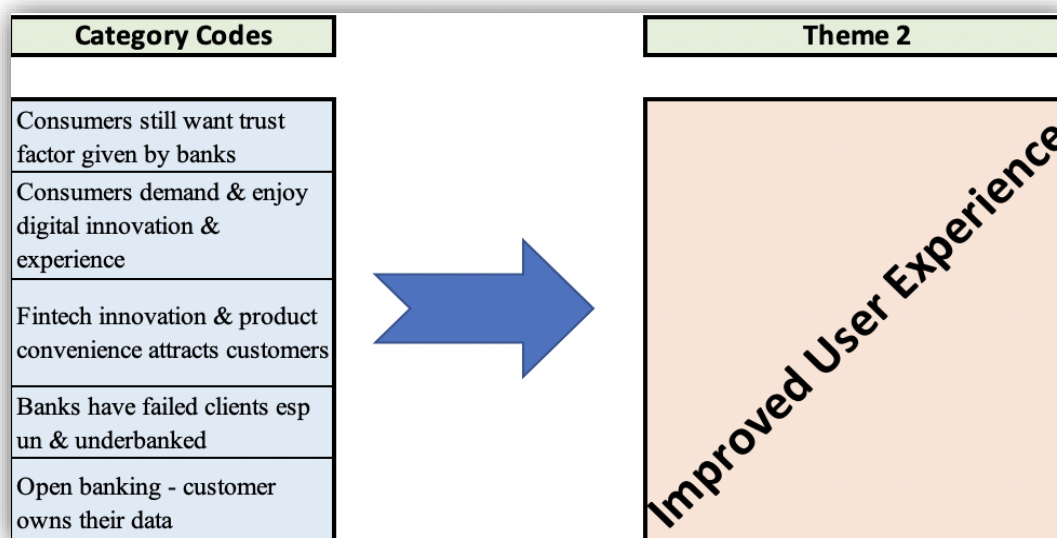


The research findings from the data revealed that traditional banking conducted as it had been for a very long time was no longer sustainable. The issue of sustainability referred to here is as regards the viability of a business from a business model and a customer growth perspective. This sustainability was based on the needs of the customer and the inability of the traditional banks to meet those needs, creating a unique form of risk to banks not seen before (Yip & Bocken, 2018). Both traditional banking executives and FinTech executives concluded that existing banking business models were in a state of flux and seemed to no longer meet the needs of the majority of consumers that were *existing* customers. From the findings, it was clear that the typical risk aversion stance that traditional banks tended to hold onto resulted in them becoming almost detached from the reality of the situation before them, not recognising that their consumer client base was looking for a more immersive and innovative experience.

Whilst some banks may well argue that they were robustly innovative and at the cutting edge of banking technology, the research suggested that this approach predominantly resulted in a product centric strategy, and ignored the fact that the consumer was looking for more than what he or she was informed was available from the one institution. Choice was now a key driver, and for a traditional bank to respond in an adequate manner, the research suggested that they needed to give serious consideration to the collaboration opportunities presented by innovative third party providers of products and services. These new industry actors, the research suggested, brought speed and agility where the traditional banks lacked these capabilities. Furthermore, it would also seem that their participation in collaboration with the banks would enable a reduction in the current costs of doing business that existing banking business models tended to carry. The data further suggested that the direction and rate of change in the banking industry was of such a nature that traditional bank business models were unlikely to remain unaffected by the pressures which assailed them from various directions, pressures which could see banks being redefined as utilities or background actors in the industry that they have led since the dawn of modern banking.

With these changes unfolding in the industry, the research findings suggested that the cost of banking business would need to reduce for banks to remain relevant and for them to compete in an environment which is rapidly moving to an open architecture across various industry sectors; the new open economy as it were. Open banking is and has been at the forefront of this industrial and economic restructure and this is set to continue for quite some time as this is still in its infancy, with open finance being touted by some as being the successor to open banking, which is a curious idea as the two are more likely to intersect than for one to replace the other. Herwartz and Walle (2014) explain quite plainly the importance of the open economy architecture driving growth through the resultant development of the financial system of an economy, brought about by the phenomenon of openness which open banking is a key component of.

Figure 4: Theme 2 - Improved User Experience



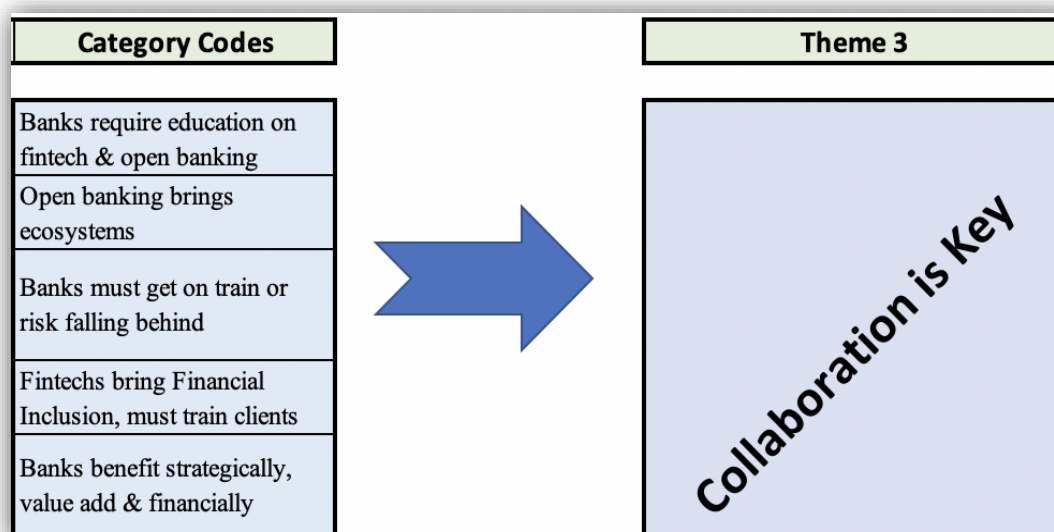
The data presented on consumers through this research was drawn from traditional bank top executives as well as FinTech top executives, providing key input which meaningfully impacts the discussion around the consumer, providing a different viewpoint to that found in the literature, allowing for a more complete picture to be appreciated due to the data becoming interrogable from both the consumer and supplier side perspectives.

The findings that fall under this theme reveal that consumers still tend to view banks as trusted partners in the financial landscape, which they have earned over long periods of time, and through which they continue to provide comfort on. Knell & Stix (2015) provide key research evidence on the issue of trust in banks, yet also revealing the long held understanding that the public hold their monies in institutions that they trust to hold their funds, otherwise this could lead to a lack of trust and a subsequent run on a bank, as was observed in the data pre and post the global financial crisis of 2008. From this perspective, it would therefore appear that traditional banks would not necessarily be competing with FinTech companies in the area of requiring the trust of the consumer in the provision of data security and privacy, especially as the trend to collaborate between these parties keeps the bank as an involved party in the trust relationship equation (Anand & Mantrala, 2019; Gallup Inc, 2016; McFeely & O’Boyle, 2018); this also satisfies the requirements of regulation, especially as regards deposit taking activities.

The findings provide a clear view that consumers are pressing for and enjoy the benefits of digital innovation and a superior user experience which is provided through the type of digital products that are provided by third party providers (Bradley, 2010; Eickhoff, Muntermann, & Weinrich, 2018). Furthermore, these product capabilities provided by third party providers attract the attention of customers who seem to prefer these products due to various reasons, which include relevance of the product to the needs of the user and ease of use, especially with regard to financial inclusion. Financial inclusion is an area in which banks have historically failed significant numbers of customers, leaving them outside of the formal bank service environment, according to the data drawn in this study. In measuring financial inclusion, Jajah, Anarfo, & Aveh, (2020) posit that the traditional definitions have been fairly limiting as they have tended to measure aspects such as the number of bank branches in an area, or of ATMs deployed or number of credit cards issued. These traditional definitions of financial inclusion tend to be centred around the presence or lack of traditional banking products in a given market, which appears to be a dated definition. An updated definition, when viewed from the perspective of the new and innovative products provided by FinTech players that grant customers access to virtually all financial products, would suggest that the issue has now evolved to being about markets no longer being underserved, as they are now being served with access to financial products by FinTechs. This is as opposed to being about markets being unbanked or underbanked due to the lack of access to *banks* as a specific measurement. This approach resonates with the literature (Navaretti et al., 2018).

The findings further revealed data about the improved user experience and products developed by third party providers and the need for consumers to become more aware of ownership of *their* data held in the traditional banking environment. The full understanding of this shift would empower the consumer to make improved decisions regarding their financial health and transactability so as to take full advantage of the opportunities provided by open banking. With this new data ownership lies the responsibility for the education of the customer around matters of ethics, privacy and security in addition to the benefits presented by open banking, as discovered by Aitken et al. (2021) in their recent focus group study into digital innovation in banking.

Figure 5: Theme 3 - Collaboration is Key



The findings also revealed the theme on collaboration between banks and FinTech companies as being key. The data suggested that generally the bulk of traditional banks seemed not to be

very well informed about the opportunities and possibilities that were made available through the open banking phenomenon and the benefits that could potentially accrue to them by collaborating with FinTech third party providers. In their recent study, Phan, Narayan, Rahman, & Hutabarat (2020) found that their hypothesis held in that a correlation existed between the growth of FinTech entities, in Indonesia specifically, and a drop in bank profitability. These results seem to contradict the findings presented by a FinTech participant in this study where the initial performance results experienced by traditional banks in Europe were somewhat depressed, however this trend was reversed over a period of time. Further research on this aspect is called for as the Indonesia study seemed to maintain its focus on the financial performance metrics, with the researchers in that study categorically stating that they view the research purely as an empirical study. The challenge with such an approach is that it reduces the debate to a backwards view only, without necessarily taking into account the strategic response of the sample of banks, if indeed there was a response, to restructure the institutions to become more nimble as they redeveloped their business models, if indeed an attempt was made to change the business models. The strategic response would target all aspects of the sustainability of the institution, especially around its cost structure and its competitive response, amongst other issues (Deloitte, 2014).

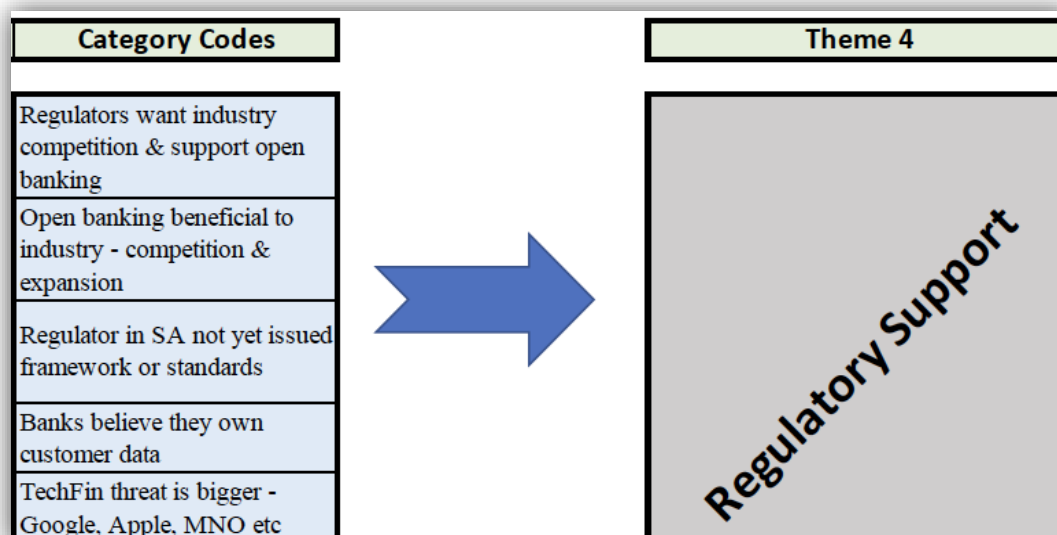
Further findings from this study revealed that a key consideration for traditional banks to contemplate was regarding the development of ecosystems that were brought into the industry by the FinTech companies, with this potentially presenting significant opportunities for the banks to access through participation by collaborating with FinTechs. These ecosystems created new revenue opportunities for the traditional banks to benefit from, but for this to occur successfully, these institutions would have to adopt the attitude of joining with the FinTech movement – getting onto the train, as it were, or risk falling behind the growth and opportunity curve. In the literature, a Gallup Inc (2016) survey found that millennials trusted FinTech companies with their innovation and digital experience needs and trusted banks with their security, privacy and security needs, which was also found to hold true in this study, giving rise to a strong support argument in favour of collaboration opportunities that exist between the two actors (Brodmann, Rayfield, Hassan, & Thu Mai, 2018).

The findings provided data which revealed that FinTech companies contributed significantly and positively in the effort to advance financial inclusion and the upliftment of communities that were underserved by the traditional banks, also found to be the case by Jagtiani & Lemieux (2018) in their study of FinTech lenders in the developed market of the US. This has taken place in ways that are unique and have provided the opportunity for economic activity to far flung rural areas that do not enjoy any banking representation. The advance of inclusion has taken pace rapidly based on the use of mobile devices to make available the products and services of the FinTech companies to the new customers that previously had no access to financial intermediation. The data also reveals that it is important that financial literacy training and education is provided along with the access to the financial products as this will serve to increase adoption and use.

The findings also reveal that traditional banks would benefit strategically and financially through the value addition brought about by open banking and collaboration with FinTech companies. The recent study conducted by Wang, Xiuping, & Zhang, (2021) found from empirically based research that the total factor productivity of traditional commercial banks was *improved* by the introduction of FinTech alliances, when this was coupled with a re-development of their business model. The total factor productivity method was used to stand proxy for variables which took into account different aspects of the performance make up of a

bank, with the ultimate calculation result demonstrating that traditional banks benefitted strategically as profits increased, costs reduced, risks were mitigated and a culture of innovation developed by partnering with FinTechs through open banking (Drasch, Schweizer, & Urbach, 2018). This study sheds a further questioning spotlight onto the findings of Phan et al. (2020) stated above, again suggesting that aspects of strategy and business model development may well have been overlooked in their study, which add critical dimensions to this debate.

Figure 6: Theme 4 - Regulatory Support



The research findings inform that the regulators have provided support for the development of open banking through the promulgation of regulation that creates an enabling environment for this to take place in (Restoy, 2020). The release of the regulatory frameworks has been taking place in different countries at different times, dependent on the readiness of the authorities to implement such guiding principles, which has resulted in some countries effectively lagging behind the mainstream thrust advancing across the majority of key financial markets. The regulatory community has shown that they are keen to support the innovation and competition that is brought about by the FinTech phenomenon and are keen to attempt to keep pace with the rapid evolution unfolding through various mechanisms that encourage collaboration between regulators and FinTech entities as well as between regulators themselves on a global level (Chatzara, 2020) and this is in agreement with the literature (Ramsden, 2018; Carney, 2017).

Further to this, the findings revealed that apart from the regulators being keen to support open banking for the various reasons that they had, the industry professionals that were interviewed submitted that open banking was itself beneficial to the banking industry and to traditional banks in that it brought about fresh competition. The interviewees submitted that this competition was much needed to dislodge the apparent complacency that had established itself in the industry. In addition to this, the industry professionals stated that one of the many benefits brought about by open banking was that the FinTechs brought about additional opportunity through the expansion of the market. An example given of this expansion is where customers with weak or “thin” files at credit bureaus were given the opportunity to access credit by going through the alternative credit scoring methodology of a FinTech lender, based on alternative data points to those used by the traditional credit bureaus, giving rise to credit being

granted to customers with no worse a risk profile than the usual customer (Jagtiani & Lemieux 2018).

The findings also revealed that the historically conservative South African regulator has not yet issued any regulation in the open banking arena thus far. A process of high level consultation has commenced with the regulator engaging with some industry players from amongst both the traditional banks as well as the FinTech groups through the issuance of consultation papers for debate. This regulator has formed the Intergovernmental FinTech Working Group (IFWG) which is a formal interface between the various regulatory agencies, under the aegis of the Prudential Authority, and the financial services sector to advance the FinTech agenda. This regulatory agency has also created a regulatory sandbox environment for the piloting of financial technologies that fall into the open banking experimental domain (Intergovernmental FinTech Working Group, 2019). The intention is for the safe piloting of these technologies which predominantly fall outside of the already established regulations and frameworks.

From a global perspective, the findings gleaned also inform that for open banking to work effectively, the regulators seem to have drawn a line in the sand regarding the question of customer data ownership, forcing the traditional banks to give secure access to customers over their own data. This access gives traditional bank customers the right to give consented use to third party providers who would proceed to provide products and services that would benefit the customer – this is a simplistic view of a rather complex and layered process. Banking practice has seen traditional banks tend to hold the view that customer data in their possession belonged to them, however, the findings show that the granting of access to third party providers stimulates innovation and competition (Financial Stability Board, 2019).

Another key finding shows that the real threat to the traditional banks lies in the advances of the *TechFin* organisations, also referred to as *BigTech*, being the large technology companies that have started entering the financial sector through the provision of certain services in competition with the banks (Hill, 2018). Zetsche, Buckley, Arner, & Barberis (2017) discuss the characteristics of TechFin companies, stating that they are essentially data intermediaries which are very large in size and usually have deeper relationships with their customers than traditional banks do, competing with traditional banks as well as with FinTech companies, which in comparison are financial intermediaries that partner *with* banks in the provision of financial services.

TechFin organisations are generally not constrained by the regulatory oversight that the traditional banks have to contend with, yet have enormous resources at their disposal and great global customer reach with access to massive customer data from their existing operations. The findings suggest that part of the concern lies around these entities gaining further customer insight on the financial behaviour and other financial data on customers through open banking from the banking industry, giving them an added, unassailable advantage. The Financial Stability Board (2019) has expressed their concern at how this could threaten the stability of the global financial systems, suggesting that this development would require close continual monitoring. The banks have expressed this concern to regulators, citing the uneven playing field and the regulators have taken heed of the issue, proposing new rules to rein in BigTech's expected dominance of data (Chee, 2020). In their recent survey of consumers in the US, PYMNTS.com (2020) found that almost 41% of young consumers would be motivated to switch their financial service provider, typically from a traditional bank to a BigTech, once a

superior financial app were to be offered to them. This is in keeping with the findings expressed in other research in the literature (Unidays, 2019).

6. Interpretations of the Findings

6.1 The Consumer

The results of the findings suggest that consumers do indeed experience benefits from the provision of products and services developed by FinTech third party providers via open banking. It would appear that a threat exists from BigTech giants seeking to enter this space. These views are drawn from both traditional banking top executives as well as FinTech company top executives alike. This position confirms the existing literature which revealed that consumers experience benefits when using the products developed by FinTech companies and made available to them through the open banking framework (Navaretti, et al., 2018; Williams & Nelson, 2015; Ramsden, 2018). Consumer loyalty to traditional banks is reported to be a matter which is likely to be dependent on the ability for the banks to continue to provide innovative products, a situation which most traditional banks grapple with due to the legacy core banking systems that they sit with. Banks are only likely to be able to fulfil the objective of attaining much improved, competitive innovation status in collaboration with FinTech companies through an open banking partnership by which consumer data could be shared. Here too the finding confirms the existing literature (Anand & Mantrala, 2019) and responds to the second research question.

The findings revealed that the area of trust was one that was key for consumers, giving rise to the ability for a consumer to entrust their savings and wealth to a traditional bank based on the trust element that the banks have enjoyed with the body of consumers for a very long time. Trust is therefore a pre-requisite that the consumer seeks out to be able to establish a banking relationship, which is then layered with the innovation that is provided by a FinTech, suggesting that the two parties may not necessarily be mutually exclusive to the consumer, but are generally treated as a package deal, especially in the urban areas where banks are strongly represented and have a strong brand reputation, as was also confirmed to be the case in the existing literature (Boot, 2017). The same trust argument however does not seem to hold true in the underserved markets where traditional banks do not have a brand presence or reputation, with no trust value of any significance; this finding is a new finding that is not in the literature and responds to both the research questions in that consumers in underserved markets would now derive direct benefits from a FinTech solution, as well as traditional banks could benefit from the ecosystem effect by being aligned to the FinTechs serving these markets. In such areas, the consumer may not necessarily recognise the need for the trust factor from a bank, simply because this has never been a factor for consideration. The emergence in such an environment of a FinTech solution would be welcomed as being a vehicle through which financial intermediation could be achieved, coupled with the ability to become economically active (Pearce & Borgstein 2018; Anand & Mantrala, 2019). This makes a contribution to practice.

6.2 The Traditional Banks

The data presents the finding around the status quo of traditional banking being unsustainable and requiring a significant overhaul based on pressure coming from the customer. This pressure brings to bear upon the banks the need for a business model change due to the choices that the customer has made to seek out more innovative and appropriate products from third party FinTech providers; this finding confirms the literature (Ozili, 2018), whilst it also presents a new aspect to the literature in respect to the business model change discussion, presenting a

contribution to practice and knowledge. The traditional banks need to understand that they need to collaborate with the FinTech companies to gain access to their superior agility and ability to respond to and meet the needs of the customer in ways that bring benefit to them. This acceptance by the banks will allow them to derive benefit from open banking through gaining access to the new ecosystems established, and to access new income streams that they did not have access to previously, amongst some of the other benefits reported in the findings, such as participation in an expanded market, gaining access to this through collaboration with FinTech companies and gaining access to new data by participation in the ecosystems (Eickhoff et al., 2018). This finding confirms the literature in that Botta et al. (2018) posit that traditional banks could succeed under open banking by understanding the roles that they would be well suited to match new customer journeys in the new environment, which supports both research questions.

Further to this, the findings in the data also reveal that traditional banks that hold on to their old ways may very well find themselves in risky and compromised situations due to the fact that they would be poorly positioned to take advantage of the unfolding opportunities to remain relevant in the unfolding open banking process. This general resistance is what makes the traditional bank example, cited in the existing literature by Acar and Çıtak (2019), to take on a business-as-usual flair in their embracing approach for dealing with FinTech prospects, to be a progressive example of an already compliant and activated institution. This finding informs the literature, and a contribution to practice exists here, whilst it also responds to both research questions. The advanced method by which the bank in that example behaved is quite different to the “existential threat” mentality many traditional banks often find themselves locked into when contemplating open banking and partnering with FinTechs, for various reasons.

The data further suggests that the evolving role of the banks in the future would likely see them becoming some sort of utility organisation in the new ecosystem, no longer holding the central role that they have been hitherto enjoying. This finding is new to literature and presents a new contribution to practice, whilst also responding to the second research question. Part of the business model change that banks would have to undergo would require a fundamental change to their cost make up for profitability to remain within reach, otherwise the mechanistic observations of Phan, et al. (2020) could become the unfortunate reality for these institutions, instead of the decidedly more holistic observations of Wang et al. (2021) and Omarini (2018) where the evidence is that banks benefit from open banking. This aspect informs the new finding identified earlier in this paragraph and underpins the contribution to practice and knowledge. For this differentiation to become more widespread amongst the traditional banks, the research suggests that the traditional banks do require to become educated in the benefits of open banking and partnering with FinTech actors, with this finding presenting a new contribution opportunity to practice in relation to the second research question. A failure to fully understand the benefits of this process could unfortunately result in a strategic misalignment between where the bank finds itself historically, and where it needs to consider its future to be and what the resulting business model looks like, mirroring cautions issued by Bradley (2010) and Breese (2012). One of the key inputs to the re-assessment process would be an acceptance of what is now clearly a restatement of their long-held view that banks own customer data, as opposed to an understanding that their role is more that of a trusted custodian of said data.

The findings further reveal that the traditional banks have been a critical point of failure in the attempts by various parties including domestic central banks and governments in developing countries especially, to improve levels of financial inclusion, being a confirmation of the

literature (Navaretti et al., 2018). Various reasons may be advanced for this situation, including but not limited to the profit motive of banks, which generally cause them to exit catchment areas where branches operate in marginal or loss making circumstances. These circumstances would typically arise when bank branches would be located in lower income areas or lower footfall traffic zones, thereby limiting servicing opportunities and the ability to monetise their presence in that area. Furthermore the operational challenges that branches may face in outlying areas sometimes may cause unacceptably higher levels of risk to be faced in rendering services within acceptable performance parameters, prompting a withdrawal from that location. These are some of the operational or economic considerations that banks face when managing a portfolio of branches and a pressured bottom line, and dependent on the strategic plan, such costs and risk may well prove a continued presence in a given area to be unworthy of support, resulting in a loss of access to customers in that catchment area and the subsequent economic downturn and de-inclusion. Whilst some of the examples given may be understandable, sometimes traditional banks are the direct cause of financial inclusion woes due to them taking deliberate decisions against supporting lower income areas in favour of pursuing a more lucrative location with potentially higher yields (Pearce & Borgstein, 2018; Navaretti et al., 2018).

The bottom line of all of these considerations that traditional banks have to contend with, is that the research suggests that they ultimately carry responsibility for the lack of financial inclusion in many countries around the world, both developing and developed.

The findings also provide insight on the customer data ownership issue whereby the banks see themselves as the owners of this data, which is now proving to be a treasure trove in the era of big data and its value. Unfortunately for the traditional banks, it would appear that their attitude of ownership has generally not been exploited fully over the years to the general unhappiness and dis-benefit of their customer base, resulting in accusations being levelled against the banks for being unimaginative and lacking the innovation prowess to develop more relevant and needed products, thereby allowing a gap to develop which was now being filled by the FinTech actors, this finding informing the literature (Financial Stability Board, 2019). From the findings, part of the issue at play would be as a result of the general lack of agility in the traditional banks with long product development cycles as being the norm, coupled with a product-centric approach to product development instead of developing products that customers actually need, a finding that is new to the literature and responds to both research questions. The technological capability of the banks is another factor that inhibits their ability to innovate at the level of FinTech companies because their legacy core banking systems have challenges and work in certain ways which don't support the more modern requirements; this widespread threat of aging bank legacy systems could be an area for further research especially when considered against the latent concentrated systemic stability risk presented these banks occurring simultaneously across several countries (Corporate Finance Institute, 2022). This thesis does not have the scope to delve into this **critical** topic to do it any justice.

The literature shows that the regulatory approach followed across most jurisdictions places a considerable bind on the ability for traditional banks to conduct business in ways that may seem to be risky in certain respects, possibly introducing unacceptable levels of systemic risk, yet in other ways the regulations still allow for oversight gaps to be exploited by the banks which resulted in various historic negative financial system stability events, including the global financial crisis of 2008 (Zandamela, 2009). Whilst the findings confirm the literature that the regulators have shown their firm support for open banking and have promulgated regulations to enforce data sharing frameworks in support of this, it would appear that an aspect

of open banking which concerned the regulators is that fragmentation brought about through the effect of several FinTech entities occupying parts of the banking value chain, could possibly expose the financial system to several points of failure, which would be sub-optimal (Vives, 2017). As a result of the history of oversight failure with the global financial crisis of 2008 arguably being the most destructive in recent times, a more progressive regulatory approach to be encouraged would be the fostering of an alternative mindset, one that sees this development as being the democratisation of the banking value chain with more failure redundancy switch-over points built into it rather than a few massive points of failure represented by the systemically important financial institutions (SIFI) in a given market, a position presented in the findings which confirms the literature (Dombret, 2015; Magnuson, 2018). The regulation could therefore be shaped to encourage such an outcome through the collaborative efforts between the FinTechs themselves, as well as between them and the traditional banks, effectively de-risking the stability of the financial system in this manner. This argument which is based on an interpretation of the findings parallels Magnuson's (2018) discussion in the literature, especially regarding the concentration risks posed by the large traditional banks in any jurisdiction.

6.3 The FinTech Companies

Regarding the FinTech companies the findings show that these entities derive support for the evolution of open banking from the enthusiastic response received from the grateful ranks of customers enjoying the user experience that they provide through advanced digital innovation, through to the regulatory support enjoyed from the authorities, confirming the literature and responding to the first research question (Deloitte, 2014). The findings also present the position that the FinTech companies have taken to the task of providing services where the banks have failed to, effectively bringing financial inclusion and economic advancement to many areas in the developing world, positively impacting the GDP of catchment areas as well as that of countries. FinTechs have created new ecosystems that bring new value to banking value chains and have welcomed partnerships with the traditional banks, a finding which confirms the existing literature (Drasch, Schweizer, & Urbach, 2018) and contributes to practice.

However, the findings suggest that the FinTech community have also not always acted in a responsible manner with some actors abusing the goodwill that the movement has been able to garner, a position that informs the literature. Some spectacular failures and abuses have taken place in the more exotic FinTech area of cryptocurrencies and exchanges, which threatens the general industry's growth trajectory through the possible introduction of regulation to control this (Godoy & Reuters, 2021). Whilst regulation is an important consideration where public funds are involved, the heavy regulatory burden faced by the banking industry would not be a viable overlay onto the FinTech industry for several reasons, especially as these entities run off a light cost structure, relying on technology to effect processes. Regulatory oversight would arguably be best served from a RegTech perspective so as to use innovation to regulate in step with the advanced nature of the FinTech way, thereby allowing for better cost management whilst still achieving oversight (Vives, 2019). This finding contributes to practice from a regulatory standpoint.

From the findings, a suggested regulatory approach included the regulation of FinTech via the regulatory oversight already in place with the banking industry, rather than following a direct model. This presents a new aspect to the literature and contributes to practice. Dependant on how this would be structured there may well be unintended consequences to such a choice in that the banks could arbitrarily choose to simply shrug off what they could rationalise as being yet another unnecessary regulatory burden. This could have the additional unintended

consequence of giving the traditional banks the power to determine the fate of open banking through allowing it to slowly die off, defeating the objectives to foster competition in the industry, and further delaying the benefits that accrue to customers, as happened through financial exclusion; this finding informs the literature (Ramsden, 2018; Bradley, 2010).

It would therefore seem that some form of regulation, even if this took the basic form of a register of these entities with some level of fit and proper screening of the key executives of a FinTech, could be beneficial in ensuring that the industry maintains a basic form of accountability and credibility, which would assist in the building of trust amongst the customer base, especially as FinTech entities interact with the public in matters of finance, whether or not they have direct access to customer monies in their particular FinTech business model.

The findings suggest that FinTech companies have a significant role to play in advancing society on a path that brings financial advancement down to the level of the individual in a manner that has not been experienced before, in both developed and developing countries (Navaretti et al., 2018), with this finding informing the literature and illustrating a benefit from the perspective of the research questions. This requires that FinTechs understand the key role that they have started to play in society as well as the expectations placed on them at this early stage by their participating customers and the public as a whole. This development in fact suggests that a degree of trust has already been given to these actors by customers, requiring that the FinTech companies in turn keep lock-step with this great responsibility (Aitken et al., 2021). As a result of this, some form of light regulation would assist in bolstering the seriousness of the situation and may underscore the need for maturity to be instilled into the leadership teams of these entities, as opposed to the prime motivation for starting up a FinTech being the profit motive. A sobering thought for the founders of a FinTech to consider would be for them to debate the issue regarding the typical approach to longevity that the founders of a bank would take, all plans working out as forecasted and industry consolidations aside.

Whilst FinTech entities are usually privately held companies with the ability to decide their own fate and direction, cognisance needs to be taken by their leadership teams of their societal role and importance of their contribution to the stability of the financial sector as is the case with the traditional banks. All too often FinTech strategies seem to feature a build-operate-sell mentality which may harm the innovative thrust of the industry, especially when such sales take place to traditional banks. FinTech companies have a responsibility to their customers to maintain the innovative edge and ensure that competition continues in the industry, all plans and forecasts working out as expected, and in the absence of unavoidable consolidation. Several mega deals have taken place in the industry with some of the purchases of FinTech companies being concluded by traditional incumbents; some of these purchases have been blocked by anti-competition authorities as being deleterious to innovation and competition, for good reason (CNN Business, 2021).

The research aim of this study, was to address the recognised gap in the literature through a qualitative inductive approach study, by which the selected grounded theory method would lead to the emergence of the theory for this study. As shown, the findings do correlate and support the existing literature save for the findings of Phan et al. (2020) which seem not to take account of the deeper structural and strategic issues that are involved in the running of a banking business, issues which if taken into account, could well make a significant impact on the findings of their research, as demonstrated in the findings of Wang et al. (2021).

Based on the foregoing discussion of the findings, it is argued that the research objectives and the research questions have been satisfactorily met in this section. Through the researcher's interpretations of the findings from the analysed data, the emergence of theory becomes clearer. With the research objectives and research questions having thus been met, the grounded theory process moves forward, using this data on the research questions and the interpretations to discuss the emergence of theory.

7. Emergent Theory, Recommendations and Contributions

From the literature it is quite clear that traditional banks have felt the pressures of the open banking phenomenon upon them with some embracing this change, enjoying the benefits of having taken a decision to participate, yet it is also quite clear that possibly the bulk of banks have not been able to reach this level of acceptance, thereby opening themselves up to risk which could become perilously systemic, possibly negatively impacting the stability of a national banking system. It is for this reason that the issue requires the attention of all those that may be able to assist. In Mckeown's (2015) words these institutions may be showing a managerial thinking based response as opposed to a strategic thinking based response which could give rise to a deficient response being fashioned.

Whilst the regulatory supervision aspect of banking is not central to the aims or objectives of this research the role played by this body of actors is crucial to all parties due to the regulatory-heavy nature of the industry. This also provides the research with a more balanced view of the issues and provides a research outcome for the regulatory fraternity to consider as they attempt to keep in tandem with developments in open banking. In this regard, the implications of the findings for the regulators are in step with the literature. However, it is recommended that particular note should be taken of Zetzsche et al. (2017) as a balanced strategic discussion is laid out in this study which regulatory bodies should find illuminating in their consideration of a way forward in the consideration of the development of regulation for FinTech players.

A significant interpretation of the findings came to the nexus that many traditional banks may require a strategy, process or method by which they could evaluate their readiness, and become better educated on the benefits of participating in an accepting and embracing manner which could bring on a winning mindset that is critical for accepting the significant change to be undertaken in the redesign of the bank's business model.

Anand and Mantrala (2019) developed and proposed a conceptual model that was presented as being a "strategic response matrix" for traditional banks to use in determining their way forward in the open banking environment as the business was pressured to confront the situation and plot a response. The broad response options that were proposed in this matrix are arrived at after considering a raft of inputs which are all outward facing and consider the technological resources available to mount a response to a FinTech challenge, or what they refer to as a business model innovation disruption, that may be market centred or technology centred. The result of this process culminates with a choice of 5 possible responses for the incumbent to consider, being to either (1) hold their position in a business as usual pattern, (2) make, or build the innovation internally in order to respond to the business model innovation presented by the challenging FinTech, (3) to ally with the challenging FinTech by way of collaboration, (4) to buy the challenging FinTech and internalise it, or to (5) exit that segment of their business or market being challenged more effectively by a FinTech. Whilst the matrix proposed by Anand and Mantrala (2019) is considered useful in the process of mounting a response, it still does not cater for the critical aspects that an incumbent must undergo, which

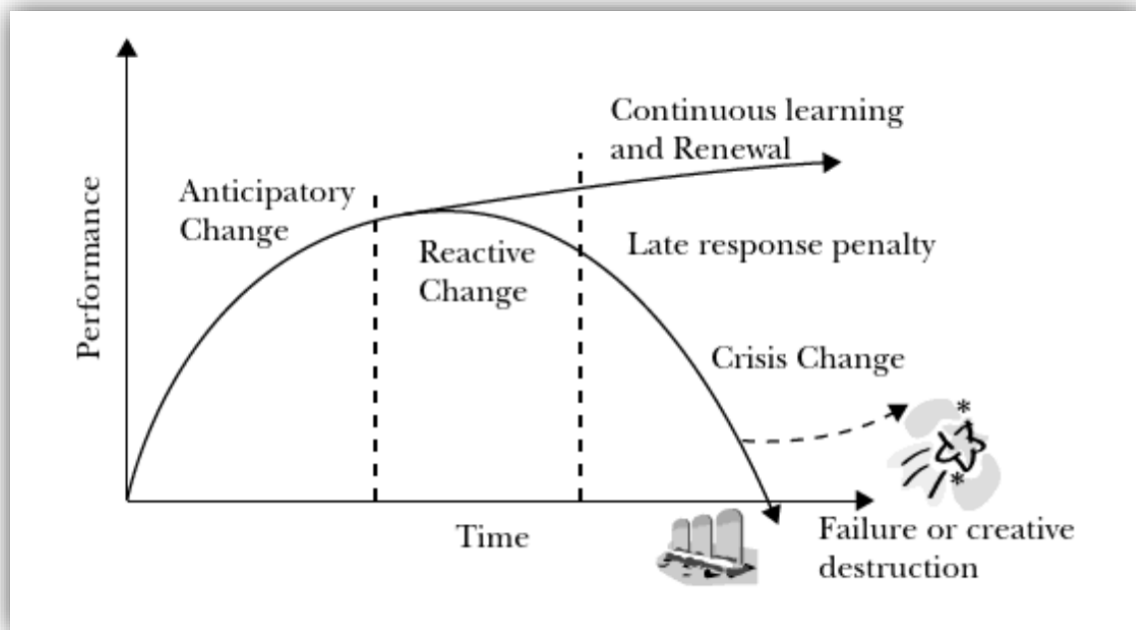
commences with a strategic review process to test for the strategic and change readiness of the institution to create a transformed organisation having developed a new business model for implementation, and to ensure an understanding of the benefits. This would bridge the performance issues raised by Phan et al. (2020) and follows the high level guidance of Botta et al. (2018).

To commence the journey to arrive at a transformed organisation, a traditional bank would need to embark upon an internal process of evaluation which would be developed with the aim of understanding readiness and adaptability of all stakeholders and to ensure a common understanding of the extent of the transformation and resultant business model. Kumar Basu (2015) discusses the role of change management in the transformation process of a business, with this being the process by which transformation is achieved. However, here we are referring to what is believed to be more than change management in that the business first needs to be educated on the reasons for the change, the opportunities that could lie ahead and how these need to be exploited, before the change management process gets underway. This process will assist in lifting the leadership team from the arena of managerial thinking into the required arena of strategic thinking, which will enable them to systematically prepare for the strategic thinking and change management processes to urgently remodel their business (Kotter, 2012; McKeown, 2015).

The strategic review process would form the first phase of a comprehensive integrated 3 phase approach developed by the researcher to guide the traditional banking institution through the seminal change that it needs to go through in preparation for a future based on a new business model which seeks to maximise on the extraction of the benefits of open banking to the institution (Bradley, 2010; Breese, 2012).

This integrated process would be critical in reaching and modifying the team's mindset around the transformation and the change issues before them (Lane & Maznevski, 2014; Nilakant, 2006). Dweck (2012) posits that a mindset is just a belief system that a person or group of people hold in their minds about something. Whilst being powerful beliefs, the individual is able to change their mind and this belief system. The proposed integrated strategic review process, which is spread across Phase 1 and Phase 2, is an intervention designed to employ mindset change tools which usher in the change that Dweck (2012) discusses as being the need to break and challenge an existing mindset and to learn and understand different perspectives to an issue. Lane & Maznevski (2014) suggest that a determination of the required change must take place prior to the change process commencing, which is captured in step 1 of *Figure 9*, and they emphasise the importance of the involvement of top management through the process, which adds the layer of sincerity that the employees would be looking for throughout the change process.

Figure 7: Strategic Change and Renewal Process



Adapted from: Lane & Maznevski (2014)

Figure 7 above illustrates the three different attitudes (or mindsets) that an organisation would potentially find itself in at the inflection point of change review and the then current performance of the entity, namely, anticipatory, reactive and crisis. Knowledge of the organisational location would also assist the transformation journey and its impetus. The preferred trajectory is for an organisation to realise the need to change in either the Anticipatory or the Reactive stage so as to be able to act with sufficient time and adjust. A late realisation of the need for renewal occurs when a crisis event is already upon the organisation, resulting in either a late response penalty if the crisis is salvageable, or a failure event.

7.1 Integrated Strategic Review Process

The leadership of the traditional bank would need to embrace the idea that the process that would be undertaken would require their direct participation so as to embed the urgency of the situation and the scale of the required transformation, which involves the entire organisation and shift its make-up from the current, to a new envisioned structure, and includes a robust change and transformation process (Kotter, 2012).

Phase 1 Review

1. The first step would start with a process to educate the incumbent at a deep and factual level on the *nature* of open banking as a concept, accepting that up to this point it is most probable that there have been assumptions built on the negative emotions driven by the resistance to being forced, through regulation, to share data which the bank views as its own, amongst other issues.
2. The next step would include the reasons behind the driving force, such as the changing consumer demand for independent advanced digital products that meet their actual needs as well as the desire by regulators to mitigate the concentration risks, to increase competition and to increase the rate of innovation which could accelerate financial inclusion.
3. The following step would involve an internally focused review of the strategic readiness of the leadership team to embark upon the change to develop the new business model. Should

a gap be identified at this stage, this would need to be addressed conclusively as hard decisions may need to be taken in the creation of the new business model.

4. The design of the business model would take place at this point, with the earlier learnings on open banking being kept central to the process. With the leadership team being alive to change resistance, a key deliverable must be a deeply reduced cost structure.

The above process is developed into a model which is presented in section 7.3 below.

A professionally constructed change management process would then be developed as phase 2 of the integrated strategic review process as briefly stated below, which would be in keeping with Breese, Jenner, Serra & Thorp (2015). The outputs of phase 1 would feed into the phase 2 review.

Phase 2 Review

The phase 2 review would be comprised of two components as follows:

1. An organisational development culture assessment intervention which would pursue the current state of the leadership at an individual level as well as at a team level using the appropriate tools. The outcome of the assessment would contribute to the development of a programme to take the individuals and the team through to a state of readiness for the achievement of the desired commitment to the future state culture. This would be crucial to ensure leadership buy-in to cascade the transformation across the organisation.
2. Following on the culture assessment of the leadership individuals and team, a robust change management model would be implemented; this would be a significant, specialised programme which would address the key organisational development needs to prepare for the transformational change to the future state ensuring buy-in at all levels.

Various change and transformation models could be considered as a basis to support the phase 2 change management process, however, a comprehensive 8 step process for leading change was developed by Kotter (2012) which would be recommended as a comprehensive method to guide the process for a traditional bank.

The phase 2 review process would itself be a significant intervention which would exceed the scope of this research in order to cater for the required detail, therefore the high-level outline summarised above will suffice as a guide.

The preferred case scenario would be for a bank to go through the Phase 1 and Phase 2 reviews successfully with the result that a new business model is developed and the bank charts a new path, positively concluding their transformation journey at this point.

Phase 3 Review

Should the phase 1 and phase 2 review sessions prove to be inconclusive and unsuccessful, with minimal buy-in from the leadership team, or end in failure for whatever reason, it would then be necessary for the team to go through the strategic response matrix as proposed by Anand and Mantrala (2019), which would be the final, hard discussion for the leadership team to conclude on as this matrix does not seem to suggest or require the incumbent to go through a process to build a new business model. The challenge with this approach is that the incumbent would not have understood the potential benefits that a new business model adds to the business. The model tends to approach the issue from the threat perspective and not from the opportunity perspective, as can be seen in *Figure 8* below. This suggests more of a managerial thinking mindset when approaching the development of this model, which was designed to be

a strategic response model, yet this does not seem to take into account the real strategic inputs that would precede reaching a crucial decision and response of this nature, for a traditional bank to make (McKeown, 2015).

Figure 8: Strategic Response Matrix

		Perceived level of Fintech entrant's technology-centered business model innovation (BMI) threat	
		Low	High
Perceived level of Fintech entrant's market-centered business model innovation (BMI) threat	Low	1: HOLD	3: ALLY
	High	2: MAKE	4: BUY or EXIT

Adapted from: Responding to disruptive business model innovations: the case of traditional banks facing fintech entrants, Anand and Mantrala (2019).

This would conclude the proposed integrated strategic review process that a traditional bank would follow to effectively ensure preparedness for participation in open banking whilst maintaining stability across the organisation as a new business model is fashioned and cascaded across the company on successful completion of the Phase 2 Review.

7.2. Contribution to Knowledge: Emergent Theory

As the contribution to knowledge from a theoretical perspective, **the emergent theory generated** from the grounded theory research findings, based on the themes drawn from the study, this is posited as follows:

Traditional banking business models do not appear to be sustainable in their current form as customers expect independent innovative products, providing a convenient and advanced mobile user experience. For banks to deliver on this expectation, collaboration through open banking provides benefits to banks and customers alike through a supported regulatory framework.

A further contribution to knowledge is made through the development of the Strategic Transformation Model discussed in detail below. This model is illustrated by *Figure 9* being the Phase 1 Review Model for the **inputs** side of the strategic intervention, and *Figure 10* being the Phase 1 Review Model for the **outputs** side of the strategic intervention, the detail of which was discussed under the Integrated Strategic Review Process heading in the section above.

7.3 Contribution to Practice

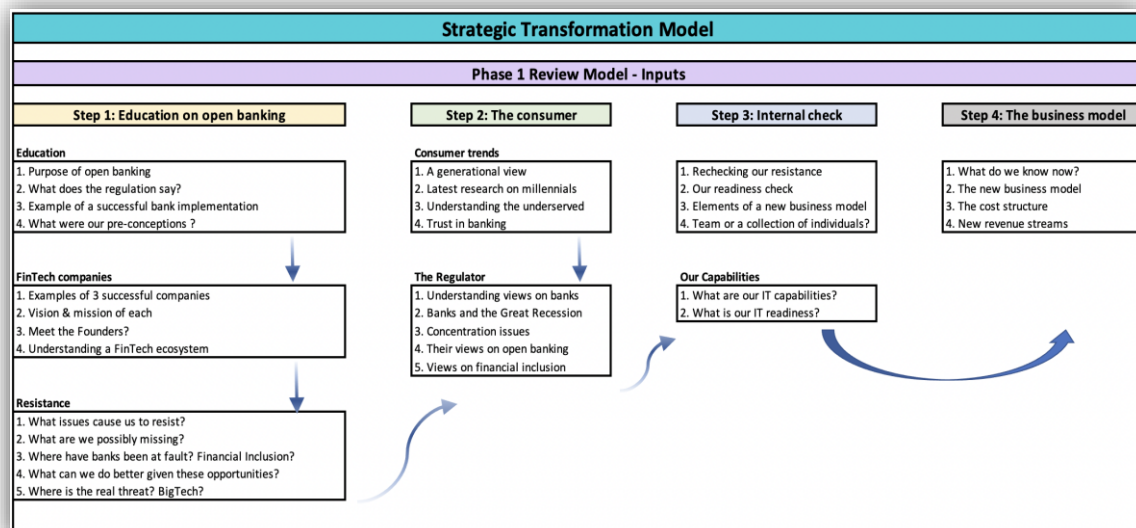
Traditional Banks

This is comprised of an Integrated Strategic Review Process made up of 3 phases to capture a structured approach proposed for a traditional bank to follow when commencing upon the journey to evaluate the open banking opportunity and eventually arrive at a response. The response would be developed after having methodically considered the various aspects which

may require attention. For those institutions seeking a structured guide to improve their chances of considering the various aspects in a more logical manner, the model proposed below may be of some value. *Figure 9* below provides a view of the first part of the proposed model, the Strategic Transformation Model which forms phase 1 of the Integrated Strategic Review Process described in 7.1 above. Using *Figure 9* as a guide, the top leadership of the bank are taken through an in-depth 4 step process to interrogate various dimensions of their present frame of mind and understanding of open banking, with an emphasis on their education and enlightenment of the phenomenon. Upon completion of this input stage, the top leadership team is then to self-assess and plot where they would locate themselves as a team on the grid given in *Figure 10*, which would then capture the output of the work conducted during the input section.

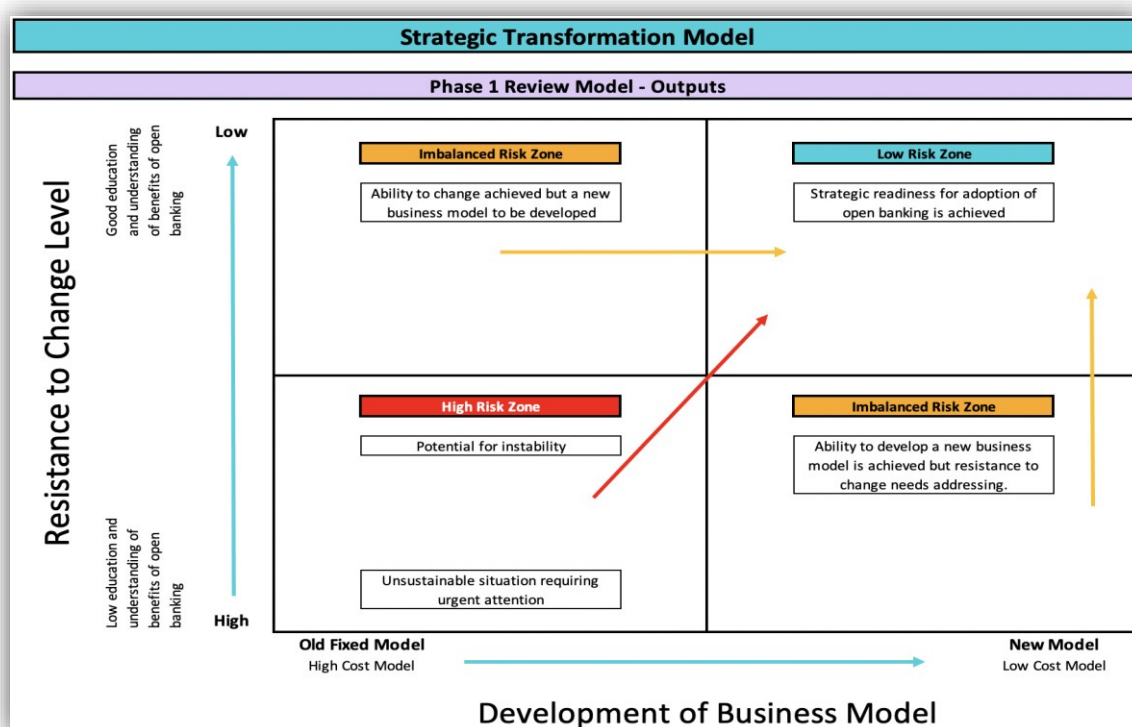
Figure 10 presents most of the possible outcomes of the education and subsequent evaluation process. The top leadership team would then attempt to locate their state of readiness and the state of the organisation, with the target quadrant being the top right hand quadrant.

Figure 9: Phase 1 Review Model - inputs (sessions)



Source: © Zandamela, 2021

Figure 10: Phase 1 Review Model - outputs (quadrant)



Source: © Zandamela, 2021

On completion of this phase, the top leadership structure of the bank, usually the executive committee, should be in a stronger position to then proceed with the Phase 2 Review, which formally activates the change management process.

FinTech Companies

For the FinTech companies the contribution to practice is along the following lines:

1. The FinTech teams are encouraged to adopt a non-threatening and collaborative use of language towards the traditional banking industry, even where they have developed a product that clearly competes with those of the banks. Therefore, it would be well advised that the language adopted speaks to the facts as opposed to being derogatory towards the products of the banks, as far as possible.
2. Whilst these are private companies taking up an identified opportunity in the banking and financial services market, FinTechs would be well advised to understand the importance of their role and contribution to the continued stability of the financial system in which they operate. It is expected that this would eventually have the positive outcome of lowering their general risk profile in the eyes of the traditional banks and the regulators.
3. It is recommended that FinTechs seek out opportunities to self-regulate as this would demonstrate a level of maturity and responsibility which the regulators would notice and appreciate.

Regulatory Supervision

A further contribution to practice in the regulatory management space would be for the regulators to consider the development of regulation to maintain oversight over the FinTech industry, as narrowly defined in this study, that is those companies specifically involved in open banking activities in partnership with traditional banks, along the following lines:

1. A process for the registration of these specific FinTech entities with a focus on ensuring that these entities understand their duties and responsibilities towards the maintenance of the stability of the banking system of that country. This is considered key as most FinTech executives have no prior senior banking experience, exposure to regulators or knowledge of banking legislation.
2. A process to test the fit and proper credentials of the leadership team or “prescribed officers” of these FinTech entities, in a manner which is not dissimilar to the process which key bank executives in most countries are subjected to. Allowances need to be made for the diversity of talent in this industry as not all key individuals would be bankers, however but the purpose here is for the regulator to be aware of the key executives.
3. For the regulators to consider a modality of effectively regulating the FinTech companies through monitoring the banks themselves. This would be best achieved in a way that does not increase the regulatory burden on the banks. The reason for this is to protect the innovation that is advancing the financial sector in ways which may otherwise be stifled by increased regulation on either the banks or the FinTech companies.
4. For the regulators to consider the development of a standardised innovative SupTech or RegTech approach to *light* FinTech supervision, if they found themselves having no option but to impose some form of direct supervision of FinTech companies.

5. Conclusion

The grounded theory research study undertaken into the benefits of open banking has resulted in contributions to theory and practice but has also resulted in the understanding that a considerable amount of further research is required in this area as several possible topics for study have been touched upon which would go a considerable way to adding to the body of literature.

This paper also presented research findings that inform the regulatory space in the banking industry centred around open banking with recommendations and contributions to practice being discussed and presented.

References

- Acar, O., Çıtak, Y. E. (2019). Fintech Integration Process Suggestion for Banks. *Procedia Computer Science Journal*, Volume 158, Pages 971-978. Retrieved from <https://doi.org/10.1016/j.procs.2019.09.138>.
- Aitken, M., Ng, M., Horsfall, D., Coopamootoo, K.P.L., van Moorsel, A., Elliott, K. (2021). In pursuit of socially-minded data-intensive innovation in banking: A focus group study of public expectations of digital innovation in banking. *Technology in Society International Journal*, Volume 66. Retrieved from <https://doi.org/10.1016/j.techsoc.2021.101666>.

Anand, D., & Mantrala, M. (2019). Responding to disruptive business model innovations: the case of traditional banks facing fintech entrants. *Journal of Banking and Financial Technology*. Retrieved from <https://doi.org/10.1007/s42786-018-00004-4>

Bank for International Settlements. (2021). About BIS – Overview. Bank for International Settlements. Retrieved from <https://www.bis.org/about/index.htm>

Bank for International Settlements - Basel Committee on Banking Supervision. (2019). Report on Open Banking and Application Programming Interfaces. Bank for International Settlements. Retrieved from <https://www.bis.org/bcbs/publ/d486.pdf>

Birks, M., & Mills, J. (2015). *Grounded Theory: A Practical Guide*. (Second edition.). London: SAGE.

Boot, A.W.A. (2017). The Future of Banking: From Scale & Scope Economies to Fintech. *European Economy, Banks, Regulation and the Real Sector - Fintech and Banking*. Friends or Foes? Retrieved from <https://european-economy.eu/2017-2/the-future-of-banking-from-scale-scope-economies-to-fintech/>

Botta, A., Ulissi, T.J., Sasia, E., Digiacomo, N., Höll R., Jain, R., Oakes, L. (2018). PSD2: Taking advantage of open- banking disruption. *McKinsey*. Retrieved from <https://www.mckinsey.com/industries/financial-services/our-insights/psd2-taking-advantage-of-open-banking-disruption>

Bradley, G. (2010). *Benefit realisation management, a practical guide to achieving benefits through change*. (2nd ed.). Gower Publishing.

Breese, R. (2012). Benefits realisation management: panacea or false dawn? *International Journal of Project Management*, 30 (3), 341-351. Retrieved from <https://doi.org/10.1016/j.ijproman.2011.08.007>,

Breese, R., Jenner, S., Serra, C.E.M., and Thorp, J. (2015). Benefits management : lost or found in translation. *International Journal of Project Management*, 33 (7), 1438-1451. Retrieved from <https://doi.org/10.1016/j.ijproman.2015.06.004>

Brodmann, J., Rayfield, B., Hassan, M. K., & Thu Mai, A. (2018). Banking characteristics of millennials. *Journal of Economic Cooperation and Development*, Pages 43 to 73.

Carney, M. (2017). The Promise of FinTech – Something New Under the Sun?, *Bank of England. Deutsche Bundesbank G20 conference on “Digitising finance, financial inclusion and financial literacy”*, Wiesbaden. Retrieved from <https://www.bankofengland.co.uk/speech/2017/the-promise-of-fintech-something-new-under-the-sun>

Cassell, C., & Symon, G. (2004). *Essential Guide to Qualitative Methods in Organizational Research*. London: SAGE.

Charmaz, K. (2014). *Constructing grounded theory* (2nd edition.). SAGE.

Chatzara, V. (2020). FinTech, InsurTech, and the Regulators. In: Marano P., Noussia K. (eds.) *InsurTech: A Legal and Regulatory View. AIDA Europe Research Series on Insurance Law and Regulation, vol 1*. Springer, Cham. Retrieved from https://doi.org/10.1007/978-3-030-27386-6_1

Chee, F.Y. (2020). EU bets on industrial data, new rules to catch up in global tech. *Reuters Brussels*, Retrieved from https://www.reuters.com/article/us-eu-tech/eu-bets-on-industrial-data-new-rules-to-catch-up-in-global-tech-idUSKBN20D00V?feedType=RSS&feedName=technologyNews&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+reuters%2FtechnologyNews+%28Reuters+Technology+News%29

Claessens, S., Frost, J., Turner, G., Zhu, F. (2018). Fintech credit markets around the world: size, drivers and policy issues. *Bank for International Settlements Quarterly Review*. Retrieved from https://www.bis.org/publ/qtrpdf/r_qt1809e.pdf

CNN Business. (2021). Visa and Plaid scrap \$5.3 billion merger agreement. New York, *Cable News Network*. A Warner Media Company. Retrieved from <https://edition.cnn.com/2021/01/12/business/visa-plaid-terminate-merger/index.html>

Corporate Finance Institute. (2022). What is Systemic Risk? Retrieved from <https://corporatefinanceinstitute.com/resources/knowledge/finance/what-is-systemic-risk/>

Creswell, J. (2014). *Research Design*. (Fourth Edition). London: SAGE

Deloitte. (2014). Banking Disrupted: How technology is threatening the traditional European retail banking model. *Deloitte LLP*, London, United Kingdom. Retrieved from <https://www2.deloitte.com/uk/en/pages/financial-services/articles/banking-disrupted.html>

Deloitte. (2016). PSD2 – Payment Services Directive 2: What is new? Retrieved from https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/financial-services/Banking/lu_psd2-payment-services-directive2.pdf

Dombret, A. (2015). Banks – Allowing Them to Fail. Member of the Executive Board of the Deutsche Bundesbank, at the Euromoney Conference. Bank for International Settlements, *Euromoney Conference on Germany*, Berlin. Retrieved from <https://www.bis.org/review/r150519h.pdf>

Drasch, B. J., Schweizer, A., & Urbach, N. (2018). Integrating the ‘Troublemakers’: A taxonomy for cooperation between banks and fintechs. *Journal of Economics and Business*, 100, 26–42. Retrieved from <https://doi.org/10.1016/j.jeconbus.2018.04.002>

Dweck, C. (2012). *Mindset*. Robinson.

Eickhoff, M., Muntermann, J., & Weinrich, T. (2018). What do FinTechs actually do? A Taxonomy of FinTech Business Models. In *ICIS 2017: Transforming Society with Digital Innovation. Association for Information Systems*. Retrieved from https://www.researchgate.net/publication/320215812_What_do_FinTechs_actually_do_A_Taxonomy_of_FinTech_Business_Models/references#fullTextFileContent

European Commission. (2022). What is the Payment Services Directive 2? Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/qanda_19_5555

Financial Stability Board. (2019). FinTech and market structure in financial services: Market developments and potential financial stability implications, Basel, Switzerland Retrieved from <https://www.fsb.org/wp-content/uploads/P140219.pdf>

Fратиани, M. (2006). Central Bank Cooperation at the Bank for International Settlements, 1930 1973. By Gianni Toniolo with the assistance of Piet Clement., New York: Cambridge University Press, *The Journal of Economic History*, p.268 – 270. Retrieved from https://www.researchgate.net/publication/4855759_Central_Bank_Cooperation_at_the_Bank_for_International_Settlements_1930_1973_By_Gianni_Toniolo_with_the_assistance_of_Piet_Clement_New_York_Cambridge_University_Press_2005_Pp_xxii_729_125

G20 Global Partnership for Financial Inclusion. (2017). Digital Financial Inclusion: Emerging Policy Approaches, *World Bank Group*. Retrieved from <https://www.gpfi.org/sites/gpfi/files/documents/Digital%20Financial%20Inclusion-CompleteReport-Final-A4.pdf>

Gallup Incorporated. (2016). How Millennials Want to Work and Live. Retrieved from <https://www.gallup.com/workplace/238073/millennials-work-live.aspx>

Glaser, B.G, & Strauss, A.L. (1999). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. In *The Discovery of Grounded Theory* (1st ed.). Routledge. Retrieved from <https://doi.org/10.4324/9780203793206>

Godoy, J., & Reuters. (2021). Calif. fintech, founders settle SEC crypto fraud claims. Reuters. *Thomson Reuters*. Retrieved from <https://www.reuters.com/legal/transactional/calif-fintech-founders-settle-sec-crypto-fraud-claims-2021-08-04/>

Goldstein, I., Jiang, W., & Karolyi, G. A. (2019). To FinTech and beyond. *Review of Financial Studies*. Oxford University Press. Retrieved from <https://doi.org/10.1093/rfs/hhz025>

Goulding, C. (2002). *Grounded theory a practical guide for management, business and market researchers*. Sage.

Herwartz, H., Walle, Y.M. (2014). Openness and the finance-growth nexus, *Journal of Banking & Finance*, Volume 48, Pages 235-247. Retrieved from <https://doi.org/10.1016/j.jbankfin.2014.06.031>.

Hill, J. (2018). FinTech and the Remaking of Financial Institutions, *Academic Press*, Retrieved from <https://doi.org/10.1016/B978-0-12-813497-9.00015-9>.

International Monetary Fund. (2019). FinTech in Sub-Saharan African Countries : A Game Changer? The African Department, International Monetary Fund, Washington DC. Retrieved from <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2019/02/13/FinTech-in-Sub-Saharan-African-Countries-A-Game-Changer-46376>

Intergovernmental FinTech Working Group. (2019). FinTech Scoping in South Africa. IFWG members: (South African Reserve Bank, Financial Intelligence Centre, Financial Sector Conduct Authority, National Treasury, National Credit Regulator, and South African Revenue Service), The World Bank Group, The Swiss State Secretariat for Economic Affairs (SECO). Retrieved from https://www.mashead.co.za/wp-content/uploads/2020/01/2020_02_04_Fintech-Scoping-in-South-Africa.pdf

Intergovernmental FinTech Working Group. (2022). Regulatory Sandbox FAQs. Retrieved from https://www.ifwg.co.za/IFWG%20Documents/Regulatory_Sandbox_FAQs.pdf

Jagtiani, J. and Lemieux, C. (2018). Do fintech lenders penetrate areas that are underserved by traditional banks?, *Journal of Economics and Business*, Volume 100, Pages 43-54. Retrieved from <https://doi.org/10.1016/j.jeconbus.2018.03.001>.

Jajah, Y.I., Anarfo, E.B., Aveh, F.K. (2020). Financial inclusion and bank profitability in Sub-Saharan Africa. *Int J Fin Econ*. 2020; 1– 13. Retrieved from <https://doi-org.hallam.idm.oclc.org/10.1002/ijfe.2135>

Knell, M., & Stix, H. (2015). Trust in Banks during Normal and Crisis Times-Evidence from Survey Data. *Economica (London)*, 82(s1), 995–1020. Retrieved from <https://doi.org/10.1111/ecca.12162>

Kotter, J. P. (2012). *Leading Change*. Harvard Business School Press.

Kumar Basu, K. (2015). The Leader's Role in Managing Change: Five Cases of Technology-Enabled Business Transformation. *J. Org. Excell.*, 34: 28-42. Retrieved from <https://doi.org/10.1002/joe.21602>

Lane, H.W., Maznevski, M.L. (2012). *International management behavior: global and sustainable leadership* (Seventh edition.). Wiley.

Lee, I., Shin, Y.J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, Volume 61, Issue 1, Pages 35-46. Retrieved from <https://doi.org/10.1016/j.bushor.2017.09.003>.

Martin, V.B., & Gynnild, A. (Eds.) (2012). *Grounded theory; the philosophy, method, and work of Barney Glaser*. Brown Walker Press, Boca Raton.

- Magnuson, W. (2018). Regulating Fintech. *Vanderbilt Law Review*, 71(4), 1167–1226. Retrieved from <http://search.proquest.com/docview/2060911888/>
- Maume, P. (2017). In Uncharted Territory—Banking Supervision Meets Fintech. *Corp Finance*, 272, 373–388. Retrieved from SSRN: <https://ssrn.com/abstract=3051837>
- McAuley, J. (2014). *Organization theory challenges and perspectives* (Second edition). Harlow: Pearson. Pages 34-35.
- McFeely, S., & O’Boyle, E. (2018), 4 More Ways Banks Can Win and Keep Millennial Customers. Advanced Analytics, Gallup Incorporated. Retrieved from <https://www.gallup.com/analytics/237695/ways-banks-win-keep-millennial-customers.aspx>
- Mckeown, M., (2015). *The Strategy Book. 2nd Edition*. FT Publishing International.
- Navaretti, G.B, Calzolari, G., & Pozollo, A.F. (2018). FinTech and Banking. Friends or Foes? *European Economy, Banks, Regulation and the Real Sector – SSRN Electronic Journal* pp. 121–142. Retrieved from https://blog.iese.edu/xvives/files/2018/02/EE_2.2017.pdf
- Nilakant, V. (2006). *Change management: altering mindsets in a global context*. Sage
- Omarini, A. (2018). ‘Banks and Fintechs: How to Develop a Digital Open Banking Approach for the Bank’s Future’. *International Business Research*, 11(9), p. 23. Retrieved from <https://doi.org/10.5539/ibr.v11n9p23>
- Ozili, P.K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, Volume 18, Issue 4, Pages 329-340. Retrieved from <https://doi.org/10.1016/j.bir.2017.12.003>.
- Pearce, B., Borgstein, C. (2018). Measuring Progress: Financial inclusion in SADC 2018. UNCDF FinMark Trust. Retrieved from https://finmark.org.za/system/documents/files/000/000/184/original/ME_Report.18.pdf?1601965010
- Phan, D.H.B, Narayan, P.K., Rahman, R.E., & Hutabarat, A.R. (2020). Do financial technology firms influence bank performance? *Pacific Basin Finance Journal*, 62. Retrieved from <https://doi.org/10.1016/j.pacfin.2019.101210>
- PYMNTS.com. (2020). The Building A Better App: Banks And The Innovation Imperative Report. Retrieved from <https://www.pymnts.com/wp-content/uploads/2020/02/Building-a-Better-App-Report-Feb.-2020.pdf>
- Ramsden, D. (2018). The Bank of England – Open to Fintech. Bank of England. Retrieved from <https://www.bankofengland.co.uk/speech/2018/dave-ramsdens-speech-hmts-international-fintech-conference>

Restoy, F. (2020). Regulating fintech: what is going on, and where are the challenges? European Money and Finance Forum, SUERF Policy Note, Issue No 134. Bank for International Settlements. Retrieved from <https://www.suerf.org/policynotes/10355/regulating-fintech-what-is-going-on-and-where-are-the-challenges#f1>

Unidays. (2019). Gen Z Insights. Retrieved from <https://cdn2.hubspot.net/hubfs/4000540/content-reports/reports-pdf-versions/UNiDAYS-Zs-and-Money-What-You-Need-to-Know-UK-Report.pdf>

Vives, X. (2017). The Impact of FinTech on Banking. *European Economy, Banks, Regulation and the Real Sector – SSRN Electronic Journal* pp. 97. Retrieved from <https://european-economy.eu/2017-2/the-impact-of-fintech-on-banking/>

Vives, X. (2019). Competition and stability in modern banking: A post-crisis perspective. *International Journal of Industrial Organization, Volume 64*, Pages 55-69. Retrieved from <https://doi.org/10.1016/j.ijindorg.2018.08.011>.

Wang, Y., Xiuping, S., & Zhang, Q. (2021). Can fintech improve the efficiency of commercial banks? An analysis based on big data. *Research in International Business and Finance*, 55. Retrieved from <https://doi.org/10.1016/j.ribaf.2020.101338>

Williams, S., Nelson, B. (2015). Millennial Banking Customers: Two Myths, One Fact. Business Journal, Gallup Incorporated. Retrieved from <https://news.gallup.com/businessjournal/187364/millennial-banking-customers-two-myths-one-fact.aspx>

Yin, H. (2020). The Impact of Fintech on Systemic Financial Risk - Empirical Research Based on Time Series Data. *10th International Economics, Management and Education Technology Conference (IEMETC 2020)*. Retrieved from <https://www.clausiuspress.com/conferences/AETP/IEMETC%202020/IEMETC2020003.pdf>

Yip, A.W.H., Bocken, N.M.P. (2018). Sustainable business model archetypes for the banking industry, *Journal of Cleaner Production, Volume 174*, Pages 150-169. Retrieved from <https://doi.org/10.1016/j.jclepro.2017.10.190>.

Zandamela, D.H. (2009). *Investigating the Global Financial Markets turmoil and banking crisis of 2008 and the strategic management implications for First National Bank of Botswana Limited*. Dissertation for Master of Science in Strategic Management. University of Derby.

Zandamela, D.H. (2021). *The Benefits of Open Banking to Consumers, Banks and FinTech Companies*, Doctoral Thesis, Sheffield Hallam University, <https://doi.org/10.7190/shu-thesis-00441>

Zetzsche, D., Buckley, R., Arner, D., Barberis, J. (2017). From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance, *New York University Journal of Law and Business*. Forthcoming, European Banking Institute Working Paper Series 2017 - No. 6. University of Hong Kong Faculty of Law Research Paper No. 2017/007, University of Luxembourg Law Working Paper No. 2017-001. Retrieved from <http://dx.doi.org/10.2139/ssrn.2959925>