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# Technological Change Within the Irish Banking Industry: An Investigation into Generational Effects upon the Future of Banking in Ireland

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7-20-2021

## Abstract

As technology continues to develop, more emphasis must be put on innovation within the Irish banking industry in order to prevent the take over of technologically driven challenger banks. The difference between generational adoption of technology may also contribute to the decline of use of traditional institutions as they the younger generations look for sophisticated, convenient, and cheap ways to bank. This rise in challenger banks is affecting the Irish banking industry as the traditional institutions struggle to innovate quick enough. This research uses a mixed methods approach in which a survey is used to determine differences in attitudes towards technology adoption between generations and interviews with industry leading professionals are conducted. Contrary to the supporting literature there is no conclusive evidence to suggest that there is a significant difference in technology adoption that would affect the rise of challenger banks. The qualitative data gathered allows for the conclusion to be made that challenger banks have a huge impact on the Irish banking industry today and will continue to stay prevalent in Ireland as they drive competitive advantage within the Irish Banking Industry and ensure constant innovation now and in the future.

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## Section A

### Introduction

This research aims to determine the likelihood and feasibility of challenger banks dominating the Irish banking industry with a focus on generational adoption of technology and how this will shape the industry. This lends to the question of "*How are financial technologies affecting the banking industry in Ireland?*" hypothesising that with the younger population (Generation Z) beginning to use banking services, they will drive the growth of challenger banks, potentially taking over traditional banks. This hypothesis stems from literature that states that age has a negative effect on technology adoption (Harris et al., 2016) meaning that the older population are less likely to adopt technology and use it. The research aims to further explore this idea with methodology following a mixed methods approach. This will use elements of both quantitative and qualitative research to answer the research question and prove the hypotheses. The research will use surveys to examine the generational differences between attitudes towards technology adoption making use of the Technology Acceptance Model and the Unified Theory of Acceptance Model, two very prevalent frameworks in technology adoption literature. The research will also use interviews conducted with professionals with extensive experience working within the Irish banking industry to gain insight into the approach of traditional banks towards technology and new challenger banks who have disrupted the market. Overall, this research aims to examine the challenges faced by the Irish Banking Industry today brought on by disruptive challenger banks and innovative new technologies as well as provide insight into generational technology adoption and how that will affect the Irish Banking Industry in the future.

## Section B

### Review of Literature

This section looks to discuss the literature that will support this research and drive the research question and objectives. This literature will introduce the topic as well as providing a strong ground on which this research project will develop and expand the idea that the Irish banking industry is changing rapidly due to the introduction of technology and new banking systems.

#### Financial Technologies and the Banking Industry

The evolution of fintech is said to have begun in the 90s with internet enabled e-commerce taking the internet by storm (Buchi *et al.*,2019). Since then, there has been a major shift to consumerization with mobile channels, cloud-based solutions and big data analytics resulting in user centred life solutions with customer centricity becoming a major priority for organisations around the globe (Buchi et al.,2019; Nicolletti,2017). The rise of technology in the banking industry has resulted in many traditional banks falling behind as fintechs have risen with new and innovative business models centred around personalization, simplicity and customer experience seeking to expand financial services to those poorly served by the banking system (Buchi *et al.*,2019;Erel and Liebersohn, 2020; Nicolletti, 2017).A Challenger Bank can be defined as a financial technology which is also a chartered financial institution with the intention of competing for business with large, long established banks (Bradford,2020). The rise of Challenger Banks can be attributed mainly to the financial crash in 2008 which opened the retail banking market due to government reforms within the sector and the loss of trust in traditional banking methods (Okeke,2019). Such government reforms relaxed the barriers into the retail banking sector as they aimed to introduce competition into the market making way for these mobile only, branchless banks (Okeke,2019).

These challenger banks are generally more innovative and relatively small compared to traditional banks which appeal to specific consumers such as tech savvy students and small business owners with a focus on new market clients who have not yet been served by traditional banks (Минарченко and Сайко,2018). They use unique, niche and personalized services in order to avail of lower costs and better-quality services which are slowly reshaping the financial industry as we know it today (Lee and Shin,2018). In today's world, where technology is prevalent in everyday life, the survival of all organisations depends on the quality of service provided and the banking industry is no different with new technologies possessing the power to transform markets and disrupt established players (Kelly,2014; Resmi,2018). Nicolletti (2017, p.89) state that “as customers continue to integrate digital experiences into their lives, they expect these experiences, as well as their relationship with financial institutions, to become more direct, simple, seamless, and effective”, broadly meaning that if traditional financial institutions do not invest and apply the capabilities of new technology into their customer experience, they will struggle to keep the market share they currently hold. This statement provides the basis for this research as the move towards technology and innovation directly correlates with the technological revolution and constant innovation of products, services and customer experiences every single day (Buchi *et al*, 2019; Lee and Shin, 2018; Nicolletti, 2017)

In Ireland, the main legacy banks today are Allied Irish Banks (AIB), Bank of Ireland (BOI), Ulster Bank, and EBS (Corporate Finance Institute, 2021), with the most prevalent challenger bank being Revolut with 1.2 million Irish customers today (Curran, 2021). Up until recent years, there has been little competition for these legacy banks however with the rise of Revolut they are being forced to innovate and hit back. Their first attempt to do this is with the new payment's app Synch with which AIB, BOI, KBC and Permanent TSB have teamed up in a bid to “stem the loss of customers to digital disruptors such as Revolut” (Curran, 2021). As previously mentioned, the financial crash had a major impact on customers approach to traditional banks as their loss of trust has allowed new disruptors

into the market. The financial crash also had a major psychological effect on the population, mainly Generation Z who grew up through the crash witnessing their parent's financial hardship, ultimately leading them to become cautious of overspending, making them the perfect growth market for these Challenger Banks (Du and Milligan, 2019). In the coming years, traditional institutions will be required to innovate and invest in technology in order to stay relevant maintain their customer base.

### Approach of Traditional Banks

In recent years, traditional banks have begun to take these challenger banks seriously as their market share grows choosing to either work with them or compete with them (Bradford,2020). Whilst traditional banks use fintech for some services, challenger banks use them as a cornerstone to their business giving them a competitive edge (Okeke, 2019). There are many challenges that face traditional banks today as they aim to compete with their more innovative, customer centric counterparts such as their rigid business models which are designed for old style markets and are simply not equipped for the market today (Nicolletti,2017). The disruptors have a competitive advantage as the legacy banks have technical debt due to the development of their technology systems generating future costs as a result of constant upgrades whereas the fintech companies have access to the most up to date technology from the beginning giving them a cost advantage (Kelly,2014; Nicolletti,2017).

Nicolletti (2017) state that in order to compete, traditional institutions must consider more openness to change, and they must pay attention to new developments brought by these new disruptive organisations. There are a number of ways traditional institutions can compete within this new market and stay relevant. They can go into partnership with these challenger banks by direct-to-bank integration allowing them to use their services which also leads the challenger banks customers' to becoming customers of the traditional bank (Bradford,2020). This strategy benefits both the traditional and challenging institutions as it enables the legacy bank to retain its customers and innovate whilst providing the fintech with availability of funds and a wider customer base (Bradford,2020; Nicolletti,2017). Traditional banks can also choose to compete with these challengers by creating their own much like Goldman Sachs have. Goldman Sachs have created 'Marcus' which is a no fee personal loan service issued by them to in an attempt to compete (Bradford,2020).

It can be said that in order to capture the future market, these banks must innovate to keep up (Tan and Lau,2016), however, it is not all straight forward for fintech companies as they may struggle to keep up with the constantly changing regulations and laws as they strive to gain banking licenses and compete in the market (Nicolletti,2017). Additionally, challenger banks may find it hard to compete with the economies of scale and financial resources of traditional banks if they do not seek to collaborate or begin to become profitable (Lee and Shin, 2018).

In order for traditional institutions to compete they must shift their focus to customer value and personalization to maximise the lifetime of their customer and ensure the very customer acquisition focused challenger banks do not attract their customers (Nicolletti,2017).

### Market for challenger banks

Tan and Lau (2016) see Generation Z as the growth market for these challenger banks as they are interested in such high tech, innovative products. These challenger banks have many attractive features providing personalized niche services (Lee and Shin, 2018). As they begin to disrupt the market, challenger banks aim to appeal to specific consumers in order to build their customer base, mainly consisting new market clients who are seeking new and innovative ways to bank or have not yet been served by traditional banks (Bradford,2020; Минарченко and Сайко,2018).

Challenger banks are easy to use, have consumer friendly interfaces and use AI to provide a personalized experience whilst providing a low-cost structure with no fees (Shettar, 2020). As mentioned before the market for these banks is mainly Generation Z as they live a fast-paced life and take advantage of the speed and instantaneity of transferring money, setting up accounts and viewing their balance (Shettar, 2020). These challenger banks also have extensive budgeting and saving tools which Generation Z see as a major need following the financial crash (Du and Milligan, 2019). It can be said that they are developed for the “Snapchat Generation” ((Минарченко and Сайко, 2018, p.336).

### Generational Adoption of Technology

Harris et al., (2016) state that there is a negative relationship between technology adoption and age as adoption is reduced when technology is incompatible with age. Many of the authors had the same stance that due to the fact the younger generation has grown up with technology, they are more likely to use it or be willing to learn how to use (Harris et al., 2016; Tan and Lau, 2016; Aboelmaged and Gebba, 2013). The basis of this theory is that because older generations did not grow up with technology, they find it more difficult to adopt (Harris et al., 2016). The two most prominent frameworks used in these texts are the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Both of these frameworks are used to predict a wide range of behaviours and attitudes towards technology (Venkatesh et al., 2003).

TAM uses two guides in order to determine technology adoption which are Perceived Usefulness and Perceived Ease of Use broadly stating that if a person perceives technology to be useful and easy to use or easy to learn how to use they will be more likely to adopt it (Harris et al., 2016). This has implications for adopting in the older generations as they may perceive technology as difficult to use because they did not grow up with it (Harris et al., 2016). UTAUT uses Performance Expectancy, Social Influence, Facilitating Conditions and Effort expectancy to determine likelihood to adopt technology implying respectively that if technology performs better than its competitors, people are influenced to use it by their peers, people have favourable conditions in which to use technology, and there is little effort expected in order to use it they are more likely to adopt it (Tan and Lau, 2016). Venkatesh et al. (2003) state that less exposure to technology results in higher performance expectancy meaning people are less likely to use it, this supports Harris et al. (2016) and Tan and Lau (2016) in the hypothesis that older generations are less likely to use technology.

Generally speaking, in order for technology to be accepted and used it must be easy to use, perform better than its competitors and talked about regularly, all of which challenger banks currently are.

## Research Question and Objectives

This literature has provided a strong grounding in how challenger banks work and how they achieve competitive advantage over traditional institutions, however it lends to the question of “*How are financial technologies affecting the banking industry in Ireland?*”. With Revolut, a major global challenger bank, reaching 1.2 million users in Ireland (Maguire, 2020) the question aims to answer if challenger banks have the ability to take power of the Irish banking industry as they continue to grow. This study also aims to determine the how the generational differences in technology adoption will affect the growth of these banks. Harris et al., (2016) state that technology adoption largely depends

on age, lending to the hypothesis that the younger generation are more likely to make use of challenger banks and be their main market as this research will delve deeper into the attitudes towards technology and banking among different generations in Ireland. Following on from the research it is clear that the rise in technology has already affected and will continue to affect the banking industry in Ireland lending to the hypothesis that challenger banks will gain considerable market share in the Irish Banking Industry if traditional banks do not invest in technological change and innovate to provide for the new generation and banking ecosystem.

The choice to focus on Ireland as a case study is because the prominent studies that have been reviewed had a focus on the UK and other European countries with no real works on Ireland.

# Section C

## Methodologies

### Methodological Approach

This section looks to discuss and evaluate the methodological instruments used to answer the research question "*How are financial technologies affecting the banking industry in Ireland?*". Harris *et al.*, (2016) state that technology adoption largely depends on age, lending to the hypothesis that the younger generation are more likely to make use of challenger banks and be their main market for growth, meaning that the younger generations are more likely to use challenger banks than traditional banking methods. Due to these banks targeting younger people it can also be hypothesised that challenger banks will take over traditional banks in the Irish Banking Market as they attract and were built for the younger generation who see more value in online dealings than face to face interaction (Harris *et al.*, 2016).

The methods undertaken in this study encompass the positivist paradigm as it is conducted with a view to discover the changing functions of the financial services industry. This research will use a mixed method approach making use of both quantitative and qualitative methods. The quantitative approach will be used to better observe, calculate, and determine patterns to give the researcher a better understanding of why people are making the move towards a more technologically based method of banking. The qualitative approach will be used to analyse the themes examined in this research and gain further knowledge answering the research question by gaining views from industry leading professionals. By conducting interviews with professionals in the Irish banking industry the research aims to gain insight into the effect of technology and new entrants on traditional banks and the future of banking in Ireland.

Kelly (2014) states that the success of the financial service industry depends on technological innovation and that new technology such as Revolut has the power to transform markets and disrupt established players. The methods used in this study aim to determine the likelihood of a move to mobile banking by examining the attitudes towards technology adoption throughout many different generations quantitatively whilst also using qualitative methods to examine attitudes towards new entrants from traditional banks.

### Research Design

The methods used in this study will follow a mixed method approach with a multi-level triangulation design. This design consists of both qualitative and quantitative methods being used in order to address different levels within a system where the findings from each level are merged into a final overall interpretation (Creswell,2006). This design allows the researcher to conduct both quantitative and qualitative research which will be used to gain insight from both industry professionals and users of mobile banking systems in order to accurately answer the research question.

The quantitative research which will be done by means of a survey aims to answer the hypothesis that the younger generation are more likely to use challenger banks now and, in the future, instead of traditional banking methods as their attitude towards technology is more positive than older

generations which can be largely put down to the fact that “technology adoption is reduced if it is incompatible with existing habits or tradition” (Harris *et al.*, 2014, pp.592). This survey aims to determine attitudes towards mobile banking and technology adoption ultimately portraying attitudes towards new entrants into the Irish banking industry and how they will be used in the future.

The qualitative research which will be done by means of interviews aims to discover the attitudes of traditional banks towards challenger banks by gaining knowledge from industry leading professionals and identifying themes which aim to answer the hypothesis that challenger banks will take over the Irish Banking Industry. Common themes and opinions will be extracted from the interviews in order to gauge the effect of new entrants and technology on the Irish banking industry as well as what traditional players are doing to compete and the future of the Irish banking industry.

This mixed methods approach will allow for accurate and relevant data to be collected from both sources including customers and suppliers of banking and payments products allowing a well-rounded view of the Irish banking industry presently and in the future. The findings from both methods will be integrated and will form an overall interpretation of the Irish banking industry now and in the future.

### *Sampling*

The survey was made on Survey Monkey and distributed through the researcher's social media channels including Instagram, Facebook, LinkedIn, and Snapchat. As the study is looking to determine the attitudes of the population it is important to gain as many responses as possible in order to accurately determine the likelihood of technology adoption throughout the generations. An element of snowball sampling was also used as participants were asked to send on the survey in the hope of gaining additional responses and building a pool of participants from all backgrounds and ages. The survey was aimed at participants who were eighteen years old and older in order to compare responses between generations for a more accurate result. In order for the survey to be effective, a wide range of ages is required from 18 years plus in order to gauge differences between generations.

The interview sample size largely depended on the amount of people willing and able to conduct an interview with the researcher, however due to the aim of the interviews being the ability to greater understand attitudes of the Irish banking sector towards challenger banks it was important to interview as many professionals as possible. The participants were recruited through email and LinkedIn following extensive research into their roles and responsibilities to ensure they had the right knowledge to provide me with an accurate representation of the Irish Banking sector as a whole. Throughout this research, the participants will be identified as laid out in Figure 1 below to protect their identity and allow for coherent and organised discussion and analysis.

Figure 1.

<b>Interviewee</b>	<b>Professional Level</b>	<b>Years in Industry</b>
1	Head of Department	20
2	Head of Department	15
3	Manager	17
4	Director of Department	18
5	Managing Director	30

### *Survey Design*

The survey will be used to quantitatively measure differences in generational adoption of technology by using a 5-point Likert scale. The Likert scale has been used in many supporting works supported by The Unified Theory of Acceptance model (UTAUT) and the Technology Acceptance Model (TAM) and has proved successful in the determination of preference of banking online or in person (Harris *et al.*, 2014) and the attitudes of participants towards mobile banking (Tan and Lau, 2016; Aboelmaged and Gebba, 2013; Agarwal, Rastogi and Mehrotra, 2009).

The Unified Theory of Acceptance model and the Technology Acceptance Model have been combined in order to formulate questions that aim to answer the research question and prove the hypothesis that the younger generation are more likely to use mobile banking. UTAUT has 4 core constructs that are determinants of behavioural intention (Williams, Rana and Dwivedi, 2015) whilst TAM has 3 (Harris *et al.*, 2014). By combining the two frameworks the researcher was able to tailor the survey questions to the research question and hypotheses to ensure accuracy and lack of redundant questions.

The survey will consist of 17 questions centred around usage of mobile banking and attitudes towards mobile banking (see Appendix 1). Question 1 is a demographic question asking the age of the participant, there were four categories all split into their respective generational groupings: Generation Z, Millennials, Generation X and Baby Boomers. This question will allow for correct grouping of participants and more accurate representation of the generations attitudes towards mobile banking. Questions 2 – 5 were written to determine the degree to which the participants use mobile banking and how they use it.

Following from these, question 6 – 17 made use of the 5-point Likert scale with questions 6 and 7 being used to determine initial attitudes towards mobile banking leading into the remainder of the questions centred around the UTAUT and TAM frameworks. Questions 8 and 9 were used combining ‘Performance Expectancy’ from the UTAUT model and ‘Perceived Usefulness’ from the TAM model which can be defined as the degree to which an individual believes that using IT will help him or her to improve their performance (Venkatesh *et al.*, 2003). Questions 10 and 11 combine ‘Effort Expectancy’ from UTAUT and ‘Perceived Ease of Use’ from TAM to examine the degree to which an individual believes that using an IT system is easy and free of effort (Venkatesh *et al.*, 2003). Questions 12 – 14 make use of ‘Social Influence’ from UTAUT and ‘Subjective Norm’ from TAM to determine the degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh *et al.*, 2003). Question 15 uses the final core construct of UTAUT, ‘Facilitating Conditions’ to determine whether the participant has the means necessary to use a new IT system (Venkatesh *et al.*, 2003). The final two questions are used to determine the participants intention to use mobile banking in the future and as technology progresses.

Overall, this survey will make use of the UTAUT and TAM models in order to quantitatively measure and compare attitudes between generations towards mobile banking and their intention to use mobile banking in the future, answering the hypothesis that the younger generation are more likely to use mobile banking.

### *Interview Design*

The qualitative aspect of this study will be conducted in the form of a semi – structured interview with professionals working in Irish Banking industry in traditional banks such as AIB, Bank of Ireland and KBC. There are 9 questions in this interview which can be seen in Appendix 2 and aim to answer the hypothesis that mobile banking systems have the potential to take over traditional banking services in Ireland.

Question 1 will be used to gain a brief insight into their work and role within the industry in order to determine where their knowledge stems from. Questions 2 – 5 aim to determine their views on how technology has affected the Irish Banking Industry and the impact of it on their own banks. Questions 6 and 7 aim to gain insight into the changes mobile banking services have made to consumer banking and if they have the potential to compete with traditional banks. Finally, question 8 and 9 aim to determine the level of action the traditional banks are taking to compete with mobile banking systems and how they will affect the Irish Banking industry as a whole.

Overall, the qualitative aspect will be used to gain insight into how traditional banks are dealing with the rise of mobile banking and how they think mobile banking services will progress aiming to answer the hypothesis that mobile banking services have the potential to take over from traditional banking services.

## Methods of Analysis

### *Survey Analysis*

The survey was open for 1 month in which time it gained 98 responses. After the survey was closed, the results were gathered and coded in Microsoft Excel in order to allow for accurate analysis. All analysis was carried out in Microsoft Excel to make use of the full range of data and formulae. Cronbach's alpha was used as a measure of internal consistency in order to ensure survey answers were accurate and could be confidently used in the analysis of the survey answers.

In order to investigate the hypothesis that the younger generation are more likely to use mobile banking in the future, a Pearson's correlation coefficient and a simple linear regression analysis was used to explore the relationships between age and the TAM and UTAUT elements (technology adoption, technology use, performance expectancy/perceived usefulness, effort expectancy/perceived ease of use, social influence/ subjective norm, and facilitating conditions) as outlined in the survey design section. Lastly, an independent groups t-test was used to compare attitudes toward technology adoption quantified by a Likert scale between 18–25-year-old and those over the age of 60.

### *Interview Analysis*

A total of 5 interviews were conducted all using the same line of questioning following a semi-structured style allowing for broad discussion and the addition of information not gathered by the survey but valuable to the research unforeseen in the survey design stage (Adams, 2015). After the interviews, all recordings were transcribed for analysis, allowing the researcher to gain a deeper understanding to better analyze the contents of the interview material. The transcriptions were coded and sorted into themes according to the themes established in this research allowing for cohesive analysis and a more accurate result.

## Limitations

Throughout this research the main limitations can be attributed to the Covid 19 pandemic as all research was carried out from home and digitally. This may have hindered the results of the quantitative research as it aimed to gain insight from many different generations however it may not have been possible to gain as much insight from the older generations as the researcher had hoped due to the online only distribution methods of the survey, potentially missing out on important responses from the older, less technological generations, also hindering sample size. The Covid 19 pandemic also limited the interaction between the researcher and interviewees as there was lack of physical face-to-face contact and less intuitive examination of body language and emotions throughout the interview.

## Ethical Considerations

All methods of data collection will be conducted and allow for de-identified answers within the research. Participants of the survey will give consent upon the acknowledgment of a blurb at the start of the survey stating how completion of the survey allows for the answers to be used. Participants of the interview will be required to fill out a consent form to allow the researcher to use the data they have provided. All consent forms and recordings of answers and interviews will be stored for the required time on a password protected file and deleted accordingly.

## Section D

### Analysis and Findings

This section aims to gather and display all of the data collected from both the quantitative and qualitative research in order to answer the research question “*How are financial technologies affecting the banking industry in Ireland?*” Whilst proving or disproving the hypotheses that the younger generation are more likely to make use of challenger banks and be their main market for growth and that challenger banks will take over traditional banks in the Irish Banking Market.

#### Quantitative Analysis

The survey was open for 1 month in total collecting 98 responses with responses categorised by age group as follows. 72.45% of the responses were from the 18-25 age bracket or Generation Z, 4.08% of responses were from the 26-40 age bracket or the Millennial generation, 20.41% of responses were from the 41-59 age bracket or Generation X and finally just 3.06% of responses were from the 60+ or Baby Boomer Generation. The difference between percentage responses can be explained by the discussion within the limitations section in which it is explained how a less than sufficient number of responses from the older generation can be attributed to the fact that the survey was distributed online only resulting in a very skewed age bracket response as statistically, less people of the baby boomer generation use the internet and technology, specifically the social media sites where the survey was distributed (Facebook, LinkedIn, Instagram and Snapchat) (Mullan and Reaper, 2018).

Cronbach’s Alpha was used as an instrument to measure internal consistency within the data gathered from the research survey to ensure reliability within the results. The results were calculated to be acceptable on the scale of internal consistency where  $\alpha=0.78$  (Tavakol and Dennick, 2011).

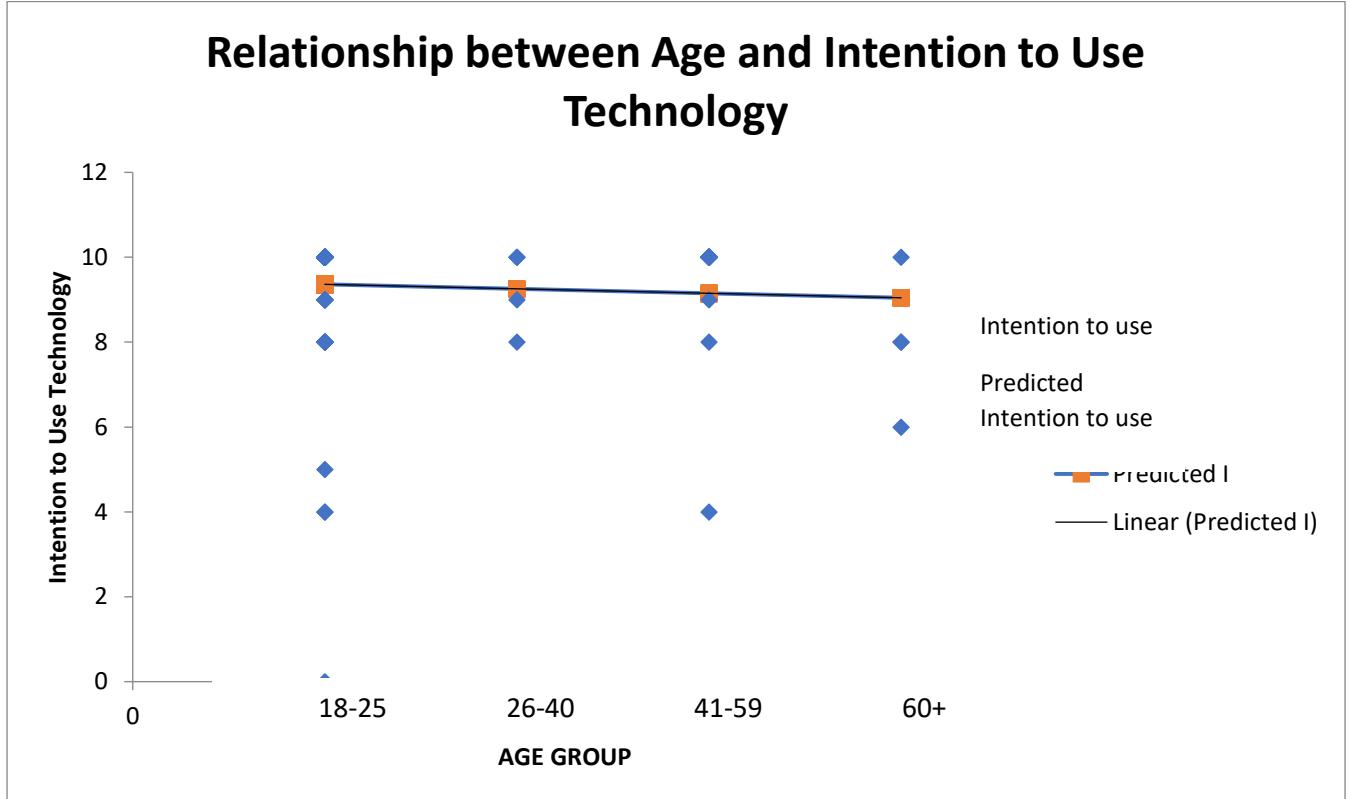
Next, an independent groups t-test was conducted to compare attitudes toward technology adoption quantified by a Likert scale between 18–25-year old’s and those over the age of 60. There was a non-significant difference between mean scores for the 18–25-year old’s ( $M = 51.94$ ,  $SD = 8.83$ ) and those over 60 ( $M = 46.75$ ,  $SD = 12.84$ ),  $t (74) = 1.12$ ,  $p = 0.27$ . With these results we fail to reject the null hypothesis meaning that according to these results, technology adoption is not affected by age.

Following this, all results from the survey were analysed using regression and correlation in order to examine the relationship between age which is the independent variable and the dependant variables which are the elements of the TAM and UTAUT constructs (performance expectancy/perceived usefulness, effort expectancy/perceived ease of use, social influence/ subjective norm, and facilitating conditions) (Venkatesh *et al.*, 2003). Regression and correlation were also used to examine the relationship between age and mobile bank use and age and technology adoption as a whole where results from the survey were grouped together to form larger groups.

All four analyses resulted in very weak, non-significant relationships between age and the constructs of TAM and UTAUT. These results can be summarised where a simple linear regression analysis was used to assess the relationship between intention to use and age. There was non-significant negative relationship, between intention to use and age.,  $r^2=0.003$ ,  $F (96) = 0.35$ ,  $p = 0.55$ , which can be seen in

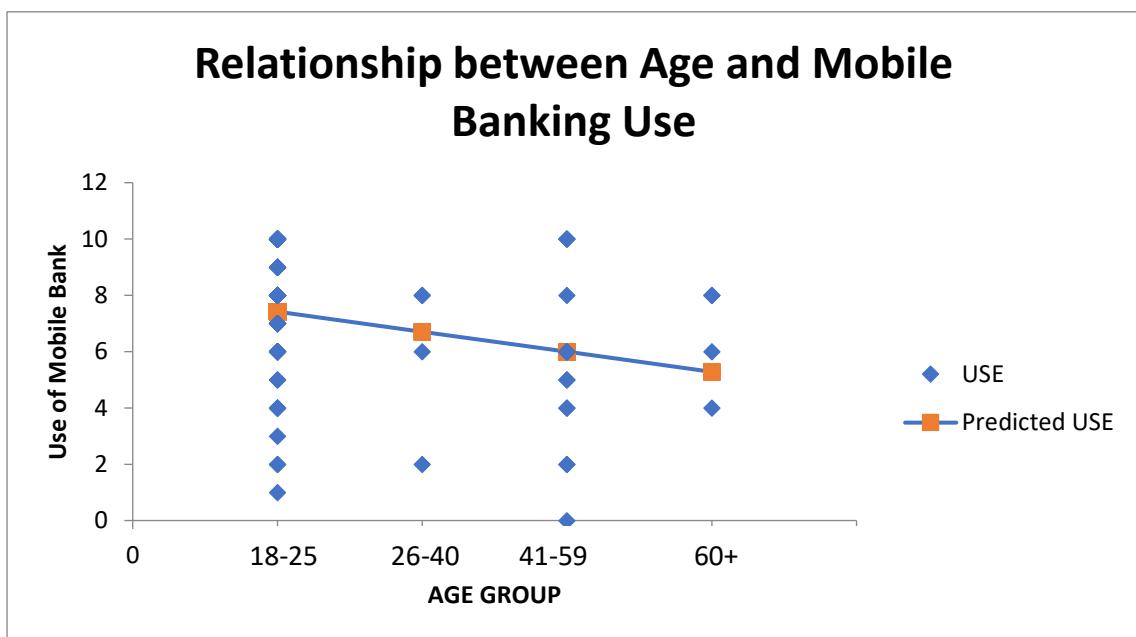
Figure 2 below. This meaning that as age increases, intention to use technology does not decrease, not supporting the hypothesis that as one gets older, they are less likely to use technology.

Fig.2 Relationship between Intention to Use Technology and Age



In the quantitative analysis the only significant result was found from a correlation and regression analysis of the relationship between age and mobile banking use, clarified in the survey as the use of Revolut. A Pearson's correlation coefficient was computed to assess the relationship between the use of mobile banks and age. There was a significant negative relationship, between the use of mobile banks and age.,  $r(96) = 0.28, p = 0.006$ . Following this a simple linear regression analysis was to assess the relationship between the use of mobile banks and age. There was a significant negative relationship, between the use of mobile banks and age.,  $r^2 = 0.077, F(96) = 7.98, p = 0.006$ , as can be seen in Fig.3 below. These results support the hypothesis that the younger generation are more likely to use mobile banking systems such as Revolut however, due to the limitations outlined earlier in this piece and the little number of 60+ participants we cannot use these results to fully prove or disprove the hypotheses and answer the research question.

Fig. 3 Relationship between age and mobile banking us



Given such inconclusive results within the research survey, this research now focuses more on the qualitative research as there was not enough conclusive evidence to accept or reject the hypotheses that mobile banking is a major threat to the Irish Banking Industry resulting from differences between generational use and adoption of technology.

### Qualitative Analysis

The qualitative element of this research was aimed at gaining a deeper insight into the Irish banking Industry by talking to industry leading professionals from some of Irelands most prevalent traditional banking institutions. The aim of the qualitative research was to use the results in conjunction with the quantitative results however following on from the quantitative analysis it is hoped that this qualitative data will give more insight and a more conclusive result allowing for an accurate proof of disproof of the hypotheses. There were 5 banking professionals interviewed in total all with over 15 years' experience in the financial industry in Ireland. The data from these interviews was coded and a thematic analysis approach was used. These results will now be discussed and analysed in relation to the research question and hypotheses shaping this research.

#### Technology and the Irish Banking Industry

This theme encompasses this research as a whole as it looks at the entrance of technology into the Irish banking Industry as well as the impact it has had on retail banking. All 5 interviewees were of the opinion that there is no doubt that fintechs were disruptive and the move towards digital was very evident throughout the industry, with the Covid 19 pandemic speeding up digital adoption as customers did not have any other option. Interviewees 3 and 4 stated specifically that customers of retail in today's digital world expect more sophisticated and personalized digital experiences as customer digital experiences were changing in every part of their lives as which is consistent with the works of Buchi *et al.* (2019), Niccolletti (2017) and Lee and Shin (2018) as discussed in Section B. Interviewees 1 and 3 discussed the importance of trust within banking and the lack of trust customers have with some challenger banks as there is a lack of human element with interviewee 4 also

commenting of the importance of human contact throughout a customers banking experience, that which services such as Revolut do not have. All 5 interviewees went on to discuss the decline in importance of brick-and-mortar institutions as the “power of technology has eradicated it” consistent with the literature by Nicolletti (2017) discussing the need for legacy banks to innovate as their rigid business models are unsuitable for today’s market.

All 5 interviewees commented on the rise in demand for mobile and online services within their own banks, showcasing the growing need for banks to innovate in order to keep up with these disruptors as the financial landscape continues to change (Kelly,2014). It is clear from the answers received from all 5 interviewees which are coherent with each other and the supporting literature in Section B that technology has changed the Irish Banking landscape forever and will continue to do so.

#### *Impact of Challenger Banks*

It can be seen throughout the interviews that challenger banks have had a major impact on the banking industry in Ireland with customer demand and expectations shifting as the youthful, convenient challenger banks enter the market driving innovation, exposing less innovative players and focusing on customer acquisition with interviewee 1 stating that challenger banks are “driving the pace of change” with a comment from interviewee 3 regarding the general acceleration towards digital banking as a response to new entrants. These comments are consistent with the literature showcased in Section B from Nicolletti (2017) stating that innovation is imperative for success in the future of banking. Generally, all 5 interviewees commented further on challenger banks driving customer expectation resulting in a rise in demand for more useful, convenient and personalized services as they emphasise the use of AI and tap into what customers really want and need with legacy banks falling behind as they rely too much on their outdated models (Nicolletti, 2017).

In response to question 5, all 5 interviewees stated that traditional banks have picked up on the need for a bigger focus on user interfaces and customer experience which is consistent with Nicolletti (2017) view that a customer centric approach is the key to success in this new financial environment. Interviewee 1 even commented on the fact that many traditional banks now have dedicated experts working on these new concepts in order to improve them and stay up to date with the technology that challenger banks are already implementing such as easy to use dashboards, split bill and instant payment functions as well as simplified mobile apps which customers are likely to gravitate towards (Минарченко and Сайко, 2018; Shettar 2020; Tan and Lau, 2016).

As mentioned before, throughout the interviews, there was emphasis placed on the importance of maintaining a human element to banking and not advocating for a full digital shift as people still value human contact and support with interviewee 4 stating that in order to have the perfect balance, companies must ensure the use of a combination of digital elements such as more tailored intelligent customer solutions with an emphasis on AI whilst also keeping the human element alive in order to maintain the trust element that customers have with traditional banks.

It can be seen clearly that challenger banks have truly disrupted the industry with their more innovative, convenient, and intelligent products which have driven change in the Irish banking industry. The landscape of Irish banking today can be attributed to the rise of these challenger banks driving competition and innovation (Balogun *et al.*, 2013; Bradford,2020) as well as the Covid 19 pandemic which according to interviewee 5 has accelerated the payments arena and technology adoption by at least 5 years in Ireland.

#### *The Future of Banking in Ireland*

As the banking industry moves towards a more digitally based way of providing services due to the entrance of technologically savvy challenger banks, interviewee 2 and 4 both have the view that banks must accelerate their digital offerings and ensure they stay relevant as they aim to maintain their current customer base whilst also acquiring new customers. A key point taken from all interviews is

that all banks realise that customers top priorities are low cost and convenience meaning that priorities must shift towards driving down costs which are already high for traditional banks as they are required to invest and innovate a fast rate whilst transforming their outdated business models as discussed in Section B (Buchi *et al.* 2019; Nicolletti, 2017).

All 5 interviewees believe that the need for physical branches is sharply declining as is the need for a large proportion of human interaction as driven by Covid 19 which allowed people to adopt the idea of online meetings and a cashless society. In relation to the future of banking services, all interviewees also stated that there is a large move towards AI and the need for more sophistication as difficult to use, expensive and time-consuming services are simply not good enough in this digital era. They state that there is huge investment needed in technology for traditional banks to be able to provide what challenger banks are providing in terms of payments, budgeting and even investments, in order for them to stay relevant. This supports and expands the literature in Section B stating that traditional institutions must invest heavily in order to move with the ever-changing financial industry and evolution of fintech (Lee and Shin, 2018).

Interviewees 2 – 5 all commented on the generational effect on technology stating that it is not age that is important, it is behaviours and attitudes towards technology that affect adoption. These statements are supported by the TAM and UTAUT frameworks which examine the factors which affect attitudes towards technology adoption (Venkatesh *et al.* 2003). Interviewee 2 stated that once something is convenient, easy to use and personalized, age doesn't matter which supports the quantitative results of this research and explains further the inconclusive results.

Overall, the qualitative result as discussed above support the idea that challenger banks and technology are changing the banking industry in Ireland however from the interviews, and their support of the quantitative results the hypothesis that the younger generation are more likely to use technology remains unproven as there is not enough conclusive evidence to prove it. From the qualitative evidence above it is clear to see that technology and challenger banks have made a huge difference to the Irish banking industry and will continue to grow, the interviews have provided a strong grounding for which to prove that challenger banks have the potential to take over the Irish banking industry if they continue to grow and cooperate with regulations, however, it is fair to say that legacy institutions will always have a place in the industry to provide more complex services if they invest in more sophisticated technology and continue to innovate at the same rate as challenger banks.

## Section E

### Discussion and Conclusion

This research as a whole, looks to examine the Irish banking industry and the effects the rise of technology and challenger banks have on it in order to answer the research question ‘*How are financial technologies affecting the banking industry in Ireland*’. The literature examined in section B discusses the impact of technology on banking and how it has changed the financial industry stating that fintech organisations are the future of banking (Bradford,2020; Buchi *et al.*,2019; Lee and Shin,2018; Nicolletti, 2017; Okeke,2019) giving rise to the hypothesis that challenger banks would take over the Irish banking industry. Section B also takes the stance that there is a major difference between generations in regard to the adoption of technology, concluding that older generations are less likely to use technology as they are not as technologically savvy as the younger generations (Aboelmaged and Gebba,2013; Agarwal *et al.*,2009; Harris *et al.*,2016; Tan and Lau, 2016; Venkatesh *et al.*, 2003). These beliefs gave rise to the hypothesis that the rise of these challenger banks could be attributed to not only the sophisticated nature of the new technology introduced by the challenger banks but also the wider use in the coming years due to Generation Z using them more than traditional banking methods.

The methods used in this research which looked to prove these hypotheses and answer the research question followed a mixed methods approach which proved successful as the quantitative methods used were not sufficient and were hindered by the sample size and distribution methods carried out due to the Covid 19 pandemic. The results gathered from the quantitative methods were inconclusive and left the hypotheses unproven. The qualitative methods gave great insight into the banking industry in Ireland today allowing the researcher to gather imperative data allowing for a more rounded answer to the research question and hypotheses.

From these results the conclusion can be drawn that financial technologies have affected the Irish banking industry massively and will continue to do so as technology becomes even more advanced than it is now. The hypothesis that challenger banks will take over from traditional banks in the Irish banking industry remains unproven as it is clear that they hold a strong market share, but traditional banks will always remain and their legacy will carry them through and they will always be required for more complex services such as mortgages, loans and financial advice. It can be stated however that challenger banks will continue to grow and prosper and may take a larger market share of the payment’s arena leaving traditional institutions for those more complex services. The hypothesis that generational adoption of technology will affect the rise of challenger banks also remains unproven as the quantitative results did not support this statement due to the inconclusive nature of the results.

Taking into account the limitations of this study, it is positioned well as a starting point for further research into this topic which would allow for a larger sample size to be examined and perhaps a more rounded line of questioning in the survey to allow for more conclusive results.

Even though the hypotheses remain unproven, a lot can be taken from this study as it shows, especially from the insights gathered from professionals working in the Irish banking industry, that traditional institutions have challenger banks on their radar and must invest heavily and innovate in order to provide more sophisticated and customer focused solutions to prevent the strong customer acquisition efforts of the challenger banks.

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## Appendices

### 1. Survey

1. What is your age?
  - a. 18-25
  - b. 26-40
  - c. 41-59
  - d. 60+
2. Do you use the mobile banking system e.g., Revolut, N26, MONZO?
  - a. Yes
  - b. No
  - c. Partially
3. If yes, which one?
  - a. Revolut
  - b. N26
  - c. Monzo
  - d. Other
4. If no, why not
5. To what degree do you use the mobile banking system Revolut?
  - a. For all my banking needs (Wages, shopping, bills, all general transactions)
  - b. For savings and for budgeting
  - c. For sending money to other users
  - d. Other (please state)

Please state to what degree you agree or disagree with the following statements.

1= Strongly Disagree – 5=Strongly Agree

6. I use mobile banking more than I use traditional banking services.
7. I feel traditional banking methods are becoming inefficient for everyday use.
  
8. Mobile Banking improves my efficiency when completing transactions
9. Mobile banking is useful in day-to-day life
  
10. Mobile Banking systems are easy to use
11. Learning to use mobile banking is easy
  
12. My friends use mobile banking
13. I use mobile banking because my friends do
14. Mobile banking functions such as ‘splitting the bill’ or ‘group vaults’ allow for more social interactions.
  
15. I have the resources necessary to use mobile banking systems
  
16. I intend to use mobile banking in the future
17. I will use mobile banking more in the future as technology progresses

## **2. Interview**

1. Could you please give a brief background on what you do and how you got into this industry?
2. In your opinion, how has the rise of technology affected the banking industry in Ireland?
3. Have you noticed a change in mobile banking and is there a rise in customer requests for this type of banking?
4. In your opinion, have mobile banking services such as Revolut had an impact on the banking industry in Ireland?
5. Have you seen this impact within your own bank?
6. Do you envisage changes being made to customer banking as a result of these mobile banking services?
7. Do you think that mobile banking services such as revolut have the potential to grow over the coming years and compete with traditional banks?
8. Have you noticed the industry taking any action against this competition?
9. Do you have any thoughts on how modern mobile banking might affect traditional banking, if at all?