

Digital transformation and its effects on the competency framework: a case study of digital banking

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<p>This thesis is a qualitative study on how the digital transformation affects the firm's competency framework in the banking sector. The aim of the study is to establish what are the differences between the firms of various degrees of digitalisation, and to use that insight to create a competency framework for a digitally transforming firm.</p> <p>The theoretical framework provides background to the notion of digital transformation and describes the specificities of the digital aspects of the banking industry. It illustrates three existing kinds of digital transformation: conventional banks with token digital services, digitally transforming banks with notable commitment to the digital services, and specialist technology companies offering focused financial services (commonly referred to as FinTechs); in addition to them, the fourth kind was predicted: a hypothetical exemplary digitally mature bank emerging from the described trends.</p> <p>The methodology outlines the research process. Three case companies were chosen to represent each of the three existing kinds of the digital transformation. The primary data was collected via interviews, with secondary data collected in the form of case companies' job ads, annual reports, and media releases. The interviews' goal was to define what are the legacy competencies common between the conventional and the digitally transforming banks, what are the shared competencies between the digitally transforming banks and FinTechs, and what are the lacking competencies that may become a trend in the future.</p> <p>The data analysis is conducted by applying Straussian grounded theory methodology; this required coding the data to underline the common themes that describe each company. The codes are grouped into logical categories; the analysis establishes the logical relation between the categories to highlight what concepts are the key consequences of the digitalisation.</p> <p>The findings and conclusions discuss that the case companies represent the three kinds of digital transformation quite accurately. This allows generalising the conclusions to the industry level. Case companies are compared: based on the commonalities between the case companies, a digital bank competency framework is compiled. This model describes the still relevant competencies (digital awareness and core banking), shared competencies between banks and FinTechs (customer service and digital channels), and currently lacking emerging competencies (digital branding, agile management, employee learning).</p> <p>The study offers an industry outlook predicting standardisation of the back-end IT architecture due to the growing numbers of consolidation and regulatory environment, increasing importance of creating customer experience and value proposition as the key competitive advantage, and resulted in restructuring and changes in composition of the banking staff, with more full-time employees being industry generalists exercising greater operational agility.</p>	
Keywords Digital transformation, digital banking, human resource management, competency framework, banking industry, FinTech	

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1 Introduction

This chapter offers a general description of what this study aims to achieve and why it bears significance; it is outlined what kinds of insight are sought and what kinds are not focused on; the case companies are briefly described; key concepts are explained; lastly, the thesis structure is clarified.

1.1 Background

This study aims to explore how the competency frameworks change in companies undergoing a process of digital transformation. In order to create a more cohesive depiction of such processes, it was decided to limit the scope of the research to the banking industry, as it is amongst the most digitalised industries (Westerman, Tannou, Bonnet, Farraris & McAfee 2012), with many incumbent banks taking steps towards the digital transformation as well many specialist technology companies offering financial services (commonly referred as FinTechs) standing in direct competition for the market segments with the traditional banks.

As the principles of the diffusion of innovations would suggest, technology has a potential to disrupt the industry, thus leaving the maladapted players with a prospect of losses or even market exit – the digital transformation is a strategic undertaking touching companies on every level, hence it is sensible to assume that the prime strategic resource, human capital or talent, would play one of the key roles in a successful transformation of a business. Thereby, it is imperative to clarify the effects of the digital transformation on the employees, particularly in the aspects as obscure as employee competencies.

This study is a part of a bigger project “Digitaalisen liiketoiminnan erikoistumiskoulutus”, which is a joint project between 23 Universities of applied sciences in Finland and lead by Haaga-Helia University of Applied Sciences, whose objective is to prepare the graduates to the changes in business brought by the advent in the digitalisation of business.

1.2 Research question

The aim of this study is to investigate how the digital transformation of an enterprise changes the demanded competencies in the company and what the resulted skill gap is; the research question to address this goal follows:

“How does the digital transformation of an enterprise change the enterprise’s competency framework?”

In answering the stated question, the following investigative questions (IQs) have been formulated for the guidance of the research:

IQ1. What is the difference between the companies of various degrees of digitalisation?

IQ2. What competencies remain relevant in the digitally transforming companies?

IQ3. What competencies do the digitally transforming companies have in common?

IQ4. What competencies will the digitally mature companies need in the future?

Those questions are answered via the creation of the digital bank competency framework that induces the competency fields based on the degree of digitalisation of the case companies; the digitalisation of the case companies was established via the creation of the digital bank paradigm that prescribes specific properties for companies of the different kinds of the digital transformation; the paradigm was first deduced based on the literature analysis and then verified via the conceptualisation of the research findings.

1.3 Demarcation

Since changes of the competency framework might come with any change in a firm, this study focuses on the areas that the digital transformation can affect: the three foci of this study are strategy, organisational structure, and HRM practices. Hence, the study did not emphasise much the importance of the context of the change nor did it attempt to establish the causes leading to the digitalisation.

In the interest of cohesive results the scope was also limited only to the banking industry, allowing more inquiry during the literature review stages.

As far as the competency model, the emphasis was made on uncovering the lacking skills rather the one becoming obsolete – since learning and development programmes are an action strategy, it makes greater sense to establish what skills should be acquired, whereas the opposite of forgetting skills would not be sensible, unless layoffs are under the consideration. Still, the lacklustre representation of the obsolete skills is the greatest limitation of this study and should be carefully considered.

1.4 International aspect

Whilst the case companies under the research mainly operate in the Nordic region, the phenomenon of the digital transformation is ubiquitous across all countries. Furthermore, the trend in banking discussed in the study are of global nature as well, in terms of both being related to the digital technology and not. The results could be reasonably generalised to most banks world-wide, but the best fit is expected to be for the banks in Europe, due to the common trends, such as industry-wide consolidations, roughly homogenous customer demands, and EU regulations.

1.5 Benefits

As this study aims to describe a competency framework in the digital banking sector, it has a great potential in being applied in the field of HRM within the banking industry (and with some abstraction, potentially in other digitally transforming industries as well): specifically, the areas of learning, performance management, and recruiting present the greatest interest, as those are the key HR functions that make use of competency framework.

On a more conceptual basis, this study's subject matter is a little-studied phenomenon, ergo, it could be argued that the digital bank paradigm, although a generalising and simplifying model, could be a compelling tool in strategic planning, especially when trying to gauge the actual industry trends.

1.6 Case companies

The research strategy (section 3.2) calls for approaching three case companies of different degrees of digitalisation (the kinds of the digital transformation in banking are concluded as the result of the theoretical framework in sub-chapter 2.4). The case companies are left anonymous, with basic information offered.

Case company 1 is a multinational bank of more than 10000 employees, one of the largest retail banks in the Northern European region. The company has its own mobile banking app, which displays significant spread.

Case company 2 is a FinTech start-up of fewer than 100 employees, amongst the biggest in the region; it had been acquired by an incumbent bank and it operates abroad in addition to its domicile. The company's services are fully digital; they offer an account with bookkeeping and invoicing.

Case company 3 is a bank of more than 10000 employees, amongst largest retail and commercial banks in the country. The company offers some mobile and online banking solutions.

1.7 Key concepts

In this study, several common concepts from both financial and technology sectors are used.

Competency framework Model that broadly defines each individual competency required by individuals working in an organisation or its department (CIPD 2016).

Core banking Processing transaction accounts, loans, and transfers that have occurred during the day and posting updated data on account balances to the mainframe by a group of networked bank branches where customers may access their bank account and perform basic transactions from any of the member branch offices (Gartner, Inc. 2016).

Financial technology (FinTech) Technological innovation in the financial sector, including innovations in financial literacy, retail banking, investment and crypto-currencies like bitcoin. Originally referred to computer technology applied to the back office of banks or trading firms, now describes a broad variety of technological interventions into personal and commercial finance. (Investopedia 2016a).

Back end, back office Portion of a company made up of administration and support personnel who are not client-facing (Investopedia 2016b). In the technological context, it also includes the IT-architecture and internal software solutions.

Front end, front office Functions that have the direct contact with the customers: the sales personnel and corporate finance employees (Investopedia 2016c).

1.8 Structure of the thesis

The introduction, chapter 1, offers a general description of this study's aims and content.

The theoretical framework, chapter 2, investigates the origins of the phenomenon of the digital transformation and draws a framework of the kinds of the digital transformation in banking and briefly outlines the difference between banks traditional, transforming, FinTechs, and digitally mature companies. As a conclusion, it formulates a theoretical paradigm prescribing qualities to the firms in the different stages of digitalisation.

The methodology, chapter 3, outlines the research philosophy and establishes and the decisions behind chosen data collection and analysis methods.

The data analysis, chapter 4, offers the report on the data collected from both primary and secondary sources. It begins the analysis of the case companies and summarises the key themes of each source in the form of codes and categories. The analysis is done in three steps: it builds the diagram to illustrate the relation between the concepts and ideas emerged from the collected data

The findings and conclusions, chapter 5, maps the case companies' properties to the theoretical models to validate the digital bank paradigm; by generalising the findings, it compiles the model for a competency framework in digital banking and discusses the model's applicability. It also offers conclusions and suggestions for further studies.

2 Theoretical framework

This chapter investigates the origins of the phenomenon of the digital transformation and examines the effects thereof in the banking industry. In the sub-chapter 2.1, key factors of the digital transformation of an enterprise are described by following the history of the term and the contemporary industry reports. The sub-chapter 2.2 gives an overview of the banking industry vis-à-vis its digitalisation and states the difference between companies of varied digital maturity. The digital banking services are explained in-depth in the following sub-chapter 2.3. To conclude, the sub-chapter 2.4 draws a framework of kinds of the digital transformation of banks and briefly outlines the difference between banks traditional, transforming, and digital and FinTech companies.

2.1 Digital transformation

In this sub-chapter, the aim is to delve into the history of the digital transformation as a business phenomenon and formulate the definition thereof to be referenced throughout the study. The second section reviews industry reports and other relevant literature in an attempt to pinpoint the drivers of the digital transformation. The last section examines what effects the digital transformation of an enterprise could cast on its workforce.

2.1.1 Defining the digital transformation

As this study seeks to identify how competency frameworks change given the technological advances, this study must address the concept of the digital transformation (DT): a collective term used to describe changes to the way business activities, processes, and competencies are affected by digital technologies (i-SCOOP 2015). To the common knowledge, there is no singular agreed definition of the DT.

As this study aims to establish what technological phenomena are associated with the DT and, thereby, to pinpoint their effects on aspects of business, the existing uses of the DT in the contexts related to business and competencies are investigated below.

The DT is a relatively novel notion. One of its first uses can be tracked back to a book “Digital Transformation: The Essentials of e-Business Leadership” by two KPMG strategists in the year 2000 (McCarthy & Patel). Written concurrently with the events of dot-com boom, it is understandable why the authors emphasised how the Internet promoted change to the existing business models (the emphasis on e-commerce and the dot-com

bubble are also likely to be the reasons why their work is not commonly referred to by later studies); further studies, however, suggest that there is more to DT than merely advance of Internet and introduction of hyper-connectivity on their own.

Possibly the earliest strict definition of the term appears in a work of Fors & Stolterman (2004, 687-689), where they described DT as “changes that the digital technology causes or influences in all aspects of human life”; according to the authors, DT leads to “a world increasingly experienced with, through, and by information technology.” Overall the thesis of their work insinuated DT having a universal relevance; their paper was purely theoretical and did not focus on business, though.

Knowing the term’s origins, let us address the latest uses of it across industry reports and studies.

A detailed approach to establishing the evolution of the DT was shown by IBM Institute for Business Value (2011, 2). They view the DT as the impact and focus of the Internet and global connectivity; according to them, the economic impact of the digital technologies had been increasing between the late 1990s and the 2010s: from the creation of digital products and the e-commerce emergence to the fully fledged digital transformation of business models, powered by the opportunities of the mobile revolution, social media, and big data. Their approach suggests that, for a business to achieve the digital transformation, it needs to redesign both its customer value proposition as well as integrate digital capabilities into its everyday operations.

The 2015 study of MIT Sloan Management Review’s and Deloitte’s coins the term “digital maturity” – a degree of how much of an effect, the digital technologies have had over the processes, talent engagement, and business models. The study’s results suggested that, remarkably, the biggest responsibility lies in how companies integrate technologies to transform their businesses rather than the availability and distribution of said technologies on their own. The stages of digital maturity, the authors refer to as “early”, “developing,” and “mature” in order of ascending maturity; they remark that the maturing digital organisation cannot stand the presence of skill gaps – this underlines the importance of the ability to conceptualise the digital impacts. (Kane, Palmer, Phillips, Kiron & Buckley 2015, 3-7)

Forrester Consulting, commissioned by Accenture Interactive, sought to establish whether firms were confused about what constitutes the DT and what drives it. Similarly to others, they claimed that the DT, albeit a common trend, is yet to be fully achieved by businesses; they also note the emergence of the third-party solutions market. The study stated there

are three dimensions to the DT: organisation, operational processes, and technology. They point the customer experience as the key aspect of transformed enterprises; conversely, as key drivers of the DT, the name profitability, speed-to-market, and customer satisfaction. (Forrester Research Inc. 2015, 1-4)

Consultants from McKinsey&Company underline another key characteristic of the DT: disruptiveness. They follow how a potentially disruptive technology grows into a clear emerging trend industry-wide and ultimately becomes the new norm, forcing the players to either adapt or quit. According to the article, the biggest risks fall upon the, typically defensive, market leaders that are slow to respond to a new trend. (Bradley & O'Toole 2016) In another article, the company argued in favour of having digital disruption initially change the nature of basic market forces of supply and demand; they developed a digital strategy framework based thereon, showcasing how companies used disruption to their advantage by realigning their product/service offering according to the degree of change in market forces (Dawson, Hirt & Scanlan 2016).

All in all, it is fair to assume that the DT, unlike concepts of digital revolution and fourth industrial revolution, begs for being a descriptor to how a particular company copes with the changes to the market brought by the advancements in technology – and not just any technology either, but the kind that is able to massively disrupt the operational processes, setting a new norm for entire industries. This sets aside some “slow” and “linear” innovations, like more efficient energy processing techniques or new software solutions, from the more disruptive trends, like social media marketing and big data analytics.

New technologies may develop as is, yet, occasionally, companies start to alter their functions in accordance to what they see as an upcoming trend, which ultimately constitutes digital transformation of companies. Diffusion of innovations (a term first coined by Everett Rogers in 1962) is applicable to businesses inasmuch as it is so to their customers:

1. Innovations are opportunities bet on by the early adopters: the companies that invest significantly into adopting a new product, change their operational processes, or even divest from their contemporary prime source of income.
2. The more companies adopt an upcoming trend, the more they sway the market forces within their respective industries, like demand and supply of the skills employed as well as products old and new.
3. Majority adoption allows the trend to emerge as a new industry standard, disrupting the industry and forcing the rest of the players to adjust their business model and processes, lest facing the prospect of exiting the market in question.

When addressing the DT in this study further, it will be addressed in accordance with the definition below.

In this study, digital transformation is defined as a gradual process of a company to adjust its strategy and day-to-day operations, from changes to employees' functions to revamps of the business model, in an attempt to take advantage of digital phenomena, e.g. creation of novel digital businesses or utilisation of the big data. Digitally transforming companies may cause shifts in supply and demand of talent and services, in particular, leading to the formation of a temporary skill gap.

2.1.2 Drivers of the digital transformation

In the previous section, the process of the DT had been formulated. In contrast, the aim of this section is to dissect the given definition into workable phenomena that can be further looked into.

The definition of the DT was based on numerous studies; those studies, one may notice, share a certain number of common elements. On the one hand, the studies unanimously underline the advent of the Internet and spread of specialised ICT tools for business, on the other hand, recent research note the importance of shifts in strategy and disruptiveness.

The Internet, smartphones, e-commerce, and related phenomena are sometimes referred to as "hyper-connectivity", a term originally coined by Quan-Haase and Wellman: it implied the use of multiple means of communication (Wellman 2001). One may argue there is more to it, however. The Internet in particular presents a variety of venues for service development and delivery; it is possible to distinguish that there are two groups of related skills: medium- and content-based. Knowledge of the medium, i.e. the Internet environment, can be summarised as having formal ability to navigate and operate the digital services, whereas the content-related skills are more in-depth, concerning content creation and management, communication, and Internet-driven business strategies (van Dijk & van Deursen 2014, 42).

The change in daily operations and the strategy is the least tangible element of the DT: it can be traced it to be both the driver and the consequence of the DT of a given company. One could note that novel IT solutions can create new line-ups of goods and services, thus forming a distinct market, e.g. e-commerce (Euromonitor International 2015, 16-18), shared economy apps (PricewaterhouseCoopers LLP 2015), search engine optimisation

(Olenski 2014), virtual reality-enabled software (Adams 2016), digital distribution and media streaming services (Smith 2016), autonomous vehicles (Gao, Kass, Mohr & Wee 2016), industrial robotics (Kromann, Rose Skaksen & Sørensen 2011), automation of knowledge work (Deloitte LLP 2014), as well other innovation-enabled business models (Capgemini Consulting 2015, 28-31). In the interests of simplicity, this phenomenon will be dubbed as “digitalisation”.

To be accurate, some researchers mark the distinction between “digitalisation” and “digitisation”. Commonly by “digitisation”, one implies the technical process of direct conversion from analogue to digital, whereas “digitalisation” denotes broad changes to the society invoked by the adoption of new technologies (Brennen & Kreiss 2014).

The application of software solutions has advanced well past branching into its own industry, as such, it would unreasonable not to draw a line between the streamlined business software (e.g. enterprise resource planning solutions, customer relationship management tools, and even the trivial Microsoft Office applications) (British Telecommunications plc 2015, 11; Forrester Research Inc. 2015, 5), cloud solutions (Accenture 2016, 39), and the big data-based algorithms and analytics (Davenport 2013). Many of those present the cases of software as a service (SaaS) platforms.

Those elements are assembled together in a preliminary concept map to display their relations in figure 1.

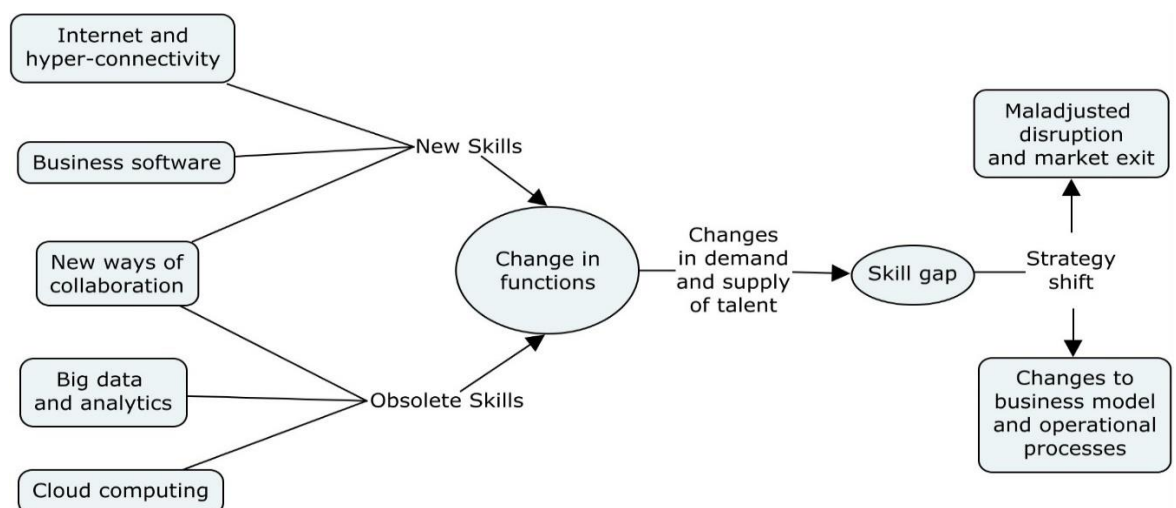


Figure 1. The process of the digital transformation of a company.

It is possible to generalise which phenomena tend to “enhance” the existing positions, by making use of novel skills and conceiving novel positions, and which to “disrupt” the exist-

ing jobs, but rendering old skills obsolete and forcing the employees to acquire new qualifications or see them out of employment otherwise. It is worth noting, however, that what may not be a disruption of employment is still capable of disrupting the industry. Such a division, however, does not have much of a foundation to it as such – it is advisable to restrain from arguing that point in the interests of accuracy.

In the interests of simplification, this study has grouped those shared aspects together into five categories playing the roles of the drivers of the digital transformation process in a company (figure 2). Given that, as implied by the formulated definition, the DT is a company-specific process, it is reasonable to separate such companies: this study refers to them as digitally transforming companies (DTCs). A DTC could either be digitally mature or but in the stage of early development, in reference to the model of digital maturity (Kane et al. 2015, 5). This study categorised the potential drivers for the DT in accordance with their role in the front or back end of the business operations, as illustrated below.

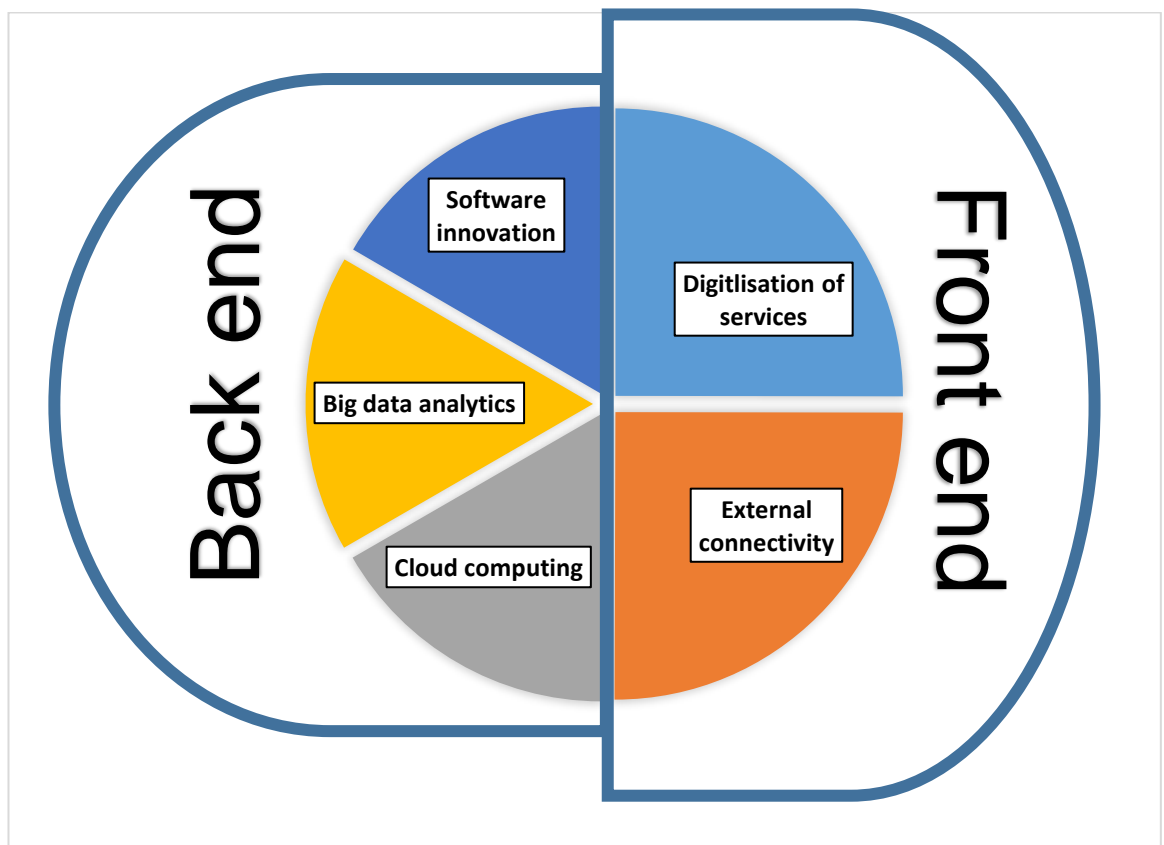


Figure 2. Five drivers of the digital transformation.

To briefly outline the model of the DT drivers:

Digitally transforming companies (DTCs) are such companies at any various stages of having their strategy and operations systematically changed in response to response to the advent of digital technologies; groups of said technologies present themselves drivers of the digital transformation.

1. The degree of external connectivity is a placeholder term used to refer to the effects of the Internet and connecting consumers to the business, namely: matters related to content creation and management, electronic commerce, online CRM, social media and online marketing, etc. Unlike internal mobility and communication, the external connectivity paves a way for a new venue or a medium of delivery a service.
2. Digitalisation of services occurs when companies' particular line-ups of (either wholly or partially) digital services lead to an emergence of a new industry at the extreme or a severe disruption of an existing market at the least.
3. Cloud computing most prominently serves as the foundation for the platform economy: a number of possible services, e.g. computation power, data storage and backup, certain SaaS solutions, etc. A cloud (public, private, or hybrid) may be used to enable seamless collaboration between the departments, the customer and the company, and between the company and a third-party service provider.
4. Big data analytics is the use of the amassed data concerning the daily operations in an attempt to either optimise the processes and the workforce (via the creation of prescriptive analytics) or automate it to a certain extent (via the descriptive and predictive analytics).
5. Innovations in business software apply to both administrative tools as well as SaaS solutions, implemented either in-house or provided by a third party. Such innovations may be of both disruptive and complimentary nature in relation to a DTC's daily operations and processes.

All in all, one may observe a number of technological innovations fuelling the DT of companies. Those technologies, however, do not affect just the way the products and services are designed and delivered; they, most importantly, trigger businesses to react organically, as systems: the digital technologies, in a way, are merely antecedents of drastic strategy shifts, changes to the old channels, and radical re-structuring. Ultimately, the technology drives businesses to take a new outlook at their strategy in general and at their need in talent in particular.

2.1.3 The digital transformation of the workforce

Thus far, this study has not addressed the effects of the digital transformation on an integral aspect of an enterprise – its human capital. With the key drivers of the DT mapped, this section aims to establish the relation between those and the changes on the nature of the contemporary workforce.

The most obvious impact is on the media of cooperation and communication: virtual collaboration and remote work become more and more prevalent across certain types of work.

With social media, mobile apps, and other digital tools being as commonplace as they are, they play a progressively greater role in sourcing and attracting talent; moreover, open online courses and other digital learning tools allow for additional opportunities in learning and development. An Accenture Strategy's research suggests that, on the contrary to the conventional opinion, employees themselves present one of the key drivers of the digital progress: 70% indicated that the digital technologies bring innovation, productivity, and agility to the company; around 71% claimed they were pro-actively acquiring digital skills. (Brecher, Laurenceau & Sloman 2016, 6-8.) Moreover, the digitalisation of everyday life has become the key enabler of remote work and employees using their own devices for work: this is not just a prime opportunity for virtual collaboration but also creates greater flexibility and even encourages employees to work remotely outside of their normal working hours (Buchanan, Kelley & Hatch 2016, 1-3).

Another systemic change is the shift towards project-oriented work. The current trend favours agile working formations, a job mix of the workforce of a kind, aimed at skill sharing and collaboration by eroding the conventional notion of job roles. This also includes the tendency to procure external specialised talent (via both classical channels and crowd platforms) when having a specific need. (Accenture 2016, 27.)

This shift does not necessitate abolishment of hierarchy or down-scaling, though. A Deloitte's study of human capital uncovered not only that 80% of companies aim to redesign their organisation, but also that mere 38% of all companies and 24% of large enterprises (above fifty thousand employees) are organised functionally today (McDowell, Agarwal, Miller, Okamoto & Page 2016). In a recent strategic move, Deloitte merged 9 of its European practices into a single Deloitte North West Europe in order to offer cross-border solutions based around globalisation and digitalisation of business models: those factors fostered such integrations, which conventionally were unpopular amongst the large firms in fears of financial and reputational difficulties (Agnew 2016). Deloitte's is also an example of how initially a classic audit firm transformed into one of the main players in digital strategy consulting.

This shift invokes a change in the demand for a renewed employee value proposition across DTCs: PwC (2014) conducted a scenario analysis, suggesting that the trend amongst SMEs in the technology sector infers movement towards cost reduction via flexibility maximisation, whereas the employees, as such, would seek greater degree of autonomy, flexibility, and challenging projects, with the expectations of working on short-term contracts.

Lastly, one may spot a greater precedent of specific technical skills and know-hows to support digital strategies raising in demand. Yet given the current pace of innovation, the key characteristic of a tech-savvy employee becomes not the static knowledge, but openness and readiness to acquire new skills during both working and personal hours. That results in the talent possessing a constantly evolving skillset. The managers tend to agree, with Accenture's study reporting 37% of business and IT executives claiming that the need to train is significantly higher today than three years ago. (Accenture 2015a, 8, 28-30.)

Considering the current trend, one could assert that the digital transformation leads to systematic changes in the workforce structure: it enriches the media of collaboration, it appeals to the lean organisational structure, and it favours the autonomous and life-long learner kinds of employees. The *raison d'être* of such workforce is innovation and adaptability, thereby, it is sensible to presume there would be a great deal of responsibility held by the management and leaders to fuel and maintain the digital culture. In the essence of the digital transformation of the human capital lies flexibility and agility.

2.2 Digital transformation of the banking industry

This sub-chapter investigates how the digital transformation affects the banking industry on a macro scale. It aims to display the occurred and the potential transitions within the industry and to highlight how a digitally mature bank could be different from a digitally transforming one.

2.2.1 Global digital trends in banking

In this study, it has been chosen to focus on how the banks manage digital transformation since the banking sector contains all the core traditional business units and offers a lot of innovation (Accenture Research 2016, 2). Per the study of 391 large enterprises worldwide by Capgemini and MIT Sloan, the banking industry is second only to the high technology sector in terms of its digital maturity (Westerman, Tannou, Bonnet, Farraris & McAfee 2012). This section attempts to overview how the DT affects the banks.

EY, based on IDC's vertical and company size survey from 2014, stated that across top 100 companies in terms of total IT spending as a proportion of revenue about 15% represent banks. The corresponding spending averages about 1-4% of the revenue, keeping in

mind that the revenue of the surveyed companies surpassed 1 billion USD. (EYGM Limited 2014, 11.)

Accenture Research compiled a report in the scope of their Technology Vision 2016 study that offered a specific perspective for the banking industry. Amongst the findings of the report, there is, notably, a trend of shifting job planning from job functions-centred to a projects-focused one: out of 316 international bankers, 80% agree; 74% expect a transition towards a more “fluid” workplace, with an emphasis on more flexible generalists hires holding the core competencies in the internal workforce, along with an increase in instances of outsourcing peripheral competencies, either via traditional sources (i.e. consultancies, on-demand contractors, etc.) or participative public pools (e.g. application development companies, crowdsourcing, etc.) (Accenture Research 2016, 9).

Machine learning and automation is one of the most common digital trends: in banking sector, it manifests in the positions related to the knowledge work (e.g. recruiting, advising), customer experience (e.g. tailored customer service, more human presence with routine tasks being automated), and IT tasks (e.g. speeding up and off-loading repetitive tasks) (Accenture Research 2016, 11).

The key trend related to the digitalisation of the core banking, however, is the digital banking and the financial technology (also known as FinTech) service offerings. The digitalised services within the banking sector seem to prove such a fertile ground for innovation, so that non-bank digital companies like Google and Alibaba started to enter the scene with their FinTech solutions; payments, traditionally a quarter of banks revenues, present the most common service to be digitalised by the tech giants and FinTech start-ups. (Busch & Moreno 2014.)

Another issue arising is of security concerns: the ever-increasing relevance of cyber-security. Banking malware is primarily designed to illegally gather banks’ customers’ credentials: over half of EU member states report cases of encountering banking Trojans (European Police Office 2014, 25). Such predicaments, however, should not discourage the incumbent banks: the airline industry, in comparison, endures even larger threats, and yet the incumbent airlines have automated and digitally enhanced their customer experience over the course of the last decade (Olanrewaju 2014).

Per the results of MIT Sloan Management Review’s survey of 4800 executives and managers, the banking sector comes in the bottom five amongst digitally maturing companies as regards using the digital technologies to enable better work with the employees (Kane

et al. 2015, 9). One may conclude that there appears to be a desperate need in enhancing the digital HRM tools and project management tools within the industry.

As demonstrated, the banking industry offers a great many opportunities for digitally transforming companies. The considerable size of the industry also provides examples of both digitally mature and transforming enterprises, in addition to a plethora of conventional ones. It is sensible to assume that this division between digitally transforming and digitally mature companies is key to understanding the impact of the digital transformation.

2.2.2 The ways incumbent banks digitally transform

Despite the digital opportunity, as the diffusion of innovations would suggest, few banks digitise processes en masse and even fewer commit full time to the digital banking: for instance, McKinsey&Company reports that, across retail banks in Europe, only 20 to 40 per cent of processes are digitised, and the vast majority of firms allocate less than 0.5% of their expenditures to the digitalisation; moreover, the estimate is that up to 25% of costs could be saved by digitally transforming the processes (Olanrewaju 2013).

Incumbent banks can approach the matters of digital transformation from a few angles. For example, one could elaborate on some methods (IBM Corporation 2015; Quesada 2016; Ryan 2016) and explain why they might not be sufficient on their own:

- ❖ They can acquire existing digitally mature banks and FinTech companies in an attempt to integrate their solutions with the bank's regular offerings (or aiming at subduing any niche competition from the smaller companies in a particular geography).

This approach does not address the need to transform the whole bank, therefore, the core bank could end up limiting the offering and reducing the customer value proposition (e.g. longer processing times, additional security checks, mandatory physical presence for selected services, etc.)

- ❖ They can invest into a service delivery platform where they would offer third-party FinTech products under the bank's own brand and the bank's new or existing digital channels.

This approach, whilst preserving the variety and levelling the playing field, could run into the problem that the incumbent bank's demographic does not map perfectly to the FinTech's: as a result, limiting the reach.

- ❖ They can create new digital bank brands, marketed as an independent entity in hopes to reach new demographics and compete directly with the FinTech companies.

This approach does not solve any infrastructural and product design problems that still exist in the incumbent banks.

- ❖ They can develop projects internally by having a number of FinTech intrapreneurs and creating a dedicated department that would then gradually digitise the core functions of the bank and turn the core value proposition digital.

This approach takes the most time and requires a continuous allocation of capital and resources to ensure the project's success; consequently, it is the most disruptive approach that could potentially lower the short-term revenue.

- ❖ They can establish a digital bank subsidiary that would provide a fully streamlined end-to-end experience with an agile and modular back-end systems in addition to new channels.

This approach allows for circumventing resistant and rigid organisation of the founding bank, but, albeit taking less capital and commitment than the previous method, it holds a natural growth limit of the subsidiary, i.e. it can't grow any higher than planned and the expansion would require either greater capital contribution and legal restructuring (e.g. giving greater independence and positioning the head office as the holding company for the legacy bank and its digital subsidiary) or transformation of the bank and the following integration

Fortunately to the traditional banks, affiliation with the incumbent banks tends to create more trust rather than limit the demographics: digital subsidiaries, e.g. ING Direct, HSBC's First Direct, BNP Paribas' Hello Bank, and others, showcase this quite clearly. Even successful start-ups show more credibility when affiliated with other financial institutions: e.g. Simple is acquired by BBVA and Moven has an ex-CitiGroup executive in their leadership team. (IBM Corporation 2015.)

The conventional and transforming banks face two layers of challenges: transforming internally and externally.

As such, the key challenges concern how to deal with the legacy systems: should there be a new organisational structure, should the strategy be adjusted, and should the hire criteria be re-examined? And, once the internal and infrastructural issues are resolved, how should a bank approach its physical and digital channels: how to convince the old demographics to transition and how to reach the new ones, how to create a meaningful customer experience and a competitive customer value proposition, and how to communicate the service offering without physical presence? It is worth noting, that surmounting those challenges requires not only altering the structure and the core products, but also the positioning and branding.

2.2.3 Success factors for FinTech companies and digitally transforming banks

If one were to observe the existing digitally transforming banks (DTBs), it could be suggested that the divide between the conventional banks undergoing the digital transformation and the mature digital banks is systemic: the digitally mature companies have both structures accounting for the digital nature of their service offerings and the customer base that expects them to provide the desired service via a digital medium. Traditional banks must both change their positioning by making effort in external communication of their offerings as well as, typically, undergo partial or whole re-structuring. The natively digital firms in the industry do face challenges still – the prime one being convincing the clients of the incumbent banks to switch.

FinTechs and digitally mature banks have not only the advantage of inherent agility, but also, owing to the digitalisation of services, they do not require to have any physical premises. At the same time, it capitalises on the role of IT experts working for the company.

That said, as long as the back-end IT architecture is good enough to allow for real-time customer interactions, it ceases to be a competitive advantage, and, rather, becomes an industry standard. Instead, technical aspects like communicating the customer value proposition (CVP), user interface (UI) and user experience (UX), and digital channel availability take the precedent as the key technical competencies (Lipton, Shrier & Pentland 2016, 7).

In order to create a quality customer experience (CX), the banks should meet and exceed the clients' expectations; such practices may include:

- Communicating via customers' preferred mobile channels;
- Analysing customers' needs and showing this understanding via offering advice and suggestions brought to the clients on personal basis;
- Providing peer group analytics for the customers;
- Guaranteeing customers' security;
- Offering multiple ways of payment, investment, services, and other. (IBM Corporation 2015.)

Both traditional banks and DTBs share the essentials of good customer service, but the emphasis thereon that the digital strategy requires makes all the difference.

A richer customer experience begs a question of how a digital CVP can differ from the incumbent banks'. Some services that originate from the technology sector may not be unique to the digital banks and FinTechs anymore, yet the traditional banks still fail to deliver service mixes of those products to offer all-included solutions.

An example of a service that is common across both DTBs and traditional banks is mobile payments. Conventional banks may use mobile applications or online platforms to allow customers to do payments and transfers on the go, but, typically FinTechs would build up an extensive service offering from that. For example, Moven offers to keep track of the customer's spending, advice on daily spending, and note unusual spending behaviour (Movencorp Inc. 2016), like a personal finance management app would; Simple, a similar FinTech, would also offer a safe-to-spend feature that recommends spending based on the financial history and scheduled bills (Simple 2016), effectively adding an extra layer of finance advisory service; in a different case of Mint (Intuit Inc. 2016), one can witness a full transition from the original idea of having an app to track payments into a service that provides alerts, reminders, and insight into fees and hidden payments from the connected accounts via notifications without a need to log in into each account.

Similarly, on the frontier of classical banking products, FinTechs gain advantage by adding value, as opposed to cutting costs (Solodkiy 2015), for instance in lending services: Financeit use their direct-to-customer loan application, providing instant point-of-sale (POS) loans, allowing the customer to choose the loan plan afterwards on their own, and keeping customers' personal details undisclosed for any third party during a purchase with a POS loan (Financeit Canada Inc. 2016); companies like Square enhance their SME loans by offering repayment forecasting with repayments done not on a monthly basis but with each customer transaction, reducing risks by using data, and other features (Square Inc. 2016) – integrated with services like tablet-based cash registers allows for both the bank and the customer to gain insight into what loan plan and borrowed amount would make the most business sense; meanwhile LendingClub used its business of peer-to-peer loans to create a sub-environment of loan-based crowdfunding (LendingClub 2016), competing with crowdfunder-centred platforms.

Several digital features could be seen as revolutionising the financial service industry (FSI). Application programming interfaces (APIs) – standardised sets of functions and procedures used as a foundation for third parties to access certain service, integrate it, and, in the case of open APIs, build upon it – allow for swifter product development and reduced time-to-market. Some online accounting products, like Xero, show that APIs hold greater opportunity when integrated with other services: for instance, a traditionally manually added transaction data for an SME's bookkeeping needs can be fully automated by introducing API to the SME's bank, allowing SME's financial management software to access their bank's data in real time (Xero Limited 2016).

An interesting case could be made in favour of open APIs, i.e. APIs that can be accessed and modified by the general public: products like Open Bank Project (2016) enable the third-party created services and solutions that can be easily integrated with the existing banking systems – a potential for innovative products and greater value for the customer.

Another example of API used for other parties to integrate their apps with the service provider is Tide, an in-beta SME banking and accounting service (Tide 2016). Tide's is a curious case of customer experience lying in the heart of their monetisation plan: the founder explained their decision to have no monthly fees and open API as a factor creating value, instead, trying to connect their customer to the company's partners and their finance apps (Weston 2016).

An emphasis on CVP in the core of monetisation model could be commonly traced: in the case of Aspiration bank, a saving and investment digital bank, they offer not only competitive products with 1% annual percentage yield and no monthly fees but also no ATM fees world-wide; in exchange they allow the customers to decide themselves what fee the bank deserves (Aspiration Fund Adviser LLC 2016), whilst pay-what-you-want business model is not new, it has been barely ever used by the financial institutions.

Another technology rising in the ranks across both specialist start-ups and banks is the blockchain technology: an approach of publicly distributed databases behind the cryptocurrencies (The Economist 2015). The appeals behind having a standard blockchain are a security, efficiency, and lower costs (Murray 2016).

Some of the world's largest banks aim to develop an industry standard to clear and settle financial trades over blockchain, effectively creating their own virtual currency, "utility settlement coin", to roll out in 2018 (Southurst 2016). Banks' need is apparent: according to a study, clearing, settlement, and other processes that could be performed via a blockchain cost banks 65-80 billion USD yearly; utilising blockchain to those ends could save up to 20 billion USD (Irrera 2015). Whilst creating a settlement currency is no revolution (indeed, the IMF created its own kind of reserve assets, Special Drawing Rights or XDR, for similar purposes back in 1969 (IMF 2016)) and some proponents of the cryptocurrencies would assert that the whole point of blockchain is to provide a decentralised architecture, such a currency would allow for expense reduction and for cutting staff involved with asset tracking, documentation verification, and transaction reconciliation nevertheless.

Some experts draw a line between the approaches of a FinTech company and a digitally mature bank (or simply referred as a digital bank). Specialist start-ups, technology companies with FinTech products, or even internal platforms for FinTech services within the incumbent banks, and other could all be dubbed as FinTech companies, but not necessarily digitally mature banks. Such distinction, whilst mostly semantical, can be drawn fairly well: a digitally mature bank would not focus its competitive advantage narrowly and would aim to align their strategy around digital services, to hold user experience design as the key value, and to possess the technological expertise to deliver the offered FinTech solutions, including most prominently a real-time banking core and customer data driven analytics. (King 2015.)

Moreover, financial products are being developed and sold by the companies outside of the financial (e.g., Google and T-Mobile introduced plastic card for their checking services) and even the technology sector (e.g., a third of Starbucks' revenues are paid through its own loyalty card) (Busch & Moreno 2014) – this, again, underlines the shift of banking into being treated as an added value service and the divide between FinTech service providers and digitally mature banks.

It is worth noting, that not all the above-brought examples of companies and products would necessarily provide superior or balanced service, but they do set a large precedent, incentivising banks, start-ups, and companies from outside the FSI to develop and offer FinTech products.

Companies need not necessarily offer a full package of all digital services possible to be considered a digitally mature bank. It could be argued that an ideal digital bank presents a quintessence of what the transforming incumbent banks or the expanding FinTech companies aim to become.

The key to succeeding as a DTB very much lies in the shift from traditional banks' strategy and values: customer experience is the root of both. Banking is seen as a service that has to be available to the customers via the channels they prefer; customer focus allows for using the existing solutions to offer data-driven personalised products to enhance the value proposition. Customers' needs dictate the direction of a DTB as much if not more than the available resources: if customers need a unique service mix not offered commonly, a DTB should be agile enough to be able to either offer it in-house or integrate a third-party solution.

2.3 Digital bank service strategy

In this sub-chapter, the approach to service strategy of digital banks is examined: first section attempts to answer how do digital banks design their products and services to meet the ever-changing customer demands; the following two sections seek to describe the manifestation of the service strategy in the front and the back end respectively; finally, the last section considers the effects the workforce structure is having on the strategy as well as how the key players in the banking and tangential industries sets the new trend for the human capital strategies. Those elements are illustrated in figure 3 below.

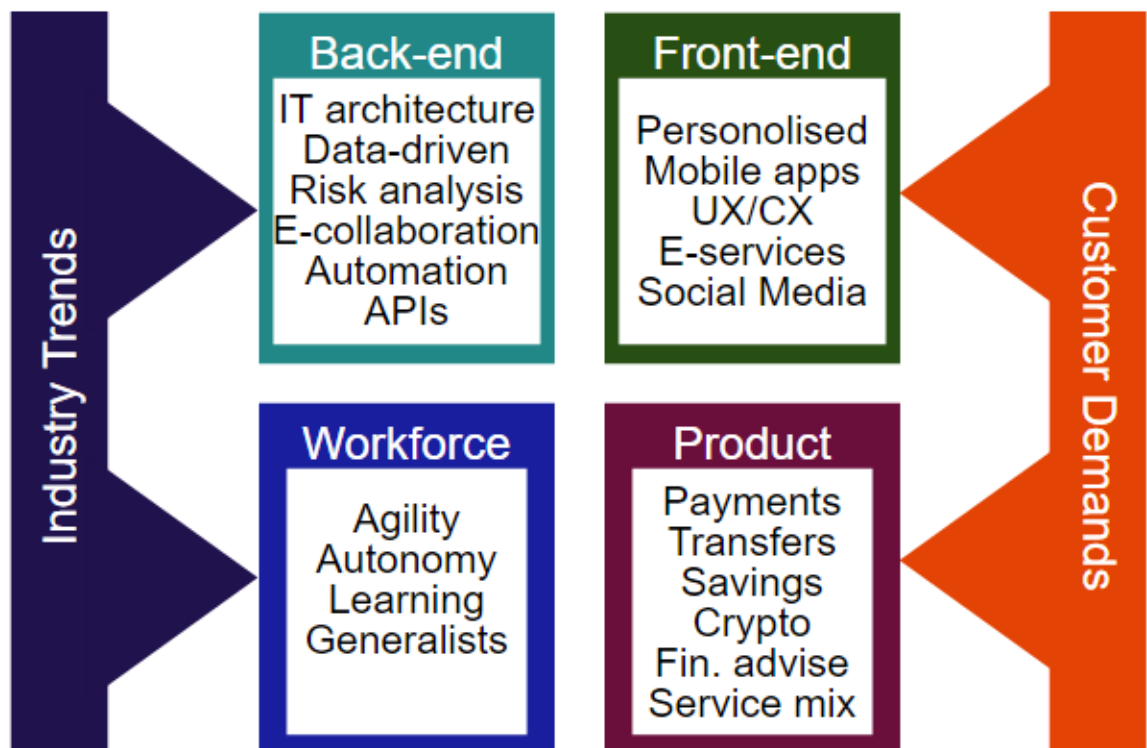


Figure 3. Elements of the digital banking service strategy.

This model is based on this sub-chapter's conclusions; it is referenced here before the main content of the sub-chapter to give a clearer understanding what issues are covered by each section.

This sub-chapter begins with outlining the thought process behind the product design in the section 2.3.1. Several aspects of product strategy are discussed: the main kinds of products like payments, transfers, and savings; service integration of the core products in a unique service mix by adding supplementary services like cryptocurrency support, invoicing, bookkeeping, and financial advisory; monetisation decisions are also reviewed.

The section 2.3.2 covers another element largely shaped by the customer expectations – the front end. That section discusses how the use of digital channels can be used to create customer value proposition.

The product development is discussed in the back end section 2.3.3, that explains the importance of big data and APIs for the digital banking.

Lastly, the section 2.3.4 re-focuses on how the human capital employed in banks is used in making a competitive product. It is examined from both managerial points of view as well as from employee perspective, in terms of what expertise and qualities are expected from them.

These elements are considered from a perspective of a “general” digital bank: largely applicable to most DTBs and FinTechs.

2.3.1 Digital product design

Competitiveness originates in reducing the back-end effort: many FinTechs benefit from that by either integrating services of bigger banks (via partnerships or acquisitions) or by building a back-end-relaxed infrastructure from the ground up; furthermore, as mentioned in the section 2.2.3, application of third-party APIs and real-time banking can halve time-to-market (Accenture 2015a). Up to two-thirds of value to be gained via digitalisation of banking appears to be accountable by the cost base reduction (Olanrewaju 2014) as opposed to lifting the revenue, which goes to show that the investments beyond the front end act as the foundation of a digital service.

Having the architecture in place, the two main areas of cost savings compared to the traditional banks are the above-mentioned back-end automation and migration of the front end to the digital channels itself. One should not forget that the latter, although an integral feature of the digital banking as is, can serve as a cost saver (Olanrewaju 2014) as well as a medium for adding value when compared to the incumbent banks with their unwieldy semi-enabled legacy e-banking services (Davies, Kashyap & Ruetschi 2016).

Still, the back end, whilst a vital requirement for a digital bank, does not provide any competitiveness on its own. The DT implies shifting the company’s strategy to a bigger or lesser extent, depending on the company’s digital maturity. Since the product delivered to the customers presents a clear indication of how well a company is doing (at least in a

short-run), the design of front-end interactions along with a carefully tailored monetisation approach are in the heart of the digital service strategy.

To sustain the competitive advantage, the digital banks retain the customer base by capitalising on the uniqueness and quality of their CVP. Service integration and data-driven personalised solution drive the CVP-centric service approach. Furthermore, this allows and, in fact, implores customer targeting via digital marketing and micro-segmentation (Olanrewaju 2014). Digital banks have a unique opportunity to offer a selection of services normally attributed to separate businesses within the industry – e.g., savings, payments, transfers, exchange, investment, bookkeeping, taxes, advisory, and other – can now be combined into unique offerings along with other brand new services, like third party integration, mobile notifications, covering the ATM fees, crypto-currencies, etc.

That said, even solid business models fall should the financing plan fail. As such, the monetisation approaches of digital banks play a key role in initial success and adoption of the higher customer base: for instance, Accenture suggest that the experience that digital banks have on offer are perfect for aiming at lower-cost transactions and additional service fees but at competitively higher volume (Marous 2014).

An indispensable factor of long-term profitability is full transition to fee-based income from and development of the offering line-up to incorporate the basic deposit or transfer services into more complex products: this is based on the fact that the more profitable products, like capital loans, mortgages, and wealth management services constitute a high share of a typical bank's revenue yet occur infrequently compared to everyday transactions (IBM Corporation 2015). The conclusion to follow is two-fold: that the more profitable products require yet more customer trust and greater commitment from the bank to creating a solid customer experience, and that the bank should be sustainable when running on frequent lower-cost fees solely.

As the early adopters of FinTech and digital banking services had set the precedent, the demand for such services arose, and the market players, old and new, must face it by tailoring their strategy to it. A successful digital product strategy has temporal layers to it:

- ❖ In the short run, a digital bank cannot function without a real-time core and the vital IT architecture; establishing credibility plays an important role in building trust, as such attracting former bankers and investment from the incumbent banks could be beneficial: relying on the outside investment is detrimental in itself, though, hence the bank should focus profitability via back-end costs reduction rather than uplifting the revenue.

- ❖ In the medium run, a digital bank must build its external brand and convince the customer in the customer value of the product; as such, an emphasis on customer experience and unique service line-up serve as means to attract and retain customers beyond and within reach of the traditional banks.
- ❖ In the long run, a digital bank must focus on service development to be able to offer any customer any kind of product; long-run success is marked by a transition to more sustainable revenue channels, like transaction and monthly fees on the lower-cost operations.

2.3.2 Front end: external venues of service delivery and customer experience

Since the primary venue of digital banking is the Internet, mobile applications play a key role in service delivery. As a matter of fact, a number of FinTechs position themselves as “mobile-first”, justifying the smartphones being a more customer-friendly platform and much more secure than in-browser e-payment platforms and less prone to make mistakes in the process than in-person exchange in a physical bank (Weston 2016).

The matter of channel preference is an important one. The situation varies across the geographies, yet a common trend can be seen. In 2012, a survey of 28000 customers worldwide who use investment services by Nielsen showed that online competes with the branches as the channel of choice in most regions except for the Latin America; both online and physical branches are used by more than half of the customer base (Brandt 2012). In 2014, 37% of all individuals surveyed in Europe reported using online banking (Statista 2015), whereas, in a different study, 38% of 12000 surveyed Europeans claimed to have used mobile banking in the same year (ING 2014).

Mobile banking in particular gains popularity amongst the consumers; it now competes with other established channels as online, ATM, call centres, and branches. A report by KPMG’s UK practice supports this view; using the primary data collected by UBS Evidence Lab, they state that due to the accelerating rate of digital channels adoption, banks ought to have clear reasons if they are not investing enough. In some cases of certain developed economies, they conclude, there is a negative correlation between effectiveness of mobile banking and likelihood of customers remaining with their current bank; the report conjectures that it may be a sign that many of the early adopters amongst the consumers are economically active and technologically savvy, resulting in this segment being more demanding. (Hodgkinson 2015.)

It is apparent that with the digital channels becoming an industry norm, they cease to be an advantage on their own: hence, a need to attract and retain customers via enhanced customer experience arises.

In an IBM study, they define customer experience (CX) as the impact that certain interactions make that create a feeling or attitude toward a bank. (Armstrong, LaValle, Lieberman, Walters & Wilczynsky 2005.)

It is worth noting, that within the digital channels, the traditional marketing term of CX becomes interchangeable with, originally, a high technology sector term of user interface (UX). This does not mean, withal, that the incumbent banks necessarily would rank having a UX strategy as high as having a CX strategy: this depends entirely on what share of the customers use the digital channels and how many services are offered thereby.

CX is something that FinTechs tend to pay special attention to. In the essence of creating a decent CX lies addressing pain points the customers face when interacting with their banks. The front end of a traditional bank is about the customer service and branch locations, with the user interface (UI) of the digital services build atop original services and systems, whereas natively digital FinTechs only have UI simplicity and remote customer service as the core of the front-end interactions (Pumpurs 2015). Thus, CX is focused on the customer needs and addressing customers' pain points, rather than digitising all of a bank's services.

An argument can be made that an efficient CX would not only function as a utility but also create an emotional response: an important factor in the traditional bank and even more so in digital given the lack of the "face" time with the customers. CX is one of the key elements that allows to convey and validate bank's corporate values, e.g. trust and dignity, in lieu of focusing solely on service delivery and customer-related performance metrics. (Armstrong et al. 2005.) This indicates that CX has not only to meet customers' expectations but surpass them whilst, ideally, delivering the brand-established promises.

CX is a prime medium of communicating the CVP, but it does not solely convey inasmuch it plays the role of creating the value through personalised services, i.e. data-based insight and advice, directly to the customers. An Accenture survey of 4000 retail banking customers in the US and Canada concluded that most customers would like their banks to offer advice pro-actively in deciding what banking products they could use to meet their needs; furthermore, half of the respondents reported that they want to have a real-time access to their spending analysis; a quarter indicated they would pay a fee for budgetary advice (Accenture 2015b).

An exemplary case of how the customers shape bank's choice of channel and approach CX can be made of ActivoBank from Portugal: by the means of social media content creation and enabling account opening via Facebook, the bank set a precedent so significant, the Portuguese authorities had allowed opening bank accounts without physical signatures (World Finance 20 June 2016).

The front office's role in a digital service strategy is to communicate the CVP to the customer and to communicate the customer's needs back to the bank. As the digital channels become not only convince but an industry standard, ability to attract customers, communicate the CVP, and offer quality customer service become indispensable: CX and, convergently, UX move to the fore-front of the competitive advantage; their function, however, is to establish relationship with a customer in a little to none human interaction environment to communicate and facilitate the use of the bank's products – it does not offer sustainable advantage on its own should there be no quality product to begin with – ergo, it is imperative to use the customer data to ensure that the service is indeed the one that the customers look for.

2.3.3 Back end: service development

As the processes of service development and support become more and more digitised, the greater burden falls upon the organisational IT. A common solution, nowadays, is to deploy IT infrastructure via a cloud service. Albeit public and hybrid clouds do pose a threat, they still can be used to assist with back-office and administrative processes that do not involve sensitive customer data directly. For larger banks, this allows to: facilitate collaboration across different national practices and branches; use of cloud allows for incorporating third-party platform and services in addition to the bank's core offerings; for instance, enabling payment providers would foster standardisation of the transaction processing (Mishra 2015).

Moreover, cloud computing is the key to efficient processing of the customer data and gaining insight into each individual customer allowing for delivering both efficient and personalised customer service. Here, the private cloud infrastructure comes in: foundational agility drives down the costs of ownership of the dependent IT systems, like virtual desktop environment; each element of the architecture is built in accordance with specific business products in mind; the private cloud allows for active security and backups to be in place. (Kaplan & Seth 2016.)

Given that the analytics of both customer and operational data play a considerable role in designing any product, it is little wonder that there is a lot of attention to big data. In fact, much of the major decisions in banking tends to be data-driven: the most common areas are in customer sales leads and in risk management (Daruvalla 2013). Predictive analytics, however, are not the sole application of big data.

A variety of prescriptive algorithms is used in the machine learning solutions to offer automation of some of the bank's back office. Different processes beg for different levels of automation (automated partially, automated fully, or kept manual) based on the complexity of the process, legal regulations (e.g., financial reviews), the degree of self-containing (i.e. not dependent on multiple interactions at once), and need of having manual points of interaction with the customer for added value (Dias, Patnaik, Scopa & van Bommel 2012).

Since not every process can be automated, it is only sensible for the business software to offer solutions to increase the operational efficiency by the means other than automation. Along with classical business ICT tools (like ERP, procurement, HR solutions, finance operations, and third-party platforms) one may note many of solutions attributed chiefly to banks: retail and commercial deposit and lending, centralised payment processing, cash and liquidity management, leasing – and most prominently – digital customer engagement (SAP 2016).

There is nothing new about the concept of customer relationship management (CRM) software per se; as discussed in the previous section 2.3.2, CX can be argued to be amongst the competitive advantages of the digital banking, as it is the only tangible way for the clients to position the digital banks without any physical presence.

The goals behind the digital transformation of the back office appear to have a very similar emphasis as the front end's: increasing efficiency and creating a greater CVP. Both goals present two different takes on the competitiveness of the service offering, yet both play the greater role the more banks try to leverage their digital services.

2.3.4 Digitalised workforce

An argument against the importance of the talent in a digital bank can be drawn based on section 2.3.1, which concluded that the major profitability of the digital banks lies in cost cutting, hence many traditional banks (e.g., ING replaced 5800 people with machines (Nelson 2016)) execute layoffs. The digital strategy, however, suggests that it would a fallacy for a FinTech or a digital bank: that the enhanced customer experience and greater

speed of processing with the same staff both imply delivering greater value, one must conclude that, if not increased, overall efficiency remains the same. The key is not necessarily cuts to the workforce but a restructuring of work and increased value proposition instead.

So it appears, that there are two kinds of change present in the DTCs' workforce: a structural change in organisation and a functional change in the competency framework.

It is sensible to expect, that the global human capital trends would still apply to the banking sector, to a lesser or greater extent. Those structural changes (as discussed in the section 2.1.3) concern the tendency to shift towards project work and less rigid functional divisions (McDowell et al. 2016) and greater employee autonomy, especially within technology-intensive business units (PwC 2014). In a wider context, it can be discussed as an overall shift towards more agile organisation – there are, indeed, discussions of this phenomenon in banking.

The consensus as to how to implement an agile and project-oriented approach is not achieved: it is feasible that the contemporary banking model cannot function completely on such a basis; implementing agile practices in banks, however, might still yield benefits. Verint Systems, who offer personnel management solutions, define agile workforce as such capable of cross-departmental collaboration; they suggest that by leveraging customer and employee data skilfully, it is possible to forecast what customers would require what service at what time, thusly enabling placing right people at the right places at the right time, e.g. redirecting idle branch employees to ease the contact centre call and email traffic or assist the back office (Durr 2012). IBM conducted a case study of an American bank that adopted certain flexible workplace practices to manage increasing mass of employees; they reported to have bettered productivity, efficiency, and security by addressing the inefficiencies in portfolio support infrastructure; they located those with data analysis of the workplace environment and resolved the predicament by streamlining the bank's IT's configuration and creating collaboration tools for mobile communication and remote work (IBM Corporation 2012, 10). Accenture promotes their vision of "fluid" workforce, i.e. project-oriented workforce of flexible generalists; in their survey, most of banking executives agreed that new business technology should be used to match characteristics of teams of employees with the immediate business needs and customer demands (Accenture Research 2016, 9).

Since agile management originates from agile software development, it is apparent why FinTech start-ups would have an upper hand owing to their products being largely software-based; moreover, being start-ups, FinTechs do not have to tackle issues of legacy organisational structures and thereby have an easier time adjusting to the changing demands. (Marous 2015.)

Another relevant trend briefly addressed in the section 2.1.3, is globalisation driven centralisation and consolidation: one may argue that a more centralised organisation is a compromise between preserving the existing functional business units and increasing the agility of the workforce. Given that, in banking, most of the traditional business functions are still present, it would add up to a compelling argument; there are, however, no clear indications whether individual banks tend to centralise their chain of commands across geographies. Nonetheless, it is possible to observe a related trend of international consolidation and mergers and acquisitions (M&A) in the industry.

ECB reported on the changes in the number of credit institutions and instances of consolidations thereof between 2008 and 2013. The claim that the consolidation in the euro area banking sector had progressed in the designated period, despite the total number of M&A transaction declining since 2000: the study indicated that the low transaction value is a sign that transaction included banks restructuring and disinvestments, meaning that given the decreasing number and volume of M&A and the persistent precedent of consolidations, the increasing majority ought to be within-group consolidations rather than takeovers (European Central Bank 2014, 12-14). A multitude of reasons can be inferred behind the trend, but, albeit it was not the spread of digital strategies in its inception, the fact that this presents the current state of the market remains, thus making it an issue for banks, both digital and traditional, to account for.

In the reference to the section 2.1.3, the above-mentioned functional change concerns the shift towards generalist and importance of learning – both foci can be inferred based on the key elements of the digital product strategy discussed in detail in the previous section throughout the sub-chapter 2.3: on one hand, as IT-architecture and digital channels become industry standards, it is critical to source right specialists; on the other hand, greater profits can be gained either via reducing costs or offering greater CVP – both require having capable staff, potentially less numerous, with varied skill set, and capable of learning. This conclusion, still, invokes the need for some shared competencies across the most of the workers in the banking industry.

A common concern regarding defining competencies is their inevitable soft nature: Burning Glass Technologies attempted to tackle that issue by creating a grid model of competencies per industry as a result of job posting analysis in the USA. They concluded that, in the financial industry, communication, MS Excel, and organisational skills are in the top three of the soft demanded competencies and customer service ranked number 7; conversely, the report indicated that the greatest skill gap in the industry is, indeed, in a lacklustre customer service and supervisory skills. (Burning Glass Technologies 2015, 8-9.) One could suggest that, in relation to the DTCs, this does indicate a need for capable management, especially to undertake any of the above-discussed approaches to restructuring, as well as a need for the customer service experts; customer service being, as it has been reiterated, amongst the key to gaining an edge as a digital bank.

Industry trends, as well as the few studies focused on the workforce in banking, indicate that restructuring in banking is undergoing, hence the digital and HR strategy should account for possible within-group consolidations for bigger incumbent banks or takeovers for FinTechs and small national banks. The key structural change is the shift towards more flexible and agile organisation, hypothetically lowering the numbers of full-time employees and focusing on housing more generalists (whilst makes business sense as far as costs' and efficiency's concerns, there are no indications it is an inevitability, though). The core functional shift is the ever-increasing demand for the customer service skills in addition to the abilities to learn and acquire technical skills at the workplace.

2.4 Predictions for digitally mature banks

This sub-chapter concludes the theoretical framework with a summary of the different kinds of the DT in banking. The first section outlines what kinds of the DT there are and what of companies would see the DT in such ways. The second section conjectures an image of an exemplary digitally mature bank. The model of the digitally mature bank is compared to other types of companies in the industry by several criteria in what is named the digital bank paradigm.

2.4.1 Kinds of the digital transformation in banking

Given that banks and FinTechs alike follow similar trends (but on different scales and to various degrees), one may deduce a model of what kinds of companies would emerge as a consequence of the industry trends (as discussed in sub-chapter 2.2) and the commitment to the digital product strategy (discussed in sub-chapter 2.3).

With the variety of the companies offering their digital banking products, it could be concluded that there is not only the difference in digital maturity but, more importantly, in the ways they view and execute their digital transformation strategies.

In this study, three prominent kinds of digital transformation in banking have been discussed thus far:

1. Superficial transformation can be seen amongst the late majority and laggard adopters of the digital products and strategies across the incumbent banks. Such banks largely follow the traditional banking practices and provide a limited selection of digital services.
2. Gradual transformation is the process of the digitally transforming banks that attempt to integrate the digital services into their banking core and enable their existing product for digital channels.
3. Conceptional transformation is a sort describing the digital strategy of non-banks, being either specialist start-ups or large enterprises from outside the FSI, that have always offered digital products since their conception and now offer focused digital services to target selected consumer groups or to benefit from concurrent trends.

The standing question is how, based on the current industry trends, could the digital maturity in banking be envisioned. Before conceptualising the model, it is worth investigating related terms proposed by experts. Cisco have developed a description of various stages of the digital banking industry, including “Digital Bank 4.0”: a concept of a bank offering a variety of core products digitally, emphasising on the customer-centricity and multi-channel strategies (Bradley, Loucks, Jameson, O’Connel & Barbier 2014). Accenture designed a model of “Everyday Bank”, which they define as a bank with an integrated digital ecosystem: customer data analysis to provide just-in-time services, automated front and back offices, and integrations with third parties in other industries (such as retail, leisure, communication, etc.) to reach more customers and establish more profit pools (Accenture 2015a, 5). There is a common view of a hypothetical digitally mature bank, one that has concluded their current digital transformation. Hence, a fourth type of the DT can be added:

4. Concluded transformation is a hypothetical state of an enterprise that has aligned their strategy with the current digital trends. Such a digitally mature bank, or simply a digital bank, would most likely be formed from a successful DT of an incumbent bank along with acquisitions of relevant specialist technology companies.

This preliminary description is lacking in direction. To clarify what is an exemplary digitally mature bank, all four kinds of the DT in banking should be compared by a number of criteria defined throughout this chapter.

2.4.2 Digital bank paradigm

The idea of the digital bank is a quintessence of what FinTechs and digitally transforming banks alike aim to become. There are several criteria to assess the trends across different kinds of companies, but there are also varied views on what firms in the industry are leading the in the digital race and who will benefit the most in the end.

One view favours FinTechs as the “great disruptors” and that all of banking is destined to be transformed into an everyday supplementary service. Another view favours the incumbent banks and sees the FinTech hype as just that: a marketing bubble. Yet a more moderate view foresees the incumbent banks slowly acquiring most of the “big stars” of the FinTech world, leaving much of the market behind the traditional banks with a limited selection and slower-than-average adoption of new digital banking products, whilst leaving the most resilient FinTechs out to their own oligopoly in a few niche markets. (Sorkin 2016.) It is beyond the scope of this study to foresee how exactly the FSI will adapt to the new digital players, however, it is important to realise that there are multiple ways for an industry-wide digital transformation on a market level.

The four kinds of the DT of the banking industry are compared in table 1, with an in-depth explanation of the choice of the criteria following below.

Table 1. Kinds of the digital transformation in banking.

Criterion	Traditional bank	Transforming bank	FinTech	Digital Bank
Digital strategy	Digital is a premium	Digital is an equal alternative	Digital is the prime service	Digital is an integral element of the strategy
Branding	Core banking is separate brand from the digital	Subsidiaries with or without own brands	Digital brand from aimed at a certain customer group	Singular digital brand reaching all demographics
Product	Core banking	Limited digital supplementary services in addition to the core banking	Selected number of core and supplementary services	Core banking integrated with other services
Front end	Physical venues	Multi-channel delivery	Customer experience	Customer-tailored service:

				both automated and personal
Back end	Partly digitised	Off-shored to subsidiaries	In-house development	Standardised across the partner network
Workforce	Functional hierarchy with geographical divisions	Global centralisation with cross-functional collaboration	Lean organisation with specialist	Agile organisation with generalists as the core staff

The first criterion is digital strategy since DT is, above all, a strategic change of a company's products and operations (as it was concluded in sub-chapter 2.1). Transforming banks indicate a shift from the traditional model by adopting more digital options; for FinTechs, the digital products are the prime and only products; a digital bank can be expected to offer a multitude of products, not all necessarily digital or digital-only, but with a clear majority of the services being digitised and the company strategy based around the digital channels.

The next criterion is branding. The changes organisational structure brought about by the DT, e.g. restructuring, consolidations, and M&As, could have a drastic effect on the positioning (as discussed in sub-chapter 2.2). Neither incumbent banks nor FinTechs tap into the maximum available demographics (e.g. banks tend to be too concerned about competition and retaining customers within the industry, resulting in more rigid and conservative brand image, whereas FinTechs tend to target very specific and niche customer groups and direct most of their marketing effort thereto), hence it is only rational of a digital bank to attempt to reach demographics as wide as possible with its established digital brand.

The following four criteria are the four elements of a digital bank service strategy (as discussed in sub-chapter 2.3). To briefly outline them in relation to the vision of the digital bank:

- ❖ Product design is shifted towards offering a “full package” view with additional services integrated therewith; a significant such service is personalised financial advisory – one amongst many other heavily data-driven offerings.
- ❖ Front office is responsible for delivering customer value proposition, an important aspect of banking, whose role only increases with the introduction of digital channels; utilising those channels require insight from both banking and technical sector to create a compelling customer experience with very little direct customer interaction.

- ❖ In the back office, much becomes standardised, outsourced, or off-shored; with the addition of full or partial automation, the back end becomes the greatest cost saver for a digital bank.
- ❖ If the organisational and workforce trends persist, it is reasonable to expect digital banks to be products of M&As and consolidations, and the organisational structure notably more agile and flexible than of the conventional banks yet more hierarchical than those of FinTechs.

There are two main forces behind the advent of the digital bank: one is industry-wide consolidations, including partnerships with and acquisitions of specialist and, specifically, FinTech companies by the larger banks; another is an increasing number of digital consumers and digital products, setting frequent precedents, and raising the customer expectations and demands. The latter is facilitated by the fact that digitally transforming an enterprise not only means a potential for a better CVP but an even greater opportunity to increase efficiency and save costs across the value chain and, especially, in the back office – which ultimately enabled high technology and FinTech companies to capture their shares of the market. As such, it is reasonable to assume that a digital bank would follow current trends and, ideally, build upon the approaches of both incumbent banks and FinTechs.

Were one to generalise the case of digital banking to a generic digitally transforming industry, it could be assumed that any such industry would include conventional incumbent firms, digitally transforming incumbents, specialist start-up companies, and ideal digital enterprises. Forming a digital enterprise paradigm, albeit a curious sentiment, does not lie within the scope of this study nor has there been reviewed any specific secondary data sources with regard thereto.

In summary, the digital bank is more flexible and employs fewer people, most of whom tend to be generalists, as many specialists, especially technical one, can be easily contracted on a fixed-term basis should a need arise. The digital bank offers a range of services beyond the core banking and delivers them via a multitude of digital channels. The digital bank stays competitive by providing superior customer value, by targeting large demographics both traditional and unconventional, and by reducing operational costs by increasing efficiency via digital and organisational innovations.

3 Methodology

This chapter outlines the methodology of the research. First, the research philosophy is established and the decisions behind chosen data collection and analysis methods are explained; further on, the processes of data collection and analysis are described in finer detail.

3.1 Research question

This study aims to investigate how the digital transformation of an enterprise changes the competency framework of the company and what the resulted skill gap is; the research question (RQ) to address this goal follows:

“How does the digital transformation of an enterprise change the enterprise’s competency framework?”

To discover a thorough answer to the RQ, the following investigative questions (IQs) have been formulated for the guidance of the research:

IQ1. What is the difference between the companies of various degrees of digitalisation?

IQ2. What competencies remain relevant in the digitally transforming companies?

IQ3. What competencies do the digitally transforming companies have in common?

IQ4. What competencies will the digitally mature companies need in the future?

The premise is that one may categorise various competencies by examining the shifts in the strategy, its alignment with the HRM policies, the workforce structure, and the product strategy. Ergo, this research takes a snapshot of the companies of different degrees of digitalisation.

3.2 Research design

This sub-chapter explains the need for the research and outlines the methodology used; it elaborates on the theoretical data sampling and data collection techniques and expands on why and how the grounded theory methodology was used for the data analysis.

3.2.1 Research purpose

In researching the digital phenomena, this study follows the philosophy of critical realism and combines the inductive and deductive techniques in the exploration of the subject.

The pragmatist philosophy (Saunders, Lewis & Thornhill 2009, 109) could describe this study, since the digital technology bears changing nature and that the research aim is rather concrete; it does not, however, account for the variety of perspectives taken throughout the research process.

An argument could be made in favour of positivism (Saunders et al. 2009, 113), as this study does aim to categorise (and thus, inevitably, generalise) competency fields and individual competencies to describe the effects of digitalisation – having said that, the goal is not epistemological in nature, merely the means of analysis are, hence such a philosophy does not fit either.

A case is made for the critical realism (Saunders et al. 2009, 115), as this study is very much rooted in the real event ridden with prospects of misinterpretation. The ultimate commitment to either critical or direct realism, however, depends on the eventual quality of the data. Nonetheless, as the study aims to dissect case companies' strategy and workforce practices into certain competency categories, it becomes quite apparent that there is a clear distinction between the real phenomena and its perception, just as the critical view on realism would suggest, unlike the direct realism philosophy.

The goal to describe the effects of the digital transformation on the competencies is achieved via building a model categorising various competencies within digitally transforming companies – ergo, this research ultimately commits to building a theory around the findings – thereby, the study bears inductive, or theory-building, emphasis (Saunders et al. 2009, 490).

It is commonly advantageous for a study to combine both deductive and inductive approaches in the same research (Saunders et al. 2009, 127), thereby, this study heavily relies on its theoretical framework, although the primary data bears undoubtedly much greater weight in forming the conclusions.

It is reasonable to assert that the purpose of the research is primarily exploratory and not explanatory, as the goal is not to establish the causality but rather to illustrate the effects of the transformation on the competency framework (Saunders et al. 2009, 139).

3.2.2 Research strategy

This study combines the techniques of case study and Straussian grounded theory methodology (GTM): the case study is used to select a heterogeneous sample of three companies and build a holistic picture of their digital maturity; GTM is used to analyse the primary and secondary data and form a cohesive relation between those to underline the common themes and causal relation between different aspects of digitalisation.

A case study is a strategy involving empirical investigations of a contemporary phenomenon using multiple sources of evidence (Sander et al. 2009, 146). The case study methodology specifies the problem and proceeds with the focus on what kind of information to collect and what not to (Yin 2009). The research problem, in case studies, typically invokes several propositions based on the existing theory and literature. Despite this study aiming at theory-building, it is effectively impossible to start a study with a completely clean theoretical base (Eisenhardt 1989), thereby the theoretical framework of the study assists the theoretical sampling of the cases.

As such, a case study methodology is used for the data collection's needs: in choosing the cases and designing the interviews.

The aim of the GTM is to generate a theory that establishes the relationship between the data and the higher-level concepts; as such the GTM-concluded theory is grounded in its supposed use and real-life implications, as opposed to a positivist theory that tends to be of more descriptive nature and generate theories from a priori assumptions and axioms (Glaser & Strauss 1967, 3). The former clearly corresponds to this research's purpose.

The GTM was originally formed by Glaser and Strauss (1967), yet later an extended variant was developed by Strauss and Corbin (1990):

- The classical approach, commonly dubbed as Glaserian, is the one opting for starting a research with an empty mind and less rigorous analysis approach (Halaweh, Fidler & McRobb 2008, 4-5) – the Glaserian perspective focuses on emerging a conceptual theory with limiting the overgeneralisation; Glaser assumed that the RQ and the need for the literature review should only come once the data analysis begins to minimise the potential for derailment.
- The Straussian view, conversely, acknowledges the importance of literature review before starting the fieldwork; this approach has some deductive elements and is more open for active participation of the researcher in the process as well as welcoming the researcher's interpretation of the data as the key theory building technique (Halaweh et al. 2008, 5). A significant argument in favour of the Straussian

method is that the literature review and the existing theories are central to the theoretical sampling procedure, as well as for the supplementary validation of the findings (Strauss & Corbin 1990).

Given that the DT, although a novel field with little tangible research, still offers a lot of topical and up-to-date literature presents a great opportunity for framing this very study: as a matter of fact, it would have been extremely difficult to study digital banking sans prior literature review (in no little sense due to the role of technological phenomena largely unknown to the public outside the industry). Thereby, this study opted to apply the Straussian GTM.

The definitive characteristic of a case study is a specification of the scope and the unit of analysis (e.g. industry, organisation, activity, group of people, etc.), which is compatible with the approach of theoretical sampling, referenced in the context of the GTM (Strauss & Corbin 1990, 8). Theoretical sampling is performed on the basis of the phenomenon in question with the relevance being the key unit of analysis.

Since the phenomenon under examination is a process of gradual transformation of individual companies, the theoretical sampling paradigm would suggest following the various kinds of the DT – which this study has established theoretically – and select such cases that would potentially fit the described models; at the same time, the case study approach suggests either using multiple homogenous cases to up the validity of findings or resort to the overview of extreme cases to, as it were, highlight the differences – with the two approaches in mind, this study aims to highlight the differences and similarities across companies in the different kinds of the DT.

As both case study and GTM allow the use of interviews as a viable data collection technique (Yin 2009, 533), and as the GTM considers the interview as the main source of data (Glaser & Strauss 1967, 168), the interviews are the primary data collection method of choice.

All in all, this study's approach includes theoretical sampling of heterogeneous cases companies of the different degrees of digitalisation, collection of primary data via interviews, and conclusions building by coding the findings and underlining the causal relations between the recurring themes.

3.2.3 Data requirements and sampling

This study opts for the use of theoretical sampling, i.e. focuses on the theoretically useful and relevant cases. The focus is on the cases exemplifying the different kinds of the DT in banking as described in table 1 in the sub-chapter 2.4, i.e. a digitally transforming bank, a conventional bank, a FinTech, and a digitally mature bank.

In terms of deciding what people in the case companies should be approached, the aim is to interview the most qualified person concerning both organisational and digital processes. As such, HR specialists and senior managers should suffice.

On the one hand, it may be sensible to aim to collect the data describing the competencies by asking the interviewees directly; on the other hand, given a very subjective nature of what people perceive as competencies and how they categorise them, the data collection should be focused on the bigger picture of changes in strategy and workforce structure and that the analysis should conclude what competencies are in demand.

To consider both points of view, the interview questions focus on the organisational structure, company's HRM practices, and digital strategy overview. The interview structures are examined in-depth in section 3.3.

Due to the exploratory nature of the study, it is challenging to establish with certainty what data should be avoided and what exact themes should be prioritised; to mitigate that, relevant secondary data is collected following the primary data analysis to gain additional insight as well as see if the secondary sources confirm or contradict the primary ones.

3.2.4 Data collection methods

The primary data was collected via online-enabled interviews with the case companies' representatives. As the secondary sources, case companies' job postings, media releases, and, where applicable, annual reports are used.

The qualitative approach is chosen because it would allow the gathering of more various and more in-depth sorts of data, which is of vital role for the theory building. The interviews are a chosen method of primary data acquisition – surveys would hardly offer the in-depth insight required, whereas observation, whilst an effective tool commonly used within the Glaserian GTM (Glaser & Strauss 1967, 161-163), would be too resource demanding

as well as of questionable attractiveness in terms of confidentiality as far as the case companies would be concerned.

A lot of deliberation was put into considering deciding between semi-structured and unstructured interview strategies: whilst the unstructured interviews would be favoured by the Glaserian GTM, it is reasonable to assume that a semi-structured interview strategy would allow focusing on the topics of relevance to the subject matter – as the Straussian approach would suggest. Such topics emerged as the result of the theoretical framework.

The GTM does not discriminate against the use of secondary data – as a matter of fact, it can be coded and analysed in a fashion identical to the interviews (Glaser & Strauss 1967, 161-184). The secondary data come in a multitude of forms – documentary, multiple-source, and third-party surveys (Saunders et al. 2009, 259) – whereas the multiple-source reports and other studies were used in the literature review process, only documentary data issued by the case companies are accounted for during the data collection and analysis stages – this would allow to elaborate upon the insights collected from the interviews as well as potentially verify or dispute the primary data findings.

The secondary data of choice were the job advertisements, annual reports, and media releases – the assumption is that those sources should cover the matters of either or both employee competencies and the digital banking.

The data collection phase is two step for each case: first, the primary data is collected and analysed and then the relevant secondary sources are studied.

3.2.5 Data analysis methods

The data analysis is done via coding the findings to define recurring themes and common categories; the codes then are matched against the prediction of the theoretical framework to see if the case companies fit the descriptions of the different kinds of the DT in banking; the causal relations between the categories are afterwards established and used in model building of the digital bank competency framework.

During the analysis stage, the key process of the GTM is disaggregating the data into labels of recurring themes and categorising those “codes” by related phenomena, commonly known as coding (Strauss & Corbin 1990). Usually, there are three steps in coding: open, axial, and selective coding.

Open coding encompasses the initial formulation of the codes via interpreting objects, events, systems, and actions as common themes or codes. A code is a relevant concept; a group of interrelated codes forms a category; a literature review may provide an initial set of prospective categories to work with, but, in general, the categories are largely formed during the interviews via the interaction of the researcher and the respondents. (Strauss & Corbin 1990, 12.) In this study, open coding is performed during the collected data reporting, throughout sub-chapters 4.1 to 4.4.

Axial coding, essentially, is the process of relating the formed categories to the newly derived sub-categories. Those relations between the categories and sub-categories are designated by applying the “coding paradigm”, which defines several possible relations: causal conditions, phenomena, context, intervening conditions, action strategies, and consequences (Strauss & Corbin 1990, 13) – axial coding is done in sub-chapter 4.5 with the relevant kinds of relations explained therein.

Selective coding is the process whereby all the categories are unified around the core category; the core category is the central phenomenon of the study, in such a way that other categories would always stand in relation thereto as conditions, strategies, or consequences (Strauss & Corbin 1990, 14). Some studies featuring the GTM would advocate the use of storytelling and, specifically, analysis of the storyline -- a conceptualisation of the narrative description of the core category and its relation to other categories (Halaweh et al. 2008, 6). Diagramming in a fashion not dissimilar to the storyline analysis is also applied to foster the analysis; following the axial coding, selective coding is performed in sub-chapter 4.5.

A theory per GTM serves practical purposes: it ought not only to predict and explain the phenomena in question but also provide the researchers understanding and some control over the situation (Glaser & Strauss 1967, 3).

The codes are also used to briefly outline the case companies digital strategies: in the interest of transferability of the results, the resulted descriptions of the case companies are pattern matched against the digital bank paradigm models from sub-chapter 2.4, to see if the chosen case companies do fulfil the premise of the theoretical sampling. This would validate the findings and allows to generalise the conclusions. Although deductive, this analysis method compliments the Straussian GTM by ensuring that the conclusions made by the inductive reasoning are not only grounded in the data but also can be generalised to describe the industry trends at large.

As a result of the analysis, this study aims to form a model of employee competencies that will either remain relevant or gain greater importance within the digital banking sector. Therewith, it also aims to validate the assumed digital bank paradigm preliminary conceived as the summary of the theoretical framework.

3.2.6 Reliability and validity

Reliability is the degree to which data collection and analysis techniques can be trusted and whether it can be replicated to yield consistent results (Saunders et al. 2009, 156). In the field of qualitative studies, there exists an argument that reliability is an irrelevant concept, as a good qualitative study aims to build an understanding of an otherwise enigmatic and obscure situation (Golafshani 2003, 601) – one could argue, nonetheless, that reliability in the context of a qualitative study is indeed the rigour and transparency, which the conclusions are drawn with.

In this sense, the reliability is displayed by disclosing the full interview framework, and describing both the approach to and the actual process of data analysis candidly. The possibility for misinterpretation was lessened by offering the direct quotes of the interviewees; whilst the inherent researcher bias cannot be eliminated, the coding of both primary and secondary data was done in a rigorous and systematic fashion, allowing a reviewing party to establish whether the conclusions drawn were sensible; it is assumed that the data was collected in a neutral manner, yet, as there is always an inherent bias, the coding development table should provide an impartial view by directly comparing similar categories across the case companies.

Validity concerns with whether the relation between the findings is indeed a causal one (Saunders et al. 2009, 157). Yet again, there are arguments against using the term in the context of qualitative research, due to the vagueness of the concept, suggesting evaluating data's quality and trustworthiness instead (Galafshani 2003, 602). One may assume that the latter two categories would describe the validity of a qualitative study by addressing the credibility of the data but not of the conclusions. The latter, however, is addressed as a part of reliability check, in the scope of this study, whereas the former is treated as the primary subject of validity. Additionally, due to the innate interpretivist element to any qualitative research, there can be no direct discussion of the replicability of the study, only transferability of the results – transferability is discussed further down below.

Given that the case companies are left anonymous, the direct quotes of the interviews were included to compensate for that. Some of the case companies showed interest in

this study's results, boosting the trustworthiness of their responses; there is still, however, the risk of interviewees' bias – the only way to minimise its effect is to offer a detailed analysis of the data and check it for contradictions within as well as with the accompanying secondary data. Another source of bias is the researcher's interaction with the interviewees: this, again, is addressed by using multiple sources of secondary data to validate the findings during the interviews. The chances of the secondary sources being false are quite low: false advertising amongst job advertisement is hardly in the interest of the case companies, annual reports are massive and aiming at investors, making them harder to falsify, although, admittedly, the content could be rather light, and the media releases are typically factual and convey either investor-oriented figures or some positive news targeting the key demographics.

Some researchers, like Lincoln and Guba, have proposed alternative criteria to evaluate qualitative studies, namely credibility (quality of data and pluralism of sources), transferability (degree of generalisation of the results), dependability (quality of the research process), and conformability (transparency in the data analysis and conclusion building) (Halaweh et al. 2008, 8).

One might argue that, in the scope of this study, the criteria of dependability and conformability well lie within the defined reliability, whilst validity entails concepts of credibility and conformability as well.

This study, however, did not see a need to affiliate with those criteria instead of the classical reliability and validity, given that the number of interviewees and cases was not too big. Despite the collected data being plentiful, the criteria of Lincoln's and Guba's seemed to have been addressed within the scope of this study's vision of reliability and validity still, through transparent reporting of the research process.

That said, transferability is the only property not addressed via the classical terms: generalisation the results from the case companies on to the industry trends was done via providing a theoretical background in the theoretical framework chapter 2. The digital bank paradigm had been formed independently from the data analysis, hence by showing that the existing cases could be mapped to the theoretical descriptions, it would be sensible to claim that the concluded digital bank competency framework based on the case companies would then, too, be transferable to the same level of the abstraction. Being just-developed novel theories, both the theoretical digital bank paradigm and the digital bank competency framework are subjects to further development, verification, and critique.

3.3 Comparison between the cases of different degree of digitalisation

The theoretical framework's conclusions (sub-chapter 2.4) predicted that companies offering banking services should fall into one of the three existing categories describing different degrees of digitalisation: conventional banks with token digital services, digitally transforming banks with notable commitment to the digital services, and specialist technology SMEs offering focused services or FinTechs – in addition to them, a hypothetical digital bank was defined based on the uncovered trends. Based thereon, the most prominent players amongst banks and FinTechs had been considered, before settling on the three case companies, that would appear to fit the three descriptions formed in the theoretical framework.

The notion of applying case study methodology alongside the GTM is hardly common but not novel; in fact, there is a certain degree of similarity between case study strategy and the Straussian GTM: both tend to focus on the interviews as the primary data collection technique; furthermore, generalisation of the research findings is characteristic of both GTM and case studies (Halaweh et al. 2008, 7).

It is worth noting that the procedure of the theoretical sampling of the case companies was not flawless, and that there was a potential for lower quality of the data or some of the case companies not being as representative as desired, based on the convenience factor: the further data analysis, however, showed that the case companies did indeed fit the descriptions of three existing kinds of digital transformation quite well, with secondary data used in the case 3 to compensate for the lack in primary data.

In the sections below, the case companies are introduced, the interviews' goals are outlined, and the interview questions designed per each case company.

3.3.1 Interview design

All the case companies are present in the same region – whilst it was not a necessary condition, it certainly does provide a more holistic and cohesive depiction of the industry.

Case company 1 (C1) is a multinational bank of more than 10000 employees, one of the largest retail banks in the Northern European region. The company has its own mobile banking app, which displays significant spread. It was expected to fit the theoretical description of a digitally transforming bank.

Case company 2 (C2) is a FinTech start-up of fewer than 100 employees, amongst the biggest in the region; it had been acquired by an incumbent bank and it operates abroad in addition to its domicile. The company's services are fully digital; they offer an account with bookkeeping and invoicing. It was expected to fit the theoretical description of a FinTech.

Case company 3 (C3) is a bank of more than 10000 employees, amongst largest retail and commercial banks in the country. The company offers some mobile and online banking solutions. It was expected to fit the theoretical description of a conventional bank.

There was a common thinking behind the interview designs: the main areas of inquiry were the organisational structure, product design, customer experience, and HR practices. The figure 4 below illustrates the overall vision.

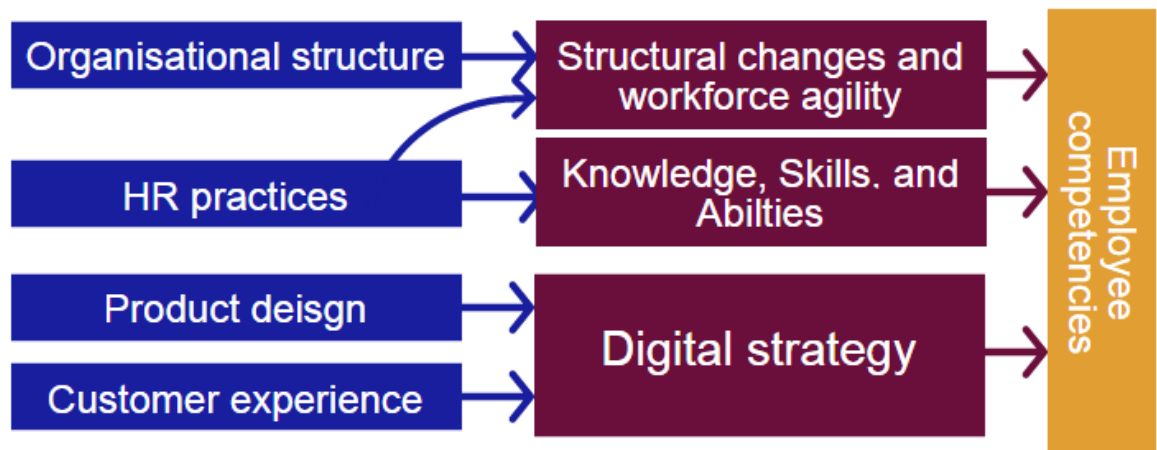


Figure 4. Interview framework.

3.3.2 C1 interview

For C1, which is, first and foremost, an incumbent bank, the selection of questions was the most all-encompassing. It was important to establish all and every way C1 is affected by the digital transformation. The interviewee was the head of HR; the interview was conducted via a Skype call.

Table 2. C1 interview design.

<p>“What is the organisational structure? Is there more functional or project-based division? What areas are outsourced?”</p>	<p>Purpose: form an image of the workforce structure, find out how agile the company's workforce is.</p>
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“During selection/recruitment processes, what are the key common technical and personal skills? How important is learning?”	Purpose: determine the values and demanded competencies.
“What are the areas of knowledge that are equally important across both the employees and the management?”	Purpose: establish what competencies are commonly shared amongst the employees
“What are the key skills that appear either lacking or insufficient of the company’s employees?”	Purpose: affirm the skill gap and whether it is caused by the digitalisation or other causes
“What is the company’s digital strategy? Does the company prefer to take the route of digital subsidiaries or of transforming the core?”	Purpose: verify whether the firm’s digital strategy aligns with the predictions from the theory as well as asserting the effects of the digitalisation on the employees
“Does the company aims at reducing costs or creating extra customer value, when predicting the digitalisation effects?”	Purpose: understand the way the firm react to the trends and the way the company sees competitiveness

3.3.3 C2 interview

For C2, the approach behind the C1 interview was altered somewhat: since a FinTech with digital-only service, certain questions had to be modified or omitted. Nonetheless, the topics were largely similar.

C2 does not have a separate HR department, as such it was especially important to establish the role of the interviewee and the business processes within the firm. The interviewee was the head of marketing and communications; the interview was conducted via a Skype call.

Table 3. C2 interview design.

“What are your responsibilities in your position?”	Purpose: understand the extent of the interviewee’s expertise and general degree of interactions within the company
“What is the overall company’s structure?”	Purpose: form an image of the workforce structure, find out how agile the company’s workforce is.
“How would you describe the company’s core business? Do you position yourself	Purpose: understand the strategy, picture what people/functions would possess the

as a digital bank or a FinTech service provider or as a direct alternative to the traditional bank or something else entirely?”	core competencies for the business.; what function-specific competencies it may suggest.
“What the company does differently that the traditional banks do not? How do you communicate the opportunities to the customers?”	Purpose: establish their service strategy, understand how the digital phenomena shape the business model; what service-specific competencies it may suggest.
“When hiring, what are you looking for? What are the most important aspects of technical expertise and of professional attitude?”	Purpose: highlight what competencies are needed.
“If we take the employees from both core and support functions, what competencies do they invoke? Are there any knowledge, skills, or abilities that are shared across all the staff to some extent?”	Purpose: determine what competencies are perceived as valued and what competencies are commonly shared
“What do you see in the future? What people would you need if you wanted to expand the operations?”	Purpose: uncover what competencies are in high demand or lacking, what are the expectations from the future applicants.

3.3.4 C3 interview

C3 was approached in a similar fashion to C1, yet due to certain issues and miscommunication, the interview was severely trimmed to focus on their HR practices, as the C3’s secondary sources were believed to cover other issues rather extensively. Unlike others, this one was conducted via email and not skype, thus additionally limiting the information flow.

The interviewee was an HR specialist; the interview was conducted via emails.

Table 4. C3 interview design.

“During selection/recruitment processes, what are the key common technical and personal skills? How important is learning?”	Purpose: determine the values and demanded competencies.
“What are the areas of knowledge that are equally important across both the employees and the management?”	Purpose: establish what competencies are commonly shared amongst the employee

“What are the key skills that appear either lacking or insufficient of the company’s employees?”	Purpose: affirm the skill gap and whether it is caused by the digitalisation or other causes
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4 Data analysis

This chapter discloses the results of the data collection from both primary and secondary sources and the open coding stage. The open coding is done in parallel with the results reporting: every case company sub-chapter ends with a coding development summary that offers the view of the formed codes and categories. The last sub-chapter compares the three cases and conducts the axial and selective coding by building a relationship model between the themes emerged from the data.

4.1 Case company 1 (C1)

This sub-chapter lists the findings from the interview of C1. As per the interview design, the main topical areas addressed are the organisational structure, the digital strategy, and the relevant HRM practices affected by the digitalisation.

The primary data was collected via a Skype interview (C1-I). Secondary sources were used to expand on and verify the statements from C1-I. The secondary data refers to the company's job advertisements (C1-JA), annual report (C1-AR), and press releases (C1-PR).

4.1.1 C1-I: Organisation and the workforce

As a large enterprise, C1's organisational structure reflects its global scale. The multi-national nature of the firm contributes to differences in tasks, units, and cultures. The structure overall is fairly static: similarly to other banks in the region, the firm has a number of business units corresponding to various streams of revenue and group operations.

"For example, all market area heads report to the head of the business unit. In a way, we do not have a local but a global business banking unit. So, the head of regional business banking reports directly to the head of the global unit and not the regional CEO."

The more centralised approach to globalised business, although fairly common amongst banks in the region, becomes a trend for many other MNCs to deal with similar trends across borders in a cohesive fashion (as was mentioned in 2.1.3 with the example of Deloitte North West Europe tackling globalisation and digitalisation), and, thus, is noteworthy.

C1 do not outsource any core functions; they do, however, off-shore documentation and IT to other offices in separate countries. The IT department is likely to operate on a project-basis to a certain extent, whereas the rest of the company follows a more conventional functional division. It was said that the outsourcing of any core functions is hard to implement due to preserving the bank secrecy. This is also the first point when the theme of trust appears during C1-I.

The current trends suggest capitalising on the use of mobile banking and new ways of contacting and interacting with the customers thereby. C1 illustrate the emphasis on digital awareness as a re-occurring competency shared by the employees and managers alike.

“More and more even in those units not focusing on customer interactions, like HR, we still have a demand on the digital world being familiar [for the employees].”

There, another aspect of globalisation can be traced: English knowledge becomes vital for the applicants regardless of the region.

“English is the official language: our intranet, and, for example, some of our guidelines are only in English. We are a global bank. Both front and back offices have to be in contact with other countries using English.”

A new perspective was the legislative one. Due to the upcoming EU directive on payment services (PSD2) in 2018, banks will be obligated to share their customers' account information, effectively enabling third-party providers (like tech companies) to manage the finances of the incumbent banks' customers.

In the recent years, C1 have considered learning and development of the personnel. They developed a learning portal; certain courses are mandatory, and several, like anti-money laundry, are required from all the employees. Some virtual courses also have face-to-face days.

“We have built quite a thorough on-boarding programme. We try to make learning general to teach the important topics for all those who needs them.”

In external recruitment processes, part of the aptitude tests examines the learning skills of the candidates. Being a quick learner plays medium importance as applicant criteria.

“If we see that we don’t find the right candidates or right ideas on the inside, we look outside – when new people are coming in, we hope that they come with [novel] points of view, that they can make suggestions what to do better.”

The regulations dictate the demand for certain skills: most prominently, know your customer (KYC) and anti-money laundry (AML) policies.

Another staff issue is incentive models: what KPIs and rewards to assign to the employees.

All in all, in the topics relevant to the organisation and the HRM, themes of globalisation, digital awareness, and regulations have certainly taken a large precedent.

4.1.2 C1-I: Digital strategy

C1 is open to the ideas of cooperation with FinTechs, for instance with third-parties (TPPs) providing supplementary services. Additionally, a notion of service standards consolidation was addressed.

“For example, digital cash management solution will be joint with all the banks in the region: there is no point [for each bank to have their own platform]. There are synergies to be gained if we all use the same platform.”

This view is supported by the insight from C1-PR, following C1 having established partnerships with several financial firms in the region to promote the use of their solution.

Like many other banks, C1’s in-house development of the technology is done via an acquired tech firm, functionally equivalent to the subsidiary. The said subsidiary has autonomy in deciding what is the market situation and what kinds of products and application people expect from digital banking and development of the services. The key difference for C1 is that (unlike the cases mentioned in the section 2.2.2) is that the solutions developed by the subsidiary are used in C1’s core businesses and marketed under the brand of C1.

“We shouldn’t be so arrogant to assume that we can do all by ourselves. If we see a FinTech doing something that we see as important and fit for us, we should take it. But I wouldn’t interfere with how they do things because it was the reason they got our attention in the first place.”

In the argument of whether to save costs or increase the service value, C1 takes a mixed stance.

“Let’s take credit cards: all phases are quite easy to automate. But where we need more knowledge, say, a strategic advisory: the things that customers want to talk with people are different matters. In complex cases, like portfolio investment and mergers, the strategic knowledge is required.”

The overview of the industry suggests that, eventually, the number of employed in banks will go down, but not solely due to automation.

“There will be less and fewer people in banking in the future than today, but, of course, there is a lot of jobs nowadays that weren’t there ten years ago. Certain jobs are decreasing and decreasing, but the new jobs are rising: and it’s not just because of the digital world, but also because the regulations against the banks are numerous and we need specialists to tackle those as well.”

If the regulations can allow it, it is possible to see C1 making greater shifts towards digitisation: e.g., in private banking.

“There is no point why a person should come to the bank. You can have advisory via different channels: phone, e-meeting, and other. In some cases, e.g. in investment, to build trust you need to meet face-to-face. It isn’t mandatory but it helps when in such cases you can meet face-to-face.”

The common themes and ideas from C1-I are compiled together in the table below.

Table 5. C1-I coding.

Globalisation
Global bank
Cross-border collaboration
English
Workforce
Digital awareness
Functional structure
Engagement
Incentives model
Customer service

Trust
No outsourcing
Bank secrecy
Face time
Regulation
Partnerships with TPPs
Standardisation
KYC & AML
Legal advisors
Learning
AML
Mandatory courses
Virtual and face-to-face
Digitalisation
CVP
TPP cooperation
Global digital brand
Standardisation
Mobile
Automation

4.1.3 C1: Secondary data

The job descriptions allow seeing the re-occurring competencies across the functions as well as point to the skills that are in greater demand. Based on the listed open positions, the following codes were formed.

Table 6. C1-JA coding.

English
Self-driven
Data handling
Business Intelligence
Regulatory environment
AML
Legal advisory
Collaboration
Agile development
Quick learning
Engagement
Digital awareness
Mobile
Multi-channel
API
CX
End-to-end solutions
Robotic processes automation

Cross-border payment
Digital channels

The news articles and press releases are in concord with the digital strategy described in the interview. The coding is below.

Table 7. C1-PR coding.

Mobile
Standardisation of services
Industry partnerships
TPP cooperation
Payment technology

The annual report elaborated upon the digital strategy side.

Table 8. C1-AR.

Digitalisation
Customer-centric
Digitising processes
Mobile
New solutions
Compliance
Analytics
AML
Cyber-security
Customer satisfaction metrics

4.1.4 C1: Summary

Several categories started forming as soon as the earliest attempts at C1-I coding. Below, they have been refined along with the codes from the secondary sources, which, in their turn, are also made to follow similar categorisation.

Table 9. C1 coding development.

Primary data	Primary and secondary data
<i>Globalisation</i>	<i>Globalisation</i>
– Global bank	– Global bank
– Cross-border collaboration	– Cross-borders collaboration
– English	– English
<i>Workforce</i>	<i>Workforce</i>

– Digital awareness	– Digital awareness
– Functional structure	– Functional structure
– Engagement	– Engagement
– Incentives model	– Incentives model
	– Self-driven
	– Data handling
	– Business Intelligence
	– Collaboration
	– Agile development
	– Quick learning
<i>Regulations</i>	<i>Regulations</i>
– Partnerships with TPPs	– Industry partnerships
– Standardisation	– Standardisation
– KYC & AML	– KYC & AML
– Legal advisory	– Legal advisory
	– Cyber-security
<i>Customer service</i>	<i>Customer service</i>
– Trust	– Trust
– No outsourcing	– No outsourcing
– Bank secrecy	– Bank secrecy
– “Face” time	– “Face” time
	– Customer satisfaction metrics
<i>Learning</i>	<i>Learning</i>
– AML	– AML
– Mandatory courses	– Mandatory courses
– Virtual and face-to-face	– Virtual and face-to-face
<i>Digitalisation</i>	<i>Digitalisation</i>
– CVP	– Customer-centric
– TPP cooperation	– TPP cooperation
– Global digital brand	– Global digital brand
– Standardisation	– Standardisation
– Mobile	– Mobile
– Automation	– Robotic processes automation
	– Multi-channel
	– API
	– End-to-end solutions
	– Payment technology
	– Digitising processes

It should be noted that the secondary data largely elaborates and supports the points of C1-I with no apparent contradictions.

4.2 Case company 2 (C2)

This sub-chapter lists the findings from the interview of C2. As per the interview design, the main topical areas addressed are the organisational structure, the digital strategy, and the relevant HRM practices affected by the digitalisation.

The primary data was collected via a Skype interview (C2-I). The secondary data refers to the company's job advertisements (C2-JA).

4.2.1 C2-I: Organisational structure and HR practices

C2 is a FinTech SME. given that fact, it may be of insight to investigate how its organisation and workforce structure differs from the established banks in general and C1 and C3 in specific.

C2 aims to have an agile structure with a fair amount of flexibility to it. It is divided into four teams: customer engagement and customer support, marketing and communication, product and technology, and operations (legal, finance, security, etc.).

"It's an hourly co-operation. Our product is very end-to-end: for example, whenever you want to do something in marketing, it goes all the way to the product and infrastructure [team]; whenever we do change in communications it goes to the operations [team] for compliance and security and legal."

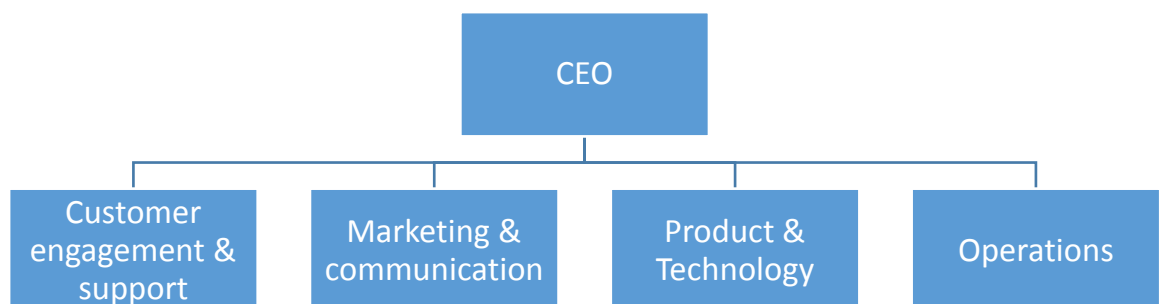


Figure 5. C2 organisational chart.

It is worth noting that every function is in-house, with no outsourcing of, e.g., legal or other support functions. Whilst most of the traditional functions are present, they appear quite

condensed – this illustrates how the staff is expected to exercise agility within the product development cycle.

“Many things we do are done cross-company. You cannot develop product without the technology [nor] without having marketing and communications involved [nor] without operations, because of the structure of the company, in addition to the product and development, has all the other layers: the banking and payment infrastructure, AML, anti-fraud – everything is connected.”

In hiring, technical skills dominate, even amongst marketers C2 looks for the tech-savvy applicants able to code. An ideal candidate would be technical and analytics-driven as well but also good with wording.

“Of course not everybody gets there, but it’s the combination [of competencies] in the team that allows that.”

Amongst the valued competencies, there is what they call an adaptable work-style: essentially, it describes agility and project focus of the employees as well as accepting of change and uncertainty.

Another demanded competency is the ability to work remotely. Case in point, several employees in C2 work remotely on a permanent basis. There is no policy to regulate the distant work, but it is expected for the employees to be flexible enough to operate remotely. Thus, written communication becomes predominant, increasing the importance of communication tools and presenting the information.

Employer branding was named amongst the tools of attracting the right kind of talent. It is said to be the key to growing the firm without compromising on recruitment.

“The brand is the foundation of our business. A creative workplace where people are driven by the vision they have and attract other high-performers like themselves.”

The employees show a high degree of being self-driven and dedicated; independence and commitment appear to be a commonly shared characteristic. The recruitment policy is strict, with investments of time and effort therein.

“Quality is our core value. Every little detail must be refined. We look for the people who don’t compromise.”

As there is no designated HR unit, the recruitment is done by at least three people from the management team in addition to having a group interview with the team where the candidate applied to.

The importance of selecting the right talent for a growing FinTech may be observed via C2's meeting schedules: in addition to the standard planning meetings, there are weekly meetings for demoing new features, there are specific team meetings, and one-on-ones between the managers and the team members aimed at personal development and specific issues. In the interest of development, C2 aims at having an internal mentoring programme as well.

4.2.2 C2-I: Service strategy

The core product is mobile banking: C2 provide a business account, a debit card, paperless bookkeeping, expense management, and invoicing. Company's product is their key competitive advantage, as it is a unique selection of service offerings in one product.

"What we do, banks can't do. Bookkeeping and invoicing are integrated into the account. We're a one-stop shop."

The C2's services are wholly digital experience: they have no physical venues, account opening, and all the interactions are done digitally. It was suggested that the banks do not have to necessarily acquire FinTechs to transform digitally, but the collaboration is needed.

"Due to the legacy [systems] and history, banks' infrastructures and technologies are very old and non-agile, so they can't build [new services] on the top of that. FinTechs can use modern technology more cost-effectively and deploy more rapidly in a leaner way. It is a natural fit in the long term."

In describing the way FinTechs hold an advantage over, several specific processes were underlined: identifying customers, providing a fully digital experience, creating a UX that resonates with the consumer, and applying more modern Internet marketing for more cost-effective customer acquisition.

Currently, C2 focuses on micro-business segment, as it is their present segment and the existing processes are not as scalable. The importance of CX was emphasised.

“[Great CX] requires being close to the customer: what problems do they have and offering elegant solutions to that. It requires user testing to understand how the customer uses the product and what they need and what they don’t need.”

With regard to the banking industry, in particular, a few additional qualities were highlighted.

“From the UI perspective: it should be clean, beautiful and playful. It has to feel secure and reliable. All kinds of elements must be in place so that the trust is build and the customer wants to use the product.”

In summary, C2-I had several recurring themes as demonstrated in table 10 below.

Table 10. C2-I coding.

Scale
Local focus
Micro-business segment
Workforce
Agility
In-house development
Cross-functional
Quality-oriented
Specialists
Tech-savvy
Analytics-driven
Communication
Remote work
Adaptable
Cost-efficiency
Customer focus
Internet marketing
UX
Trust building
All-in-one
Learning
Personal development
Mentoring
Digitalisation
UX
Collaboration with banks
End-to-end solution
No physical premises

Attractive brand
Unique service mix

4.2.3 C2: Secondary data

Being a privately-held start-up, C2 do not publish their annual reports; for the same reasons the press releases were anything but plentiful – thereby the only source of the secondary data left were the job listings. Whilst still limited, they did offer some insight.

Table 11. C2-JA coding.

English
Specialists
Self-driven
Quality-oriented
Quick learner
Front-end heavy
Mobile

4.2.4 C2: Summary

Not unlike C1, a few categories emerged during the coding of C2-I. They were a little modified after incorporating C2-JA codes to better compare with the codes and categories of C1.

Table 12. C2 coding development.

Primary data	Primary and secondary data
<i>Scale</i>	<i>Globalisation</i>
Local focus	Local focus
Micro-business segment	Micro-business segment
	English
<i>Workforce</i>	<i>Workforce</i>
Agility	Agility
In-house development	In-house development
Cross-functional	Cross-functional
Quality-oriented	Quality-oriented
Specialists	Specialists
Tech-savvy	Tech-savvy
Analytics-driven	Analytics-driven
Communication	Communication
Remote work	Remote work
Adaptable	Adaptable

Cost-efficiency	Cost-efficiency
	Self-driven
	Quick learner
<i>Customer focus</i>	<i>Customer service</i>
Internet marketing	Internet marketing
UX	UX
Trust building	Trust building
All-in-one	All-in-one
<i>Learning</i>	<i>Learning</i>
Personal development	Personal development
Mentoring	Mentoring
<i>Digitalisation</i>	<i>Digitalisation</i>
UX	UX
Collaboration with banks	Collaboration with banks
End-to-end solution	End-to-end solution
No physical premises	No physical premises
Attractive brand	Attractive brand
Unique service mix	Unique service mix
	Mobile
	Front-end emphasis

4.3 Case company 3 (C3)

This sub-chapter lists the findings from the interview of C3. Due to the limited access, the interview was focused solely on the HRM practices affected by the digitalisation. The information regarding the digital strategy was sourced from the secondary sources.

The primary data was collected via an email interview (C3-I). The secondary data refers to the company's job advertisements (C3-JA), annual report (C3-AR), and press releases (C3-PR).

4.3.1 C3: Primary data

C3, similarly to C1, is a large bank. In this case, the scope of the primary data was limited to the company's HR practices, thus, many of the areas examined for C1 and C2, are studied deeper through the secondary data.

In hiring, C3 define required skills and competencies case by case for each position. They utilise a list of total twenty different total functional competencies to assess personality

and work styles, limiting the selection to 3-6 competencies per positions to be evaluated via an aptitude test.

The only competency shared amongst the positions refers to the behaviour concerning the core values: all the core values named show common theme of the customer focus and stability.

In the reference to the challenging positions to fill, C3 look for ICT-architects and experts in sales.

Table 13. C3-I coding.

<i>Workforce</i>
IT architects
Sales experts
<i>Customer focus</i>

It is worth noting that the communication with C3 for the data gathering was notably slower than with the representatives of C1 and C2 (both internally and externally). Nonetheless, since C3-I was an email interview, the gross data are bound to be less.

4.3.2 C3: Secondary data

Firstly, C3-AR was studied to expand on the codes from C3-I.

C3's structure is, similarly to C1, fairly rigid, with the management being above the business units and the firm's operations.

Table 14. C3-AR coding.

<i>Scale</i>
Local focus
<i>Workforce</i>
Functional structure
Ability to update their skills
<i>Customer focus</i>
Customer service design
Customer satisfaction surveys
Loyalty benefits
Branch expansion
Face time
Engaging product design
<i>Digitalisation</i>

Stable service
CX
Phone and online meetings
Mobile
SM

Since the secondary data were used more extensively, a more structural approach is undertaken in terms of code development. The venture is simplified by intentionally applying the same categories concluded during the C1 and C2 open coding stages.

Next, C3-JA were coded. Curiously, it was C3-JA that first introduced the regulatory dimension into C3 codes.

Table 15. C3-AR and C3-JA coding.

<i>Scale</i>
Local focus
<i>Workforce</i>
Functional structure
Ability to update their skills
AML
Financial sector knowledge
<i>Regulations</i>
Legal advisory
<i>Customer focus</i>
Customer service design
Customer satisfaction surveys
Loyalty benefits
Branch expansion
Face time
Engaging product design
<i>Digitalisation</i>
Stable service
CX
Phone and online meetings
Mobile
SM
Electronic payments
Identity technology
Cloud services

Finally, C3-PR were examined: it largely supported the other sources.

Table 16. All secondary sources coding.

<i>Scale</i>
Local focus
<i>Workforce</i>
Functional structure
Ability to update their skills
AML
Financial sector knowledge
<i>Regulations</i>
Legal advisory
<i>Customer focus</i>
Customer service design
Customer satisfaction surveys
Loyalty benefits
Branch expansion
Face time
Engaging product design
CX metrics
<i>Digitalisation</i>
Stable service
CX
Phone and online meetings
Mobile
SM
Electronic payments
Identity technology
Cloud services
Diversified services
Blockchain

4.3.3 C3: Summary

The last code development was only semantically modified to compare with codes and categories of C1 and C2 better. C3 clearly shows interest in the DT; despite their attempts, the efforts are directed to subdue rather than integrate the trend and it is comparatively less digitally mature than C1.

Table 17. C3 coding.

<i>Scale</i>

Local focus
<i>Workforce</i>
Functional structure
Ability to update their skills
Financial sector knowledge
<i>Regulations</i>
Legal advisory
<i>Customer focus</i>
Customer service design
Customer satisfaction surveys
Loyalty benefits
Branch expansion
Face time
Engaging product design
CX metrics
<i>Digitalisation</i>
Stable service
CX
Multi-channel service
Mobile
SM
Electronic payments
Identity technology
Cloud services
Diversified services
Industry collaborations

4.4 Conceptualisation of the digitalisation in banking sector

It is quite apparent that certain categories emerged during the open coding. Upon further examination, each code could essentially be treated as an employee competency or an aspect of the strategy.

The categories appear to be rather definite; by comparing the differences between the companies' codes in the same categories, several properties emerged – those properties are listed beneath the corresponding categories in table 18. These properties are functionally the sub-categories, as they are linked to their parent, more abstract, category in a way that allows gauging the differences between the categories amongst the case companies.

Table 18. Categories development.

C1	C2	C3	Categories
<i>Globalisation</i>	<i>Globalisation</i>	<i>Scale</i>	<i>Globalisation</i>
– Global bank	– Local focus	– Local focus	– Geography – Market segments
– Cross-border collaboration	– Micro-business segment		
– English	– English		
<i>Workforce</i>	<i>Workforce</i>	<i>Workforce</i>	<i>Workforce</i>
– Digital awareness	– Agility	– Functional structure	– Organisational structure – Back end – Competencies – HR policies
– Functional structure	– In-house development	– Ability to update their skills	
– Engagement	– Cross-functional	– Financial sector knowledge	
– Incentives model	– Quality-oriented		
– Self-driven	– Specialists		
– Data handling	– Tech-savvy		
– Business Intelligence	– Analytics-driven		
– Collaboration	– Communication		
– Agile development	– Remote work		
– Quick learning	– Adaptable		
	– Cost-efficiency		
	– Self-driven		
	– Quick learner		
<i>Regulations</i>		<i>Regulations</i>	<i>Regulations</i>
– Industry partnerships		– Legal advisory	– Digital strategy – Industry trends
– Standardisation			
– KYC & AML			
– Legal advisory			
– Cyber-security			
<i>Customer service</i>	<i>Customer service</i>	<i>Customer focus</i>	<i>Customer service</i>
– Trust	– Internet marketing	– Customer service design	– Front end – Customer value proposition
– No outsourcing	– UX	– Customer satisfaction surveys	
– Bank secrecy	– Trust building	– Loyalty benefits	
– “Face” time	– All-in-one	– Branch expansion	
– Customer satisfaction metrics		– Face time	
		– Engaging product design	
		– CX metrics	
<i>Learning</i>	<i>Learning</i>		<i>Learning</i>

– AML	– Personal development		– HR policies
– Mandatory courses	– Mentoring		
– Virtual and face-to-face			
<i>Digitalisation</i>	<i>Digitalisation</i>	<i>Digitalisation</i>	<i>Digitalisation</i>
– Customer-centric	– UX	– Stable service	– Front end – Back end – Digital brand
– TPP cooperation	– Collaboration with banks	– CX	
– Global digital brand	– End-to-end solution	– Multi-channel service	
– Standardisation	– No physical premises	– Mobile	
– Mobile	– Attractive brand	– SM	
– Robotic processes automation	– Unique service mix	– Electronic payments	
– Multi-channel	– Mobile	– Identity technology	
– API	– Front-end emphasis	– Cloud services	
– End-to-end solutions		– Diversified services	
– Payment technology		– Industry collaborations	
– Digitising processes			

Several categories and sub-categories emerge:

- Globalisation
 - Geography
 - Market segments
- Workforce
 - Organisational structure
 - Back end
 - Employee competencies
 - HRM practices
- Regulations
 - Digital strategy
 - Industry trends
- Customer service
 - Front end
 - Customer value proposition
- Demand on learning
 - HR practices
- Digitalisation
 - Front end
 - Back end
 - Digital brand

With the aim to reveal the relations between the categories and to prepare for the axial coding, the categories can be arranged in a diagram indicating simple cause-and-effect relations. Before, some assumptions on the relation between the categories should be made.

The key assumption of the open coding is that that the categories present concepts of greater abstraction than the sub-categories: upon review, this does not hold true necessarily. In particular, the relationship between “globalisation”, “industry trends”, and “regulations”: one can argue that the industry trends and regulations are inter-related (in a way that the legislation is conceived to follow up on the current trends, as well as the industry would react to new regulations passed); at the same time, the relation between the industry trends and the globalisation, which was not noted during the open coding stage, is apparent (globalisation in other sectors certainly forces the banking industry to keep up; it is, essentially, an industry trend in addition to being a global process).

Another clear relation not highlighted during the open coding is that between “digitalisation” and “digital strategy”: naturally, companies would only adopt digital strategies providing the digitalisation of banking services is a thing in the first place.

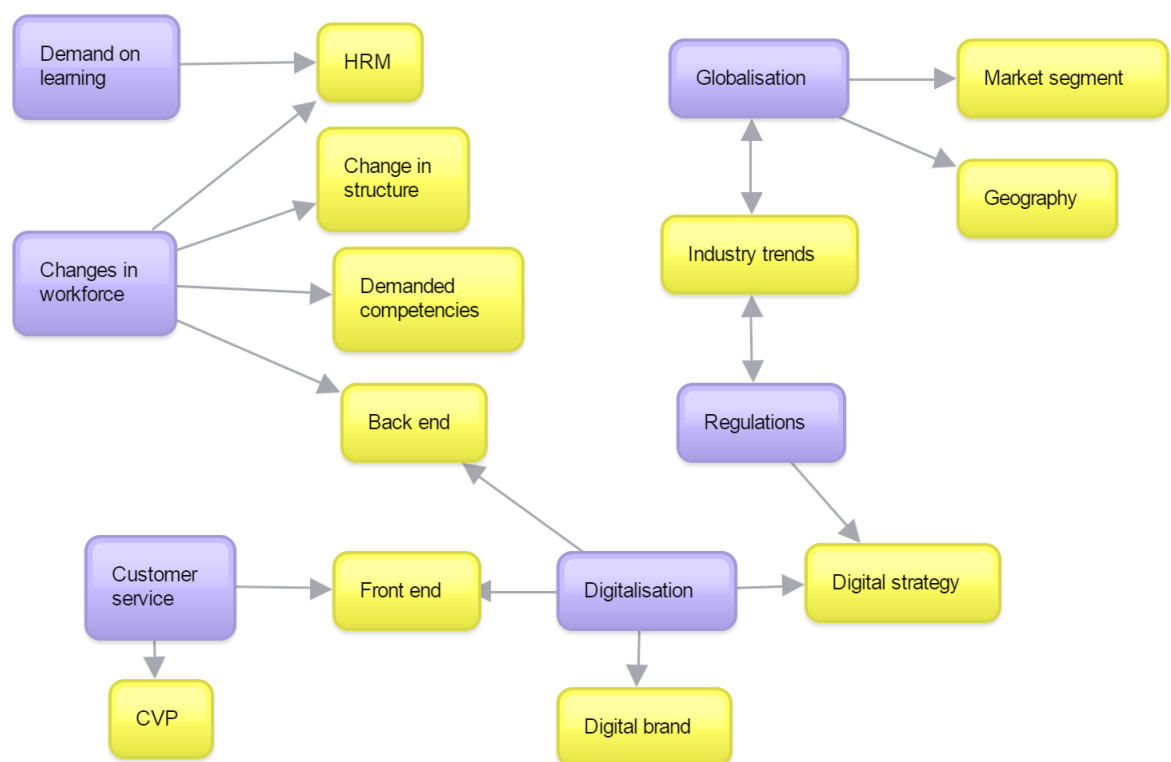


Figure 6. Preliminary diagram of relations between categories and sub-categories.

The first diagram illustrates the need to elaborate on the categories: purple boxes mark categories, and yellow ones mark sub-categories. The current picture is neither clear nor accurate, and thus requires review.

Industry trends is arguably a concept of high abstraction, hence it would be sensible to elevate it to the level of a category and define its sub-categories separately: based on the interviews with C1 and C2, it could be concluded that the key trends include processes of consolidations (being internal ones, acquisitions, or industry partnerships enabled by the regulatory environment) and standardisation of the back office (either by the regulations or by the virtue of out-sourcing or off-shoring). The latter can be integrated within the “back end” sub-category to form “back end standardisation”, whilst the former may form a new sub-category of “partnerships, consolidations, and M&As” that sensibly leads to the changes in structure (at which point it could be argued that “changes in structure” are causes of the “changes in workforce composition” and not vice versa); this new category plays arguably a bigger role than “geography” as it actually describes the action companies undertake and not just the fact that the corporate strategy when tackling globalisation, ergo the newly formed sub-category fits as its substitution.

“Change in workforce” would be more aptly named as “changes in workforce composition” to underline that the changes are systemic to what kinds of skills and management approaches are demanded rather than a literal substitution of personnel.

“Competencies” are renamed too as “demanded competencies” to clarify that this sub-category refers not to just any sort of knowledge or skills, but to some specific group of demanded competencies, the ones, in fact, looked for as the answer for the RQ.

Likewise, the “learning” is changed to “demand on learning” to reflect that the category describes not a learning and development processes but rather an active need to train the employees in specific fields.

At this point, it could be suggested that “HRM practices” is a redundant sub-category as it does not reflect any specific field, unlike “changes in structure” and “demand on learning” – naturally HRM processes play an important role in supporting those changes, but it is too general a concept to be meaningful.

Another refinement is done to the category of customer service: since the key theme is the focus on delivering the customer value via the emphasis on the front end, all three

concepts related to the customer service are substituted with one “front end focus”. Reasonably, it now is shown to affect “demanded competencies”.

“Digital strategy” is modified to affect “changes in structure” and “front end focus”, since the latter is a strategic focus shared by all the case companies, whereas it is sensible to assume that shifts towards different structure are always a strategic decision.

The last revision of the relationships concerns “digital brand” and “market segment”: it is assumed that appearance of digital products would turn a bank’s brand “digital”, thus affecting its target demographics; the opposite is still true: should the target demographic change, the bank would attempt to manage its digital brand accordingly. Additionally, the sub-category was renamed into “digital brand development” for better clarity

With those changes, a refined diagram of relations between categories can be assembled (notably, the colour coding applied in the refined diagram is used to describe the axial coding relations described below).

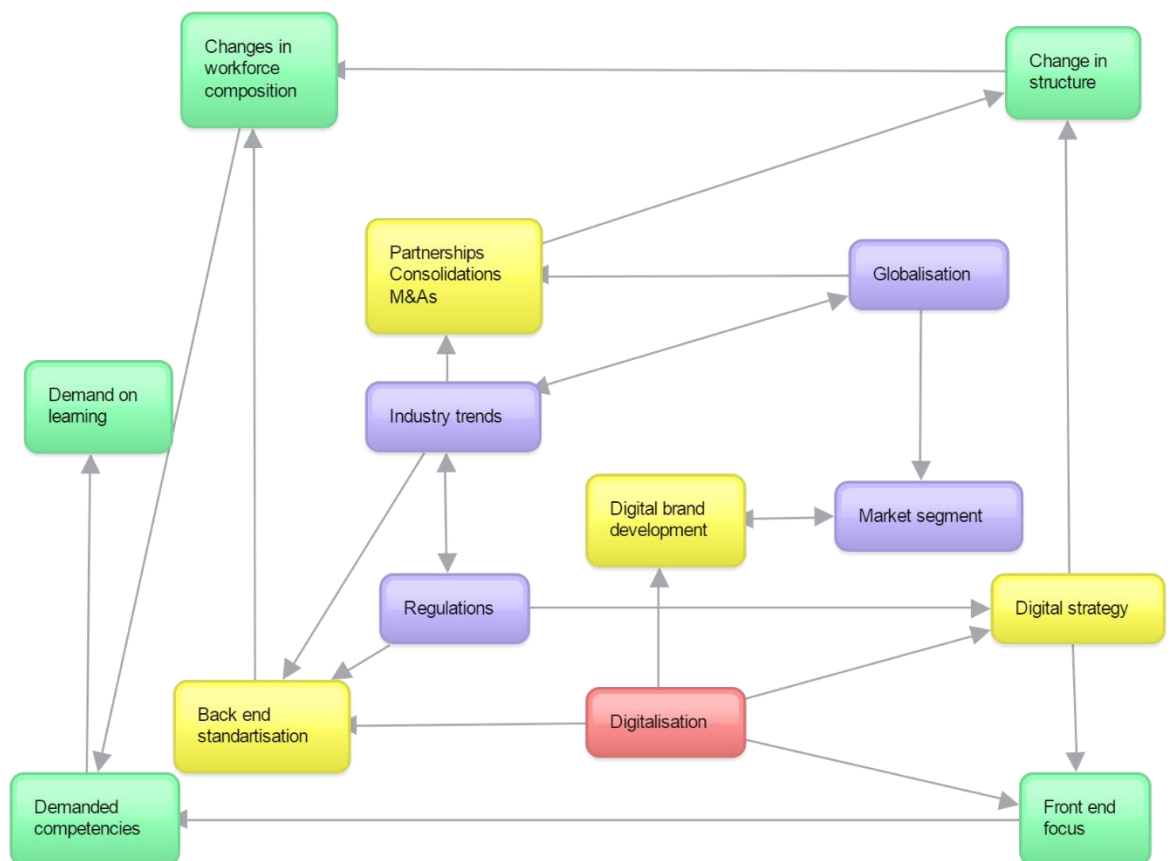


Figure 7. Refined diagram of relations between the categories.

During axial coding, it is common to use the paradigm model, which outlines several types of relations to facilitate the conceptualisation procedure (Halaweh et al. 2008, 5):

- The phenomenon is the central concept, towards which all other ideas are related.
- Causal conditions are a set of causes of the phenomenon.
- Action/interaction strategies are the actions undertaken in response to the phenomenon.
- Context is a set of condition that the action/interaction strategies are taken in.
- Intervening conditions are such factors that facilitate or constrain the action/interaction strategies
- Consequences are the outcomes of the actions.

The red box marks the phenomenon, the yellow boxes mark the strategies, the teal boxes mark consequences, and the purple boxes present the other kinds of relations (context and intervening conditions)

“Digitalisation” or the broad changes to the industry brought about by the digital innovations, is clearly the phenomenon, and thereby the core category – it shows a direct relation to the most of the concepts and it is essentially the vast global process behind the individual instances of the digital transformation (DT).

The DT could be viewed as the action/interaction strategies executed in the response to the phenomenon of digitalisation: indeed, the back-end standardisation and automation, establishments of the digital brand, development of digital product strategy, and industry-wide partnerships and consolidations – those all are the DT trends predicted in the theory chapter 2.

This study does not have as its aim to establish the origin of the DT or digitalisation phenomenon: the closest concept to a causal condition would be “globalisation”, and yet still there are only established second-degree links between it and the core category.

“Industry trends” and “market segment” are amongst the context, i.e. the strategies are executed with the consideration of the market segment and other industry trends.

“Regulations” are the intervening condition, since they try to adapt to the strategies’ execution as much as the strategies can depend on the changes to the regulatory environment.

Lastly, the consequences: the focus on the front end and creation of extra customer value, changes to the workforce and organisational structure – every consequence sparks a demand on certain competencies, which, consequently, create demand on the learning.

It is little wonder that the phenomenon is indeed the core category, and that the refined diagram presents a product of both axial and selective coding thusly. This a posteriori conceptualisation of the DT shows that the importance of the categories of action/interaction strategies and consequences: as a matter of fact, the strategies largely align with the a priori digital bank paradigm concluded in the theory, whereas the consequences are the direct links to the competencies.

5 Findings and conclusions

This chapter answers to the investigative questions and offers conclusions. To iterate, the investigative questions (IQs) were as follows:

IQ1. What is the difference between the companies of various degrees of digitalisation?

IQ2. What competencies remain relevant in the digitally transforming companies?

IQ3. What competencies do the digitally transforming companies have in common?

IQ4. What competencies will the digitally mature companies need in the future?

Those are asked to answer the research question (RQ) of “How does the digital transformation of an enterprise change the enterprise’s competency framework?”

The first sub-chapter answers the IQ1 and attempts to validate the digital bank paradigm proposed in chapter 2; the second sub-chapter models the digital bank competency framework by answering the rest of IQs; the third sub-chapter discusses the model’s applicability; the fourth sub-chapter summarises the trends in the digital banking; the fifth sub-chapter proposes a brief overview of the competency model for management usage; the last sub-chapter elaborates on the prospects of the further studies.

5.1 Kinds of the digital transformation (DT) across the cases (IQ1)

The a priori digital bank paradigm formulated in the theoretical framework (sub-chapter 2.4) bears a certain value: whilst it may be over-simplifying and have little nuance, it certainly is transferrable to the global industry level. Ergo, if one were to demonstrate that the case companies map well to the predictions of the paradigm, the findings describing the case companies (chapter 4) could then be also claimed transferable to the industry level, thus validating that any conclusions drawn regarding the consequences of the phenomenon of digitalisation would still be valid when generalised. Since the change in the competency framework is a consequence of the digitalisation (as demonstrated in sub-chapter 4.4), then the competencies relevant for the case companies would also likely to be relevant industry-wide.

To shortly recollect the case companies:

- Case company 1 (C1) is a multinational bank of more than 10000 employees, one of the largest retail banks in the Northern European region. The company has its own mobile banking app, which displays significant spread.

- Case company 2 (C2) is a FinTech start-up of fewer than 100 employees, amongst the biggest in the region; it had been acquired by an incumbent bank and it operates abroad in addition to its domicile. The company's services are fully digital; they offer an account with bookkeeping and invoicing.
- Case company 3 (C3) is a bank of more than 10000 employees, amongst largest retail and commercial banks in the country. The company offers some mobile and online banking solutions.

Based on the data analysis (chapter 4), each of the case companies is described below in accordance with the six criteria of the kinds of the DT as referred to in the digital bank paradigm: in hindsight, all the criteria are either strategies or consequences as designated by the conceptualisation of the DT (as shown in figure 7 in sub-chapter 4.4).

Table 19. The difference in the digitalisation of the case companies.

Criterion	C1	C2	C3
Digital strategy	Digital is a goal	Digital is the prime service	Digital is an additional channel
Branding	Digital brand as a part of the brand	Purely digital brand	Digital is not a part of the brand
Product	Core banking Online banking Mobile banking Online support Additional apps	Online banking Bookkeeping Invoicing	Core banking Online banking Mobile banking
Front end	Multi-channel delivery	Customer experience focus	Multi-channel delivery with emphasis on physical branches
Back end	Off-shored to subsidiaries	In-house development	In-house development and/or partnerships
Workforce	Global centralisation with cross-functional collaboration	Lean organisation with specialist	Functional hierarchy with rigid divisions

This not only allows to compare the case companies in a more direct way but also to see if the predictions of the theoretical paradigm hold true; the digital bank paradigm describes three existing kinds of banks: conventional banks with token digital services, digitally transforming banks with notable commitment to the digital services, and specialist technology SMEs offering focused services or FinTechs – in addition to them, a hypothetical digital bank is defined based on the industry trends. By comparing the description in table 19 to those in table 1 (sub-chapter 2.4), the following could be interpreted.

Table 20. Mapping of the case companies to the theoretical descriptions.

Criterion	Traditional bank	Transforming bank	FinTech	Digital Bank
Digital strategy	C3	C1	C2	
Branding	C3		C2	C1
Product		C1 C3	C2	
Front end	C3	C1	C2	
Back end		C1 C3	C2	
Workforce	C3	C1	C2	

Clearly, the case companies fit well with the predicted models. It could be noticed that the incumbent banks C1 and C3 show somewhat anomalous divergence in areas of product design, branding, and back end – this, however, could be explained by the industry trends in the Nordic region: given that the cash is used rarely and that most of national banks tend to offer a least some selection of online and mobile banking solutions, even the more conventional C3 must keep up with the competition. This, although situational, can be an indication that the industry does indeed develop towards greater digitalisation.

All in all, several apparent differences across the kinds of DT in banking can be confirmed by examining the case companies:

1. Incumbent banks adopt certain digital features to stay competitive, but those solutions are typically limited
2. Digitally transforming banks adopt digital innovation to offer a verity of their existing products over alternative digital channels.
3. Digitally transforming banks show tendencies for in-group consolidation and centralisation of governance.
4. Digitally transforming banks are open for partnerships with and acquisitions of specialist FinTechs.
5. FinTechs, to stay competitive, offer narrowly focused products, but those tend to present a unique customer value proposition nonetheless.
6. FinTechs, in the spirit of being tech companies, focus on specialists and practice lean and agile management.

5.2 Digital bank competency framework (IQ2-4)

The data analysis designated the demand on competencies as a consequence of digitalisation. This implies that those competencies would be possible to deduce from other categories from the model (sub-chapter 4.4). Since the findings align with the theoretical framework's conclusions, it is fair to assume that the findings of the competency frameworks based on the case companies would also be transferable to the general level as the whole paradigm.

According to the digital bank paradigm (sub-chapter 2.4), a company of each kind would have its own space of demanded competencies. This study is interested intersections of those competency fields:

- ❖ Competencies remaining relevant across in the industry (e.g. due to the legacy functions – thus those are dubbed as “legacy competencies”).
- ❖ Competencies shared by the advance players (i.e. between the digitally transforming banks and FinTechs; those are referred to simply as “shared competencies”).
- ❖ Emerging competencies (i.e. the demand on the competencies invoked by a current or upcoming trend; dubbed identically).

Those fields are figuratively illustrated below.

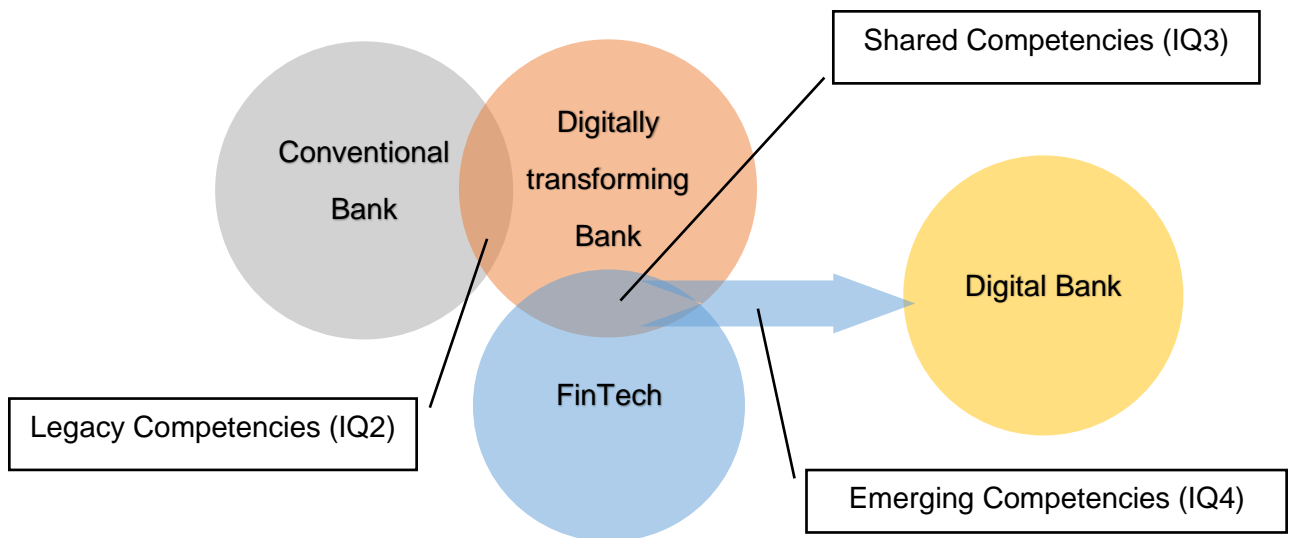


Figure 8. Competency fields within the digital bank paradigm.

The three competency fields are named legacy competencies, shared competencies, and emerging competencies – each presents an answer to IQs.

Whilst the distinction between legacy and shared competencies is rather obvious, the difference between shared and emerging competencies could not be: in fact, one could argue that what one study determines as an emerging competency, another could dub as a shared one simply due to different conditions and case companies.

In the interests of accuracy, this study defines the emerging competencies as such shared competencies that also showed property of being lacking or there was an indication of a potential increase in its need with given the expectation of the industry.

Concepts to describe the competency fields are drawn from comparing how do the categories manifest in each case company (table 19, sub-chapter 5.1) as well as from comparing one by one the original codes and concepts from the open coding stage (table 18, sub-chapter 4.4).

Legacy competencies are the ones believed to persist across the incumbent banks regardless of how digitised they are. The industry trends certainly play a big role: as the digitalisation remains the ongoing process in the industry, any kind of a bank must concern themselves with the matters of their back-end IT and the related regulation at the minimum; additionally, there is a clear need to understand the industry realities unrelated to the digitalisation, like the core banking processes and the typical organisational structure. Unlike FinTechs, the banks do not tend to limit their target segment, on the other hand, the customer service plays important role in both traditional and digital banking.

The last concept is also related to the focus on the front end, which is amongst the shared competencies: key difference is the increasing role of making the customer related decision based on the customer data and via impersonal interactions, e.g. through a well-considered application user interface. This is also relevant to another key concept shaping the shared competencies: the multi-channel delivery and the need to deliver the services via the various digital channels.

Amongst the concepts revealing the emerging competencies, an increasingly important digital brand could be named, along with the standardisation of the back end, and the structural changes to the banks' organisations brought about by in-group consolidations, M&As, or other systemic modifications to the strategy.

Via inductive reasoning, it is possible to map concepts to the ways employees do their jobs: thusly each concept related to a competency filed turns into a more tangible competency description. Put together, those fields compile a model for competency framework in

digital banking, or, simply, a digital bank competency framework. The concluded competencies are described in table 21 below.

Table 21. Digital bank competency framework.

Competency fields	Concepts	Descriptions
Legacy Competencies: functions that remain relevant	Back-end IT architecture	Digital awareness: -how does the industry interact with tech companies?
	Multiple market segments	Industry awareness: -how does the industry work? -what are the main shifts and trends in banking?
	Core banking	
	Functional hierarchy	
	Regulations	
Shared Competencies: commonality between different kinds digitally transforming companies	Customer service	Digital customer service: -how to create and measure customer experience? -what is the function of user interface? -how to design a data-driven product vision that the customers really want?
	Front-end focus	
	Multiple delivery channels	Knowledge of digital channels: -what channel are suitable for the existing products? -how to leverage the digital channels to build trust with the customer?
Emerging Competencies: currently lacking functions and future trends	Digital brand	External branding basics: -how to promote a company's brand as a digital one? -how to communicate the superior customer value proposition to the customers? -how not to alienate the existing demographics?
	Back-end standardisation	Adaptability:

		-are much of staff industry generalists or specialists with few transferable skills? -are employees quick learners open to acquiring new skills?
	Changes in structure	Agile management familiarity: -are employees comfortable with agile work?
	Consolidations	-can employees make operations more efficient by applying the agile and lean practices?

5.3 Model's applicability

Ultimately, the resulted model is two-fold: the digital bank paradigm and the digital bank competency framework.

Based on both literature review and data analysis, the digital bank paradigm predicts that the banks will inevitably converge towards digitalisation in their attempts at staying competitive. This will cause the focus to shift towards the development of the digital channels and creation of a superior customer value proposition – the shift is fostered by the fact that both globalised business and regulatory environments suggest standardisation of the back-end IT architecture, moving banks for industry partnerships and potential M&A.

The digital bank competency framework describes the response to those changes in the industry that commonly lead to structural changes in the firms: those changes indicate some degree of demanded organisational agility and expect the employees to be flexible generalists, knowledgeable of both core banking and digital innovations, as well as to be ready to pick up new skills through organisational learning and development programmes.

Both the digital bank competency framework and the digital bank paradigm could be applied in areas of strategic planning, HRM, and change management.

The application in the strategic planning is rather limited: the paradigm is very general, and the only in-depth structural changes that can be addressed by using the findings could be levied within the field of strategic HRM. The digital bank competency framework can be used in planning and executing the learning and development activities by creating

the checklist of competencies. Another field within HRM is recruiting and selection, where the model can be used in job advertisement design and during the interviews and screening.

To a lesser degree the model can be applied in performance management: since many of the competencies in the model are in no way quantifiable, it is quite challenging. However, it can still have utility if learning and change implementation are amongst the indicators being evaluated during performance reviews. Therewith, it is sensible to expect the change management processes to be taking places in digitally transforming banks in the near future: there, the model can be applied in learning and communication of the structural and functional changes.

5.4 Industry outlook

By summarising the predicted digital bank description and comparing it to the emerging competencies' field from the digital bank competency framework, three key industry trends could be distinguished:

1. Digital world fosters globalisation, making virtual interactions with both customers and colleagues more important. This will also lead to the need of a swifter reacting enterprise, leaving many firms still hierarchical, but globally centralised and with a leaner and agiler organisation overall. Inevitably, to capture the market, the incumbent banks should either develop their own digital solutions or acquire specialist firms, leading to a digital banking becoming an inherent part of any bank.
2. Due to the regulations and industry-wide collaborations, the back end will be standardised across the sector. After a certain point in time, any IT-architecture can be easily off-shored or outsourced leaving only the front end and the customer interactions as the potential for gaining competitive advantage.
3. To capitalise on the front end as the competitive advantage as well as to function effectively within a leaner company, many of the core employees, especially in the management, will be expected to be more akin to industry generalists: to be able to both create a meaningful customer value proposition and communicate the customer needs between the units based on solid customer data. This does not mean that the specialising becomes redundant, but rather that it is expected from the core employees to acquire more skills specific to a company via either self-education or the company's learning and development programmes.

5.5 Recommendations for managers

The digital bank competency framework describes competencies in both abstractions and in specific action items. Those action items can be used as a checklist by project and HR managers in the financial sector to quickly establish whether there is a competency mismatch in their subordinates in relevant fields. Naturally, those questions are generalised, and are to be applied with consideration for what employees perform what functions.

Basic digital competencies:

- Digital awareness:
 - Are the employees aware of the how existing FinTech and digital banking solutions affect their industry?
- Industry awareness:
 - Are the employees aware of the difference between their firm and its competitors?
 - Are the employees aware of the main trends in the industry that affect their specific work?

Common digital competencies:

- Digital customer service:
 - Do the employees have the skills to create and measure the efficacy of customer experience?
 - Can the employees transfer their “face” interaction skills into online interactions?
 - Can the employees use the customer data to determine what product the customer wants?
- Knowledge of digital channels:
 - Do the employees use relevant digital channels when selling the product?
 - Can the employees build trust using the digital channels?

Advance digital competencies:

- External branding basics:
 - Do the employees aim to promote company’s digital products as a service with superior customer value proposition?
 - Do the employees promote the firm’s digital brand in a way much distinct from promoting firm’s non-digital products?
- Adaptability:
 - Are much of staff industry generalists or specialist with few transferable skills?
 - Are the employees quick learners open to acquiring new skills?
- Agile management familiarity:
 - Are the employees comfortable with agile work?
 - Can the employees make operations more efficient by applying the agile and lean practices?

Upon review of the staff on their “digital readiness” it would be advisable to establish whether the current state of affairs is acceptable, and, if not, whether a learning and development programme can be implemented to treat systemic shortcomings, or a new metrics to be used to track key competencies.

5.6 Further studies

Although this study aimed to draw conclusions both accurate and universal, there is an inherent limitation thereto: by focusing on the effects of the digital transformation on firms and the way these firms shift their strategy, a lot of nuance and alternative perspectives are overlooked.

One of such perspectives is related to the core of the studied phenomenon. This study made a conscious effort not to focus on the causes of the digital transformation: knowing exactly what set of factors is creating the causal condition could be used to predict the industries and areas that are about to be disrupted.

Another conscious omission was deciding whether it is up for FinTechs or banks to lead the digital revolution: whilst this study predicts that the final product of the digitalisation will be the digital bank, there could be many of strikingly different ways for the companies in the industry to achieve those hypothetical business models. Then again, this study's digital bank paradigm only describes the continuation of the trend, whereas it is entirely possible (if not likely) that the incumbent banks would remain at the top with the innovation hindered: this evokes the need to investigate whether incumbent banks do see their future in this way.

A venue of further inquiry would be looking specifically in the digital banking solutions offered by the companies entering the market from outside the financial service industry: this study treated such non-banks (mostly high technology companies) as like FinTechs, but it is quite possible that the difference in their approaches is, in fact, profound.

The digital bank paradigm describes kinds of banks fitting different views on the digital transformation: ultimately, there is nothing preventing this model to be extended universally across different industries. This, however, also requires further research to see if the banks' case of digital transformation is unique or not: the division between the conventional and transforming enterprises and the entry of technology firms from outside the industry into the market.

Lastly, the digital bank competency framework could be tested and refined by utilising it in the real conditions to see its efficacy in real banks.

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