Influences of Digital Innovations on Advisory Work in the Financial Services Sector

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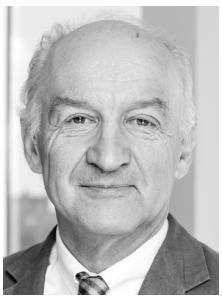
Abstract: We explore the background, changes, and challenges of the digital transformation of customer advisory in the financial services sector resulting from the implementation of new technological solutions. In addition, we examine the effects of the adoption of digital innovations on advisory work. Building on insights drawn from a multiple case analysis within two financial services providers and using the Technology-Organization-Environment (TOE) framework as the theoretical basis, our study identifies 13 factors that influence advisory work when technological innovations are introduced. We provide implications for financial services providers with regard to the identified influencing factors. Our results and findings expand the academic knowledge and understanding of the chances and challenges in the context of introducing technological innovations for financial advisory. Practitioners can use our insights for future implementations of technical solutions supporting advisory work.

Keywords: Digital Innovations, Financial Advisory, Financial Services Sector, TOE Framework, Case Studies, Qualitative Research

Einflüsse digitaler Innovationen auf die Beratungstätigkeit im Finanzdienstleistungssektor

Zusammenfassung: Wir erforschen die Hintergründe, Veränderungen und Herausforderungen der digitalen Transformation der Kundenberatung im Finanzdienstleistungssektor durch die Implementierung neuer technologischer Lösungen sowie die Auswirkungen auf Beratungsarbeit. Aufbauend auf Erkenntnissen aus Fallstudien in zwei Finanzdienstleistungsunternehmen und unter Verwendung des Technology-Organization-Environment (TOE) Frameworks als theoretischen Rahmen, identifizieren wir 13 Faktoren, die bei der Einführung technologischer Innovationen die Beratungsarbeit beeinflussen. Darüber hinaus leiten wir Implikationen aus den identifizierten Einflussfaktoren für Finanzdienstleistungsunternehmen ab. Insgesamt erweitern unsere Ergebnisse und Erkenntnisse das wissenschaftliche Wissen und Verständnis über die Chancen und Herausforderungen bei der Einführung von technologischen Innovationen



in der Finanzberatung. Praktiker können unsere Ergebnisse und Erkenntnisse als Orientierung für zukünftige Implementierungen von technischen Lösungen in der Finanzberatung nutzen.

Stichwörter: Digitale Innovationen, Kundenberatung, Finanzdienstleistungsbranche, TOE Framework, Fallstudien, Qualitative Forschung

1. Introduction

Digital transformation has an ambivalent impact on almost every area of daily life and businesses (*Cziesla* 2014; *Ciriello et al.* 2018). Different challenges and chances arise on a technological, organizational, and individual level due to the influences of digital transformation within the financial services sector (*Werth et al.* 2020). *Eickhoff et al.* (2017) state that changing customer requirements above all impel incumbent financial services providers towards rethinking their strategies and business activities. At the same time, the globalization of markets, increasing regulation, and competitive pressure imply a significant increase in the complexity of primary business activities in the financial services sector. These challenges further aggravated after the financial crises starting in 2007 with the subsequent low-interest-rate environment (*Ferrari* 2016; *Werth et al.* 2020) and are extended through the implications of the COVID-19 pandemic. The reactions are manifold and context-specific (*Cuesta et al.* 2015) but commonly involve technological improvements denoted as digital transformation (*Fitzgerald et al.* 2014; *Greineder et al.* 2020; *Werth et al.* 2020), which in turn change the working conditions and demands on employees within financial services providers. This means, for example, that a high level of employee qualifications must be achieved and maintained (e.g., *Fitzgerald et al.* 2020).

Ciriello et al. (2018) describe digital innovation as "[…] innovating products, processes, or business models using digital technology platforms as a means or end within and across organizations." These innovations also relate to advisory work in the financial services sector. With "financial services providers", we mean companies offering banking and insurance products and services. Based on *Cummins/Doherty* (2006), advisors in the financial services sector can be seen as market makers matching the needs of (primarily private) consumers for financial services with the offerings of financial services providers. By bringing supply and demand together, advisors reduce information asymmetries on both sides (*Cummins/Doherty* 2006). For the purpose of our analysis, we combine the general definition of work from *Alter* (2013) with the norm of the *International Organization for Standardization* (2005) for personal financial planning: Advisory work *is the use of human, informational, physical, and other resources for the process of establishing and defining a relationship with (mostly private) costumers; gathering and analyzing information about their status, needs, and wishes; deriving, presenting, and informing about the resulting recommendations; concluding the suitable financial services contracts and consecutively assisting and monitoring throughout the existence of the relationship.*

So far, advisors mostly still interact with the clients on a personal level (for insurers, e.g., *Cummins/Doherty* 2006), which is complicated by declining numbers of banking

branch offices and insurance intermediaries as well as the probable long term behavioral changes (e.g., the increased use of video calls) in the context of the COVID-19 pandemic. This development also creates fears of job cuts (*Puschmann* 2017; *German Insurance Association* 2020; *Werth et al.* 2020). Customers increasingly demand other resources and information channels, like self-service applications and online sales (e.g., through price comparators), for receiving financial advice, accessing required information, acquiring financial services and products, or generally interacting with the companies (*Zhu et al.* 2004; *Cziesla* 2014; *Leimeister et al.* 2014a; *Eling/Lehmann* 2018; *Stoeckli et al.* 2018; *Schmidt* 2018; *Niemand et al.* 2020). This way, standard processes are increasingly disintermediated (*Cziesla* 2014; *Berghaus/Back* 2016), freeing time of the still important advisors for more specialized and complex requests, which in turn require more knowledge, concentration, and skills (*Cziesla* 2014; *Cuesta et al.* 2015; *Fitzgerald et al.* 2020; *Werth et al.* 2020). Therefore, advisory work remains and becomes even more knowledge-intensive. Financial services providers can use technological solutions or platforms, e.g., mobile applications or telework, to enhance and support their employees in their work (e.g., *Groen et al.* 2018), which also helps them attend to the client's while facing limitations induced by COVID-19. Their competencies also need to include handling the new technologies (*Berghaus/Back* 2016). Implementing new technologies and processes requires good internal communication, education, and top-management support (*Rodgers* 1993; *Berghaus/Back* 2016).

In practice and academia, it is well established that technological innovations should support the customer relationship in general and, in particular, the advisory process (e.g., *Cziesla* 2014; *Leimeister et al.* 2014b; *Eling/Lehmann* 2018; *Capgemini* 2021). Nevertheless, the research focuses mainly on the technical solutions and not on the impact of the implementation on employees. *Zhu et al.* (2004) assess the effects on value creation of e-commerce for multiple companies and from 10 different countries. By focusing on value creation, the effects on (advisory) work are not investigated. *Werth et al.* (2020) examine the digital transformation in the financial services sector through interviews with experts working in the industry but not in the respective companies. They suggest further analyses of the impacts on stakeholders and workers within the companies. Against this background, the present study is, to our knowledge, the first to investigate how new technological solutions affect advisory work in the financial services sector. By examining the rationales, opinions, and lessons learned of all involved stakeholders in real-life implementation projects, our study expands the academic knowledge and understanding of the chances and challenges for companies and individuals associated with introducing technological innovations and identifies implications of their introduction for financial advisory work. Thereby, we provide practical and theoretical contributions. Practitioners can use this study as an orientation and information base of best practices for implementing technical solutions that influence (advisory) work within this sector in general. From a theoretical perspective, we derive influencing factors within the Technology-Organization-Environment (TOE) framework by *DePietro et al.* (1990) unique to advisory work. Based on the circumstances mentioned above, the study answers the following research question (RQ):

RQ: How are digital innovations influencing advisory work in the financial services sector, and what implications can be drawn?

To answer this question, two different digital transformation projects influencing advisory work within two companies from the financial services sector are examined with a multiple

case study (*Yin* 2017). Based on semi-structured interviews with various stakeholders, changes on a technical, organizational, and environmental level are investigated using the TOE framework. We coded and analyzed the interview transcripts using methods borrowed from Grounded Theory, i.e., axial and selective coding (*Glaser/Strauss* 1967).

The rest of the paper is structured as follows. First, we give an overview of the TOE framework used to structure the analysis. Methods and data collection are detailed in Section 3. In Section 4, we present our results. We discuss our findings and present implications for theory and practice, limitations, and future research directions in Section 5. Section 6 concludes the paper.

2. Technology-Organization-Environment Framework

The TOE framework developed by *DePietro et al.* (1990) deals with the conditions influencing the likelihood, extent, and impact of adopting technological innovations. The authors identified three contexts, organization, environment, and technology, as influencing factors for the "technological innovation decision". This term is originally in the focus of the analysis and applied for the outcomes analyzed with the theory. The rather broad theory (*Zhu/Kraemer* 2005) has been used for diverse settings and confirmed in various studies (*Baker* 2012). *Zhu et al.* (2004), *Baker* (2012), and *Chiu et al.* (2017) provide a literature overview of studies using the TOE framework for different applications. They show that various factors can be included in or subsumed under each of the three contexts, differing across studies and depending on the type of innovation, industry, and national/cultural background (*Baker* 2012).

The technological context describes all internal and external technologies available to the company and may also enclose new hardware and changing processes. Exemplary factors are internal IT capabilities and relative advantage of the technology (*Li et al.* 2010). The organizational context comprises of characteristics and capabilities of the company. It can include satisfaction with existing systems (*Chau/Tam* 1997), communication processes, amount of slack resources, and top management support (*Baker* 2012). The environmental context describes the market and conditions in which the company operates. Market uncertainty (*Chau/Tam* 1997), regulatory environment (*Baker* 2012), and competition intensity (*Zhu et al.* 2004) are possible environmental factors. The three contexts influence each other, while together, they affect the process and outcomes of introducing and adopting new technologies, particularly with regard to digitization (*DePietro et al.* 1990).

Even though the origin of the TOE framework is the analysis of the decision to implement technological innovations, the theory is also adapted to investigate postadoption stages like the consequences, the business impact, or the routinization of such implementations *(Zhu et al.* 2004; *Zhu/Kraemer* 2005, *Zhu et al.* 2006). This research shows that the dependent construct in the TOE model, technological innovation, can be carefully altered. In line with these adaptations and as illustrated in *Figure 1*, we use the TOE framework to structure our analysis of the impact of technological innovations on advisory work in financial services companies.

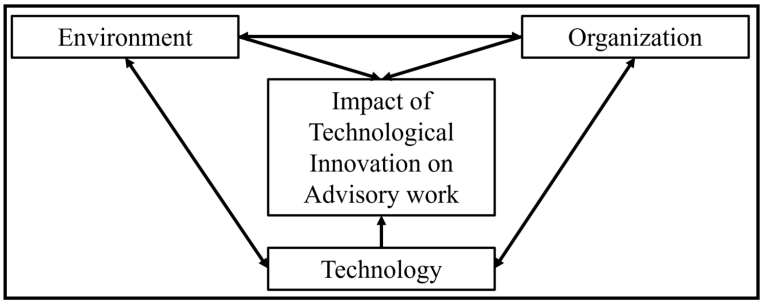


Figure 1: Adapted Technology-Organization-Environment Framework following *DePietro et al.* 1990

3. Method and Data

We explore how the adoption of technologies influences advisory work. Therefore, we searched for real-world cases within financial services providers to gain an in-depth look at relevant stakeholders' rationales regarding the introduction of such projects. Within the authors' network, we asked experts from the financial services sector, e.g., consultants and labor representatives, if they knew about exemplary implementations. With this procedure, we were able to contact and present our research project to different Chief Executives Officers in the financial services sector.

As a result, we conducted a multiple case study analysis (*Yin* 2017) within two providers from the financial services sector in Germany. "InsurCo" (Case 1) can be attributed to the insurance and "BankCo" (Case 2) to the banking sector. In both cases, new technological artefacts were implemented for their advisors. This provides a comparable overall context for this multiple case study. These cases fit the context of our research question and our up-front theory, the TOE framework. Moreover, they can sharpen and concretize our analysis beyond the existing broad construct of the TOE framework for digital transformation projects in the financial services sector (*Siggelkow* 2007).

The chosen cases demonstrate two technological implementations. InsurCo introduced an advisory and customer portal. With this portal, workers can receive additional support to manage the advisor-customer relationship. At the same time, customers can log in to this portal and, e.g., receive an overview of their contracts or access messages from their advisor. The usage of this portal is voluntary for both parties. BankCo implemented the possibility of video advisory in addition to their standard customer channels, e.g., a customer's visit to a branch office. Customers gain the option to hold meetings from their homes with their advisors through the usage of video support.

We conducted seven (n=7, InsurCo) and ten (n=10, BankCo) semi-structured interviews with key informants. *Table 1* shows the interview number, the position of the interviewee in the overall company context, and the interviewee's role within the introduction process. For example, we talked to the Head of Information Technology (IT)-Project Management, who was also the project leader (InsurCo) of the introduction process. Other interviews were held with team members who participated in the project, while some were also users of the newly introduced technological artefact (InsurCo, BankCo).

The interviews took place in July (InsurCo) and September 2019 (BankCo) and were performed face-to-face within the premises of the respective company by two interviewers.

Reliability *(Silverman* 2016) was achieved by using the same interview guidelines for both cases. We asked questions relating to, e.g., the role of the interviewees in the implementation process, the rationales behind the implementation, and their attitude towards the changes resulting from and their opinions of the new form of advisory work. In addition, the interviewees were invited to articulate problems and frictions that became apparent within the project and the company during the implementation process. The interviews lasted between 60 and 120 minutes, were held in German, recorded, subsequently transcribed, and anonymized. The resulting interview transcripts served as primary data for our case study analysis. As preparation and post-processing of the interview scenario, we read business reports and income statements of the involved financial services providers. These served as secondary data to enhance our understanding of the businesses environment.

InsurCo			**BankCo**		
Interview	***Position***	***Role within Case***	***Interview***	***Position***	***Role within Case***
I.1.1	Head IT-Project Management	Leader of the introduction process of the case	I.2.1	Labor Representative	Team member within the process
I.1.2	Head Human Resources	Team member within the process	I.2.2	Head Branch Manager	Team member within the process
I.1.3	Head Sales and Provisions	Team member within the process / User	I.2.3	Head Human Resources	Team member within the process
I.1.4	Group Leader 1 Sales and Provisions	Team member within the process / User	I.2.4	Head Sales Management	Team member within the process
I.1.5	Group Leader 2 Sales and Provisions	Team member within the process / User	I.2.5	Head Process Management	Team member within the process
I.1.6	Employee Sales	User	I.2.6	Head Branch Office	Team member within the process
I.1.7	Employee Sales	User	I.2.7	Employee Branch Office	Team member within the process / User
			I.2.8	Employee Branch Office	Team member within the process / User
			I.2.9	Employee Branch Office	Team member within the process / User
			I.2.10	Employee Branch Office	Team member within the process / User

Table 1: Interview Demographics

We used MAXQDA 2020 and employed coding techniques from Grounded Theory (GT) (*Glaser/Strauss* 1999) for the coding process of our interview transcripts. GT is an inductive, comparative, and iterative process used by researchers to generate a conceptual understanding from the analysis of real-world observations (*Charmaz/Belgrave* 2012). However, *Birks et al.* (2013) distinguished two types of GT, classifying them as (i) the classical GT and (ii) the evolved GT. The first approach attempts to generate theory and generally applies the full range of GT techniques (*Wiesche et al.* 2017). The second approach generates conceptualizations, such as models and descriptions of phenomena, using a tailored set of GT techniques during the data analysis. Our research can be framed within the evolved GT approach of *Birks et al.* (2013) since GT is used here as a method (*Charmaz* 2006) to code and structure our interview material systematically. A detailed description of the data analysis can be found in the Appendix.

4. Results

4.1 Technology

In our first case, mobile network technology was introduced in the form of tablets. However, no comparable customer-advisor collaboration portal was available until the implementation of the advisory and customer portal, which we examine in more detail in our study with regard to its impact on advisory work. This portal was introduced as a digital innovation for both the advisor and the customer. The portal is used for the exchange of information after the advisory meeting. During the advisory process, the portal provides the advisor with customized suggestions out of the range of services available to the respective customer. These recommendations were not part of the advisory process before. Despite the potential advantages of this innovation, the interviewees stated that the employees' acceptance of the advisory and customer portal within the company had room for further improvement since some internal users were concerned with possibly losing control of the advisory process. The implemented applications can lead to a loss of control over the workflow and make previous tasks seem more unsystematic. In addition, automated tools give the advisors possible indications for effective advisory decisions, which means their intuition and experience are relegated to the background. With personal knowledge given a lower priority, especially long-established advisors tend to be particularly critical of adopting digital tools in advisory work (InsurCo).

Compared to InsurCo, the employees in BankCo had a workstation or laptop computer. However, before the implementation of the new IT artefact, there was no infrastructure or separate workplace for video advisory. Video advice had not been part of the advisory service. Looking at the innovation leaders in the business environment of BankCo, video advice was deemed useful to enhance the advisory process and was implemented as a new IT artefact in the company. In this case, video advice represents both a supporting technology and a whole new channel to complement the multi-channel advisory. Through the possibility of video advice, there is no longer the need for the customers to visit a branch office. The customers can carry out advisory matters flexibly from their home – assuming, of course, the respective internet connection is good enough. The technology makes it possible to see the advisor via video and show content via screen sharing. In addition, scribble boards are used. These are electronic whiteboards that the advisor can use to visualize and make notes in the advisory process. The scribble boards enable the

advisor to add handwritten notes to the digital document. For this functionality, a uniform interface was implemented, and the technical equipment in the workplace improved. In this context, new workspaces were set up to support multi-channel advisory with the necessary infrastructure. Video advice resulted in a work intensification, as advisors now had more appointments than before. Consequently, customer loyalty was increased compared to the situation preceding this digital innovation. The scribble boards were viewed positively by both the clients and the advisors. Initially, the video functionality was intended to promote customer loyalty within the online advisory services. However, practice showed that it is not the video itself that is decisive for the customers, but instead the prospect of getting advice in a ubiquitous format and being able to follow the content on their screens (BankCo). This can be exemplified with the following quote:

> *I.2.6 (Head Branch Office): "[…] and we also notice that video advice is not as frequently requested as perhaps this scribble board or screen sharing. Because screen sharing is something that customers really use well, […] if you can see where the customer has problems, and you can say, "Now click top left, bottom right." It is much easier, and it is used a lot. Video advice, I would say in general terms, many Germans still think: "He can see my face, and I don't like it." I think it will take some time before video advice is really used […]."*

Proposition 1: *The adoption of digital supporting technologies and new multi-channel touchpoints in advisory work significantly impacts the level of perceived control as well as the visibility of the workflows and tasks within the advisory process – both for the customer and the advisor.*

4.2 Organization

Our empirical evidence shows that the companies' governance structure is one of the key influencing factors when using digital innovations for advisory work. In InsurCo, the workers are self-employed, largely independent advisors selling financial services under the company's label to their customers. In BankCo, the advisors are employed by the company. Therefore, the advisors in InsurCo can act more independently and are free to decide to use the introduced advisory and customer portal or, for that matter, any of the existing tools offered by headquarters. In this respect, there are no uniform requirements for the advisors and their digital advisory work (InsurCo). In contrast, the employed advisors in BankCo can, within limits, be obligated to use the new technology.

Proposition 2a: *The company's governance structure significantly impacts the acceptance level of digital innovations in advisory work by internal users.*

In the other financial services company examined, the technologic infrastructure for all branches is operated centrally by an outsourced service provider. Moreover, the staff council has a prominent role in this company. Communication between employees is described as harmonious. Structurally, this company has a predominantly regional customer base. The existing corporate structure showed that the connection between back and front-office within the business process is essential for the implementation of the new IT artefact video advice (BankCo). In this case, the IT capabilities of the organization represent a critical limiting factor. Statements of interviewees from both analyzed financial services

companies imply that digitization of the front-office is not feasible without modernization of the back-office. For example, when asked about media discontinuities in the workflows of the advisory process, one of the interviewees emphasized:

> *I.2.4 (Head Sales Management): "[…] I'm on the phone with video screen with a customer in Munich, after discussing everything per video, I still have to say: "Yes, now you'll get a package via post with around a hundred pages in it. I want you to read them, sign them, and send it all back to me." You cannot do that! Our goal is to work without media breaks, and we have really come a long way and are now also managing to get the sales partners on board so that they now see it similarly. […]"*

Proposition 2b: *The digital connection between the back and front-office workflows of the advisory process significantly impacts the levels of digital optimization and operational feasibility of the front-office capabilities in the financial services sector.*

4.3 Environment

Drechsler et al. 2020 conjecture that traditional companies operating in fast-changing environmental contexts are more prone to pursue more progressive innovation processes than those in more stationary environmental contexts. Within more stable and traditional industries, innovation processes are more likely to moderately increase efficiency, reduce costs, or open up new business areas. The insurance industry can be described as somewhat conservative and therefore adopting innovations more slowly. Even though the number of employees has fallen continuously since 2005, it has recorded roughly consistent turnover figures. It is also an industry with strong competition and, therefore, significant price pressure. The low-interest-rate environment is a considerable challenge for all financial services providers. The interviews in both cases revealed that changing customer preferences result in relevant price pressure from competitors. While some customers value the quality of financial advice from experts, others focus mainly on the lowest price. This must be taken into account in the advisory process. Similarly, customer satisfaction must be increased in this context by considering distinct preferences for advisory services of different generations (BankCo).

Another competitive point of view is related to the working situation. Nowadays, a modern and attractive employer distinguishes himself through a modern workplace and flexible time models, with the digital workplace or mobile working serving as examples. In addition, the environment of the financial services providers is characterized by a shortage of skilled workers available on the labor market. Due to their scarcity, financial services providers must ensure the optimal use of the available resources within and outside the companies. In this context, it is important to delegate tasks efficiently and not overburden the employees of the specialist departments because of shortcomings in the workflows (e.g., media discontinuities).

As our cases show, another factor influencing innovations either positively or negatively is governmental regulation. In the context of legal requirements, the interviewees emphasize the significant role of the General Data Protection Regulation (GDPR) and the Insurance Distribution Directive (IDD). These regulations and the corresponding authorities tend to limit the scope of the innovations within the financial services providers (InsurCo, BankCo). For instance, the GDPR, in accordance with rules set by the BaFin, does not allow storing health data on cloud technology located outside Germany. In turn, this

means that the storage on company-owned servers is necessary, which complicates external access by employees, e.g., during mobile working (InsurCo). This is illustrated by the following quote:

> *I.1.1 (Head IT-Project Management): "Everything else is already in the cloud, but for regulatory reasons, we cannot store everything in the cloud. The data is, unfortunately, at Microsoft in Dublin and Amsterdam. The data is not in Germany. That is a problem for BaFin regarding data protection. We simply cannot store customer or health data there for regulatory reasons. So that the data then really remains here with us on the departmental drives. However, the employee can access it, even from home. […]"*

Proposition 3: *The company's environment, i.e., competitive pressure, demand for skilled working force, and regulation, significantly influences implementations of digital innovations in advisory work.*

5. Discussion

Practical Implications

In the analysis of the technology context, the commonality of the cases is that the implementation of new supporting technologies was undertaken to foster innovation in the advisory service delivery capabilities of each of the analyzed financial services providers. The chosen innovations are based on adopting and adapting readily available technologies already used by technology leaders. Both the advisory and customer portal as well as the video advice were newly implemented and were not previously part of the advisory work in the observed financial services providers. Another commonality is that the expected impact of the implementations does not always correspond to the later outcome in everyday advisory work. In InsurCo, the advisory and customer portal was not accepted or even considered useless by some advisors. In BankCo, the key aspect is not the video itself but the possibility to provide advisory services online.

To sum up, new technologies lead to work changes and work shifts, which must be considered before the implementation and require appropriate retraining of employees. Increased transparency and early involvement of the later users during the implementation process will further reduce workers' opposition towards the technology. While younger employees are usually more experienced in using specific tools and are more willing to learn new modules, this is potentially more difficult for long-established employees who already have developed more individual routines. In addition, the technologies should be user-friendly to reduce or, at best, avoid excessive demands on employees so that the design of the related workflows properly matches the technology. These workflows should, in turn, be optimized by simplifying and shortening processes, which will contribute to improving the overall advisory process. Despite all the implementation challenges, our empirical evidence suggests that the use of new technological channels is viewed mainly positively since customer loyalty can be increased.

The implementations of digital innovations for advisory work were initiated top-down by the management in both financial services providers, thus strengthening management commitment. In addition, all stakeholders were involved in the implementation process of the technological artefacts. Accordingly, innovation drivers in our cases are top-manage-

ment support and customer preferences or, rather, customer expectations. Both companies wanted to realize these preferences in their advisory work successfully.

The types of implementations observed in our study are add-ons to existing technologies and did not involve disruptive changes. Still, the companies recognized from the beginning that new technologies lead to work change. As a result, another common feature is the training of employees, which constitutes a critical influencing factor for the successful implementation of new technologies. It must smoothen the work change, compensate for possible skill shortages, and increase employee acceptance and motivation. Although both financial services providers engaged in employee training, acceptance of the innovation differs between the cases. This difference is mainly due to the corporate structure and culture. In BankCo, employees agree to use the implemented tool, and the works council exerts a positive influence as an innovation driver. In contrast, in InsurCo, the high degree of self-employed, more independent advisors resulted in some workers' rejection of the advisory and customer portal. The users' independence from the provider increases the difficulty of achieving a more widespread acceptance of new solutions. To reduce these problems, opinion leaders and employees with differing expertise along the value chain should be involved in decisions regarding new technologies from the beginning. Reward or compensation schemes can also be helpful to overcome acceptance problems. Their design should depend on the advisors' "degree of freedom". Furthermore, a cautious implementation of digital services is recommendable, whereby an add-on to the existing technology without disruptive changes is a good option. The advisory business constitutes a bespoke personalized service. Therefore, it is more difficult to digitize the advisory process entirely, and new customer channels could enhance customer loyalty. The advisors in BankCo are facing the challenge of work intensification. In addition, the requirements for advisory work are increasing in both cases while the goal of increasing customer satisfaction is being pursued.

Concerning regulatory requirements, it is not feasible for the analyzed financial services companies to exert any influence. Instead, regulation indicates the limits that must be accepted within the technological and environmental contexts. The implemented systems must be flexible and open enough to react rapidly to regulatory changes without overloading the advisors. On the contrary, the technologies should facilitate the advisors' regulatory compliance. Through synergy effects, financial services providers' innovation speed and flexibility can be enhanced significantly. This, in turn, can lead to cost and resource savings (e.g., physical workspace). In this context, orientation towards the innovation leaders of the sector seems to be helpful to avoid potential failures. However, when monitoring the respective market and considering new technologies, financial services providers should concentrate on their own strategy, core competencies, and capabilities.

The given practical implications are summarized in *Table 2*:

Context of TOE framework	Influencing factors	Practical implications of financial services providers based on influencing factors and case observations
Technology	Independence of interaction IT capabilities Operational barriers Technology task fit Relative advantages of the technology	▪ Advisory work still relies mainly on personal interaction, with an emphasis on an (existing) advisor-customer relationship; therefore, digitization should take a supporting role. ▪ Technological implementations that structure the financial advisory process should consider possible work changes and losses of independence for the employees. ▪ New technologies with new possibilities in the financial advisory process require appropriate technical training of employees. ▪ Advisory processes have to be adjusted to suit the technology. ▪ Advisory should be able to focus on their main activities being supported by technologies that are easy to use and user-friendly. ▪ New technological communication channels, e.g., real-time online advisory, should be used to increase customer loyalty.
Organization	Technical competencies of employees Internal dependencies Opinion leadership Governance structure Top-level management decision making and commitment	▪ In the corporate structure, employee training should be considered to build a digital mindset, especially in data-driven businesses like the financial services sector. ▪ Digitization decisions need to consider and harmonize the corporate value chain, e.g., front and back-office. ▪ Opinion leaders within the company should be involved in new technological implementation processes. ▪ The decision-making power of the employees should be considered when creating the implementation strategy. ▪ Reward or compensation systems for employees, e.g., sales targets, can be adjusted to improve user acceptance of the new technology. ▪ It is recommendable that the implementation of new technologies is not accompanied by disruptive changes, e.g., cost-cutting programs.
Environment	Regulatory environment Customer empowerment Competition intensity and pressures	▪ To react rapidly to regulatory changes, the advisory processes and their underlying technologies should be adaptable and flexible, e.g., through the usage of financial services-specific standard software. ▪ Trends in multi-generational customer requirements inherent in the dynamic and technologically empowered financial services sector should be observed and met through technological innovations. ▪ Observation of and orientation towards innovation leaders in the market is helpful, but companies should still concentrate on their customer-oriented core competencies, i.e., advisory and sales of financial services. ▪ Synergy effects, e.g., through cooperations with FinTechs, should be used to enhance innovational speed and quality.

Table 2: Overview of Influencing Factors and Practical Implications

Theoretical Implications

From a theoretical point of view, the insights gained from the use of the TOE framework as a holistic approach to understanding the influencing factors and practical implications of the adoption of digital innovations on customer advisory contribute to improving the knowledge on the state and dynamics of the evolution of advisory work in the context

of transforming the front-office digital capabilities of the financial services sector. Most previous studies used the TOE framework to evaluate the implementation decision (*Zhu et al.* 2004*; Baker* 2012). However, our research applies TOE to structure the analysis of the impact of technological innovations and adds to the publications using the framework to study the consequences of an implementation.

Also, previous studies have subsumed various factors substantiating the three TOE contexts. *Table 2* presents the factors we identified based on our cases. They partly match previous findings (e.g., *Zhu et al.* 2004; *Li et al.* 2010; *Baker* 2012; *Rosli et al.* 2012; *Borgman et al.* 2013) while the following factors are, to our knowledge, unique to the present study of advisory work: independence of interaction within the technological; internal dependencies, governance structure, and opinion leadership for the organizational; and customer empowerment for the environmental context. Regarding the link between the adoption of digital innovations and their impact on advisory work, the identified context-specific propositions and practical implications contribute to evidence of changes and challenges faced by the companies. This can guide future theory development and indicate new research avenues, such as the empirical assessment of the effect of diverse corporate governance structures on the digital maturity of advisory work or the identification of causal relationships and interactions between the identified influencing factors. The most influential factors resulted in four propositions and are incorporated in *Figure 2*.

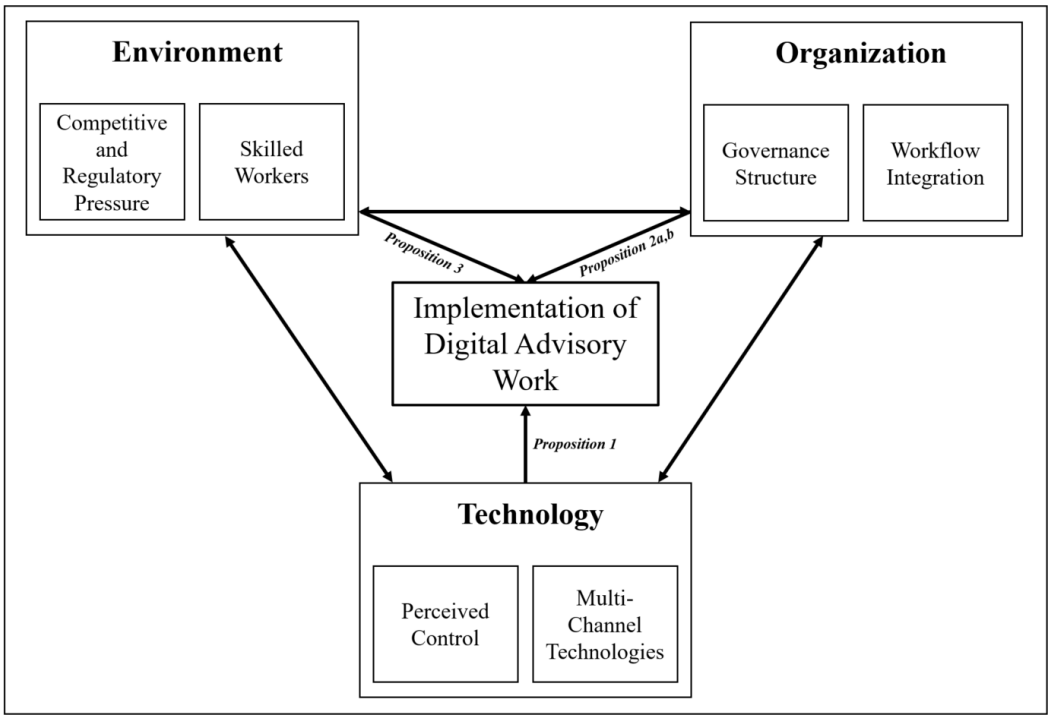


Figure 2: Integrated Adapted Technology-Organization-Environment Framework following *DePietro et al.* 1990

Limitations and Future Research

This study is subject to some limitations and leaves room for future research. The notional prospect of a certain degree of positive selection bias on the level of the interview partners is embedded in the data. This results from the participant selection, during which employees with a positive attitude towards the innovation could have been more likely to volunteer or be selected by the company to participate in our research project. Still, our interview partners reported negative impressions, often in the form of second-hand stories about employees who complained to colleagues about the respective technological innovation.

Our interviews took place during the pilot phase of both technological artefacts. Hence, we cannot make any statements about the effectiveness and the degree of the long-term success of the implemented technological solutions. This limits the generalizability of our findings. Therefore, our results should be regarded as preliminary knowledge with respect to the observed cases. A further complementary longitudinal qualitative study could conduct interviews at different points in time to compare the effectiveness of such introductions.

6. Conclusion

This paper examined the influences of digital innovations on advisory work in the financial services sector. We derive practical recommendations and theoretical implications. As a basis for this research, we performed a multiple case study within two financial services providers. Statements from interview partners serve as primary data. The TOE framework served as the up-front theory for this study and provided an appropriate theoretical lens to structure our investigation and findings. Our results reveal that introducing technological innovations for advisory work is connected to technological, organizational, and environmental contexts. In this regard, e.g., the governance structure, involvement of opinion leaders, customer empowerment, and appropriate training for the advisors are crucial for the implementation. Additionally, a suitable back-office infrastructure for new technological solutions is needed. This study can augment an ongoing discussion among practitioners about best practices associated with introductions of new technologies and corresponding work changes in the financial services sector or elsewhere.

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Appendix

We first used axial coding to all available data with regard to the elements of the TOE framework described in the theoretical background to identify initial patterns inside the interview data (*Glaser* 1978*; DePietro et al.* 1990). This procedure allows us to sort the data to the related elements of the TOE framework, e.g., "Environment" or "Technology". Secondly, we used selective coding as a procedure to capture those concepts, which are related to the previous initial labels (*Strauss* 1987). In our case, we went through all data and labeled and identified influencing factors for advisory work related to the corresponding element. For example, material classified with regard to "Technology" was further coded to "IT capabilities" since IT capabilities are connected with the new technology introduced in our cases. With this procedure, we identified 13 influencing factors on advisory work – five with regards to technology, five to organizational aspects, and three to the company's environment. Table A1 in the Appendix shows the elements of the TOE framework, related influencing factors, and anchor examples from the interview material. In the following section, the individual points of the TOE framework and the respective matching results from the interviews are presented.

A1: Elements of TOE Framework with Anchor Examples

Context of TOE framework	Influencing factors for implementation	Anchor Example
Technology	Independence of interaction	"[…] and we also notice that video advice is not as frequently requested as perhaps this scribble board or screen sharing. Because screen sharing is something that customers really use well, where they also say, "Here, I'm stuck in online banking." And where if you haven't logged in yourself, you don't know exactly where the customer is right now. But if you can see where the customer has problems and you can say, "Now click top left, bottom right." It's much easier. And that's used a lot. Video advice, I would say in general terms, many Germans still think: "He can see my face, and I don't like it." I think it will take some time before video advice is really used a lot. So, the other media are the ones that are used more frequently." [I.2.6]
	IT capabilities	"No, not quite, we have two external programmers. But have not bought any software on the market now, as far as that is concerned. With the exception of the commission system. So we have found an external company, with which we work together, which supports us with the core topic. We realized somewhere that we were reaching our limits and that it might make more sense to work with an external company." [I.1.3]
	Operational barriers	"But we also want to be able to offer our employees something like mobile working, because we simply don't have the technology at the moment. That they can simply carry out their activities regardless of time and place, which is difficult today when I only have a desktop computer, for example." [I.1.1]
	Technology task fit	"So it remains an advisory contact. It remains a service relationship between the advisor and the customer. Face to face is still possible anyway. What is now increasingly offered is the technical mediation of an advisory contact. And that is what people, i.e., their employees, have to learn anew, if necessary, that they are being filmed, but that they are also being constantly observed in the consultation as in the face-to-face situation. Is that really a different psychology/ Well, I mean, that will still interest me in the next interviews, what makes the difference between the video image, the camera and the face-to-face consultation, which the advisors have to do anyway." [I.2.4]
	Relative advantages of the technology	"We now have video advisory. But we also want to use it for customers who are short on time and say, "I need an investment recommendation sometime, but I can't right now." Where they say, "You know what? I'm going to prepare this for you. I'll email it to you. And then we'll talk on the phone. If you have time during work hours or on the weekend, then have the opportunity to talk about it." Because there are customers who are just so on the road from work activity that you have a hard time reaching them. Or also, and it's also good for that, for an initial meeting to get to know each other and where the customer also says, "Man, I'm on vacation right now. But I'm usually just on the road." Where you say, "You know what? I'll set this up. You don't have to come. I'll put it in your electronic mailbox. We'll talk about it again together. And then you back it up with a tan." And then it's like a signature. So also kind of solving these in-between things, that you don't come two, three times, but you say, "Okay, one conversation. And then we'll do the second one online." And even customers who otherwise say, "I live a little further away, and I can't come during opening hours, but I'm still interested in talking to you this way." [I.2.6]

Context of TOE framework	Influencing factors for implementation	Anchor Example
Organization	Technical competencies of employees	"And now we have the opportunity to move forward digitally in the long term. So, for example, we are now considering a digital driver's license for our employees, in order to deepen their knowledge of topics such as Excel, Word and so on. There are already seminars on this. They haven't brought out much. But there is something like that in general. But in the long run, something like this also plays a role. Fit on the iPad, I would say, to put it simply. Or, yes, new applications in general." [I.2.7]
	Internal dependencies	"That some topics are much easier to implement digitally because I can do a video legitimation and don't have to record so much myself. But there are also topics where you have to do a lot of follow-ups because you still need signatures or the like. So in my opinion, there is a very strong dependency, especially between front and back-office." [I.2.9]
	Opinion leadership	"In other words, we already know that the world of work is changing and changing significantly. And we already see that we need to reorganize ourselves culturally, including within the company. Particularly with regard to processes, we believe that we are a bit too slow in our processes today. Because communication simply, yes, also simply due to email or because no collaboration tool is simply there, sometimes, yes, runs too long. And we are already hoping that we will also introduce Microsoft Teams with Office 365, i.e. a collaboration platform, where we hope that employees will send us fewer emails and that processes will simply be streamlined. Knowledge will simply be disclosed transparently to everyone. In other words, we want to move away from closed communication in the email inbox to transparent communication within the company. And we hope that these knowledge silos will simply break down and that we will simply implement better processes and build better products." [I.1.1]
	Governance structure	"The role of the staff council function is also strongly influenced by me, of course, with my self-image. And I seek a balance between the individual requirements. Regardless of whether it's an employee perspective, a business perspective, or an entrepreneurial perspective. Because I am firmly convinced that a company can only function if these different needs, which undoubtedly exist, find a balance among each other." [I.2.1]
	Top-level management decision making and commitment	"But we've already set big blocks with our cultural transformation with compensation systems for employees to reduce acceptance problems. And what we want to do, more specifically, is to work on this from both sides. Of course, we also have to get the top-level managers on board. In any case, the leadership role has already changed a lot and will change even more." [I.1.2]

Context of TOE framework	Influencing factors for implementation	Anchor Example
Environment	Regulatory environment	"Everything else is already in the cloud, but for regulatory reasons, we cannot store everything in the cloud. The data is, unfortunately, at Microsoft in Dublin and Amsterdam. The data is not in Germany. That is a problem for BaFin regarding data protection. We simply cannot store customer or health data there for regulatory reasons. So that the data then really remains here with us on the departmental drives. However, the employee can access it, even from home." [I.1.1]
	Customer empowerment	"In order to endure in the market, they have to get faster with software launches and product launches. They can't work on that for another six or twelve months. On the one hand, they have to become faster, and on the other hand, they have realized that it is not just sales or finance that belong, but that an overarching department has to be created. This must be made transparent to the departments." [I.1.4]
	Competition intensity and pressures	"I think we are, it is divided. When I look at our legacy application and what we're doing to put things on a new technological basis, I think we're a bit ahead in the market and innovations leaders. We recognized a bit earlier what we had to do. We recognized a bit earlier what we had to do. And we simply invested a lot of time in it. And in our case, you can already see that we have reached the end of the project. I don't see other insurers having reached that point yet. As far as innovation is concerned, what we offer on the market for our sales staff, we see ourselves way ahead. Especially when I see what's happening among my friends, colleagues or in the banking industry. I simply see that they have by far not yet achieved the same level of digitization in terms of their customer processes as we have. Especially when it comes to e-signatures and, yes, paperless working. My perception is that the others are not as far along. But when I look at digitization in the workplace, with the tools and methodologies, we're just a bit behind. I know that others are much further ahead than we are with Office 365 and other workplace models. That's also a big problem for us, with the HR department to set up recruiting measures, so we're a bit behind there, simply. Because we haven't recognized that ourselves." [I.1.1]

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