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How Management in the German Insurance Industry Can Handle Digital Transformation

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Abstract:

Information technology (IT) heavily impacts various industries' products, processes, and business models. Therefore, a strategy on how to approach this IT-induced digital transformation seems vital. This also holds true for the insurance industry. Using the Digital Transformation Framework (DTF) we provide guidance to managers of insurance companies by illustrating how three European insurance companies approached their digital transformation. Among other findings, our analysis shows that, for the insurance industry, structural changes can be seen in the recent appointment of Chief Digital Officers or the establishment of dedicated central digital transformation units. Changes in value creation are reflected in new insurance products (such as insurance against cyber risks), a focus on personalized, situation-based insurance and the continued improvement of business processes through IT. In general, insurers have begun to see the strategic value of IT that lies beyond solutions for business process improvement, and started to attribute a more enabling role to IT within their organizations.

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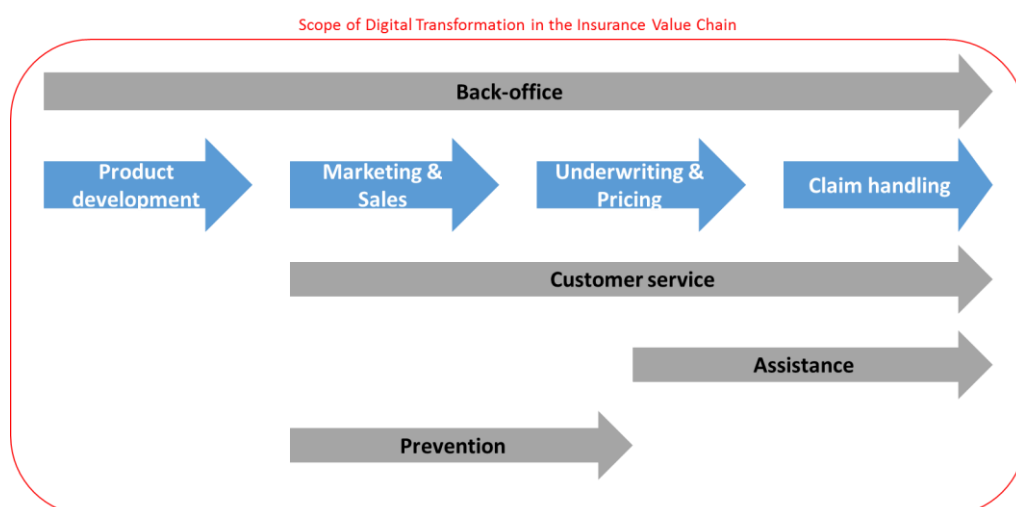


1 The Digital Transformation of the Insurance Industry

Over the last decade, IT has played an increasingly key role in a broad range of industries' products, processes, and entire business models – and will continue to do so. As a consequence, insurance companies, just like many other industries, are undergoing a transformation from traditional to digital business models. However, compared to other examples such as the media or retail industries, the pace and scale of the insurance industry's digital transformation for a long time has not been as fast. In part, this can be ascribed to special characteristics of the insurance industry. Firstly, in many lines the insurance industry still benefits from relatively strong margins and has to meet strict regulations (e.g., regarding data protection) which restrict the strategic imperative and attractiveness of digital transformation. Secondly, while other industries can exploit the digitization of their products and services to create new offers, the intangible nature of insurance products themselves limits the necessity for digital transformation. Despite these limitations, digital transformation is still gaining momentum within the insurance industry. Even though bearing risk remains the core business of this large and venerable financial service sector, its entire value chain is gradually adopting innovations offered by the digital world.

The major components of an insurance company's value chain are illustrated in Figure 1. Insurance products are financial contracts that obligate insurance companies to indemnify their customers in the case of losses according to pre-specified terms. In exchange, they typically receive fixed payments in advance. Products are designed based on analysis of the market and profitability, priced using actuarial methods, and sold through various distribution channels. When a loss is claimed by the customer, it is processed by claim-handling professionals and paid if contractual conditions are met. Furthermore, insurance companies also provide various customer services, including consulting and prevention assistance. While the core structure of this value chain is expected to remain, IT has the potential to transform or even disrupt¹ each single element of it.

Figure 1: The Insurance Value Chain



¹ Q-Perior (2015): "Die Digitale Transformation in der Versicherungsbranche", shows that changing customer behavior requires individualization and disruptive technologies are threatening existing business models

Many insurers have launched projects which aim to digitize parts of their value chain. For instance, many carriers sell at least some of their products online — in particular products that do not require much explanation. While most insurers provide multiple sales channels, they often struggle to integrate them. In order to develop a true omni-channel distribution system, insurers need to set up a unified digital platform which connects all channels. A more fundamental change in insurers' core business is the transformation of their underwriting and pricing processes. By monitoring policyholders' behavior via electronic devices, insurers can obtain more detailed and more recent data to assess and price their policies. While telematics usage-based car insurance is state of the art in some other countries, it is still in its infancy in the German market. After some insurers had conducted the first telematics field tests with a limited amount of insured cars in the German market², several companies, including the market leaders Allianz and HUK Coburg, announced plans to introduce telematics-based car insurance tariffs in Germany in 2016³. Another crucial part of insurers' value chain that is affected by digitization is the claims-handling process. Supporting claims management with automated decision-making based on predictive analytics can result in faster and more cost-efficient processes. Identifying claims which require specific resources based on business rules and historical patterns can increase both customer satisfaction and the detection rate of fraudulent claims.

Despite these promising opportunities, insurers' digital transformation is still in the early stages. According to a survey conducted by Bain & Company (2015), although most insurers agree on the need for change, a large proportion lack a clear strategy for a successful digital transformation. Our study sheds light on insurers' digital transformation strategies based on qualitative interviews with executives of three German insurance companies. We aim to provide insurance company managers with strategic options on how to address their industry's digital transformation. In order to analyze different approaches towards digital transformation, we apply the Digital Transformation Framework (DTF) introduced by Matt et al. (2015) and refined by Hess et al. (2016).

In the following, we will first introduce the DTF as the basis for our investigation and describe the necessary adaptations which allow for the specifics of the insurance industry. We will then briefly present the three case companies before using the adapted DTF to elaborate on each of our case studies' approach towards their digital transformation strategy. Finally, we summarize our results and draw conclusions for the insurance industry based on the results of our case studies. This study has been conducted as a co-operation between the Institute for Information Systems and New Media of LMU and the Institute for Risk Management and Insurance of the Ludwig-Maximilians-University Munich.

² <http://www.versicherungsbote.de/id/4837709/Sparkassen-DirektVersicherung-schliesstTelematik-Tarif/>

³ <http://www.finanztip.de/kfz-versicherung/telematik-tarif/>

2 Deriving a Framework for Digital Transformation Strategy in the Insurance Industry

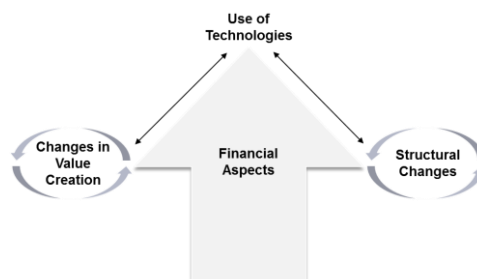
2.1 Research on the Insurance Industry's Digital Transformation

In our view, existing academic research on digital transformation strategies for insurance companies is relatively limited and lacks a holistic view. Most academic studies focus on particular facets of digital transformation. For instance, Tiefenbacher and Olbrich (2015) investigate how big data poses a challenge to information integration into existing analytical infrastructures. They find that the ability of a cross-functional process alignment is a prerequisite to providing a consolidated view of customer information. Czesla (2014) points out that information technology provides new business models for financial services and allows a digitally enabled industry transformation. This is due to the increasing importance of (dis-) intermediation and customer-centricity for financial service providers, the changing interaction between user and technology, and the increasingly digitized information. Hampe and Stein (2009) explore how technical advances in the mobile device sector can provide users with new applications and services. By using the example of the European Accident Report as a mobile documentation system, the authors first describe the paper-based form of traffic accident documentation, and then explain the advantages of using a mobile digital solution. Power and Power (2015) investigate how appropriate decision support capabilities and predictive analytics can be developed to detect and prevent insurance fraud. In addition to academic research, there are many industry or consulting studies that have investigated the digital transformation of the insurance industry⁴.

2.2 The Digital Transformation Framework

In order to investigate digital transformation strategies in the insurance industry, we apply a framework that was originally designed for the media industry but can be used for other customer-oriented industries as well: the Digital Transformation Framework (DTF) (Matt et al. 2015). The DTF describes four dimensions that in concert are essential for the formulation and implementation of a digital transformation strategy: the use of technologies, changes in value creation, structural changes, and financial aspects (figure 1).

Figure 1: The Digital Transformation Framework



⁴ E.g., McKinsey (2015): "The Making of a Digital Insurer - The Path to Enhanced Profitability, Lower Costs and a stronger Customer Loyalty" proposes that insurance companies should rethink their approach in six key dimensions: strategy, customer-centricity, digitizing business process, organization, technology and analytics and decision making

The *use of technology* is the central concept of the framework. It determines an organization's playfield for product and process innovation induced through information technology. This dimension needs managers to be clear on their organization's approach towards innovation and new information technology as well as the contribution of their IT departments in terms of value creation.

Information technology can bring change in two further dimensions: value creation and organizational structures. This means IT affects an organization's business model as well as its processes, skills, and internal structures. In the case of the media industry, the *changes in value creation* are reflected mostly by how much media companies have already diversified their value chain into the digital world, and what the advent of IT means for their future business scope and revenue streams after the transformation. *Structural changes* mirror a firm's decision on who is responsible for the digital transformation, on where new activities are positioned, on which structures will be affected by the transformation, and on how the necessary digital competencies can be groomed. Finally, there are also *financial aspects* which are relevant for when and why a company embarks on its digital transformation journey and how it will finance the endeavor.

To help managers approach the digital transformation of their businesses, the DTF not only describes four dimensions that are essential for a digital transformation strategy, but also breaks down each dimension into a set of strategic decisions that together define the extent and scope of an organization's digital transformation endeavor.

For the media industry, the DTF offers eleven of these strategic decisions. Since the framework was originally developed for the media industry, the authors advise managers of other industries to adapt the changes, particularly in the value creation dimension, and customize the framework corresponding to their specific business environment.

2.3 An Adapted Framework for the Insurance Industry

We investigate the digital transformation of the insurance industry because it offers a complementary view to the existing work on digital transformation in the media industry (Hess et al. 2016). The actual product itself – protection against risks – is, unlike products in the media industry, an intangible good in itself and thus cannot be technically digitized (such as, for example, the way e-papers digitized the print newspaper in the media industry). However, insurance companies have understood the need to digitize their customers' journeys along their value chain, and use the opportunities offered by IT to create new revenues and, equally important, optimize business processes. In general, digital transformation has grown in importance as a topic for the management boards of insurance firms over the last few years and appears to now be at the top of most management agendas.

To allow for the specifics of the insurance industry, we decided to adapt the DTF before embarking on the case analysis of digital transformation at three insurance companies. A similar step was done in a study investigating the digital transformation of the European automotive industry (Chaniyas et al. 2016). Similarly, for the insurance industry, we concur with the presumption that the main adaptations are necessary in the value creation dimension. To understand how and where digital transformation affects the insurance value chain, we analyzed existing

literature on how the digital transformation affects (financial service) business models⁵ and conducted interviews with industry experts and researchers.

This led us to an adapted version of the DTF for the insurance industry (henceforth: DTFi) on which we grounded our case analysis for the insurance industry. We reciprocally used the case analysis to validate our understanding of the relevant elements of the digital transformation strategy in the insurance industry, i.e. our concept of the DTF adjusted for the specifics of the insurance industry. The resulting DTFi comprises 14 strategic questions which managers need to answer when considering the digital transformation of their firm:

1. How significant is your IT to achieving strategic goals?
2. How ambitious is your approach to new information technologies?
3. How does IT affect your sales channels?
4. How does IT change your product and service portfolio?
5. How do you use IT to optimize your operations?
6. What new sources for your revenue creation have been created through IT?
7. What are potential ways to cut your cost base through IT?
8. What will your future business scope be?
9. Who is in charge of your digital transformation process?
10. Do you plan to integrate new operations into existing structures or create separate entities?
11. What types of structural changes do you expect?
12. Do you need to acquire new competencies? If so, how do you plan to acquire them?
13. How strong is the financial pressure on your current core business and, therefore, the need for digital innovation?
14. How will you finance digital transformation?

For each of these questions, the DTFi also provides possible options which managers can choose from. Table 1 summarizes the 14 questions and their options.

⁵ We based our adaptations on both academic studies, e.g. Czesla, T. (2014), Tiefenbacher, K. and Olbrich, S. (2015) as well as industry studies, e.g., Bain & Company (2013), Oliver Wyman (2016), or Q-Perior (2015)

Table 1: Management Options for Insurers in the Formulation of Digital Transformation Strategies

Use of technologies					
Strategic role of IT?	Enabler			Supporter	
Technological ambition?	Innovator	Early adopter		Follower	
Changes in value creation					
Changes in sales channels?	Analog/ physical	Mixed	Omni-channel	Purely digital	
Changes in products/serv.?	Customer service		Assistance	Prevention	
Changes in operations?	Claim handling		Underwriting and pricing	Back office functions	
New sources of revenue creation?	New digital insurance products		New digital assistance offers	New digital prevention offers	
Ways for cutting costs?	Cut administrative cost			Improve loss ratios	
Future main business scope?	Identifying claims		Managing risks	Other	
Structural changes					
Responsibility for digital transformation strategy?	Group CEO	CEO of bus. unit	Group CDO	Group CIO	Group COO
Organizational positioning of new activities?	Integrated			Separated	
Focus of structural changes?	Products and services		Business processes	Skills	
Building of competencies?	Internally	Partnerships	M&A	External sourcing	
Financial aspects					
Financial pressure on current core business?	Low		Medium	High	
Financing of new activities?	Internal			External	

3 Three Insurance Companies and Their Digital Transformation Strategy

3.1 Case Study Description

In the following section, we will investigate the digital transformation initiatives at three German primary insurance companies: a major international player, *Allianz SE*, the Germany-centered *Generali Deutschland AG*, and the small life insurer *Lebensversicherung von 1871 a. G. München*. This selection of insurance companies enabled us to account for potential differences in company size and product spectrum focus.

- Allianz SE (henceforth "AZ") is by far the largest German insurance company with an annual premium income of approximately €125.2 billion in 2015⁶. The Munich-based insurer offers a complete range of insurance products and had more than 142,000⁷ employees in 2015. AZ is the leading German life insurer and the second largest car insurer.

⁶ <http://de.statista.com/statistik/daten/studie/1901/umfrage/top-20-der-deutschen-versicherungen/>

⁷ https://www.allianz.com/v_1458046976000/media/investor_relations/de/berichte_und_finanzdaten/geschaeftsbericht/gb2015/gb2015_gruppe.pdf

- Generali Deutschland AG (henceforth “GD”) is Germany’s second largest insurance provider in terms of premium collections for life and property & casualty (P&C) insurance products. GD is a subsidiary of the Italian insurance holding Assicurazioni Generali S.p.A., based in Triest, Italy, which operates globally through independent national business units such as GD for the German market. With gross written premiums of €17.8 billion⁸ in 2015, GD provides around a quarter of the holding’s total gross written premiums. GD is headquartered at Munich, Germany, and had around 13,000 employees in 2015.
- Lebensversicherung von 1871 a.G. München (henceforth „LV”) is a German life insurance company based in Munich, Germany. Since its foundation in 1871, LV has specialized in life insurance, pension insurance, and disability insurance. In 2015, LV had 458⁹ employees and € 625 million¹⁰ gross written premium.

Our three cases recently decided to embark on company-wide digital transformation initiatives. In this, all three cases represent role models on how to approach digital transformation in the insurance industry. AZ declared “digital by default” to be one of the group’s key strategic initiatives and has invested significant funds in the digitization of their tied-agent network. The “digital agency” improves agents’ visibility online and fosters customer-agent interaction in social media networks. Assicurazioni Generali S.p.A. – GD’s parent company – has recently made the digital transformation of its insurance business a key strategic priority and established a Smart Insurance Transformation Office which is responsible for the group’s strategic approach towards digital transformation strategy. LV has begun its digital transformation by digitizing its back-office operations and customer services. Table 2 provides an overview of our three case studies.

⁸ <http://de.statista.com/statistik/daten/studie/1901/umfrage/top-20-der-deutschen-versicherungen/>

⁹ https://www.lv1871.de/lv1871_internet/zahlen.htm

¹⁰ https://www.lv1871.de/lv1871_internet/geschaeftsbericht-zahlen.htm

Table 2: Company Overview

	Allianz SE	Generali Deutschland	LV von 1871
Size	142,000 employees (2015) €125.2 billion gross written premium (2015) 85 million customers worldwide (2015)	13,000 employees (2015) €17.8 billion gross written premium (2015) 13.5 million customers in Germany (2015)	458 employees (2015) €0.6 billion gross written premium (2015) 0.7% market share life insurance (2014)
Headquarters	Munich	Munich	Munich
Founded	1890	2001 ¹¹	1871
Market focus	Global	Germany	Germany
Digital transformation overview	Digital transformation is seen as long-term strategic investment to defend leading market position.	IT as an enabler to raise customer satisfaction	Digitization of life insurance service platforms, contact points with clients, operation processes
Exemplary digital transformation success story	Implementation of paperless sales process for tied agents.	> 800.000 telematics-based car insurance contracts in Europe	Automated operation processes; enriched online information platform
Organizational impact of dig. transformation	Processes, products, and services	Processes, products, and services	Processes, services
Interviewees	Chief Digital Officer, Head of Automotive Telematics, IT Project Manager	Head of Smart Insurance Transformation, Country Functional Head Distribution Strategy	Chief Executive Officer, Chief Information Officer

With these three cases, we intended to represent the German market for primary insurance. We deliberately focused on primary insurers and excluded reinsurers from our analysis since their business models differ significantly from primaries, and we believe that they should be analyzed separately with regards to their digital transformation. In terms of size and market coverage, we included Germany's two market leaders in the life and P&C business as well as a small life insurance specialist. This selection allows us to both include all of the relevant areas where IT might influence an insurer's business model (through the cases of AZ and GD) and understand how smaller players with a specialized business model (life insurance) approach digital transformation (through the case of LV).

In the following, we will discuss the digital transformation stories of our three cases and point out important strategic elements following the DTFi, which we introduced in the previous section (table 1)¹². For our analysis, we spoke with several managers keenly involved in the organizations' digital transformation activities in 2015 and 2016.

3.2 The Digital Transformation of Allianz SE

Customer-centricity occupies the center stage of AZ's digital transformation process. IT offers ways to optimize the organization's interaction with its customers and tailor new insurance solutions such as insurance for mobile devices (e.g.,

¹¹ From the takeover of the Aachener und Münchener Beteiligungs AG (founded in 1825) by the Assicurazioni Generali S.p.A. in 1998

¹² The appendix includes a detailed description of each of the DTFi's elements

Allianz Smartphone Insurance “Clare”) or telematics-based insurance (e.g., for car insurance contracts). Therefore, to remain at the forefront of technological progress, AZ watches new trends and technologies very closely. In general, IT is a vital part of AZ’s business model and is considered an enabling function to facilitate the vision of a 100% customer-centric, “digital by default¹³” organization. In most cases, AZ adopts already existing technologies at an early stage. In some cases, however, such as block-chain, or the application of virtual reality in the insurance industry, AZ also takes an innovating role.

AZ’s digital transformation strategy has been driven predominantly by the Group CEO’s new strategic agenda. Since 2016, AZ has also employed a Chief Digital Officer who reports to the COO and is responsible for the coordination of the firm’s digital initiatives. In general, AZ has approached the digital transformation of the group on the holding level but has also promoted independent initiatives in its subsidiaries that pursue their own transformation agenda. Many of AZ’s digitization operations are closely integrated in the existing structures.

An important step for AZ has been the digitization of its sales channels. AZ’s vision is to create completely integrated customer journeys throughout their organization, which demands fully integrated analog and digital sales channels. In its “Allianz Digital Factory”, AZ has experimented with digital sales solutions and tried to rethink digital customer journeys. A crucial step in this direction has also been the development of an integrated, paperless sales process for their tied-agent network. While the digitization of sales processes has advanced quickly for tied agents, the sales process of insurance brokers is still predominantly analog. In general, AZ relies on all types of sales channels (traditional, direct, and mixed). However, AZ had to deal with strong opposition from its tied sales agent network when promoting direct sales channels.

Besides its sales channels, IT has also had an impact on AZ’s product and service portfolio. IT has allowed AZ to introduce new technology-based insurance products. AZ launched its own telematics-based car insurance program “Bonus Drive” in Germany in 2016. With this offer, AZ aims to particularly attract young drivers, who can earn a premium discount of up to 40% if their careful driving habits are confirmed by the telematics system. In addition, AZ continues to develop new insurance products such as insurance against cyber risks or insurance for mobile devices. AZ also has plans to offer risk prevention services based on IT (e.g., healthcare-related services, “Smart Home” applications, or automotive-telematics). By using desktop or mobile devices, AZ’s customers can access their insurance policies and communicate with AZ via each subsidiary’s customer portal (e.g., “Meine Allianz” for the German market), where customers can get an overview of their insurance policies, access information about the reimbursement of medical bills, and use tools for retirement planning. In general, AZ expects to extend its core business to related services (such as loss prevention consulting) through the use of IT. However, AZ does not believe that digital products facilitate insurers’ market entry to more distant, non-insurance businesses (such as infotainment).

In addition to digital products and services, AZ has been successful in digitizing most of their back-end processes such as the automated distribution of customer

¹³ “Digital by default” was one of AZ’s five strategic initiatives presented by the CEO of Allianz SE in November/2015

inquiries to the appropriate salesperson, and exploiting the opportunities offered through big data solutions and the Internet of things such as in multivariate insurance pricing or for the early detection and prevention of loss events. AZ plans to further extend process automation by adding customer interaction to its already automated processes (e.g., for automated claim handling). Customers currently make claims predominantly by phone or mail and are not able to track the status of their claim. AZ therefore sees information technology as an important way to improve the efficiency of the claims-handling process and to increase customers' satisfaction. IT is also being used to improve AZ's straight-through processing or to support the pricing and underwriting processes. However, the value which will be added depends strongly on the line of business. For instance, the underwriting process of car insurance products can be supported and streamlined by IT. However, the additional value of more detailed information acquired by technical devices is questionable. It might even lead to declining margins as existing information asymmetries erode.

To acquire the competencies necessary to accomplish their digital transformation strategy, AZ relies on multiple approaches. Initially, AZ aims to develop competencies internally (e.g., through Allianz-founded start-ups) and always aims to involve internal staff with new projects. External sourcing is predominantly used for extending capacities temporarily, or for outsourcing the maintenance of old systems. Critical know-how is also acquired by selective take-overs if the process of developing the know-how internally is expected to take too long. In addition to the acquisition of the necessary competencies, it is also crucial for AZ to bring IT and business teams closer together and employ cross-functional teams on its digital transformation initiatives.

In the past, through various strategic programs, AZ was able to cut costs significantly. As a result, administrative costs are not a driver for digitization. Traditional insurance products are still profitable. Therefore, digital transformation is seen as a long-term investment to attract new customers and defend their leading market position. AZ finances its digitization investments internally as AZ's margins remain strong even in the ongoing period of low interest rates.

3.3 The Digital Transformation of Generali Deutschland

In addition to the ongoing period of low interest rates, digital transformation has begun to affect GD's margins over the last decade. IT and its influence on customer preferences has allowed online direct insurance providers to gain a market share, and new competitors such as Check24¹⁴ to enter the market.

Even by 1998, well before digital transformation became an omnipresent challenge for management boards across various industries, GD took their first important steps towards the digital transformation of its business model: the acquisition of the German direct insurance provider CosmosDirekt. Over the ensuing years, CosmosDirekt evolved into an international leader for directly distributed life insurance products and, today, is the largest online direct insurance provider in Germany. In 2015, Assicurazioni Generali S.p.A's management board declared digital transformation a key strategic priority. This decision to systematically

¹⁴ An online price comparison portal for insurance, energy, telecommunication, finance, and travel products

approach digital transformation was made at group level and has been implemented throughout all subsidiaries. Consequently, digital transformation also dominates GD's business strategy. The main trigger for this strategic decision was that the group's management team recognized the need to follow its customers into the digital age. The opportunities offered by the digital age are intended to help transform GD into a "simpler" and "smarter" organization. Simpler in that the attention is on making insurance products more accessible and easier to use and understand. Smarter by selling high quality technology-based insurance solutions to their customers. In general, GD's management understands digital transformation as an obligation, not an option, if GD wishes to defend its strong market position. This is evident in the decision to finance the digital transformation program through internal free cash flow.

Today, GD sees IT as a means to meeting customer demands and reaching strategic goals. The company is open to technological innovation and thinks creatively about the best ways to benefit from IT and its applications such as the internet of things. This open, enabling, and innovative approach towards technology has allowed GD to digitize its sales channels, operations, and, to a certain extent, its analog products and services. This last can be seen in recent innovations such as telematics-based automotive insurance products, smart-home insurance solutions (e.g., a smart-home insurance product that uses information from connected household appliances and reports unnecessary events such as heating while no one is at home) or the group-wide cooperation with South-African financial services provider Discovery¹⁵ that led to the roll-out of Discovery's "Vitality" program across the group to complement insurance solutions with healthcare products and services. "Vitality" uses a mobile front-end (e.g., smartphone) as interface to the customer and awards health-conscious behavior with discounts and vouchers, and therefore ultimately reduces the costs from health claims for the organization.

In addition, IT is used to improve customer service. For example, a mobile application provides information, offers functionality to report claims, and provides quick and easy access to experts. These features can be summarized as new business models for insurance providers who offer assistance (in the case of an event of loss) and prevention (to prevent events of loss) services based on IT.

Furthermore, GD's management has understood the benefits of a true Omni-channel strategy with seamlessly integrated analog and digital (mobile and online) channels. The implementation of such an Omni-channel strategy, however, comes with considerable effort, and demands major changes within an organization's IT infrastructure and the work routines of the sales staff. GD currently pursues a mixed sales strategy which, while still relying on an analog sales force, allows its customers to also use digital channels to gather information or buy insurance. Although these channels operate more or less independently from one another, this mixed strategy represents a necessary step towards a true Omni-channel solution. As with its sales activities, GD has also implemented IT to improve internal and external business processes. For instance, big data is used to provide a stronger basis for multivariate pricing models or fraud detection. Digital communication with

¹⁵ Discovery Limited is a South-African financial services organization. With already more than 5.5 million members, its "Vitality" program is the world's largest scientific incentive-based wellness and healthcare solution.

clients is seen as a way to reduce postage costs. The digitization of formerly paper-based data offers ways to automate underwriting or claim-handling processes.

At GD, digital transformation is driven by the CEO as well as the CIO and CDO. The CDO oversees the firm's digital transformation initiatives which are directed towards the firm's customers such as its products, services, or marketing and sales activities. The CIO, in contrast, is responsible for the digital transformation of the firm's operations, i.e., business processes. Recently, GD has established a Smart Insurance Transformation Office (governed by the CDO) which is tasked with the generation and coordination of digital transformation projects. Leads can be generated either top-down within this department and are then implemented across the firm or bottom-up from somewhere within the organization. In the second case the Smart Insurance Transformation Office is not the actual digital transformation idea generator, but operates more as a coordinator that orchestrates all the different activities throughout the organization. The actual projects, however, are always carried out completely within existing business units.

GD's management has realized that GD needs to build up the necessary technological competences and establish a digital mind-set throughout all hierarchal levels of the organization if they want to successfully master GD's digital transformation. This means both grooming the necessary competences internally (e.g., through training) and acquiring them externally – either via new hiring, through cooperation, or through M&A activities.

3.4 The Digital Transformation of Lebensversicherung von 1871

The company LV specializes in life insurance, and therefore has a number of unique features as compared to those of non-life insurers. These largely have to do with the complex and long-term nature of life insurance products. In addition, despite their importance for people's well-being, life insurance products are particularly for being sold rather than being bought, indicating a lack of sufficient risk-awareness from the consumers. The same argument also holds true for other insurance products but is particularly strong for life-insurance products. Personal contact and individual consulting play an essential role in the life-insurance business. Advice from intermediaries is often necessary to help consumers understand the need to purchase, how the products work, and which products might best meet their need, especially for consumers with low financial literacy. The continued importance of this personal contact has led to the relatively low degree of digitization across the life insurance industry¹⁶.

Given the special features of its business nature, LV sees the long-term impact of digitization to be significant for life insurers. This impact is mainly driven by the current mismatch between consumers' need and life insurance lacking sufficient transparency and flexibility, which affects trust in and the reputation of the industry. With the help of technological advances, life insurers could establish alternative access points and more direct contact with their clients. Currently, LV has begun its digital transformation by optimizing its internal processes and enriching its customer service via online platforms. In the long run, LV expects a more fundamental transformation of life insurance business models via digitization.

¹⁶ However, there are prominent examples that show that digital transformation can happen also for the life insurance business (e.g. CosmosDirekt).

However, the pressure is only beginning to emerge and this transformation is still at a very early stage.

At LV, IT is seen to have a mixed role of enabling and support. With regard to adopting new IT, LV sees itself as an early adapter which actively implements innovations to remain competitive among competitors. As a first step, LV began by automating the workflow of internal operations, allowing digitization to make the administration process more efficient. In addition, LV also made use of the internet to make product information more easily accessible to customers. Until now, the majority of LV's clients have been acquired through intermediaries. The complex product nature is one of the major obstacles life insurers face; digitization can improve this by providing a more vivid, easy-to-understand demonstration of how the products work and why they might be needed. In the long term, digitization is expected to play an increasingly important role in data analytics and customer service, where, instead of through traditional insurance agents, sales and consulting could be automated and become more direct, transparent and objective. However, a closer connection with end consumers does not imply that insurance intermediaries will become extinct; on the contrary intermediaries and new business partners remain of great importance for LV. By choosing a broad network of smart intermediaries and alternative partners, LV can not only gain more customer insights, but also identify potential customers through new channels. As an example, in July 2016, it was announced that LV will cooperate with *vers.diagnose*¹⁷, an online platform that performs real-time assessment of customers' biometric risks for insurance companies.

Currently, digitization at LV is not treated as a stand-alone project; nor is the initiative driven by a single board member. However, LV has realized the long-term impact of this matter and has taken important steps in its administration processes and customer service. With regard to structural changes, LV prefers to implement digital transformation via a separated entity ("innovation lab"), rather than integrating the process into its core business, since the traditional business model is not expected to be disrupted in the short or medium term. Three types of key competence are seen by LV as crucial for its digital transformation: the early adaptation to customers' needs, up-to-date know-how in IT, and readiness to change the enterprise culture. LV has found it necessary to acquire competence from external sources, but also sees the importance of developing existing staff (e.g., IT staff are offered monthly training sessions in dedicated "IT dojos") and creating a smooth link between "the new and the old world" – in the sense of both competence and culture. In general, digital transformation is a high priority topic on LV's management agenda.

4 Digital Transformation Strategy for the Insurance Industry

Based on the Digital Transformation Framework, we embarked on a journey to investigate the impact of IT on the insurance industry and provide guidelines on the formulation of a digital transformation strategy which will help insurance companies to realize the potential offered by IT. The DTF offers four dimensions, which, together, are essential for the formulation and implementation of a digital transformation strategy: the use of technology, changes in value creation, structural

¹⁷ <https://www.versdiagnose.de/>

changes, and financial aspects. For our analysis, we followed the DTF's authors' suggestion and designed a slightly adapted version of the DTF which would suit the insurance industry (the DTFi).

Our case study analysis shows that the main effect of digital transformation has so far been on the insurance industry's products or sales channels (e.g., direct insurance or new insurance products based on modern IT), and processes (mainly process automation). However, unlike other industries (e.g., media companies' diversification into e-commerce), insurance companies have been relatively reluctant in terms of diversification in other, non-core business related business models, as we have seen in the media industry, for instance.

A closer look at the case studies shows that there is more than one way for insurance companies to approach digital transformation. Regarding the use of technologies, insurers are beginning to realize the strategic value of IT and are starting to attribute an enabling role to IT within their organizations. Our three cases embrace IT either as a means to create a customer-centric organization or as an enabler to offer high quality insurance products and services.

Structural changes are evident in the recent appointment of Chief Digital Officers and the establishment of dedicated central digital transformation units. These steps aim to centrally initiate and govern digital transformation activities which are then realized decentrally across the organization. However, only the two larger companies, AZ and GD, decided to establish a dedicated office that is specifically committed to the digital transformation of the company. Moreover, a look at the firms' management agendas shows that all three case companies decided to heavily involve the Group CEOs and CIOs in their digital transformation process.

Two more questions in the structural dimension of digital transformation strategy are, firstly, whether digital activities should emerge within existing organizational structures or separately from the core business and, secondly, how firms can build up the necessary skill sets with its employees. So far, there seems to be no universal answer to the former question regarding the integration or separation of digital initiatives. For the latter, the combination of two simultaneous strategies seems to be the most promising. On the one hand, all three firms decided to foster strategic partnerships and raise the potential of external sourcing, often to act quickly and for the sake of flexibility. On the other hand, they also sought to groom the necessary skills internally, mainly to harvest knowledge in-house and avoid undesired dependencies from others.

Our case studies have understood the importance of the third dimension of the DTF, the changes in value creation. To begin with, all three firms are moving towards digitized and fully integrated sales channels. Furthermore, they have all understood the necessity of digitizing their products and service offers, as well as their customer service and assistance offers. New insurance products (such as insurance against cyber risks) and a focus on personalized, situation-based insurance seem to be a predominant theme over the next years and will represent an important revenue stream for insurance companies. Additionally, the firms have understood the value of IT in reducing their cost base through more efficient business processes such as automated underwriting or claim handling. In general, AZ and GD plan to diversify into a comprehensive service provider which prevents, hedges, and manages its

customers' risks, whereas LV believes their business scope will remain unchanged by digital transformation due to the special characteristics of life insurance.

Finally, the three firms' digital transformation strategies appear similar when it comes to the financial aspect. Both the ongoing period of low interest rates and competition from online direct insurers and Fintechs have placed significant financial strain on many traditional insurance products especially for life insurance. Despite these strains, all three companies which we investigated can still harvest strong cash flows and therefore internally finance their digital transformation process.

In general, compared to other industries such as the media (see Hess et al. 2016) or the automotive industry (see Chaniias & Hess 2016), the insurance industry's digital transformation seems to still be in its infancy but has gained momentum over recent months. We believe this trend will continue, and expect the insurance industry to witness significant changes in the near future. However, the often stressed financial and strategic pressure that startups and other new market entrants have placed on insurers' business models and revenues, seems to be relatively small. In most cases, the business models of Insurtechs (i.e. insurance Fintechs) allow for a collaboration with established insurers which indicates that Insurtechs can be seen as an opportunity rather than a threat for insurance companies.¹⁸ However, we also believe the opportunities arising from digital transformation will be accompanied by serious challenges for insurance providers. Along their digital transformation journey, insurers will have to handle regulatory hurdles and customer objections concerning data protection or behavior-dependent insurance tariffs. Above all, it will be crucial for insurers to adapt to changing customer behavior and follow their clients into the digital age – both with their product and service portfolios in order to secure future revenues, and with their business processes to safeguard future margins.

¹⁸ A consulting study, Oliver Wyman (2016): "Zukunft von Insurtech in Deutschland", investigates how Insurtechs affect the structures of the insurance industry.

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Appendix

The following appendix (tables 3-16) summarizes the findings from our case study analysis and highlights strategic similarities and differences in the companies' digital transformation strategies along the four DTFi dimensions.

The use of technology

This dimension refers to an organization's attitude towards technology and the role of IT across the firm. Managers are asked two strategic questions: How significant is your IT in achieving strategic goals (table 3)? And, how ambitious is your approach to new IT (table 4)?

Table 3: The Use of IT – Strategic Role of IT

Strategic options	Description	A Z	G D	L V	Strategic approach
Enabler	IT is an enabler of strategic goals	x	x	x	<ul style="list-style-type: none"> AZ regards technology as a means to create a customer-centric organization GD regards IT as a means to offer high quality insurance solutions to its customers For LV, IT is both an enabler and a supporter for its business goals
Supporter	IT is seen as a support function to reach strategic goals			x	<ul style="list-style-type: none"> For LV, IT is both an enabler and a supporter for its business goals

Table 4: The Use of IT – Technological Ambition

Strategic options	Description	A Z	G D	L V	Strategic approach
Innovator	A company at the forefront of innovating new technology	x	x		<ul style="list-style-type: none"> AZ actively embraces the changes following block-chain or virtual reality technology GD understands the necessity to come up with innovative, digital insurance solutions in order to follow its customers into the digital age
Early adopter	A company which actively looks for opportunities to implement new technology	x	x	x	<ul style="list-style-type: none"> AZ screens the market for promising technology (e.g., Fintechs) While generally trying to be at the forefront of digital insurance innovation, GD is open to adopting existing systems and technology. LV sees itself as an early adopter which actively implements innovations in order to stay competitive.
Follower	A firm which relies on well-established solutions			x	<ul style="list-style-type: none"> For its core processes LV relies on already established technology

The changes in value creation

The clearest example of changes in value creation can be seen in the case of media companies which have already diversified their value chain into the digital world. The advent of modern IT has a serious impact on the future business scope, on future revenue streams, and, in general, on products, processes, and business models of insurance companies. This means that insurance managers need to be clear about the following five strategic questions: How does IT affect your sales channels (table 5)? How has IT changed your product and service portfolio (table 6)? How do you use IT to optimize your operations (table 7)? What new sources has IT provided for your revenue creation (table 8)? In what ways can IT cut your cost base (table 9)? What will your future business scope be (table 10)?

Table 5: The Changes in Value Creation – Changes in Sales Channels

Strategic options	Description	A Z	G D	L V	Strategic approach
Analog/ physical	No digital sales channels.			x	<ul style="list-style-type: none"> So far, products of LV continue to be distributed through traditional, personal sales channels (via brokers and agents). LV's website offers information on its products only.
Mixed	Digital and analog, yet so far not fully integrated, sales channels	x	x	x	<ul style="list-style-type: none"> AZ was one of the first insurers to develop a paperless and fully-integrated sales process for their tied-agent network. Sales processes of brokers are less digitized. In general, AZ pursues a mixed-channel sales strategy. GD sells insurance products via analog and digital channels. LV is currently considering new digital distribution channels.
True omni-channel	Seamlessly integrated sales channels	x			<ul style="list-style-type: none"> With its Allianz Digital Factory AZ aims to rethink digital customer journeys
Purely digital	Digital sales channels only				<ul style="list-style-type: none"> -

Table 6: The Changes in Value Creation – Changes in Products/Services

Strategic options	Description	A Z	G D	L V	Strategic approach
Customer service	Customer service offers are strongly reliant on IT	x	x	x	<ul style="list-style-type: none"> AZ's customers can access insurance policies and communicate with AZ via the customer portal "Meine Allianz" GD's customer service uses mobile means of communication. LV makes use of its website to make its products easier to understand for its customers.
Assistance	Existing assistance services are enriched with IT		x		<ul style="list-style-type: none"> GD uses IT to enrich its existing assistance offers (e.g., a mobile app which customers can use to report claims)
Prevention	Existing prevention services are enriched with IT				<ul style="list-style-type: none"> -

Table 7: The Changes in Value Creation – Changes in Operations

Strategic options	Description	A Z	G D	L V	Strategic approach
Claim handling	IT is used to automate claim handling processes	x	x		<ul style="list-style-type: none"> AZ plans to integrate their customers in its automated straight-through processing GD is currently exploring options to use IT which automate the handling of claims
Underwriting and pricing	IT enables better risk assessment based on large amounts of new information	x	x	x	<ul style="list-style-type: none"> The implementation of automated underwriting processes depends strongly on the line of business. AZ expects that IT can enrich traditional pricing and underwriting processes GD regards IT (e.g., big data for multivariate pricing) as a way to raise quality and efficiency. LV aims to facilitate its risk assessment with digital platforms.
Back office functions	IT is used to automate the back office functions of insurance companies	x	x	x	<ul style="list-style-type: none"> AZ uses automated back-end services for forwarding customers' inquiries to the appropriate member of staff. GD intends to make back office processes more efficient through the use of IT (e.g., print-to-digital data transformation). At LV digitization began by facilitating its internal back office functions.

Table 8: The Changes in Value Creation – New Sources of Revenue Creation

Strategic options	Description	A Z	G D	L V	Strategic approach
New digital insurance products	Additional revenues are generated from new digital products	x	x		<ul style="list-style-type: none"> AZ introduced a new car insurance product "Bonus Drive" which relies on telematics systems. Furthermore, AZ is interested in new insurance products such as Cyber Risk Insurance or Mobile Device Insurance. GD uses IT to introduce new insurance products (e.g., direct insurance).
New digital assistance offers	IT is used to offer new assistance services	x	x	x	<ul style="list-style-type: none"> GD thinks creatively about new opportunities for assistance services through the internet of things. LV aims to improve customer service via online platforms.
New digital prevention offers	IT is used to offer new prevention services	x	x		<ul style="list-style-type: none"> AZ and GD plan/ initiated risk prevention services based on IT (e.g., "Smart Home" applications or automotive-telematics)

Table 9: The Changes in Value Creation – Ways for Cutting Costs

Strategic options	Description	A Z	G D	L V	Strategic approach
Cut administrative costs	Process innovation through IT reduces administrative costs	x	x	x	<ul style="list-style-type: none"> • AZ uses IT to further improve their straight-through processing • GD plans to reduce costs through process digitization in the form of paperless contracts (no costs for print, postage, etc.) • LV believes that its back office functions can be made more efficient through digital transformation
Improve loss ratios	Process innovation through IT improves loss ratios	x	x		<ul style="list-style-type: none"> • AZ and GD explore big data solutions for multivariate insurance pricing or for the early detection and prevention of events of loss (e.g., Internet of things)

Table 10: The Changes in Value Creation – Future Main Business Scope

Strategic options	Description	A Z	G D	L V	Impetus for the digital transformation outcome
Indemnify claims	Focus on the management of risk portfolios			x	<ul style="list-style-type: none"> • Essentially, the main business scope of LV is seen to remain unchanged.
Manage risks	Diversify into a comprehensive service provider to prevent, hedge, and manage risks	x	x		<ul style="list-style-type: none"> • AZ expects to extend its services from covering losses to managing customers' risks more comprehensively. • GD's vision is to evolve into a service provider that is able to anticipate customer needs for insurance and assistance products and prevent actual events of loss
Other	Other business models				<ul style="list-style-type: none"> • -

Structural changes

Structural changes comprise a company's decision on who is responsible for the digital transformation, on where new activities are positioned, on which structures will be affected by the transformation, and on how the necessary digital competencies can be groomed. In this dimension, management is required to ponder four strategic questions: Who is in charge of your digital transformation process (table 11)? Do you plan to integrate new operations into existing structures or create separate entities (table 12)? What types of structural changes do you expect (table 13)? Do you need to acquire new competencies and, if so, how do you plan to acquire them (table 14)?

Table 11: Structural Changes – Responsibility for Digital Transformation Strategy

Strategic options	Description	A Z	G D	L V	Strategic approach
Group CEO	A group's Chief Executive Officer	x	x	x	<ul style="list-style-type: none"> AZ's entire board deals with digital transformation. GD's group CEO has declared digital transformation a key strategic priority. At LV, digitization is a joint initiative whose responsibility is spread among different positions in the company.
CEO of bus. unit	The CEO of the business unit that undergoes a digital transformation endeavor		x	x	<ul style="list-style-type: none"> At GD, each business unit is responsible for the digital transformation of the organization LV: See Group CEO
Group CDO	A group's Chief Digital Officer	x	x		<ul style="list-style-type: none"> A dedicated CDO is responsible for the group's digital transformation strategy at AZ The Head of Smart Insurance Transformation (i.e. CDO) of GD is responsible for the coordination of the company's digital transformation initiatives that are directed towards the firm's customers (e.g., marketing, sales)
Group CIO	A group's Chief Information Officer	x	x	x	<ul style="list-style-type: none"> AZ's COO is responsible for the implementation of the digital transformation strategy. GD's CTO/COO is responsible for the digital transformation of the firm's insurance operations. LV: See Group CEO
Group COO	A group's Chief Operations Officer	x	x	x	<ul style="list-style-type: none"> AZ: see CIO GD: see CIO LV: see Group CEO

Table 12: Structural Changes – Organizational Positioning of Digital Activities

Strategic options	Description	A Z	G D	L V	Strategic approach
Integrated	Digital operations are fully integrated into an organization's current structures	x	x		<ul style="list-style-type: none"> • Many of AZ's digitization operations are closely integrated in the existing structures. • GD decided to fully integrate its digital transformation initiatives into existing structures. However, a dedicated central business unit ("Smart Insurance Transformation") has been established that owns the formulation and coordination of GD's digital transformation strategy
Separated	Digital operations are implemented separately from the core business	x		x	<ul style="list-style-type: none"> • Allianz SE has a separate digitization unit (think-tank) or the Allianz Digital Factory. • LV prefers implementing digital transformation via a separated entity.

Table 13: Structural Changes – Focus of Structural Changes

Strategic options	Description	A Z	G D	L V	Strategic approach
Products and services	Change products and services	x	x	x	<ul style="list-style-type: none"> • AZ and GD believe that IT (e.g., for multivariate ratings or automated claim processing) and the internet of things (e.g., the use telematics for automotive insurance contracts) will heavily impact insurers' product and service portfolio. • LV expects improved customer service via digitization.
Business processes	Focus on the improvement of business processes	x	x	x	<ul style="list-style-type: none"> • AZ sees the digitization of end-to-end processes as a key challenge. • GD sees digital transformation as an opportunity to reduce costs through process digitization/automatization. • LV believes that digitization can make its back office functions and internal processes significantly more efficient.
Skills	Strive for a new set of skills based on IT	x	x	x	<ul style="list-style-type: none"> • In AZ's opinion, it is very important to bring IT and business skills closer together and employ cross-functional teams. • GD educates its sales force to be more flexible and open to new concepts • LV offers training programs for its staff to acquire new competence regarding digitization.

Table 14: Structural Changes – Building of Competencies

Strategic options	Description	A Z	G D	L V	Strategic approach
Internally	Rely on the resources that already exist	x	x	x	<ul style="list-style-type: none"> AZ is trying to develop the knowhow or competencies required for new projects internally (e.g., in AZ-founded start-ups). GD motivates and empowers its personnel to come up with and try out novel solutions. LV offers training programs for its staff to acquire new competence regarding digitization.
Partnerships	Foster partnerships	x	x	x	<ul style="list-style-type: none"> In order to remain at the forefront of digital innovation AZ and GD build on strategic partnerships with specialist firms and start-ups. LV cooperates with digital partners (e.g. ver.diagnose) who specialize in certain business functions.
Takeovers	Accumulate know-how via takeovers	x	x		<ul style="list-style-type: none"> AZ acquires critical know-how externally. M&A activities allow GD an to externally source digital competencies (e.g., acquisition of MyDrive)
External sourcing	Source additional know-how from outside	x	x	x	<ul style="list-style-type: none"> AZ relies on external sources to extend manpower for certain projects. GD understood the necessity to attract “digital natives” in order to create innovated and integrated insurance solutions. LV sees the need for external experts to meet its digital initiatives.

Financial Aspects

The financial aspects dimension is relevant for when and why a company embarks on its digital transformation journey and how it will finance the endeavor. Here, management is required to address two strategic questions: How strong is the financial pressure on your current core business and, thus, the need for digital innovation (table 15)? And, how will you finance the digital transformation (table 16)?

Table 15: Financial Aspects – Financial Pressure on Core Business

Strategic options	Description	A Z	G D	L V	Strategic approach
Low	Core business margins remain mostly unaffected	x		x	<ul style="list-style-type: none"> AZ was able to cut costs significantly in the past. As a result, administrative costs are not a driver for digitization. Traditional insurance products are still profitable. Therefore, digital transformation is seen as a long-term investment to attract new customers and defend leading market position
Medium	The core business remains profitable yet margins decline				<ul style="list-style-type: none"> -
High	Core business margins erode. Individual business models are unprofitable		x	x	<ul style="list-style-type: none"> The current period of low interest rates creates financial strain for many insurance products (especially life insurance) Online insurers and start-ups (Fintechs) challenge the traditional insurance industry’s business models

Table 16: Financial Aspects – Financing of New Activities

Strategic options	Description	A Z	G D	L V	Strategic approach
Internal	Finance digital transformation through internal funds		x	x	<ul style="list-style-type: none"> • AZ can finance digitization investments internally • So far the necessary financial means to finance GD's digital transformation have been generated internally by the still profitable core business • At LV, digitization is supported by internal funding
External	External financing necessary to finance digital transformation				<ul style="list-style-type: none"> • -