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Options for Formulating a Digital Transformation Strategy

CIOs and other senior executives face the challenge of how to handle the opportunities and risks of digital transformation. To help managers address this challenge more systematically, we describe how three German media companies successfully approached digital transformation. Based on their experiences, we provide a list of 11 strategic questions and possible answers managers can use as guidelines when formulating a digital transformation strategy.[1]

Thomas Hess
Ludwig-Maximilians-Universität München (Germany)

Christian Matt
Ludwig-Maximilians-Universität München (Germany)

Alexander Benlian
Technische Universität Darmstadt (Germany)

Florian Wiesböck
Ludwig-Maximilians-Universität München (Germany)

Digital Transformation is a High-Priority Management Challenge

Integrating and exploiting new digital technologies is one of the biggest challenges that companies currently face. No sector or organization is immune to the effects of digital transformation. The market-changing potential of digital technologies is often wider than products, business processes, sales channels or supply chains—entire business models are being reshaped and frequently overturned.[2]

As a result, digital transformation has become a high priority on leadership agendas, with nearly 90% of business leaders in the U.S. and U.K. expecting IT and digital technologies to make an increasing strategic contribution to their overall business in the coming decade.[3] The question is no longer when companies need to make digital transformation a strategic priority—this tipping point has passed—but how to embrace it and use it as a competitive advantage.

Faced with the digital transformation challenge and the need to remain competitive in their industries, business leaders must formulate and execute strategies that embrace the implications of digital transformation and drive better operational performance. Unfortunately, there are many recent examples of organizations that have been unable to keep pace with the new digital reality. Prominent examples include the bankruptcy of the movie-rental company Blockbuster and the sale of the Washington Post to Jeff Bezos, founder of Amazon—largely resulting from those firms'

1 Mary Lacity is the accepting senior editor for this article.

2 An article that calls for a new view of disruptive technologies and presents strategic principles for addressing the challenges stemming from disruptive technologies is Downes, L. and Nunes, P. F. "Big Bang Disruption," *Harvard Business Review* (91:3), 2013, pp. 44-56.

3 Bonnet, D., Ferraris, P., Westerman, G. and McAfee, A. "Talking 'bout a Revolution," *Digital Transformation Review* (2:1), 2012, pp. 17-33.

inability to rapidly develop and implement new digitally based business models.

Digital transformation is concerned with the changes digital technologies can bring about in a company's business model, which result in changed products or organizational structures or in the automation of processes. These changes can be observed in the rising demand for Internet-based media, which has lead to changes of entire business models (for example in the music industry).

Digital transformation is a complex issue that affects many or all segments within a company. Managers have to simultaneously balance the exploration and exploitation of their firms' resources to achieve organizational agility[4]—a necessary condition for the successful transformation of their businesses. At present, managers often lack clarity about the different options and elements they need to consider in their digital transformation endeavors. As a consequence, they risk failing to consider important elements of digital transformation or disregarding solutions that are more favorable to their firms' specific situations, which could have unintended adverse consequences.

Recent work in academia has been largely concerned with providing guidance on certain aspects of digital transformation; it has not addressed a holistic approach to the development of a company-wide digital transformation strategy.[5] However, the *Digital Transformation Framework* (DTF) represents a first step in this direction.[6] This conceptual framework for formulating a digital transformation strategy identifies the four key dimensions of every digital transformation endeavor:

1. *The use of technologies* reflects a firm's approach and capability to explore and exploit new digital technologies.
2. *Changes in value creation* reflects the influence of digital transformation on a firm's value creation.
3. *Structural changes* refer to the modifications in organizational structures, processes and skill sets that are necessary to cope with and exploit new technologies.
4. The *financial aspects* dimension relates to both a firm's need for action in response to a struggling core business as well as its ability to finance a digital transformation endeavor.

While the building blocks of a digital transformation strategy are known, clearly specified guidelines for managers on how to approach digital transformation and implement a well-defined digital transformation strategy are lacking. The purpose of this article is to provide those guidelines. Based on insights from three case studies of firms that have recently undergone successful digital transformation endeavors, we have derived 11 strategic questions that CIOs and other managers responsible for the digital transformation of their businesses must ask themselves. We have grouped these questions along the four dimensions of the DTF and provide possible answers for each of them through descriptions of the case study firms' actions and their reasoning for adopting a particular option.

The guidance offered in this article seeks to prevent managers from missing any critical decision and to assist them in selecting the most effective options to successfully conduct digital transformation and prepare their firms for the digital future.

The Distinctive Nature of Digital Transformation Strategy

The purpose of the journey toward digital transformation is to reap the benefits of digital technologies, such as productivity improvements, cost reductions and innovation. A clear strategy for deploying and exploiting digital technologies is crucial for future business success. There is, however, disagreement on the relationship between digital strategy and business and IT strategies. Some argue that a digital strategy should be formulated and implemented as a part of a firm's IT strategy. In the context of digital transformation, the argument is that a firm's IT strategy can evolve

4 See Lee, O. K., Sambamurthy, V., Lim, K. H. and Wei, K. K. "How does IT Ambidexterity Impact Organizational Agility?," *Information Systems Research* (26:2), 2015, pp. 398-417; and Gregory R. W., Keil, M., Muntermann, J. and Mähring, M. "Paradoxes and the Nature of Ambidexterity in IT Transformation Programs," *Information Systems Research* (26:1), 2015, pp. 57-80.

5 An example that concentrates on the digital transformation of a firm's retail channels is Hansen, R. and Sia, S. K. "Hummel's Digital Transformation Toward Omnichannel Retailing: Key Lessons Learned," *MIS Quarterly Executive* (14:2), 2015, pp. 51-66.

6 Matt, C., Hess, T. and Benlian, A. "Digital Transformation Strategies," *Business and Information Systems Engineering* (57:5), 2015, pp. 339-343.

from a functional strategy (which traditionally has been subordinate to business strategy) to an organizational strategy that leverages a firm's digital resources to create differential value.[7]

Others take the view that such an important and challenging strategic issue as digital transformation demands a standalone strategy that is not part of another organizational or functional strategy. For them, a digitally enriched IT strategy is not the right answer to the problem: "*Everyone thinks they have a digital strategy these days. But while your company may have a business or IT strategy that incorporates digital technology, an IT strategy does not equal a digital strategy. Why? Because most IT strategies treat technology in isolation*."[8] IT strategies typically concentrate on the efficient management of IT infrastructure and application systems. What they often lack is the transformational, business-centric orientation that is needed to realize the potential within a company's business model, products, processes and organizational structures made possible by the advent of new digital technologies.

The necessary coordination and alignment of a firm's many strategies in the light of digital transformation has led some researchers to argue for a *digital business strategy* that combines IT and business strategy.[9] However, while a digital business strategy may indicate a firm's vision for future digital business models, it typically does not provide guidelines on the actual transformational steps. On the other hand, a *digital transformation strategy* signposts the way toward digital transformation and guides managers through the transformation process resulting from the integration and use of digital technologies. A digital transformation strategy impacts a company more comprehensively than an IT strategy and addresses potential effects on interactions across company borders with clients, competitors and suppliers. Thus, we argue that firms need a standalone digital transformation strategy. Unfortunately, the accumulated knowledge from previous research and best practice on IT strategies cannot be simply transferred to digital transformation strategies.

To ensure they capture the business value of digital transformation, companies should carefully formulate a digital transformation strategy that coordinates the many independent threads of digital transformation and helps them navigate the complexity and ambiguity of identifying their own digital "sweet spots." Such a digital agenda has to be aligned with other operational or functional strategies and can act as a unifying concept for integrating all coordination, prioritization and implementation efforts of a firm's digital transformation efforts.

To illustrate the concepts of formulating and executing a digital transformation strategy, we describe how three German media companies have approached digital transformation. (See the Appendix for an overview of the research methodology and the interviews conducted.)

The Three Case Companies

The three German media companies we chose for the case studies of digital transformation are:

- ProSiebenSat.1 Media SE (referred to as "P7S1"), a large TV broadcaster with a turnover of €2.6 billion in 2014 ($2.95 billion)[10] and more than 3,500 employees. It is one of the leading TV enterprises in Europe. Munich-based P7S1 operates in 12 countries and owns 15 TV stations, which reach more than 42 million households. P7S1 was founded in 2000 and originated from the former Kirch Group, which established itself as one of two large TV companies in Germany after regulators opened up the market to private TV stations.
- Mittelbayerische Verlag AG (Mittelbayerische) is a small print publisher based in Regensburg, Germany. Its main product is the regional daily newspaper *Mittelbayerische Zeitung*, which has a strong focus on regional content and offerings. Mittelbayerische was founded in 1945 and currently employs about 500 people. With an average daily circulation in 2014 of approximately 110,000, *Mittelbayerische Zeitung* is the most popular newspaper in the area surrounding Regensburg.

7 Bharadwaj, A., El Sawy, O. A., Pavlou, P. A. and Venkatraman, N. "Digital Business Strategy: Toward a Next Generation of Insights," *MIS Quarterly* (37:2), 2013, pp. 471-482.

8 McDonald, M. P. "Digital Strategy Does Not Equal IT Strategy," *HBR Blog Network*, November 2012, available at https://hbr.org/2012/11/digital-strategy-does-not-equa.

9 Academic groundwork that argues for the fusion of IT and business strategy in light of digital transformation is Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., and Venkatraman, N., op. cit., 2013.

10 As of April 2016, €1 = $1.13

- Ravensburger AG, which was founded in 1883, is a mid-sized games publisher that is headquartered in Ravensburg, Germany. Ravensburger remains a family-owned business with about 1,600 employees and a turnover of approximately €359 million in 2013. In addition to the "leisure and promotion service" division and a fairly new "digital products" division, the company has two main divisions: "games, puzzles and arts/crafts" (€286 million turnover) and "children's and youth books" (€9 million turnover). Brand awareness of Ravensburger is high in the Western European games and puzzles market.

Each of these companies has, within the last decade, systematically approached digital transformation and has achieved success in its efforts. At present, over 20% of P7S1's revenues derive from digital business models. At Ravensburger, hybrid products that enrich traditional analog or physical products with digital content have successfully stabilized its core businesses: board games and print publishing. The CEO of Mittelbayerische claims that it owes its leading market position to the decision to actively embrace digital technologies. However, digital transformation in each company is ongoing and will likely occupy them over the next few years. Table 1 provides an overview of the three case companies.

The selection of these three companies reflects our aim to cover a wide portion of the media industry in terms of size (a large international corporation vs. mid-cap vs. small) and value focus (print and broadcasting representing two of the media industry's classic major business segments and gaming representing a specialist field). We regard size and value focus as crucial dimensions when investigating digital transformation. Size affects every type of transformation. Moreover, a firm's main product line will most likely play a crucial role in its digital transformation, because the integration of digital technologies into products is one of the key aspects of digital transformation. Although the chosen case companies differ significantly in, for example, how capital requirements or how digital technologies can alter their core products, their breadth allows us to explore a more comprehensive set of options and requirements for digital transformation.

Table 1: Overview of the Three Cases

	P7S1	Mittelbayerische	Ravensburger
Core business	TV broadcaster	News publisher	Board games and print publisher
Size	4,200 employees $2.9 billion (2014)	500 employees 110,000 units per day (2014)	1,600 employees €359 million (2013)
Headquarters	Munich (Germany)	Regensburg (Germany)	Ravensburg (Germany)
Founded	2000[11]	1945	1883
Market focus	Europe	Regional	Europe, U.S.
Digital transformation overview	From linear TV broadcasting to video-on-demand and online-gaming, and mergers & acquisitions	From print to digital publishing	From analog to digitally enhanced products (books, puzzles and games)
Start of digital transformation	2011	2010	2009
Digital transformation success	20% of revenues through digital business	Defense of market leadership through digital enrichment of analog core product	Digitally enriched products successfully stabilized core business
Organizational scope of digital transformation	Company-wide	Mostly products	Products and processes

11 P7S1 originated from the former Kirch Group, which was founded in 1955.

We chose to study media companies because this industry has been a bellwether of the digital revolution and one of the pioneering industries that has undergone dramatic—if not existence-threatening—changes caused by the advent of digital technologies. Further, we decided to focus on media companies with an emphasis on content aggregation, which is one of the classic functions of media companies.

Digital Transformation Strategy at P7S1

Business Drivers for Digital Transformation

P7S1's roots lie in the TV business. When the company's managers first considered the opportunities and threats arising from new digital technologies, the core business was thriving and highly profitable. Thus, the need for immediate action was not as strong as in other branches of the media industry. Nevertheless, managers recognized the potential of digital technologies—both for P7S1's current activities and for new business opportunities. This led to the decision to pursue a two-pronged approach to exploring and exploiting new technologies. One was to digitally enrich the company's TV portfolio. The other was to actively seek out new digitally enabled business models to diversify its business.

Digital Transformation Outcome: Developing New Business Areas

Ten years ago, digital technologies primarily had a supporting function at P7S1 and were mainly used to optimize business processes and provide an efficient infrastructure. Now, however, P7S1 perceives digital technologies as enablers of innovative products and services. To foster the transformation of ideas into new products and services, a dedicated innovation lab was established in 2012. Thus far, though, P7S1 has not sought to be a technology leader but has focused its digital activities on branding and customer interaction via established technologies.

The impact of digital technologies has been mainly on P7S1's products and services, especially its TV business, where digital transformation has led to, for example, video-on-demand or gaming content related to TV content. Production processes have also become increasingly digital. In 2013, P7S1 earned €484 million from digital products and services, approximately 19% of its total turnover. In addition to digitally enhanced broadcast offerings, P7S1 is also active in business segments that are not directly related to content, such as e-commerce. These activities include websites that supplement linear TV programing (from online text to mobile offerings), content platforms ("video on demand") such as maxdome and MyVideo, and online games portals such as SevenGames.de. Another area of digital investments is in online travel services. In this area, P7S1 generates earnings through revenue sharing and advertising.

P7S1 generates revenues from its digital products and services both indirectly via advertising and directly via paid content, the sales of virtual goods within online games, or through "freemium" models (providing a free version with a basic functional scope and a paid version that creates additional value; an example is the music video streaming platform AMPYA). Synergies between digital and traditional offerings are actively fostered. For instance, content from traditional TV channels is reused in digital offerings, users are referred from traditional to digital products and vice versa, and cross-media advertising campaigns are conducted. The latter, for example, has been used for the casting format of "Germany's Next Topmodel," a reality TV show, which is complemented by content platforms, web services and corresponding events.

P7S1's main focus, however, remains on content creation, aggregation and distribution (via its TV business). Additionally, though, it strives to expand its revenues from the management of content platforms and e-commerce. Digital activities are expected to become the second pillar of P7S1 in addition to its traditional TV business.

P7S1's pure digital business unit is led by a board member and is supported strongly by the CEO. Most of P7S1's digital activities are organized within a separate business unit called "Digital & Adjacent." P7S1 establishes a new business internally (if necessary, in the form of a joint venture) or takes over startups at an early stage. For the latter, the company has launched a dedicated incubator ("ProSiebenSat.1 Accelerator"), which offers incentives to startups, often in the form of free advertising time on P7S1's TV channels in exchange for equity participation ("media-for-equity-program").

Because P7S1 sees its digital activities becoming a second pillar, complementing its TV business, a large share of corporate investments is made within the digital area. These investments are financed internally. The primary focus of the investments has been and remains on mergers and acquisitions activities where P7S1 acquires and develops digital businesses that complement P7S1's traditional TV business.

Digital Transformation Strategy at Mittelbayerische

Business Drivers for Digital Transformation

According to Mittelbayerische's CEO, decreasing newspaper sales and the resulting financial pressure forced the entire management team to recognize the threats and opportunities from the ongoing digital revolution and the need for action. As a consequence, management decided to follow a careful, deliberate path into the digital world. In addition to introducing of an e-paper and an app, and including digital topics among the newspaper's leading themes, the company developed an Internet-based map service (following the idea of Google Maps) centered around Regensburg, where it is based. The map includes location-specific information such as kindergartens, gas stations, playgrounds and Wi-Fi hot spots.

Digital Transformation Outcome: Exploiting Selected Digital Opportunities

Mittelbayerische's underlying motivation in its approach to digital transformation was to defend its position as the region's No. 1 provider of local news and information. Hence, it decided to maintain its business focus on content creation, accompanied by selected digital add-ons. In general, this newspaper publisher has taken a pragmatic approach to digital technologies. It does not have a department focused on innovation; instead, it introduces established technologies that complement its existing product portfolio. Management regards the role of digital technologies as supporting existing products and services or as a resource to reengineer processes.

To date, Mittelbayerische's digitally enabled diversifications have been rather limited. After introducing online sales channels for its print products, its only diversification into the digital world was to make its classic analog products available via digital channels. These digital activities were fully integrated into the firm's core business and affect mostly production processes and, to some extent, product and service offerings. To date, Mittelbayerische's digital offerings comprise an e-paper and app version of the newspaper and a device-adaptive website. At present, between 10% and 20% of revenues come from digital products and services. Revenues from digital products complement revenues from the print business. Mittelbayerische continues to target traditional publishing revenues from advertising and paid content, with revenue from advertising strongly driven by local offerings.

Mittelbayerische believes that the competencies needed for digital transformation should come from within the company and has established a thorough personal development program that helps foster the necessary digital mindset and skill set among existing staff. The company has also established trainee programs and an integrated university degree program in various business units to attract graduates, young professionals and, above all, "digital natives."

Mittelbayerische's CEO made selective digital transformation a strategic priority and is responsible for the publisher's digital transformation strategy. However, the company has very limited ability to allocate financial resources to the program. Traditionally low margins in the print business constrain the firm's options in this dimension of the Digital Transformation Framework.

Digital Transformation Strategy at Ravensburger

Business Drivers for Digital Transformation

Two decades ago, Ravensburger had already made its first, and admittedly very early, attempt to digitally transform its business. Ravensburger Interactive was launched in the 1990s to develop new digital products and services across all of Ravensburger's business segments. However, it was shut down after ten years because its activities in this area were too early and were unsuccessful. However, since the 1990s, consumer digital technologies in general and mobile technologies in particular have become ubiquitous, especially among Ravensburger's main target group: children.

At present, Ravensburger's core business (analog games and books) is still profitable and appears to be stable. Nevertheless, the company has begun to follow its customers, who are moving toward digital offerings. In addition to introducing electronic sales channels for its products, Ravensburger has entered the e-book and online gaming markets. Additionally, the publisher has begun to develop complementary digital products that enrich its existing analog products.

Digital Transformation Outcome: Smartly Enriching the Core Business

Ravensburger displays a differentiated view on digital technologies. Although IT remains a support function for its core business activities, IT is regarded as a main driver of innovation within the company's digital business unit. This unit has specialists in digital gaming and digital books whose role is to ensure the business remains at the forefront of technological development by identifying emerging digital technologies at an early stage of development that are relevant to the company's core business. These specialists then discuss the opportunities and risks posed by these technologies with the relevant managers in regular workshops.

Thus far, Ravensburger has largely refrained from deploying digital technologies on non-content-related business segments and instead has focused on enriching analog products with digital content. The most popular innovation is "tiptoi®," a digital pen that offers additional audio information when touching selected areas of a book or educational game. This pen was developed as a proprietary solution by Ravensburger and exemplifies the liberal attitude of the company toward new technologies and IT development. Ravensburger also offers some digital content, such as online gaming. It has also digitized its production processes for books and offers e-books.

In the future, Ravensburger plans to create, aggregate and publish content (primarily books and games). At the core of Ravensburger's current efforts to generate revenues from digital technologies are online "hybrid products," such as the tiptoi pen, which provide digital content for the firm's most important analog products (books and games). Approximately 20% of Ravensburger's digital revenues are generated by these products. As well as developing hybrid products, Ravensburger focuses its digital transformation activities on providing broader support for business processes in the gaming and books segments. The implementation of ERP and CRM systems has been followed by the introduction of a modern content-management system.

Organizationally, Ravensburger's hybrid products are located in the two core business units: books and games. New digital products and services that are less closely related to the core business are organized in a dedicated subsidiary called "Ravensburger Digital." This business unit was established in 2009, employs 20 to 25 people and has a yearly turnover of approximately €1 million. Ravensburger Digital has been deliberately separated from the core business and is physically separated from the headquarters to make it more appealing to applicants with different skill sets and to foster innovation. Ravensburger Digital largely develops online games that are not related to any of the company's traditional games. The CEOs of Ravensburger Digital and the core business orchestrate all digital activities. The top priority in managing Ravensburger's cash flow is to stabilize its core business. A substantial proportion of any internal surplus is invested in the company's digital initiatives.

Guidelines for Formulating a Digital Transformation Strategy

Each of the three German media companies have chosen a different approach to digital transformation, depending on their individual business models and strategic visions for digital technologies. Together, these three cases provide a rich picture of the different options for formulating a digital transformation strategy.

Based on insights from these cases, we have derived guidelines for managers in the form of the strategic questions they have to address when embarking on digital transformation. We have grouped the questions along the four dimensions of the Digital Transformation Framework described earlier: *use of technologies, changes in value creation, structural changes* and *financial aspects*. For each dimension, we list the strategic questions about digital transformation that management must address and provide a set of strategic options from which management can choose as they answer the questions.[12] In combination, these questions cover all relevant aspects of a digital transformation strategy.

Use of Technologies Dimension

Digital transformation is driven by the advent of digital technologies. Thus, a company's approach to using new digital technologies is an essential dimension of a digital transformation strategy. This dimension requires that managers assess the role of their IT departments and how proactive and innovative they are in their approach toward new technologies. Table 2 summarizes the options available when answering these questions and describes how and why the three media companies have chosen the options.

Question 1: How Significant is Your Firm's IT to Achieving Strategic Goals? Emerging digital technologies can create new opportunities for firms and may be crucial for securing a competitive advantage. Nevertheless, the significance of IT and its strategic role varies substantially across companies.

The cases reveal that some firms regard IT as an enabler of new business opportunities. Others, however, use IT to support and fulfill defined business requirements and improvements. Thus, in some firms the initial driver of change is a new digital technology, whereas in others business issues drive the change process, and a suitable technology must be identified to support the change.

An example of the use of IT as an enabler of new opportunities is a cutting-edge content-management system that provides media companies with the ability to easily deliver content via different channels and across countries. Companies with an enabling perspective of IT must carefully monitor digital technologies and identify their potential to boost current business operations or enable the creation of new products and services. In companies with a supporting perspective, digital technologies could assist in functional business operations or in ensuring compliance with regulatory requirements. For instance, determining and verifying a user's location is necessary to ensure that content is available only in licensed regions.

Question 2: How Ambitious is Your Firm's Approach to New Digital Technologies? Regardless of the strategic role of IT, companies can take different approaches to the process of diffusing new digital technologies. More conservative firms may adopt established and widely used technology solutions, while others may deploy new technology solutions at the early stages of their development. A more aggressive approach is to act as an innovator and create and introduce new technology solutions into markets.

The cases suggest that a firm's digital technology ambition is largely determined by its unique context. However, when assessing where they should ideally be in the technology ambition spectrum, firms should consider their existing technological competence, the extent of their technology spending and their size.

Many media companies have traditionally been followers in terms of their technology ambitions, but new Internet-based technologies have created opportunities, and likewise the need for them to act more rapidly to remain ahead of the curve. For example, creating content platforms can reveal new market potential across countries. Similarly, new digital technologies can be used to build strong business ecosystems and to develop proprietary standards, which can be a means of restricting competitors' access to customers. Acting too late may make it difficult to catch up with competitors and establish a company's own standards. However, not all media companies have the technological competencies required to become leaders in technology development or use—nor do they need to do so. Instead, they should carefully assess their technological ambitions and align them with IT investment decisions.

Changes in Value Creation Dimension

Changes in value creation derive from the way in which digital technologies alter a firm's business model. At media companies, changes in value creation relate mainly to the degree to which a company has already diversified its business into the digital world, how it plans to generate revenues from digital technologies and to its main business focus after a digital transformation. Table 3 summarizes the three strategic questions that managers must ask about the changes in value

12 In addition to the three firms' specific digital transformation journeys, the interviewees provided other possible answers to the strategic questions that they considered viable options when designing their digital transformation strategies.

Table 2: Strategic Questions about the Use of New Technologies

Strategic Question	Strategic Options	Description	P7S1	MB	RB	Impetus for the Digital Transformation Outcome
How significant is your firm's IT to achieving strategic goals?	Enabler	IT is an enabler of strategic goals	x		x	• P7S1 regards IT as a core function and understands the potential of digital technologies for business success. • Ravensburger actively follows its customers into the digital world and generates new customer experiences through the combination of analog and digital content.
	Supporter	IT is seen as a support function to reach strategic goals		x		• Mittelbayerische's core business focus remains on the production and distribution of local news. Technology is merely a means for efficient processes.
How ambitious is your firm's approach to new digital technologies?	Innovator	The firm is at the forefront of innovating new technologies				
	Early adopter	The firm actively looks for opportunities to implement new technologies	(x)		x	• Through its mergers and acquisitions activities, P7S1 engages with early-stage technologies. • Ravensburger introduces early-stage technologies to foster the development of innovative, digitally enriched content.
	Follower	The firm relies on well-established solutions	x	x		• P7S1 and Mittelbayerische emphasize process stability and seek to minimize risks following the implementation of new technologies.

creation dimension and the strategic options available when answering these questions, and describes how and why the three media companies have chosen a particular option.

Question 3: How "Digital" is Your Interface to the Customer? Instead of simply transforming previously analog products and services into the digital world, many firms want or need to exploit the possibilities of digital technologies and enter new business areas. Managers have to consider the extent to which their firm should diversify its business into the digital world. For a media company, this means considering how far away it should operate from its traditional core business (see Figure 2). The levels of diversification shown in Figure 2 allow a media company to assess both its current level of digital transformation and the levels for possible future digital transformation endeavors. The optimal level of diversification is determined by a company's financial background and size.

In the three cases, P7S1 shows the highest level of diversification (having reached Level 4—"Extended business"). Ravensburger's and Mittelbayerische's diversification ends at "Enriched-media" (Level 2) and "Cross-media" (Level 1), respectively.

Hence, the cases imply that company size is a major determinate of the level of digital diversification that can be achieved. P7S1, a large corporation, has diversified its traditional business and actively leverages the many possibilities offered by digital technologies in a consumer-centric market. Smaller and medium-sized firms such as Ravensburger or Mittelbayerische have emphasized the stability of their core businesses in their digital transformation efforts.

Question 4: How Will You Create Revenue from Future Business Operations? Finding new sources of revenue is crucial for future business success and therefore an indispensable element of a digital transformation strategy. When designing new digital products and services, companies must consider how they can create value and therefore generate revenue. In the media industry, for example, even if a company's physical and digital products or services are not significantly different, new revenue models may be needed to remain competitive in the online world. For instance, when newspapers were made available in a digital format, most publishers found they could not charge customers similar amounts to those charged for the print versions.

All three cases (as well as many other companies in the media industry) generate revenues from digital business models primarily through advertising and paid content. However, the characteristics of advertising are different in the online world, where advertising is currently dominated by powerful Internet search engines. In addition, the widespread adoption of mobile devices with small screens places additional pressure on advertising revenues.

Some media companies have tried to overcome these constraints by extending their value-chain activities and generating transaction revenues. These companies not only seek to provide paid content but also encourage product purchases linked to their content. Every time a product is sold, the media company receives a commission. In addition, digital technologies have further simplified the differentiation between pricing tariffs, with the "freemium" revenue model being increasingly adopted by media companies.

Question 5: What Will Your Future Business Scope Be? Media companies' business activities traditionally center on content creation, aggregation and distribution. But digital technologies have affected the media industry much more severely than many other industries. Recent examples, such as customers' reluctance to pay for online news or digitally distributed music, demonstrate that digital technologies may require media companies to rethink the scope of their businesses.

The cases demonstrate that media companies generally maintain their focus on content creation and aggregation while they attempt to exploit the opportunities offered by digital transformation and engage in the management of content platforms. Content platforms are a technology-enabled option for media companies to establish new services. But despite their dominant business focus on content, most traditional media companies have thus far missed the opportunity to establish and operate their content platforms in a way that creates valuable assets, as social media platforms do. The major assets of social media platforms derive from establishing connections between users and profiting from users' content to keep the platforms interesting.

In contrast, there are media companies that deliberately shift their product and service portfolios to business areas that are less fundamentally affected by ongoing digital transformation.

Structural Changes Dimension

Digital transformation, as any other type of business transformation, impacts a company's organizational structures. The structural dimension of the Digital Transformation Framework is concerned with who will be in charge of the transformation endeavor. Additionally, management has to decide whether new digitally enabled operations should be integrated into existing structures or be located in independent entities that are separated from the company's core

Figure 2: Levels of Digital Diversification at Media Companies

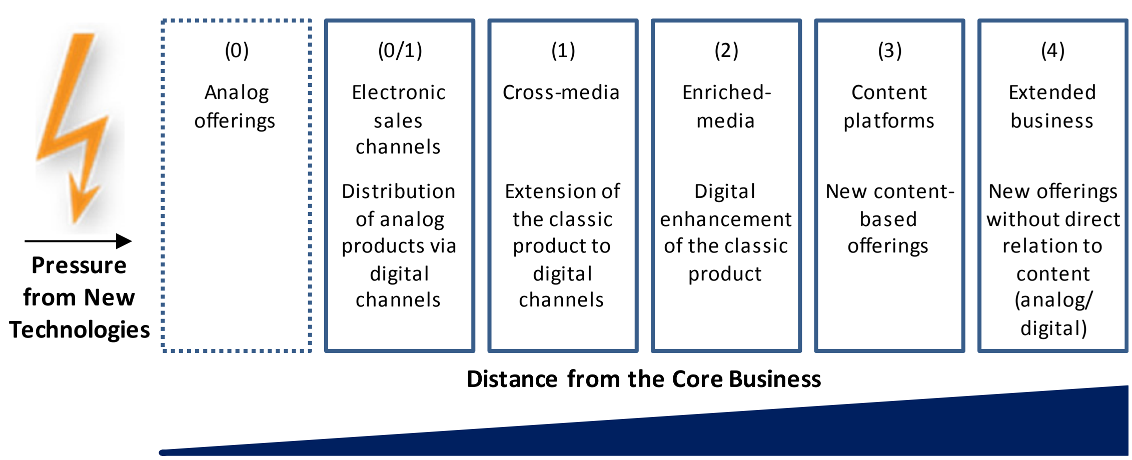

Table 3: Strategic Questions about Changes in Value Creation

Strategic Question	Strategic Options	Description	P7S1	MB	RB	Impetus for the Digital Transformation Outcome
How "digital" is your interface to the customer?	Electronic sales channels	Distribution of analog products over digital channels		x	x	• Both Mittelbayerische and Ravensburger have recognized the importance of e-commerce for the sales of their analog products (e.g., print newspapers or analog games).
	Cross-media	Extension of the classic product to digital channels	x	x	x	• While the extension to digital channels at P7S1 and Ravensburger represented a step toward even more digital business models, Mittelbayerische's intention to keep its focus on print content demanded only a limited extension into digital business models (i.e., cross-media offerings).
	Enriched-media	Digital enrichment of the classic product	x		x	• Both Ravensburger and P7S1 have understood the opportunities of digital technologies to create new business areas through complementary products based on the enrichment of their classic products (TV and board games, and print, respectively).
	Content platforms	New content-based offerings	x			• P7S1 has decided to benefit from its know-how in content creation, aggregation and distribution and to engage in the management of content platforms.
	Extended business	New offerings without direct relation to content (analog/digital)	x			• Given the opportunities provided by digital technologies, P7S1 has decided to further leverage its competencies and enter adjacent markets.
How will you create revenue from future business operations?	Paid content	Revenues from the user for access to or the use of content	x	x	x	• All three companies have decided to keep their existing (i.e., pre-digital transformation) revenue streams through paid content.
	Freemium	Revenues from add-ons based on a free basic product	x			• Through its mergers and acquisitions activities, P7S1 engages in the management of content platforms.
	Advertising	Selling of attention	x	x		• P7S1 and Mittelbayerische have decided to sustain existing (i.e., pre-digital-transformation) revenue streams through advertising.
	Selling complementary products	Revenues from products complementary to the core business	x		x	• P7S1 selectively uses complementary digital products to increase the attractiveness of its core business (sales of merchandise complementing TV shows). • Ravensburger has decided to introduce digital products that are complementary to the core business to meet customer demand for digital products and, simultaneously, strengthen analog products.
What will your future business scope be?	Content creation	Creation of content (analog or digital)	x	x	x	• All three companies have decided to continue to create, aggregate and distribute content (i.e., continue their "pre-digital transformation" activities).
	Content aggregation	Aggregation of content (analog or digital)	x	x	x	
	Content distribution	Distribution of content (analog or digital)	x	x	x	
	Content platforms	Management of content platforms	x			• P7S1's management has decided to leverage the firm's core competency (the management of content) and engage in the emerging market for content platforms.
	Other	Other business models	x			• P7S1 engages in strategic mergers & acquisitions (both as financial investments and to obtain access to new technologies/competencies).

business. The company may also have to acquire specialized know-how or new competencies. Finally, managers must consider what types of operational changes to expect as they explore and exploit digital technologies. Table 4 summarizes the four strategic questions that managers must ask about the structural changes dimension and the strategic options available when answering these questions, and describes how and why the three media companies have chosen a particular option.

Question 6: Who is in Charge of the Digital Transformation Endeavor? In many organizations, the success of a digital transformation strategy depends on two factors: top management support and the commitment of the necessary people to the strategy.

The three cases imply that, ideally, the CEO is fully responsible for and adds authority to the digital transformation strategy. The execution of such a strategy is often delegated to a senior manager who could either be the manager of the business unit that is responsible for large portions of the digital business or of the business unit that is most affected by the digital transformation. The CIO may also manage the transformation, which is typically the case if the focus is on business processes. However, companies whose digital focus is on the interface with customers often appoint a chief digital officer (CDO) to work alongside the CIO.[13] The CIO typically focuses on the IT infrastructure and the internal business processes, whereas the CDO primarily addresses digital technologies that involve digital products and services at the customer interface. Needless to say, the CIO and CDO should actively communicate with one another and closely coordinate their strategies and initiatives.

Question 7: Do You Plan to Integrate New Operations into Existing Structures or Create Separate Entities? Because digital transformation can redefine a firm's business model, one key concern for companies is where to position new digital business activities in the organizational structure. They must decide whether to integrate new operations into their current operations or to organize them as distinct, separate units (perhaps as a newly formed subsidiary).

The three cases illustrate both approaches, each of which has advantages and disadvantages. Integration into the existing corporate structure typically requires less extensive restructuring efforts. The integration approach may be preferred if close coordination between traditional and new digital businesses will be necessary. In this situation, it is important to examine whether synergies between traditional areas and new digital activities can be exploited.

In contrast, organizing new digital activities in separate structures makes it easier for firms to explicitly separate (physically and ideologically) their old and new operations. They can also develop from scratch appropriate structures for new digital activities, which typically are more innovative and provide an increased level of flexibility.

Thus far, it has not been clear whether separation or integration is the preferred approach. However, theory and practice suggest that the greater the distance between digital transformation efforts and a firm's current core activities, the stronger the boundary between new and old operations should be. Thus, for gradual, core-business-related transformations, integration into existing structures should be preferred, but only if the change processes are strongly supported by top management. But digital transformation initiatives often involve significant innovation and change efforts, as well as a willingness to take risks, all of which may be difficult to accommodate within existing organizational structures.

Question 8: What Types of Operational Changes Do You Expect? Depending on the scope of the organization's business and the specific future digital transformation plans, a digital transformation strategy can require different types of operational changes. First, new technologies can significantly change the current products and services delivered to customers. Second, digital technologies can enable changes to business processes. Business processes can be classified as operational, support and management, but the typical focus of digital transformation initiatives is on operational processes. For instance, digital technologies can accelerate the execution of business processes, involve different staff, require different resources or fully automate certain steps.

Reengineering business processes can be complex because they often span divisions or even companies. A company must therefore fully

13 Horlacher, A. and Hess, T. "What Does A Chief Digital Officer Do? Managerial Tasks and Roles of a new C-Level Position in the Context of Digital Transformation," *Proceedings of the 49th Hawaii International Conference on System Sciences* (HICSS 2016), Hawaii, 2016.

Table 4: Strategic Questions about Structural Changes

Strategic Question	Strategic Options	Description	P7S1	MB	RB	Impetus for the Digital Transformation Outcome
Who is in charge of the digital transformation endeavor?	Group CEO	The group's chief executive officer	x	x	x	• All three companies have recognized the complexity of digital transformation and made it a top strategic priority of the group CEO.
	CEO of business unit	The CEO of the business unit that tackles the digital transformation endeavor	x		x	• Once a firm's size moves beyond a certain threshold, it is important to involve senior managers other than the group CEO in the digital transformation program. This applies for P7S1 and Ravensburger.
	Group CDO	The group's chief digital officer				
	Group CIO	The group's chief information officer				
Do you plan to integrate new operations into existing structures or create separate entities?	Integrated	Digital operations are fully integrated into an organization's current structures		x	x	• Mittelbayerische wants the digital transformation to happen in close quarters with the traditional business. • Ravensburger's digital focus is on products complementary to its traditional products.
	Separated	Digital operations are implemented separately from the core business	x		x	• P7S1 does not want digital initiatives to be influenced by the existing business. • Ravensburger separates its activities that go beyond mere complementary products (e.g., online games).
What types of operational changes do you expect?	Products and services	Changed products and services	x	x	x	• All three companies have decided to use digital technologies to generate new customer experiences through digital products and services (e.g., P7S1's maxdome video-on-demand platform or Ravensburger's tiptoi pen).
	Business processes	Improvement of business processes	x	x	x	• All three companies have decided to use digital technologies to optimize their business processes (e.g., big data support in TV program planning).
	Skills	A new set of skills based on digital technologies	x		x	• Through its mergers and acquisitions activities, P7S1 automatically acquires new skill sets. • Ravensburger wants to attract and develop a new set of skills to make its separate digital business unit a success.
Do you need to acquire new competencies? If so, how do you plan to acquire them?	Internally	Rely on the resources that already exist	x	x	x	• All three companies believe that they need to develop their current workforce in new, digital technologies.
	Partnerships	Foster partnerships				
	Takeovers	Accumulate know-how via takeovers	x			• Mergers and acquisitions activities give P7S1 an alternative channel to accumulate digital competencies.
	External sourcing	Source additional know-how from outside		(x)		• Mittelbayerische has realized that it needs to attract "digital natives" for a successful digital transformation.

define their processes and assess which of them will be affected by digital transformation initiatives and what the potential impacts will be. The three cases show that digital transformation at media companies can occur internally (through business processes) or at the customer interface (through products and services).

Question 9: Do You Need to Acquire New Competencies? If so, How Do You Plan to Acquire Them? The necessary changes in products, services and business processes to digitally transform an organization, and the maintenance of ongoing operations, will likely require new skills. Managers must carefully assess the firm's existing technology capabilities and identify the new competencies that will be needed.

These three cases indicate that competencies can be acquired in different ways. The best option will largely be determined by the existing capabilities and financial resources of the firm and the scheduled timescale for the digital initiatives. The first option is for firms to build on their current capabilities and acquire the required competencies themselves (e.g., by either training current staff or hiring new employees). However, this approach typically takes time. Another option, therefore, is to partner with other companies that may already have the specific knowledge to facilitate integration processes. This approach reduces the risk of failure. If the jointly shared activities are of high strategic importance, acquiring the partner company may be an option for ensuring that the common resources and knowledge will be retained in-house.

If the technological processes required for digital transformation are well structured and not overly complex, outsourcing these processes is another option. Compared to creating the required competencies internally, both the partnership and outsourcing options can have advantages in terms of lower initial investments and of distributing the risks more widely. The disadvantage of these two options, however, is that they increase the risk both of losing a required competency and of becoming dependent on a third party. Retaining the processes and knowledge required for digital transformation in-house means a company can be better positioned to gain a competitive advantage from future digital transformation initiatives.

Financial Aspects Dimension

The financial dimension of the Digital Transformation Framework is also a significant aspect of digital transformation endeavors. Increasing financial pressure on the current core business might be the trigger that convinces management of the need for action. And financial resources will be necessary to carry out transformational initiatives. Table 5 summarizes the two strategic questions that managers must ask about the financial dimension and the strategic options available when answering these questions, and describes how and why the three media companies have chosen the options.

Question 10. How Strong is the Financial Pressure on Your Current Core Business? The willingness of top management to undertake the necessary efforts for, and accept the ensuing risks of, digital transformation endeavors often depends on the competitiveness of the current core business. If the core business continues to create sufficient profits, managers may not see the urgency for embarking on digital transformation efforts or be willing to take the risks.

History, however, has shown that markets can change quickly and that acting too late can be fatal for companies. Several well-known retailers that once dominated domestic markets missed the opportunity to react to e-commerce-driven changes in a timely manner, resulting ultimately in business failure. We urge all companies to take digital transformation seriously and address its potential effects and take necessary measures immediately rather than waiting for the anticipated tectonic shifts to occur in the way profits are generated in their industries.

Question 11. How Will You Finance the Digital Transformation Endeavor? Digital transformation strategies seek to maximize value creation and, thus, future revenues and profits. To finance their digital transformation endeavors, firms can choose either internal or external financing options. Successfully financing a transformation endeavor depends on a firm's current well-being and its future prospects. Investors of any kind must have faith that the digital transformation is beneficial to the firm and that their investments will therefore pay off. Thus, if a company is already financially struggling, its options for financing digital transformations will be severely limited.

Table 5: Strategic Questions about the Financial Dimension of Digital Transformation

Strategic Question	Strategic Options	Description	P7S1	MB	RB	Impetus for the Digital Transformation Outcome
How strong is the financial pressure on your current core business?	Low	Margins in the core business remain mostly unaffected by digital technologies	x		x	• At P7S1 (TV) and Ravensburger (board games and books), margins from the core business remain strong.
	Medium	Digital technologies affect core business margins, but the core business remains profitable		x		• Mittelbayerische's print publishing market suffers from market share losses to digital substitutes.
	High	Digital technologies erode margins				
How will you finance the digital transformation endeavor?	Internal	Finance digital transformation through internal funds	x	x	x	• At all three companies, cash flow is sufficient to finance the digital transformation program.
	External	External financing necessary to finance digital transformation				

Key Decisions in Formulating a Digital Transformation Strategy

Managers can use the 11 questions identified above and their respective answers as guidelines for formulating their digital transformation strategy. Table 6 summarizes these 11 questions and provides an overview of the possible management options. Again, we have structured the questions along the four dimensions of the Digital Transformation Framework. Together, these questions and answers cover the most important decisions that have to be made when formulating a digital transformation strategy.

Although this analysis is based on the media industry, we believe that, apart from the questions directly related to a firm's value creation, the findings can be transferred to other customer-oriented industries. The value creation dimension usually varies significantly across industries and business models.

For the media industry, we found that digital transformation can lead to new sources of revenue or even to new business models (e.g., the management of content platforms). Many other industries have also embraced the business opportunities offered through digital technologies. For example, the automotive industry has introduced digitally enriched products (such as the "connected car") and new business models (such as free-floating car sharing). Even so, a major benefit of digital transformation within the automotive industry is in the ongoing automation of product development and production processes (e.g., 3D-modelling). Another example is the insurance industry, where many firms have already implemented digital sales channels and started to adopt digital business models (e.g., online direct insurance). But a fundamental change of an insurer's business model seems unlikely in the near future.

Hence, when applying the Digital Transformation Framework and using the set of 11 strategic questions and answers we offered to formulate a digital transformation strategy, managers will likely need to customize the value creation dimension so it corresponds to the specific requirements of their industries or business models.

Concluding Comments

Digital transformation is a highly complex, company-wide endeavor. A systematic approach to formulating a digital transformation strategy is crucial for success. Moreover, a firm's first steps toward digital business models are characterized by a high level of uncertainty. To help managers address the challenge more systematically, we have extended previous work on digital transformation strategies through the lessons learned from three companies in the German media industry.

Our research has identified a set of strategic questions that managers responsible for digital transformation have to consider. Unfortunately, there are no universal, definitive answers to these questions. Nevertheless, for each question we have offered a set of possible answers and describe how and why the three case firms chose a particular option.

We believe that the most important thing for managers charged with formulating their firms' digital transformation strategies is to know the right questions to ask. By drawing on the successful approaches adopted by the three case firms, answering these questions within their own business contexts will provide managers with a comprehensive and structured approach to digital transformation that will enable them to cut through the complexity of digital transformation strategies.

Appendix: Research Methodology

We conducted two rounds of interviews with industry experts and representatives of each of the three case companies. When analyzing the interviews, we carefully scanned for commonalities and differences in these firms' strategies. To verify the statements from the interviews, we also used secondary data sources (e.g., financial statements, company presentations and data from general and professional media).

The first round of interviews was conducted in May and June 2013. It included seven interviews with senior industry experts and decision makers who were responsible for recent digital transformation programs at the German media companies. These interviews included open questions on the firms' motivations for their transformation efforts, their visions and goals and their current capabilities and challenges. The first-round interviewees are listed below.

First-Round Interviewees

Interviewee Function	Industry Segment	Date
Industry Expert	Consulting	May 2013
Industry Expert	Consulting	May 2013
Head of Business Development	Publishing	May 2013
Chief Operating Officer	Publishing	May 2013
Chief Executive Officer	Publishing	May 2013
Head of Advisory Board	Publishing	May 2013
Chief Executive Officer	Publishing	June 2013

Table 6: Key Decisions for a Digital Transformation Strategy

Use of technologies					
1. Strategic role of IT?	Enabler	Supporter			
2. Technological ambition?	Innovator	Early adopter	Follower		
Changes in value creation					
3. Degree of digital diversification?	Electronic sales channels	Cross-media	Enriched-media	Content platforms	Extended business
4. Revenue creation?	Paid content	Freemium	Advertising	Complementary products	
5. Future main business scope?	Content creation	Content aggregation	Content distribution	Management of content platforms	Other
Structural changes					
6. Responsibility for digital transformation strategy?	Group CEO	CEO of business unit	Group CDO	Group CIO	
7. Organizational positioning of new activities?	Integrated	Separated			
8. Focus of operational changes?	Products and services	Business processes	Skills		
9. Building of competencies?	Internally	Partnerships	Company takeovers	External sourcing	
Financial aspects					
10. Financial pressure on current core business?	Low	Medium	High		
11. Financing of new activities?	Internal	External			

In the second round, we conducted two interviews in July 2013 and one in May 2015. The interviewees in this round—one from each of the case companies—are listed below. These interviews formed the basis for our case analysis.

Second-Round Interviewees

Interviewee Function	Industry Segment	Date
Executive Vice President, Strategy and Operations	ProSiebenSat.1 Media SE	July 2013
CEO Ravensburger Digital	Ravensburger AG	July 2013
Group CEO	Mittelbayerische Verlag AG	May 2015

About the Authors

Thomas Hess

Thomas Hess (thess@bwl.lmu.de) is Professor of Information Systems and Management and Director of the Institute for Information Systems and New Media at Ludwig-Maximilians-Universität München (LMU). He holds a Ph.D. from the University of St. Gallen. His research focuses on digital business models and digital management systems, digital transformation processes and methods, and the management of IT, Internet and media companies. His work has been published in various international journals, including *Journal of Management Information Systems, European Journal of Information Systems, Information Systems Journal, International Journal of Electronic Commerce, Electronic Markets* and *Decision Support Systems.*

Christian Matt

Christian Matt (matt@bwl.lmu.de) is Assistant Professor at the Institute for Information Systems and New Media at Ludwig-Maximilians-Universität München (LMU). He holds master's degrees in computer science (University of Colorado at Boulder) and in management (LMU/EM Lyon Business School), and a Ph.D. in Management from LMU. His current research focuses on digital transformation from both the corporate and individual perspectives. Other research interests include recommender systems and information privacy. His work has been published in *Journal of Management Information Systems, Electronic Markets, Business and Information Systems Engineering* and other prestigious journals and conference proceedings.

Alexander Benlian

Alexander Benlian (benlian@ise.tu-darmstadt.de) is Chair of Information Systems and E-Services at Darmstadt University of Technology. Before joining academia, he worked as a management consultant at the Business Technology Office of McKinsey & Company. He serves as an Associate Editor at European Journal of Information Systems and on the editorial boards of *Journal of Service Research* and *International Journal of Electronic Commerce*. His research on digital transformation, cloud computing, software platforms and human computer interaction has been published in a variety of MIS, e-commerce and marketing journals.

Florian Wiesböck

Florian Wiesböck (wiesboeck@bwl.lmu.de) is Research Assistant at the Institute for Information Systems and New Media at Ludwig-Maximilians-Universität München (LMU). He holds a bachelor's degree in economics (LMU). Before joining the Institute for Information Systems and New Media, he worked as a management consultant with a focus on digital mobility services. His research addresses the management of digital transformation in general and the contribution of IS capabilities to firm performance in particular.