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Nils Urbach • Frederik Ahlemann

# IT Management in the Digital Age

A Roadmap for the IT Department  
of the Future

 Springer

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## Testimonials

Digitalization has far-reaching consequences for today's companies. It is not only an option anymore, but a necessity—especially for their IT departments. This book shows what IT managers need to be prepared for. Particularly worth reading.

**Markus Bentele**

Vice President Information Technology/Group CIO, MAHLE International GmbH

A compulsory read for CEOs and CIOs alike. This book illustrates the strategic and entrepreneurial importance of IT in an excellent and easily digestible way. CIOs receive very good support in focusing on the important and relevant topics of IT transformation. Enjoy reading and implementing.

**Bernhard Koch**

Vice Chairman of the Executive Board, GFFT e.V.

This book demonstrates the impact of digital transformation on IT organizations and their management. It also presents potential risks for technology availability, security, and data protection. The authors develop a vision of what IT management should look like in 10 years if it is to continue playing an important role in the company. The book seeks to motivate IT executives and managers with IT responsibility to actively adapt their thinking and their IT organizations before they are forced to react to external pressure. Definitely worth reading!

**Sven Kreimendahl**

Director Business Technology Services, Campana & Schott

The book gives a comprehensive and well-positioned overview of the various facets of digitalization. With the presented hypotheses and their direct formulation, the authors polarize very strongly, whereby the reader himself compares the old with the new world and is forced to take a stand. As the responsible person in the IT area, it is difficult to evade this. This book is suitable for both commencing with and reflecting on own digitalization initiatives, and I recommend that it should be read urgently!

**Dr. Benedikt Martens**

Senior Project Manager, Evonik Industries AG

The partially radical hypotheses address the current and future challenges of IT in a corporate group extremely accurately. With the future “innovate-design-transform” model, the authors describe modern collaboration models of IT and business, together with innovative partnerships, in a comprehensible and practice-relevant way.

**Dr. Kian Mossanen**

Chief Information Officer, DRÄXLMAIER Group

For me, digitalization means automation and new business models. IT departments were always involved with automation, but new business models are partly an existential challenge for companies and their IT departments. This book comprehensively shows what this entails for today’s IT departments and managers.

**Michael Neff**

Former CIO, RWE AG

In times of rapid—also technological—changes, agility is required. That is why IT must be restructured within the company and why old paradigms must be abandoned. In their book, the authors impressively show what needs to be considered. From my point of view, a must read for CIOs, but also for CEOs and CDOs.

**Burkhard Schütte**

Retired Partner and Former Chief Information Officer, PricewaterhouseCoopers AG

Driven by digitalization, IT departments will undergo significant change in the coming years. This book shows in which direction the journey is heading. Recommended reading for everyone who is responsible for IT in companies or who wants to prepare for digitalization.

**Dr. Roland Schütz**

Chief Information Officer, Deutsche Lufthansa AG

The book provides informative insights into IT management in times of digitalization. On the basis of ten hypotheses, the two authors take a differentiated look at digital transformation and show which changes are associated with this process in the company. The recommendations derived from this give IT managers helpful suggestions for a technically sound discussion of the topic.

**Thomas Ullrich**

Board Member, DZ BANK AG

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## Foreword

Digital transformation is the megatrend of our time, heatedly discussed not just in Germany but all around the world. After all, it brings countless changes with it and as many new challenges as opportunities. That might not sound especially sensational at first. After all, corporate IT departments have dealt with constant change for years—not only new applications and technologies, but even comprehensive approaches like outsourcing and cloud computing. One major difference to earlier developments stands out, however; the digital revolution is arising from many new technologies at once, among them big data analytics, social media, cognitive services, mobile computing, the Internet of Things, artificial intelligence, and virtual and augmented reality—to only name a few of the most important.

For companies, this means carrying out countless projects for development, innovation, and strategy—all despite often only having a vague idea of the end goal. The way forward is often unclear. That overwhelms most traditional IT departments. They are accustomed to drawing up plans from requirements management and providing specialist departments with changes according to detailed release plans and the waterfall method. But that does not cut it anymore. The future of IT will only function with the necessary efficiency when its commodity services are highly standardized—such as with electric sockets. Just as energy providers supply electricity, standardized interfaces from cloud providers will offer what we still call “office IT.” What once was “owned” will soon be simply “used.” The future certainly still has room for improvement. We can imagine, for instance, a kind of IT stock exchange for commodity services.

Even today, in fact, companies with their own development department for standardized platforms and IT services have practically dwindled from existence. Outsourcing may increase efficiency, but it has yet to exhaust its competitive advantages. Standardized platforms and cloud services—like electricity—could be used by many other companies at once. IT departments must expand their scope from merely increasing their productivity and actively participate in value creation. What would that look like? We are beginning to realize that actual added value can be created by linking previously separate information and connecting multiple technologies. This is where IT management must place its center of gravity in the age of digitalization. IT must employ comprehensive big data analyses to work with

company management and specialist departments to question existing business models and allow new technologies to continue developing or even restructure them.

IT management should be internally structured to increase production and creativity, enabling innovation through agile methods. It should be integrated into departments and encourage new business models and markets. That includes innovations for higher added value, new opportunities in marketing and sales, creating new communication channels, and shaping the workplace of the future. This also leads to an increase in employee satisfaction. Customer experience management must also be established to actively point the way from a satisfied customer to a brand ambassador. This indicates just how involved IT departments are in value creation. They are responsible for arming and fortifying staff against competition. They also expand their customer bases to other market segments for more growth and business activities.

All told, digital transformation certainly has disruptive consequences for many companies and industries. But continuing analog business is no longer an option. Technological innovation is already an important competitive factor for business today, with a significant influence on products, services, business processes, and sales and supply channels.

This book demonstrates the significant impact of digitalization on IT organizations and their management, as well as the risks to overcome, especially for technology availability, security, and data protection. The authors provide answers to many questions and explain what IT management should look like in 10 years if it is to continue playing an important role in the company. Their book seeks to motivate IT executives and managers with IT responsibility to actively adapt their thinking and their IT organizations before they are forced to react to external pressure. If it gets to that point, it might already be too late.

Director Business Technology Services,  
Campana & Schott  
Cologne, Germany  
April 2018

Sven Kreimendahl



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## Preface

The digitalization topic has become an integral part of political debate, economic news, as well as internal company projects and coordination. Keywords such as *big data*, *cloud computing*, *digital transformation*, *Industry 4.0*, and *Internet of things* constantly arise in public and internal company discussions. There are, however, still many questions that remain unanswered, such as the implications of digitalization for individual industries, as well as the impact thereof, which IT departments in companies will have to consider in future. Today's IT bosses would usually like to claim the topic for themselves. This is not unexpected, because their departments are responsible for information technology in companies, and digitalization promises to expand their sphere of activity, or at least to strengthen their role.

However, many CIOs and IT executives encounter problems. Their IT departments are often seen as pure service providers with no particular innovation skills. Business customers—that is, the other departments in their own company—often act independently of the IT department when developing IT-based business and process innovations. An example of this is a marketing department that starts big data initiatives without involving the in-house technology experts. Such a situation is not surprising, since IT department employees are still very technology oriented and often have little or no business know-how. Furthermore, creativity, entrepreneurship, and innovation activities often have merely a shadow existence in an industrialized IT department, which is focused on reliability and stability. Most IT departments are structurally and procedurally not prepared to play a special role in digital transformation. For example, they lack functioning innovation management processes or effective technology scouting. Past cost optimizations also contribute to this: their capacities are rarely sufficient to test and implement new ideas beyond daily business. Consequently, IT managers feel uncertain: How can we position ourselves in this situation? How should we approach digital transformation? Where do we begin? What role will we play in future?

This book identifies these questions and intends to answer them from a specific perspective. It illustrates the digitalization implications for today's IT departments—with their structures, processes, and people. In particular, this book discusses the meaning of digitalization, it presents a picture of corporate IT in 10–15 years' time, and it illustrates how current managers can prepare for this development.

The target groups of this book are IT executives (e.g., CIOs, IT managers), managers who are also responsible for IT (e.g., CFOs), and academics with practical interests. This book intends to help not only with responding to the digital transformation, but also with playing an active role in order to proactively manage the fate of the IT department. Our concept of the future IT department is not cast in stone but should rather be understood as a sound basis for discussions and projections. Although not all the hypotheses in this book apply equally to all companies and industries, they will enable the development of individual future scenarios that can serve as a basis for your strategic planning and decision making.

This is not a scientific book—it does not meet the strict scientific requirements of a theoretical basis or empirical analysis. Our thoughts and insights are instead based on exploratory research, conversations and interviews with executives, the observation of technological developments, and the interpretation of the aforementioned sources. Where scientific knowledge was available, we naturally integrated it.

We hope you enjoy this book and invite all readers to enter into a dialog with us. Please feel free to contact us for questions, discussions, and suggestions.

Bayreuth, Germany  
Essen, Germany  
April 2018

Nils Urbach  
Frederik Ahlemann

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