

“Digitalization”

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Introduction

In recent years, whenever the subject of digitalisation or digital transformation is brought up for discussion, we normally observe two distinguishing reactions from the attendees: one group is excited and satisfied, the other, interested and worried. Of course, some have a good mixture of both. The former has been from companies, big or small, which have a clear digitalisation strategy in place from which obvious development and benefits have been achieved. For the latter, people are as keen as others on implementing solid steps to realise the long-awaited benefit from business digitalisation. However, they are not quite sure where and what to start with, despite the continuously advancing technologies in the market. While still dealing with the COVID-19 pandemic, we were very curious about what the book “Digitalization” (1) would bring to help accelerate digital transformation for various organisations.

Professor Schallmo and Professor Tidd are the editors of “Digitalization” with a list of distinguished researchers on the editorial board. Professor Schallmo is a well-known key researcher focusing on business digitalisation at various stages, and

the development and application of the methods to innovate business models. “Digitalization” continues his research focus following his previous book “Digital Transformation Now!” (2).

Besides his professorship of technology and innovation management at University of Sussex, UK, Professor Tidd has worked with numerous technology-based organisations globally on technology and innovation management projects. His view and experience of connecting innovation and digitalisation is always insightful. In conjunction with “Digitalization”, it is worth expanding the reader’s knowledge through his bestselling textbook on managing innovation (3).

The book “Digitalization” is a collection of 25 research-based studies which have been arranged in sections to emphasise five aspects of digitalisation: ‘Digital Drivers’, ‘Digital Maturity’, ‘Digital Strategy’, ‘Digital Transformation’ and ‘Digital Implementation’. This arrangement gives a clear statement of the focus of each part. Throughout the book, the literature review of all subjects is very rich which should give the audience a wide range of further reading if required.

Digital Drivers

The very early challenges that all organisations face in digital transformation are to discover the right opportunities and initiatives holistically. In the section ‘Digital Drivers’, four articles explore this subject from different angles. Disaster management and future-led innovation framework, presented by Vettorello (Swinburne University of Technology, Australia) *et al.*, and technology-oriented future analysis by Urbano (Politecnico di Milano, Italy) *et al.*, aim to

provide guidance to organisations on innovation management with fast and accurate decision making within highly dynamic and complex environments. We feel these concepts may also have a place for individual business units within a large organisation where specific needs of that business unit can be addressed to capture local opportunity.

Chiaroni (Politecnico di Milano) *et al.* present a real example of how a circular business model has been applied in the building industry to realise business transformation from linear to circular by adopting digital technologies. Mutanov and Zhuparova (al-Farabi Kazakh National University, Kazakhstan) in the fourth article explain several fundamental reasons that commodity countries such as Kazakhstan and other post-Soviet countries are falling behind on digital transformation. These findings certainly show the great potential of digitalisation. Among the literature provided by the authors, two popular books written by Cross (4) and Tighe (5) are worthy of extra attention to expand ways of thinking and setting strategy.

Digital Maturity

'Digital Maturity' in Part 2 focuses on discovering digitalisation opportunities from a different angle, by assessing the current digital development status of an organisation and comparing with others within the same business sector or even wider to draw action plans for its own needs. First, a systematic literature review is conducted by Ochoa-Urrego and Peña-Reyes (Universidad Nacional de Colombia) which includes 22 publications on formal maturity model applications.

The other two studies from Schallmo (Neu-Ulm University of Applied Sciences, Germany) *et al.* and Pierenkemper and Gausemeier (Heinz Nixdorf Institute, University of Paderborn, Germany) *et al.* emphasise a digital maturity models assessment of small and medium-sized enterprises (SMEs). It is recognised that the examined digital maturity models cannot provide a comprehensive digitalisation implementation plan for SMEs with an overarching vision like that typically seen at large corporations. Although Pierenkemper and Gausemeier list a few aspects of the presented model that may require further investigation, the study itself shows through examples how SMEs can produce a simple development plan for digitalisation using the model provided.

Digital Strategy

Once digitalisation objectives are determined, it is natural to move onto 'Digital Strategy' as presented in Part 3 on how we can capture the opportunities. The first paper in this part gives a deep dive on how disruptive innovation is used as business strategy or model for digital transformation among 80 companies in Germany. To expand the understanding of disruptive innovation, it is worth exploring relevant resources from the bestselling author (6). It is followed by Hartmann (HTW Berlin - University of Applied Science, Germany) *et al.* and Gernreich (Ruhr-Universität Bochum, Germany) *et al.* who separately address the importance of top management or an innovation manager who has the necessary knowledge in digitalisation and can drive to complete the plan for desired productivity and benefits.

Kruft and Gamber (Technische Universität Darmstadt, Germany) in the fourth paper present a critical component of digital transformation: continuous culture change, which often poses an even bigger challenge on the entire journey of digitalisation. All organisations need to recognise the significance of cultural renewal and work closely with their employees to bring them along with progress. It is one of the core strategies to empower people with the right tools, knowledge and communication *via* digital platforms in the era of ever-changing technology.

The focus in the paper from Koldewey (Heinz Nixdorf Institute, University of Paderborn) *et al.* falls in the mainstream of digitalisation, i.e., smart services interconnecting products with aftersales service. They demonstrate how they use a design research methodology to develop a smart service strategy through four comprehensive case studies. The last paper in Part 3, from Porté (Ecole Polytechnique Fédérale de Lausanne, Switzerland) *et al.*, draws attention to the potential of using Systemic Enterprise Architecture Methodology (SEAM) to align business and IT perspectives on innovative projects. A project by the Society of Family Doctors (SFD) is used to showcase how we structure a problem based on who sees it and why, instead of the problem itself.

Digital Transformation

Part 4, 'Digital Transformation', expands on the first three parts of the book with papers from

governments, universities and other parts of the public sector. Meier (University of Innsbruck, Austria) provides a systematic review of the literature on SME digitalisation. Her discovery agrees with a few other papers in the book on challenges that traditional SMEs face while adopting digitalisation: time, financial, human and technical resource constraints. For the public sector, Bjerke-Busch and Aspelund (Department of Industrial Economics & Technology Management, Norwegian University of Science and Technology) use Norwegian Court Administration (NCA) to explain the barriers for digital transformation in a typical public organisation.

The study from Haslam (Centre for IS Management, Department of Politics and Society, Aalborg University, Denmark) *et al.* identifies a few key elements of how digital transformation has been accelerated at a Danish university during the pandemic period. Staying connected with the Danish Government, Rosenstand (Aalborg University) shows early work on applying a digital ecosphere canvas for cultivating multiple digital ecosystems at Digital Hub Denmark, a private-public partnership organisation. Jütting (Fraunhofer IAO, Fraunhofer Institute for Industrial Engineering, Center for Responsible Research and Innovation (CeRRI), Germany) *et al.* introduce the pro-poor digitalisation canvas as a conceptual framework aiming to act as a practical tool to evaluate the potential of digital innovations. The particular interest is to practically turn the objectives of the United Nations Sustainable Development Goals (SDGs) 1 ('no poverty') and 10 ('reduced inequality') into actions to minimise the digitalisation gap between the advanced and developing world.

Digital Implementation

Digital implementation, the focus of Part 5, is the step to really make the transformation. Although it is impossible to cover all areas in the implementation stage, the authors have attempted in-depth discussion in several major subjects. Gfrerer (University of Innsbruck) *et al.* lead the discussion in the composition of digital leadership and gender diversity, particularly targeting female managers and how they envisage their roles and challenges to digitalisation and innovation. Reis and Hunt (Thinkergy Ltd, Hong Kong and Thailand) in the second paper also focus on the effectiveness of leadership in digitalisation. They conclude by highlighting the importance of creative leaders in the success of digitalisation and

such leaders can be trained up through selective programmes combining effective methodology and pedagogy.

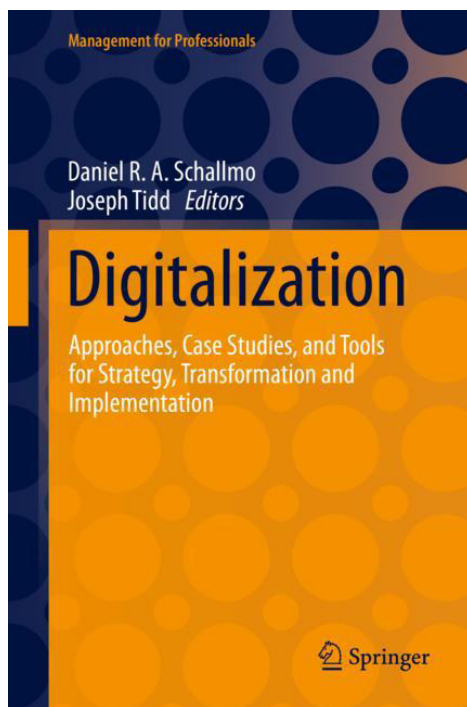
Schallmo and Williams (Neu-Ulm University of Applied Sciences) bring attention to an integrated theoretical approach to digital implementation which aims to realise digitalisation in four interactive dimensions and five procedural phases. The study presented in the fourth paper by Kruszelnicki (Creative Labs sp. zoo ul, Poland) and Breuer (UXBerlin Innovation Consulting and HMKW University of Applied Sciences for Media, Communication and Management, Germany) is particularly interesting. Three use cases are presented to show how Adobe Kickbox has effectively promoted 'intrepreneurship' to unlock innovation opportunities. Haag (TH Köln, Germany) *et al.* have sustainability at the centre of their research. Their main contribution is to provide the 'design-to-sustainability matrix' as a toolkit to address ecological challenges through the life cycle of both new and existing product development.

The last two studies in this part put weight on innovation management. Johnsson (Blekinge Institute of Technology, Sweden) *et al.* explore the key success factors in evaluating innovation teams. In the last paper Colucci and Forciniti (Evidentia srl, Italy) recount the story of how Ferrari has transformed its business through an innovation management programme which involves management at all levels and processes at different stages.

Conclusion

On completing the book, although the questions we had at the start of this review are not fully answered, we were delighted to see several useful case studies presented throughout the book. When it comes to real implementation, we understand that it is impossible to write down all details due to confidentiality and variations in organisational status and need. The richness of the literature resources in this book provided by all authors is hugely beneficial to the audience to gain a theoretical foundation. There is also wide discussion on how digitalisation is applied to various areas of focus, including SMEs, developing countries, gender diversity, SDGs, high-tech industry leaders and the public sector. Digitalisation practitioners such as management and innovation consultants and organisations would find it useful to navigate through the business models and frameworks presented by several

authors at different stages of digitalisation. Readers who are very new to the digital transformation subject may find this book too profound and pre-study is needed to bridge the knowledge gap. Finally, digital transformation is often bundled with innovation for many good reasons. We highly recommend readers continuously explore ways of innovation (7) to identify and truly drive ideas through to implementation.



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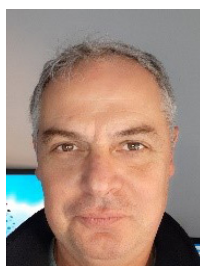
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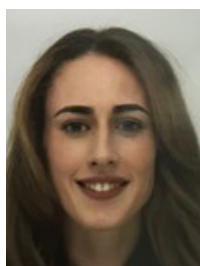
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Philippa Stone is currently seconded into Johnson Matthey's IT Data Office as part of the Johnson Matthey UK Graduate Scheme. While roles in her early career have primarily focused on R&D and operations, Philippa recognises the value that digitalisation can bring and is now contributing to projects that improve use of data across Johnson Matthey. Philippa holds an MChem from Durham University, UK.