

## Making Digital Transformation Real

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### Abstract

*Digital Transformation (DT) is based on a superior connectivity and in an explosion of available data, changing the way enterprises do business. This frequently implies the development of new strategies, new business models and new capabilities. By proposing the mini-track Making Digital Transformation Real, the objective is to put forward new ideas about how companies, managers and individuals are dealing with the complexity around this phenomenon. Papers selected highlight challenges and opportunities for large, small, and medium companies from different sectors. In this editorial, after presenting a short introduction to the topic, different contributions are briefly presented to offer a snapshot of this mini-track.*

### 1. Introduction

Technology has dramatically evolved over the past few years. This evolution allowed the integration of computational devices, at a low cost, in several sectors, creating the concepts of the Fourth Industrial Revolution [1] and Digital Transformation (DT) [2]. In this connected and integrated world, the large volume of data generated, with and without human participation, causes profound changes in the organizational context [3]. This substantial introduction of new information technologies and communications, the deregulation of markets, the globalization of an economy based increasingly on knowledge, accelerate the changing process within the organizational environment [1]. Technology is no longer limited to substitute disqualified, repetitive, dangerous, or heavy-lifting work, as intelligent machines and robots get more dexterous and intelligent [4]. The main benefits associated with automation and artificial intelligence refer to increasing productivity (50%), reducing production costs (43%) [5], among

others. On the other hand, the digital transformation and robotization of various activities using intelligent machines means that the human-machine interaction becomes even more present and brings new challenges to all organizational levels [6].

This evolution is disrupting businesses and bringing sociological side effects, changing the nature of work in all sectors and occupations [7]. In addition, according to Goerzig & Bauernhansl [2], the competitive advantages allowed by the technological evolution that goes through the processes of co-creation, application of context-sensitive systems and integration into ecosystems, culminate with personalized customers value at cost of mass production. However, most businesses are not really ready to undertake digital transformation, define indicators and become data driven to manage changes at the required pace, especially for small and medium enterprises (SME) [8].

To understand this process and to positively conduct DT, we need to understand and evaluate how organizations address these changes nowadays. Several new research questions emerge in this context. The mini-track Making Digital Transformation Real presents 10 contributions from 33 authors from several countries, proposing mechanisms, methods, models and strategies to act on all organizational levels, sizes and contexts; creating thus new managerial and academic knowledge to promote and better exploit the DT process.

### 2. Contributions

Regarding the selected papers, there is a growing interest on this subject in the European continent, which accounts for 29 of the 33 authors. Most of paper adopted a qualitative approach and methods to conduct their research. Papers addressed issues in three main themes (strategy, mechanisms & models and SME context), proposing some basis and directions for the global comprehension of the DT phenomenon.

## 2.1. Strategy

The first theme concerns strategy, covering topics such as implementation guidelines, barriers and the way to conduct of the process of DT. Windt, Borgman and Amrit [9] performed four in-depth case studies of organizations that are more mature in terms of their transformation towards a data-driven organization to understand challenges and typical responses of leadership in data-driven transformations. Somsen, Langbroek, Borgman and Amrit [10] also conducted a qualitative research approach through six embedded case studies of different DT initiatives within a large European airline company. They provided understanding on how and why success criteria evolve in the course of a DT initiative. Gao, Hakanen, Tiytari and Rajala [11] analyze challenges related to the ways firms in the metals and mining industry manage to seize the opportunities that digital technologies provide for their business operations. The challenges include firms' lack of capabilities to change, goal ambiguity, technological constraints and external constraints. Hirschmeier, Tilly and Beule [12] conducted an exploratory qualitative content analysis on talks of radio practitioners to identify current challenges, possible solutions and specific aesthetics that shape current and future radio experience. Vogelsang, Liere-Netheler, Packmohr and Hoppe [13] highlighted barriers to DT in manufacturing companies based on 46 expert interviews. Identifying barriers which hinder or even stop DT is essential for the successful transformation.

## 2.2. Mechanisms & Models

The second theme presents some mechanisms and models to DT, regardless of the sector and size of the organization. One first paper pointed out agility as means to help digital transformation by adopting agile structures. Gerster, Dremel, Brenner and Kelker [14] adopted a multiple case study strategy. This work proposes three models to create agile organizational units. Baber, Ojala and Martinez [15] performed in-depth multi-case study of four Japanese high-tech firms in order to analyse how business models evolve when technology-based firms move from physical distribution channels to digital distribution platforms. In the third paper, Abadie, Carillo, Fosso-Wamba and Badot [16] developed a conceptual model that aims at better understanding the inner mechanisms that govern perceived irrationality, analysing human interaction and Waze's app with artificial intelligence (AI).

## 2.3. SME

Considering the SME relevance in the global economic context and the difficulty of this type of organization to access the required resources for DT, some authors focused their research in this sector. Barann, Hermann, Cordes, Chasin and Becker [17] analysed strategies to foster digital transformation of SME, by involving publicly funded support units. Authors mention "that while larger companies may be able to experiment with different innovation projects, smaller companies require a more practical approach focusing on feasible and tangible goals. SMEs require an approach that wraps the underlying complexity of DT projects into manageable and easily understood action items, rather than abstract frameworks." (Barann et al., 2019).

Pelletier and Cloutier (2019) [18] adopted the group concept mapping as the methodological framework to create a concept map for a group of entrepreneurs in SMEs. It revealed that entrepreneurs tend to rank IT evaluation support as relatively more important rather than the nature of the digital strategy when compared with IT specialists and socioeconomic professionals.

## 3. Conclusion

DT go beyond technology, requiring new methods, models and tools to put companies into action. This frequently implies new strategies, new business models and new and dynamic capabilities mostly to create data-driven businesses. The different contributions of our mini-track address several relevant research questions to the DT process. Exchanges and interactions among authors during the conference will promote fruitful discussions, perhaps new collaborations hopefully some evolution of this relevant research topic.

## 4. References

- [1] Schwab, K. The Fourth Industrial Revolution. Crown Business. 2018.
- [2] Goerzig, D. and Bauernhansl, T. Enterprise Architectures for the Digital Transformation in Small and Medium-sized Enterprises. *Procedia CIRP*, 67, 2018, 540–545.
- [3] Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. *MIS Quarterly*, 41(1), 2018, 223–238.
- [4] Frey, C. B., & Osborne, M. The future of employment. How Susceptible Are Jobs to Computerisation. 2013.

- [5] Avanade. Productivity Plateau: What's holding you back? Intelligent automation is changing the workforce. How will it affect you? 2017. Available: <https://www.avanade.com/~media/asset/research/intelligent-automation-global-study.pdf>.
- [6] Crowston, K. and Bolici, F. Impacts of machine learning on work. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [7] Mosconi, E., Crownston, K. and Nickerson, J. V. Developing Skills to Work in the Age of Intelligent Machines: Pre-HICSS workshop. 52nd Hawaii International Conference on System Sciences (HICSS). Wailea, HI. Available: <https://waim.network/hicss2019>.
- [8] Bordeleau, F.-E., Mosconi, E. and Santa-Eulalia, L.A. Business intelligence value creation in Industry4.0: a multiple case study in manufacturing SMEs, Production Planning & Control (In press).
- [9] Windt, B., Borgman, H. and Amrit, C. Understanding Leadership Challenges and Responses in Data-driven Transformations. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [10] Somsen, A.M., Langbroek, D., Borgman, H. and Amrit, C. Rerouting Digital Transformations Six Cases in the Airline Industry. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [11] Gao, S., Hakanen, E., Töytäri, P. and Rajala, R. Digital Transformation in Asset-intensive Businesses: Lessons Learned from the Metals and Mining Industry. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [12] Hirschmeier, S., Tilly, R. and Beule, V. Digital Transformation of Radio Broadcasting: An Exploratory Analysis of Challenges and Solutions for New Digital Radio Services. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [13] Vogelsang, K., Liere-Netheler, K., Packmohr, S. and Hoppe, U. Barriers to Digital Transformation in Manufacturing: Development of a Research Agenda. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [14] Gerster, D., Dremel, C., Brenner, W and Kelker, P. How Enterprises Adopt Agile Structures: A Multiple-Case Study. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [15] Baber, W. W., Ojala, A. and Martinez, R. Transition to Digital Distribution Platforms and Business Model Evolution. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [16] Abadie, A., Carillo, K., Fosso-Wamba, S. and Badot, O. Is Waze joking? Perceived Irrationality dynamics in user-robot interactions. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [17] Barann, B., Hermann, A., Cordes, A.-K., Chasin, F. and Becker, J. Supporting Digital Transformation in Small and Medium-sized Enterprises: A Procedure Model Involving Publicly Funded Support Units. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.
- [18] Pelletier, C. and Cloutier, M. Challenges of Digital Transformation in SMEs: Exploration of IT-Related Perceptions in a Service Ecosystem. Hawaii International Conference on System Science (HICSS). Wailea, HI. 2019.