

Chapter 35

Digitization and Sustainability: Threats, Opportunities, and Trade-Offs

Marlen Gabriele Arnold

 <https://orcid.org/0000-0002-6536-0301>

Chemnitz University of Technology, Germany

Anne Fischer

Chemnitz University of Technology, Germany

ABSTRACT

Digitization and sustainability are two mega-trends. There are a lot of opportunities and threats discussed. However, a compiled and industry-wide analysis of SWOTs is missing. After a review of the literature on digitization and sustainability and compiling a SWOT table, a concept map is developed for visualizing key topics in light of digitization and sustainability. In addition, for illustrating unconscious knowledge, two exemplifying systemic structural constellations are presented in this context as well. The results show immense tensions between sustainability and digitization, but also offer progressive patterns. In light of a development towards sustainability, digitization is both boon and bane and often needs a clear analysis of all relevant issues and a careful handling in order to be progressive. Digital transformation requires a precise and honest value basis and sustainability added value. Therefore, societal progress and strict law regulation will be needed.

INTRODUCTION

According to Krysz (2017), in particular seven megatrends will play a major role over the next 15 years: (1) demographic change, (2) globalisation and the markets of the future, (3) scarcity of resources, (4) climate change, (5) technology dynamics and innovation, (6) global science, and (7) sustainability and global responsibility. These profound changes can be grasped by specific aspects. Demographic change is particularly marked by a further increase in the world's population (United Nations, Department of Economic and Social Affairs, Population Division, 2017), a rising average age (Contis, Bennett, Mathers, Li, Foreman, & Ezzati, 2017) as well as migratory movements and migration to cities. Trend 2 captures

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the shift in global economic equilibria towards specific countries that have tended to play a subordinate role until now. The increasing scarcity of resources and the associated rise in prices and possible supply bottlenecks will continue to impact the company's activities in the future. Climate change and the associated threat to ecosystems (due to droughts, extreme storms, floods, etc.) will also continue to progress in the next 20 years. Trend 5 is especially characterised by a globally faster spread of technologies, which means that innovative companies in particular can benefit. Less developed countries will follow suit, especially in terms of innovation capacity. Digitisation and life sciences are crucial key technologies. In connection with the Global Knowledge Society, three changes need to be emphasized in particular: Increased dissemination of knowledge, slight improvement in gender equality and increased competition for qualified employees. On the one hand, trend 7 indicates an increased significance of sustainability due to limited resources, and on the other hand, the relevance of cooperation by governments at a global level. A growing influence on increasing sustainability is attributed to both the individual and the impact of NGOs (Krys, 2017).

Digitisation, digitalisation or digital transformation as well as sustainability belong to the main global megatrends today. However, there are lots of positive developments, but also negative consequences in terms of sustainability. In order to create holistic sustainable concepts, attention to fundamental developments is essential. In addition to a wide range of positive developments, potential risks and challenges have already been, but still must be identified, analysed and implemented in order to prevent exponential technology adaptations from leading to a complete lack of transparency of the overall system. So, how is a responsible and sustainable management possible taking all relevant values and opportunities and threats into account? The main questions of positive and negative impacts of digitisation concerning sustainability impacts will be discussed based on given conceptual and theoretical reflections as well as gained by results used systemic structural constellations. Systemic structural constellations are able to spatially map patterns, connections, structures and relationships within a system and can thus be used in a variety of ways, like depicting complex challenges spatially and visually in order to point out new possibilities as well as revealing and closing the gaps between knowledge and lack of action or to open up paths to more sustainable action (Arnold, 2018, 2016). Systemic structural constellations address the unconsciousness and are based on unconscious thinking and processes; they provide an excellent supplement to conventional research designs. After a review of the literature on digitisation and sustainability and compiling a SWOT table, a concept map is developed for visualising key topics in light of digitisation and sustainability. In addition, two exemplifying systemic structural constellations are presented for illustrating unconscious knowledge in this context, too.

BACKGROUND

The digital ecosystem describes an open information landscape (Dini, 2007) with particular emphasis on the adaptability, dynamics and self-organizing mechanisms of inter-organizational information systems and encompasses a holistic perspective on the inter-organizational system of action (Müller-Mielitz & Lux, 2016). Actors and innovations can develop competitively, independently and co-evolutionarily. If it is possible to generate and maintain a critical mass of users, success can be achieved in terms of economic and social sustainability (Müller-Mielitz & Lux, 2016). Platforms, exposed to network effects can lead to dysfunctional social distribution and participation processes, will become central (BKA, 2015). Furthermore, network effects, information asymmetries, opportune behaviour and negative assessments

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