DOCTORAL CONSORTIUM

How are Companies Strategizing with Digital Transformation to Integrate Sustainability Objectives?

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Digitalization offers innovative solutions through which firms can address sustainable challenges and be sustainable in the long run. The implementation of digitalization for sustainability sake can create both positive and negative impacts internally and externally to a business. While digital technologies can optimize resource management and enhance social outcomes, they also pose risks of increased energy consumption and e-waste generation. This research aims to explore how firms can balance the benefits of digitalization with that of the associated risks to enhance sustainability performance. By investigating the dynamics between digital transformation strategies, business models, and sustainability, it seeks to create new knowledge on the method of how digital sustainability should work. The paper will employ a multiple case study approach with qualitative and quantitative data collection methods. Although the research is in its initial stages, it anticipates that businesses will increasingly adopt digital transformation to comply with environmental regulations. The study expects to contribute in digital sustainability strategy in response to evolving regulatory landscapes.

Keywords:
digitalization, sustainability, strategy, business model, technologies

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1 Introduction

Digitalization is essential for sustainable development. Digital technologies can address global challenges like climate change and inequality with new business models and ways of working (Millet, 2020). As organizations continue to leverage the power of technology to improve operational efficiency and customer experience, they are also becoming increasingly aware of the impact of digitalization on sustainability. While some firms have sustainable practices, the number is not significant, and can vary by different industry types. Digital technologies can solve this disparity and henceforth increase firms' sustainable conducts. The United Nations Global Compact (UNGC) has highlighted the critical role of digitalization in achieving the Sustainable Development Goals (SDGs) and called on companies to integrate digitalization into their sustainability strategies (*EU Statement – UN Global Digital Compact: Deep Dive on Accelerating Progress on the SDGs*, n.d.).

2 Problem definition

The relationship between digitalization and sustainability is complex and multifaceted, with both positive and negative impacts on sustainability performance. On the positive side, digitalization has the potential to reduce resource consumption and waste generation by enabling more efficient and circular business models. For example, the use of digital technologies such as the Internet of Things (IoT) and artificial intelligence (AI) can optimize supply chain management, energy consumption, and waste management (Soori et al., 2023). Furthermore, digitalization can enhance social outcomes by increasing access to education, healthcare, and other services, as well as promoting transparency and accountability through the use of digital platforms (Brenner & Hartl, 2021). On the negative side, digitalization can increase energy consumption and e-waste, as well as create new privacy and security risks. For example, the growing use of data centers and cloud computing has led to significant increases in energy consumption, with data centers accounting for approximately 1% of global electricity consumption (Rong et al., 2016). Moreover, the proliferation of digital devices and platforms has resulted in a massive amount of electronic waste, with only a small percentage being properly recycled or disposed of (Schaltegger et al., 2016). In addition, the collection and use of personal data by digital platforms raise concerns about privacy and security, as well as the potential for discrimination and bias (World Economic Forum: Annual Report 2021-2022,

2023). Therefore, the question arises that how can firm balance between maximizing the benefits of digitalization in the pursuit of sustainability performance and reporting enhancement and minimizing potential risks and costs related to their digital initiatives?

Current body of research on digital transformation has an underlying focus that emphasizes on the economic feasibility of firms. By using new digital technologies, firms innovate new digital value propositions and offerings. Such improvements are necessary for a firm to remain relevant and competitive in the converging digital markets, where incumbent firms, digital startups and software firms compete and collaborate. A founding assumption in digital transformation research is that the pressure to improve competitiveness in order to remain relevant in converging digital markets drives digital transformation. (Baiyere et al., 2020) However, digital transformation and the development of digital business models and value offerings, can also have both positive and negative effects on environmental and social sustainability. Such acknowledgement in prior digital transformation research is not prevalent.

Therefore, this research intends to gain knowledge and answer such gaps by investigating the dynamics between a firm's digital transformation strategy, business model and sustainability. Such knowledge would pave the way for a better firm strategy for matured or newer firms that intend to create values with their sustainability performance.

3 Methodology

For this research method, multiple case study has been chosen. Within a single study, multiple cases would be assessed due to the fact that multiple firms are being examined. This research will also follow multiple level of analysis (Yin, 1984) within each single case, for example investigating digital strategy that often is established in the corporate function and studying value proposition or business model which is seen in the operational level. Such multiple level analysis will also be employed in firm and industry level, which is one of the elements in this research design.

In a case study, the data to be collected can be both qualitative and quantitative. Both primary and secondary data are good sources of data collection. For example, interviews and questionnaire are considered as qualitative primary data collection methods to find evidence of the phenomenon. However quantitative format such as questionnaire can also complement the qualitative method if necessary. Secondary data sources are annual and sustainability reports, 3rd party reports, archives, newsfeed etc. which publish quantifiable numbers that may complement the primary data collected or vice versa. Essentially, case study is suitable for this research as it can help a researcher to describe the phenomenon (Kidder, 1982), test a prebuilt or conceived theory on a specific case (Pinfield, 1986; Anderson,1983) or perhaps create a theoretical framework based on the case learning (Gersick, 1988; Harris & Sutton, 1986). (Eisenhardt, 1989)

4 Expected results

The research is in its initial stage. We have not been able to collect enough data to forecast an expected result.

5 Future Development

So far, we have observed continuous regulations and legislations imposed on businesses to limit their carbon emission and move towards a state of environmentally friendly operation. We expect that more and more businesses will adapt to this changing and tighter environmental regulation through digital transformation or other means that will help abide the regulation. We can also expect more regulation on the technology side. For example, as data-based service and AI i.e., generative AI becomes more accessible and applied by businesses in their operation, we can expect new regulations on the use of technologies. Inevitably, we will likely see new strategies and business models that effectively use digital technologies to achieve sustainability and other core organizational goals.

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