Advancing Sustainability through Artificial Intelligence – A Strategic Framework

Extended Abstract

The sustainability transformation is one of the most important and pressing topics of the 21st century for politics, society, science, and the economy. Climate change, in particular, poses some of the greatest sustainability challenges for both companies as well as economies and societies at large. For example, without immediate collective global efforts, climate change can deprive the resources companies need to do their business (IPCC, 2022). Already now, companies and governments are facing high costs due to flood disasters, heat waves, and climate adaptation (BMUV, 2022). There are studies that predict economic costs up to 910 billion euros till 2050 for Germany, depending on different scenarios (BMWK, 2023). In addition, customers increasingly demand sustainable products and services from companies (Rosenbaum et al., 2022). Moreover, investors more and more often favor sustainable business models and so called *green stocks* over traditional ones because they deem them more crisis-resilient and predict a better financial performance in the long run (Gupta & Gupta, 2020; Jung et al., 2018). Because of these pressing reasons, companies are increasingly questioning their business logic and want to become more sustainable (Enquist et al., 2015).

The economies of developed countries have a high share of service industries. For example, in 2022 the American and German service industries had a share well above 60 % of the total GDP (Germany: 63 %; US: 72 %) (World Bank, 2022). Nearly 75 % of all jobs in Germany are provided by the service industry (BMWK, 2013). Therefore, taking account of and integrating sustainability into services and service management provides huge potential for a future sustainable and resilient economy.

While sustainability research is exceedingly growing in terms of material goods, in service research, it is still an under-investigated topic. Early work mostly focuses on sustainable service innovations and business models or sustainable service ecosystems (e. g. Chen, 2017; Field et al., 2021; Trischler et al., 2020; van Riel et al., 2021). Transformative service research (TSR) partly embeds sustainability concepts, yet, predominantly addresses individual well-being outcomes (Anderson et al., 2013; Dodds et al., 2022). Hence, work on how service research and its related concepts could and should be developed in light of the pressing issues in relation to climate change by integrating knowledge from sustainability research remains scare. As a consequence, influential researchers repeatedly call for an investigation of sustainability in service research (Anderson et al., 2013; Baron et al., 2014; Bolton, 2020; Rosenbaum et al., 2022).

This paper empirically investigates the AI-based sustainability strategies of six B2B service providers. Big Tech B2B companies in particular are increasingly utilizing artificial intelligence (AI) to meet their sustainability goals. However, little is known about how B2B companies can leverage AI to accelerate sustainability by formulating and implementing appropriate strategies. To better understand the intertwined

nature of AI and sustainability from a strategy perspective, the aim of this research is two-fold. First, it seeks to develop a novel framework for categorizing distinct AI x Sustainability strategies. Second, it aims to apply the developed framework and reveal whether and how leading Big Tech B2B companies (i.e., Amazon, Google, IBM, Meta, Microsoft, and SAP) follow specific AI x Sustainability strategies. To this end, this research conceptually develops an AI x Sustainability framework by integrating insights from different literature streams. It then applies this framework to six leading Big Tech B2B companies by conducting a comprehensive document analysis of 69 documents describing the companies' AI x Sustainability initiatives.

This paper contributes to service and management research by by conceptualizing a two-step framework reflecting a company's AI x Sustainability strategy. Furthermore the paper shows how the leading Big Tech B2B companies' AI and sustainability strategies can be classified. These insights offer guidance for further research on the influence of these strategies on financial performance, employee-related, and other stakeholder-focused outcomes. Furthermore, this research may help managers to implement suitable AI solutions to achieve their sustainability goals.

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