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# Digital platforms and the SDGs: A socio-eco-technical framework for SMEs based on cross-case analysis

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## Abstract

Managing the complex relationship between digitalization and sustainable development is a key challenge for many small and medium sized enterprises (SMEs). To understand strategies of forerunners in the field of digital platforms and platformization, this study performs a cross-case analysis of three sustainability-oriented SMEs employing multi-sided platforms operating in three sectors (wholesale, information and communication technology, and construction) in Germany. The integrated analysis framework draws from Belief-Action-Outcome theory, multi-sided platform strategies, and the sustainable development goals (SDG). The findings identify four platformization strategies and exemplarily specify contributions to SDG 2, 7, 8, 9, 12, 13, and 17. The proposed socio-eco-technical framework emphasizes linkages between an employed platformization strategy (technical system), the corporate culture (social system), the platform stakeholders and the SDGs (ecological system). A seven-step approach is proposed to motivate and facilitate the development and continuous improvement of platformization for sustainability in SMEs.

## KEYWORDS

case study, corporate culture, digital platform, SDGs, SMEs, socio-technical systems

## 1 | INTRODUCTION

Managing the complex relationship between digitalization and sustainable development is a key challenge for many small and medium-sized enterprises (SMEs) (Böttcher et al., 2023; Burinskienė & Nalivaikė, 2024; Gallina et al., 2024). In this context, two concepts achieve high attention. First, digital platforms present a disruptive technology changing the information systems (IS) landscape and transforming whole industries (de Reuver et al., 2018). Second, the 17 Sustainable Development Goals (SDGs) published in the Agenda 2030; United Nations General Assembly, 2015) outline a path toward enhancing economic, natural, and social capital (Dyllick & Hockerts, 2002). One path in this relationship is composed of the

potential of digital technologies for pursuing the sustainable development or Corporate Social Responsibility agenda (Böttcher et al., 2023; Cardinali & De Giovanni, 2022; Wang et al., 2024). While Wang et al. (2024) recently found a significant positive correlation between the use of digital platforms and environmental behavior of enterprises, Clark et al. (2022) even argue for an 18th SDG called Digital Connection.

Digital platforms and the related process of platformization (Poell et al., 2019) form the key concepts in the present study due to their great potential role for accelerating SDGs. Conceptualizations vary across research fields. For the context of this research, Bonina et al. (2021) provide a suitable definition of digital platforms as “a distinct type of information technology (IT) artefact with distinct properties,

which lend particular affordances for development” (p. 1). For example, Anshari et al. (2019) presented a model of a digital marketplace connecting all actors and managing the flow of transactions and distributions, which could support sustainable agriculture. Platformization describes “the penetration of infrastructures, economic processes and governmental frameworks of digital platforms in different economic sectors and spheres of life” (Poell et al., 2019, p.1). Emphasizing the development context, previous works suggested that digital platforms could accelerate the “transformative steps ... to shift the world on to a sustainable and resilient path” (United Nations General Assembly, 2015, p. 1) (e.g., Anshari et al., 2019; Fuster Morell et al., 2021; Kolk & Ciulli, 2020; Qureshi et al., 2021). More specifically, the knowledge base from different research areas points toward value creation in the platform economy and the resulting industry transformations (de Reuver et al., 2018; Gregori et al., 2023; Hein et al., 2019); digital platforms for development (Bonina et al., 2021), especially in the circular economy (Berg & Wilts, 2019; Kovacic et al., 2020) and the sharing economy (Pouri & Hilty, 2018; Schwanholz & Leipold, 2020); platform-based business models (Böttcher et al., 2023; Li et al., 2023; Rohn et al., 2021); the design of digital platforms (Martin et al., 2017). For example, according to Gallina et al. (2024) value proposition analysis constitutes one element to help SMEs manage the sustainable and digital transformation, that is, the twin transformation. Furthermore, especially contextualized theories of platformization in the context of the circular or sharing economy highlight the increasing inclusion of sustainable development as a desired outcome (Bonina et al., 2021; de Reuver et al., 2018; Fuster Morell et al., 2020; Gebler et al., 2022; Hellemans et al., 2022).

Despite the increasing emphasis of this potential, an insufficient understanding of sustainability-oriented platformization seems to prevail in literature and in practice (Wang et al., 2024). Fuster Morell et al. (2021) found that “the current stage of the platform economy, still expanding, ... does not yet cover all the challenges defined in the SDGs” (p. 10). Previous studies on platformization in the sharing or circular economy emphasized the need to facilitate the dissemination of platformization for sustainability strategies into practice. A social media analysis by Geissinger et al. (2019) revealed that even role model sharing economy platforms show an insufficient sustainability orientation. Hence, many companies fail to adopt digital platforms (Cenamor et al., 2019).

Especially SMEs seem to miss out on opportunities to accelerate the SDGs (Akan & Ibadunni, 2021) as research and discussion on SME involvement remains scarce (Smith et al., 2022). By creating around 99% of employment globally, SMEs are the backbone of many industries (Gallina et al., 2024). To unleash the full innovation potential of SMEs, the European Union has developed a dedicated SMEs Strategy for a sustainable and digital Europe. In Germany, where the present study was conducted, the dropping number of innovative SMEs (KfW Research, 2022) urges the need to proactively overcome the missed opportunities.

A major assumption the present paper builds on is that SMEs need to adapt both a technical and social perspective when engaging

in platformization to achieve positive impact. This derives from the general understanding of digital platforms as socio-technical systems (de Reuver et al., 2018; Poniatowski et al., 2021). It is underpinned by the previously investigated positive impact of socio-technical systems for the economy, society and the biosphere (Gebler et al., 2022).

While the technical perspective seems to dominate management practice, socio-technical theory equally considers “the social system is concerned with the relationships among people and the attributes of these people such as attitudes, skills, and values” (Bostrom & Heinen, 1977, p.14). In-depth investigations of how corporate culture influences digital transformation in SMEs is lacking and was recently performed by Leso et al. (2022), who developed a conceptual model to allow for targeted use of resources. Regarding the social dynamics underpinning the notion of sustainability-oriented platformization (Hellemans et al., 2022), corporate culture emerges as a relevant concept. Poell et al. (2019) highlighted that platformization also encompasses “the reorganisation of cultural practices and imaginations around these platforms.” In the context of sustainable and digital development, behavior forms a dimension of corporate culture (Isensee et al., 2020; 2023) and was recently discussed as an important part of managing socio-technical systems for positive impact (Gebler et al., 2022). Following Isensee et al. (2020), corporate culture influences whether SMEs apply digital technologies, including digital platforms, to manage sustainable development and in turn ensure that digitalization follows sustainability principles.

These insights suggest the need for a better understanding of how SMEs could exploit the opportunities of platformization in the context of sustainable (business) development (Böttcher et al., 2023; Li et al., 2023; Nambisan et al., 2018; Wang et al., 2024), which corporate culture, for example, (digital) capabilities as the “skills deemed essential for driving digital transformation, supporting digital wealth, and sustainable development” (Clark et al., 2022, p.3), SMEs need to successfully engage in platformization (Leso et al., 2022; Mancha & Gordon, 2021), as well as of the potential synergies between SMEs' efforts for sustainable and digital development (Burinskienė & Nalivaikė, 2024; Gallina et al., 2024; Gregori & Holzmann, 2020).

The purpose of this study is to develop a holistic view on platformization in SMEs that brings the acceleration of the SDGs to the centre of attention (Böttcher et al., 2023) and overcomes the insufficient acknowledgement of the underlying corporate culture (social dynamics). Consequently, this paper develops a socio-eco-technical understanding of digital platforms in SMEs that includes sustainable development as the system goal (Dwyer, 2011) guided by the following research question: How do digital platforms (technical system) and corporate culture (social system) in SMEs influence sustainable development (ecological system)?

To address the research question, we performed a cross-case analysis of three sustainability-oriented SMEs engaging in platformization. More specifically, the uniqueness of this study lies in the comparison of three SMEs in Germany operating in very low to highly digitized sectors. Through their engagement in platformization, the

SMEs accelerate the sustainable development of the food sector (case 1), the renewable energy sector (case 2), and the construction sector (case 3). In exploring the links between beliefs (corporate culture), actions, and outcomes (Isensee et al., 2020; Melville, 2010), this study extends the socio-technical understanding of platformization toward a socio-eco-technical understanding. Subsequently, the contextualized theory of digital platforms underpins the emerging notion of sustainability-oriented platformization (Böttcher et al., 2023; Geissinger et al., 2019; Hellemans et al., 2022; Li et al., 2023) in multiple ways. First, we present empirical evidence on how sustainability-oriented SMEs engage in platformization to accelerate the SDGs (Fuster Morell et al., 2021; Wang et al., 2024). The cases add to circular economy (Berg & Wilts, 2019; Liu et al., 2022) or food waste (de Almeida Oroski & da Silva, 2022; Gama Amaral & Orsato, 2022) as timely platformization topics. Second, four newly developed platformization strategies support a categorization of multi-sided transaction platforms for sustainable development (Bonina et al., 2021) and extend platformization strategies for SMEs (Bender et al., 2021). Third, we extend the socio-technical system thinking in platformization and for sustainable development to a socio-eco-technical model (de Reuver et al., 2018; Gebler et al., 2022), thereby emphasizing the desired outcome of sustainable development as the system goal and the often overlooked sustainability-oriented corporate culture as a social factor (cf. Dwyer, 2011).

To this end, Section 2 provides the theoretical background and develops an analysis framework. Section 3 describes the cross-case analysis research design. Section 4 presents the results of the in-case and cross-case analyses, integrates them in a socio-eco-technical framework on platformization for sustainability and presents a seven-step approach for its application. In Section 5, we discuss the implications to research and practice, the limitations, and future research avenues before closing this research.

## 2 | THEORETICAL BACKGROUND

This section summarizes the initial review of the literature on digital platforms in the context of sustainable development. Based on this, relevant theoretical propositions are presented to develop an initial analysis framework.

### 2.1 | Digital platforms in the context of sustainable development

The literature provides specifications of digital platforms, such as transaction platforms (Bonina et al., 2021; Mancha & Gordon, 2021), multi-sided platforms (MSPs) (Poniatowski et al., 2021), innovation platforms (Bonina et al., 2021; Mancha & Gordon, 2021; Recker et al., 2016), or platform as a Service (PaaS) (Sultan, 2011).

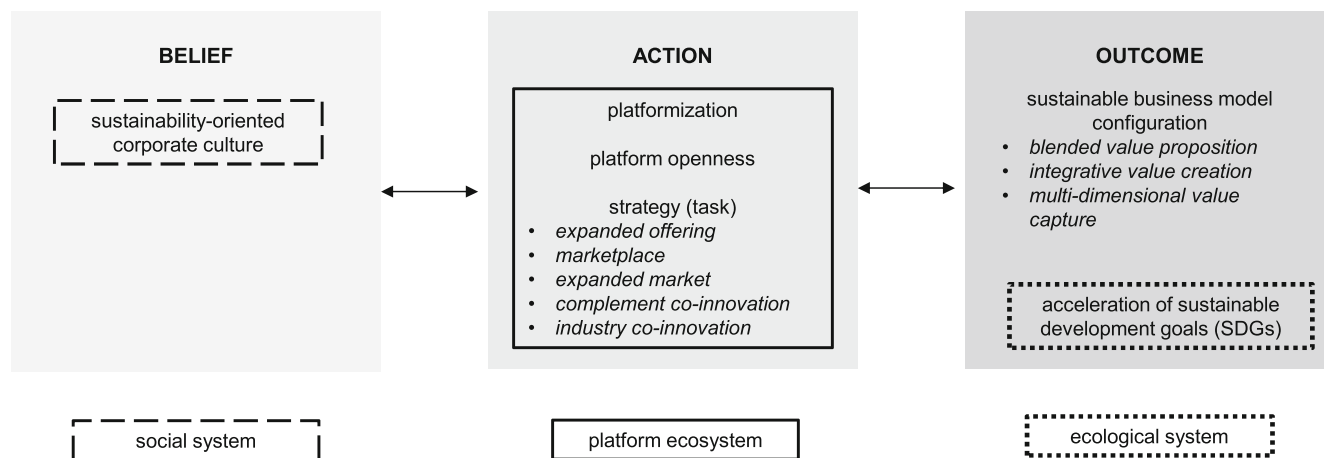
In general, digital platforms act as an intermediary for connecting different actors, consequently leading to their importance of a venue for value (co-)creation. Platform stakeholders connected through the platform could include platform owners, peer complementors, and

customers (Nambisan et al., 2018). The platform could facilitate (co-)creation of value among them, for example through open innovation (Hein et al., 2019; Nambisan et al., 2018; Warnecke et al., 2018) and value capture (Poniatowski et al., 2021; Rohn et al., 2021). Through this, digital platforms have the potential to transform business models or whole sectors (Böttcher et al., 2023). MSP can be a pathway to green entrepreneurship, as recently shown by studies in the context of sustainable supply chain finance (Reza-Gharehbagh et al., 2023), start-ups with ecological sustainable value propositions (Böttcher et al., 2023), or entrepreneurial initiatives for sustainability established on a social media platform (Gregori et al., 2023). According to Gregori et al. (2023) “connecting for sustainability refers to the promise of contributing to sustainability by being connected with the entrepreneur and the respective network of individuals and collectives” (p. 1180). In comparing 20 MSPs, Mancha and Gordon (2021) formulated strategies on the use of MSPs for business model innovations and analyzed the opportunities for value proposition, value creation, and value capture of these strategies. Given this potential, Verhoef et al. (2021) classified platformization within an existing business as the third level of digital transformation.

In the context of sustainable development, two streams are emergent, that is, (i) the contribution of platformization to sustainable development and (ii) the sustainability of platformization. Overall, empirical research has widely focused on specific sectors or applications. Various works have investigated digital platforms as networked market and exchange structures (Berg & Wilts, 2019) that could accelerate sustainable development. For example, a vast of studies focused on the promotion of the circular economy and/or the sharing economy (Constantiou et al., 2016; de Reuver et al., 2018; Geissinger et al., 2019; Martin et al., 2017; Piscicelli et al., 2018; Pouri & Hilty, 2018; Schwanholz & Leipold, 2020). Berg and Wilts (2019) envisioned “digital platforms as digital-based marketplaces where discarded products, components or recyclable fractions, etc. can be exchanged between companies in a value creation network to enable Reuse, Remanufacturing, Recycling or proper waste treatment.” (p. 4). However, they concluded that “until today full-fledged digital platforms that utilize the Digital Transformation to its full effects for circular markets ... are non-existent.” (p. 3). Kolk and Ciulli (2020) and Li et al. (2023) highlighted the potential of platform based business models to accelerate sustainable development in different sectors. Anshari et al. (2019) presented a model of a digital marketplace that can support sustainable agriculture in combination with FinTech by connecting all actors and managing the flow of transactions and distributions. On the other hand, Fuster Morell et al. (2020) provided starting points to assess the environmental sustainability of the platform architecture. They considered the recycling and circularity of materials and green energy servers.

### 2.2 | Theoretical analysis framework

Currently, the lack of holistic frameworks makes it difficult to study, plan, monitor, and report on how platformization accelerates the SDGs. For example, the BDI (2021) report describes the



**FIGURE 1** Initial analysis framework on platformization in the context of sustainable development. Based on Gregori and Holzmann, (2020); Heller, 1997; Mancha & Gordon, 2021; Melville, 2010; United Nations General Assembly, 2015.

environmental, economic, and social value of 110 B2B platforms without suggesting or adapting a particular framework or strategy. This study first develops an initial analysis framework drawing from different theoretical propositions, including socio-eco-technical theory and Belief-Action-Outcome theory and later refines this based on empirical insights.

According to socio-technical theory (Bostrom & Heinen, 1977; Dwyer, 2011), digital platforms are composed of two interrelated subsystems. The technical system comprises processes and tasks. The social system includes people and structures. This paper also focuses on the organizational processes, standards (de Reuver et al., 2018), attitudes and values (Bostrom & Heinen, 1977) manifested in corporate culture. Socio-eco-technical theory (Heller, 1997) also includes the natural environment (“ecology”). Herein, the ecological system comprises all elements that might be directly or indirectly affected by platformization (Heller, 1997), including the natural environment (environmental dimension) and humans/stakeholder groups (social dimension). In summary, this paper establishes digital platforms in SMEs as a socio-eco-technical system with three interrelated subsystems (social system, ecological system, and technical system).

In order to analyze the linkages between the subsystems and their elements in more depth while attaining a focus on platformization, the following analysis framework was developed for this study based on Belief-Action-Outcome (BAO) theory (Melville, 2010), which incorporates elements of platformization theory (Figure 1).

According to BAO theory, the contribution of IS to sustainable development relies on three pillars, which are linked through a process logic. Pillar 1 consists of the *beliefs* about the natural environment. Pillar 2 consists of *actions*, such as adoption of an IS, that, a technical system, to foster sustainability or accelerate sustainability transitions. Pillar 3 represents the *outcomes*, such as the functioning of an organization, including environmental performance or the acceleration of SDGs.

The extended BAO model by Isensee et al. (2020) shows 10 bidirectional links between the three pillars and emphasizes that corporate culture is integral to all three pillars. Following the BAO case analysis approach of Isensee et al. (2023), this study analyses the

*belief* in the overall-context of sustainability-oriented corporate culture (social system).

For analyzing the *actions* associated with platformization (technical system), the notion of platform openness (Benlian et al., 2015; Nambisan, 2017; Rohn et al., 2021) and the following five MSP strategies defined by Mancha and Gordon (2021) provide a starting point. An expanded offering (MSP 1) describes additional services or improvement of existing services. A marketplace (MSP 2) facilitates value exchange within the industry. An expanded market (MSP 3) facilitates value exchange in untargeted market segments or geographical regions. A complement co-innovation (MSP 4) encompasses innovative complements to a company's main products or services. Industry co-innovation (MSP 5) enables the creation of novel industry wide solutions.

Potential *outcomes* of platformization can be described regarding the acceleration of the SDGs (ecological ecosystem) (Table 1, United Nations General Assembly, 2015) or the three business model configurations through platformization defined by Gregori and Holzmann (2020). A blended value proposition (configuration 1) is defined as catalyzing socioenvironmental value propositions, merging environmental, social, and financial value proposition. Integrative value creation (configuration 2) is characterized by the connectivity of actors, that is, community building, co-creation, and broadening stakeholder integration. Multidimensional value capture (configuration 3) encompasses the enablement of impact complementarities, facilitation of the scalability of socioenvironmental value, or socioenvironmental value spill over, as well as awareness raising and education regarding sustainability issues.

### 3 | RESEARCH METHODOLOGY

To explore SME's platformization from a socio-eco-technical perspective, a cross-case analysis of three sustainability-oriented German companies engaging in platformization (Figure 2) was performed. More specifically, the aim of this research was to explore and describe

**TABLE 1** The sustainable development goals (SDGs).

SDG	Short form <sup>1</sup>	Goal <sup>2</sup>
SDG1	No poverty	End poverty in all its forms everywhere
SDG2	Zero hunger	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
SDG3	Good health and well-being	Ensure healthy lives and promote well-being for all at all ages
SDG4	Quality education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
SDG5	Gender equality	Achieve gender equality and empower all women and girls
SDG6	Clean water and sanitation	Ensure availability and sustainable management of water and sanitation for all
SDG7	Affordable and clean energy	Ensure access to affordable, reliable, sustainable, and modern energy for all
SDG8	Decent work and economic growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
SDG9	Industry, innovation, and infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
SDG10	Reduced inequalities	Reduce inequality within and among countries
SDG11	Sustainable cities and communities	Make cities and human settlements inclusive, safe, resilient, and sustainable
SDG12	Responsible consumption and production	Ensure sustainable consumption and production patterns
SDG13	Climate action	Take urgent action to combat climate change and its impacts
SDG14	Life below water	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development
SDG15	Life on land	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation, and halt biodiversity loss
SDG16	Peace, justice, and strong institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels
SDG17	Partnerships for the goals	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

<sup>1</sup>Adapted from <https://sdgs.un.org/goals>.<sup>2</sup>Adapted from United Nations General Assembly, 2015, p. 14.

the underlying processes, the platformization approaches, and their outcomes along three cases. According to Yin (2012), case study research is suitable for exploratory and descriptive research. Furthermore, as described in Section 2.2, the cross-case analysis started from theoretical propositions. This desired role of theory is what sets case study research aside from other qualitative methodologies (Yin, 2012). Following the DIVE method (describe, integrate, visualize, expand) facilitated “balancing rigor and nuance, objectivity and subjectivity, theoretical and empirical” (Bush-Mecenas & Marsh, 2018, p.38) in this case study research.

### 3.1 | Case selection

As described below, the case selection addresses gaps as well as emerging topics and increasingly acknowledged sectors in platformization research.

Overall, the launch of MSP by SMEs is under-researched compared to digital platform multinationals (Kolk & Ciulli, 2020) from the accommodation or mobility sector (Schwanholz & Leipold, 2020), such as Airbnb (Constantiou et al., 2016; Rohn et al., 2021). In contrast to an own launch, it is currently better understood how SMEs can leverage potential by using existing MSP, for example in the context of supply chain planning, which brings crowdfunding platforms to the center of attention (Kukurba et al., 2021; Reza-Gharehbagh et al., 2021).

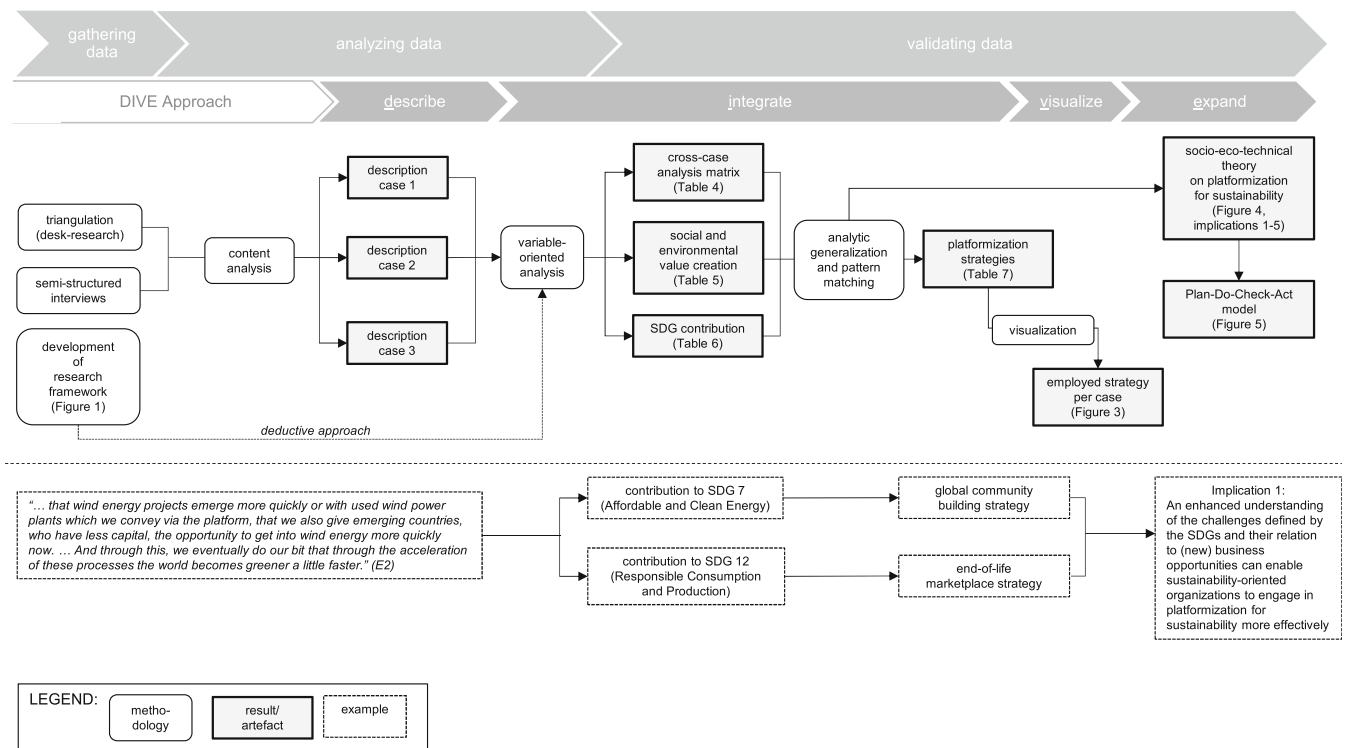
This paper analyzes the platformization of three German SMEs operating in the wholesale sector (case 1), the information and communications (ICT) sector (case 2), and the construction sector (case 3) (Table 2). The status of first movers in platformization within these sectors allowed for an in-depth analyses and thick narrative description. For example, case 2 is presented as a good practice on a competency platform with a focus on sustainable digitalization as well as a report of the Federation of German Industries on German B2B platforms with a focus on the integration of digitalization and sustainability (BDI, 2021).

To the best of our knowledge, no socio-technical analysis of business models with different levels of digitization has been performed previously. Focusing on the connection of actors, case 3 provides insights into platformization in construction (Kovacic et al., 2020) (non-digital business model). As a wholesaler for organic food, case 1 represents a food waste reduction platform (de Almeida Oroski & da Silva, 2022) with the potential of minimizing transaction costs via aggregation, trust, facilitation and matching (Gama Amaral & Orsato, 2022) (medium level of digitization). As a marketplace for wind power plants, case 2 is associated with platform-based business model innovations in the renewable energy sector (Bartczak, 2021) (fully digital business model).

### 3.2 | Data gathering, analyses, and validation

*Describe:* Case descriptions are based on information gathered in semi-structured telephone interviews (Cachia & Millward, 2011) with (owner)-managers (Table 3) and through triangulation





**FIGURE 2** Overview on employed methods and results.

**TABLE 2** Case overview.

Case	Company (anonymized)	Staff	Foundation	Sector (associated sector)	Platform	Evidence on sustainability-orientation
1	Organic Wholesale Ltd.	8	2016	Wholesale (food, agriculture)	MSP, transaction	Food waste reduction and higher share of organic food as purpose
2	Renewables Marketplace Ltd.	3	2011	ICT (renewable energy)	MSP, transaction	Promotion of renewable energy globally
3	Handicraft Ltd.	35	1977	Construction	MSP, PaaS	Use of natural mineral material only, installed first recyclable insulation system

Case	Participant id	Function	Gender	Interview duration
1	E1	Finance & HR manager	F	45 min
2	E2	Owner-manager	M	33 min
3	E3	Owner-manager	M	45 min

**TABLE 3** Interview overview.

(Section 4.1). The interviews were embedded in the context of a broader research investigating the relationship between sustainability, digitalization, and corporate culture in SMEs (Isensee et al., 2023). All interviews were recorded, and verbatim transcripts as well as case summary sheets to memorize thoughts within the data collection and analysis process prepared. Publicly available information, such as press releases, websites, and brochures were used for triangulation.

**Integrate:** The variable-oriented analyses (Bruscia, 2005) relied on content analysis to map the textual evidence against the variables of the analysis framework (deductive approach). The developed cross-case analysis matrix represents each case in one line and the variables

of the analysis framework as columns (Section 4.2). Further results encompass a summary table on social and environmental value creation, and a summary table on the SDG contribution for each SDG. To synthesize the findings on the SDG contribution, we derived superordinate platformization strategies.

**Visualize:** A figure depicts the digital maturity level of the business model, the origin and target sector, and the derived strategies for each case (Section 4.3).

**Expand:** We expanded the variable-oriented analyses in developing a socio-eco-technical framework on platformization for sustainability (Section 4.4). Furthermore, organizing the central propositions

as a Plan-Do-Check-Act cycle lead to a seven-step approach toward platformization for sustainability (Section 4.5).

## 4 | RESULTS AND DISCUSSION

The results exemplarily reveal how platformization in SMEs from different industry sectors can accelerate the SDGs and the role of organizational culture and newly identified platformization strategies in this process.

### 4.1 | Overview of the cases

#### 4.1.1 | Case 1: Real-time sales management for non-standardized organic food

The wholesaler for non-standardized organic fruits and vegetables (b-products) aims to professionalize the sales activities through launching a digital marketplace connecting food producers and gastronomy. This was accelerated when the company received funding from a governmental institution, which supports projects that accelerate environmental sustainability. Since then, the platform is constantly further developed and therefore has the potential to lead to business model extensions: Producers of organic (sustainable) agricultural products should be enabled to present themselves and directly offer their products to business customers, that is, gastronomy and industrial kitchens, which previously might not have processed organic food due to higher prices (integrative value creation), in real-time (SDG2, Zero Hunger). On the one hand, this creates value in a sector where direct marketing is rather uncommon. On the other hand, this also reveals challenges entrepreneurs might face in connecting actors via platformization. E1 also revealed that platformization might be hampered if relevant platform stakeholders belong to sectors with low levels of digital maturity or are generally reluctant against digitization. An example of this is the reluctance toward e-commerce in German agriculture (Schulze Schwering et al., 2023).

*“We offer producers [of organic food] a platform where they can present themselves. Initially, there was the idea that ... we only become this intermediary platform. ... The reality has become a little bit difficult, and we had to realize that ... it is difficult to trim them to these digitization processes and that many actually just don't want it.” (E1).*

#### 4.1.2 | Case 2: Community building and platform openness in the renewable energy sector

As a spin-off from a marketing company, the Renewables Marketplace Ltd. presents an example of a platform-based business model occupying a market-niche through the platformization for sustainability approach (expanded offering). Following its vision to achieve the energy transition (SDG7, affordable and clean energy), the B2B transaction platform facilitates the full purchasing process for used wind

power plants and community building among global players of the wind energy sector from 190 countries (integrative value creation). Different technologies are in use, including matching-technologies, applications for communication and transaction, and a digital check of wind power plants based on a cloud-based location intelligence solution. The latter is realized through an application of a Start-Up (a business partner). This example of platform openness extends the value proposition (expanded offering) (SDG 17, partnerships for the goals). The owner-manager relied on his experience in building digital marketplaces gained in previous occupation and raises awareness about the failure of the German government to present a sustainable end-of-life alternative for dismantled, yet functional wind power plants (multi-dimensional value capture). He plans to adopt artificial intelligence in the future.

*“... that wind energy projects emerge more quickly or with used wind power plants which we convey via the platform, that we also give emerging countries, who have less capital, the opportunity to get into wind energy more quickly now. ... And through this, we eventually do our bit that through the acceleration of these processes the world becomes greener a little faster.” (E2).*

#### 4.1.3 | Case 3: Transparency and co-innovation for sustainability in construction

While the Handicraft Ltd. is a traditional crafts business, the strong belief that *“others will follow [their] example”* (E3) mirrors the company's vision to accelerate the digital and sustainable development of the construction sector through platformization (SDG8, decent work and economic growth). The owner-manager envisioned a MSP to ensure that all stakeholders *“immediately ... exactly know: ‘What is happening right now?’”* (E3) through real-time information, including push notifications (expanded offering). In addition to maximizing the client experience (e.g., reduced delays), the platform has the potential to become an industry co-innovation platform. Following the objectives of improved transparency, communication, and thus better planning, the envisioned platform could catalyze the use of sustainable building materials and reduce transaction costs (regarding financial and time resources), improve the resilience of infrastructures, and thus facilitate co-innovation for sustainability between diverse platform stakeholders (SDG 9: industry, innovation, and infrastructure). For its realization, the company participates in a multi-actor project.

*“When we had this project ... with the competence center for medium-sized enterprises ... I was asked to present a vision, what I think how the digitization could transform the craft sector. ... And then I have made my vision known and [the competence center for digitization in SMEs was] actually a little surprised. ... And as a result of this we have now applied for a research project together with the university A and the company B and the company C, for an interactive platform development ... interaction craft-client-supplier.” (E3).*



TABLE 4 Cross-case analysis matrix.

	Belief Corporate culture	Action					Outcome				
		Expanded offering	Marketplace	Expanded market	Complement co- innovation	Industry co- innovation	Platform openness	Blended value proposition	Integrative value creation	Multi-dimensional value capture	SDG contribution
1	x	x	x					x	x	x	2, 8, 12, 13
2	x	x	x				x	x	x	x	7, 9, 12, 13, 17
3	x				x	x		x	x	x	8, 9, 12, 13, 17

Note: SDG2 (zero hunger); SDG7 (affordable and clean energy); SDG8 (decent work and economic growth); SDG9 (industry, innovation, and infrastructure); SDG12 (responsible consumption, and production); SDG13 (climate action); SDG17 (partnerships for the goals).

## 4.2 | Cross-case analysis results

To present the cross-case analysis results along the three BAO pillars, we use summary tables (cf. Tables 4–6) and detailed descriptions supported by quotes. A synthesis of the SDG contribution leads to the identification of four superordinate platformization strategies.

**Belief:** In all cases, we found evidence highlighting the central role of sustainability-oriented corporate culture. The companies created visible artifacts (Schein, 2010), such as vision statements, and defined values to manifest the sustainability orientation. These artifacts raise awareness about sustainability issues and provide guidance and control (E1) in decision-making processes, as highlighted by Wang et al. (2024) regarding environmental policies. Throughout the cases, we observed the development of a joint purpose on improving sustainable development, for example by challenging the status quo of specific sectors. Participative Bottom-Up approaches, such as Kaizen-oriented suggestion systems (Recht & Wilderom, 1998) with a bimonthly information exchange, can lead to company members seeing “a meaningfulness ... in [their] doing” (E1). Overall, it appears that the investigated SMEs accepted the acceleration of sustainable development as the purpose of their business and are keen on being first movers in platformization in their sector. However, this should not give the impression that these SMEs solemnly hold positive beliefs about the necessary changes and challenges ahead. E3 shared the belief that “each change hurts” (E3). Yet, there is a strong will to address challenges associated with sustainable development through “always whip[ping] up new measures” (E3), regularly screening the company, and a proactive search for external expertise. In case 2, environmental disasters (Fukushima), a personal wish to provide a good future for the own children, and governmental failures motivated platformization.

**Action:** While bigger companies often acquire existing platforms (Mancha & Gordon, 2021), the analyzed SMEs launched a platform themselves. In all cases, the MSP represents a B2B model focusing on specific economic sectors. Throughout our cases, four of the five strategies of MSPs (expanded offering, marketplace, complement innovation, and industry co-innovation: Mancha & Gordon, 2021) were in use. The companies adapted one to two of these strategies. Additionally, to achieve an expanded offering, we observed strategies such as an integration of applications of business partners (platform openness) (case 2) or the provision of real time information, for example, on analog processes (case 3) or product availability (case 1).

**Outcome:** The results suggest that platformization can accelerate single SDGs through a blended value proposition, an integrative value creation, and/or multi-dimensional value capture (Table 5). We identified positive contributions to SDG 2, 7, 8, 9, 12, 13, and 17 (United Nations General Assembly, 2015) (Table 6). Thereby, external company or platform stakeholders (e.g., clients) appear as beneficiaries of the value creation (Gallina et al., 2024). For example, in case 3, the aim is that “the client would have its costs at hand at all times” (E3) and has a good overview on the progress of the whole construction process. The platform openness in case 2 marks the “third generation of platforms” (E2) that achieves a win-win for the platform and the

**TABLE 5** Summary of social and environmental value creation and capture.

Case	Blended value proposition	Integrative value creation	Multi-dimensional value capture
1	Each booking on the platform catalyzes socioenvironmental propositions through reducing food waste; increasing the share of organic food/sustainable agriculture; contributing to healthier nutrition.	Mediation between providers of sustainable products (farmers) and customers (predominantly B2B)	The platform facilitates the scalability of socioenvironmental value through reduced transaction costs for organic food (financial value). the entrepreneur raises awareness on food waste.
2	Each transaction on the platform enhances the reuse of outdated, yet functional wind parks; has the potential to increase the share of renewable energy in developing countries	Mediation between wind farm operators and producers (B2B). The digital platform enables global community building in the renewable energy sector	The platform facilitates the scalability of socioenvironmental value through reduced transaction costs in wind energy projects (financial value) and the entrepreneur raises awareness on the waste problem of outranged wind parks.
3	The envisioned platform might catalyze the use of sustainable building materials and reduce transaction costs (regarding financial and time resources)	The envisioned platform might facilitate community building, co-creation (for sustainability) and enhanced stakeholder integration among craftspeople, their suppliers, and their customers	The entrepreneur raises awareness on sustainable alternatives for building materials, such as concrete, and potentials for recyclability

Note: Compare Gregori & Holzmann, 2020: blended value proposition includes catalyzing socioenvironmental value propositions, merging environmental, social, and financial value proposition; integrative value creation includes connectivity of actors, that is, community building, co-creation, and broadening stakeholder integration; multidimensional value capture includes enabling impact complementarities, facilitating scalability of socioenvironmental value, or socioenvironmental value spillover.

**TABLE 6** Exemplary SDG contribution of the platformization and derived strategies.

Case	Platform contribution	SDG	Derived strategy			
			sustainable product accelerator	end-of-life marketplace	global community building	co-innovation for sustainability
1	1. Increased share of nonstandardized, otherwise wasted organic food 2. Facilitated timely access to market information (e.g., food reserves)	SDG2 (zero hunger)	x			
2	1. Promotion of the reuse of outdated, yet functional wind parks 2. Increased share of renewable energy in developing countries through enhanced international cooperation.	SDG7 (affordable and clean energy)		x		
1, 2	1. Promotion of economic growth of sustainable agricultural products (case 1)/renewable energy (case 2) through reduced transaction costs	SDG8 (decent work and economic growth)	x			
3	2. Promotion of environmentally sustainable and digital development of the craft sector				(x)	(x)
2	1. promotion of sustainable industrialization through enabling the energy transition	SDG9 (industry, innovation, and infrastructure)				
3	2. Promotion of the retrofit of the construction industry to make it sustainable (increased resource-use efficiency and greater adoption of clean and environmentally sound technologies/industrial processes)		x			(x)
1 1–3	1. Promotion of sustainable consumption (case 1) 2. Reduction and prevention of waste generation 3. Promotion of sustainable production	SDG12 (responsible consumption and production)	x	x		
1 2 3	1. Prevention of greenhouse gases of rotting food 2. Facilitation of climate change mitigation through promotion of nonfossil electricity 3. Catalyzation of co-innovation/use of construction materials with lower carbon footprints.	SDG13 (climate action)				(x)
2 3	1. Promotion of global dissemination of wind energy 2. Stakeholder exchange platform (craftsmen, suppliers, and clients)	SDG17 (partnerships for the goals)			x	(x)

Note: (x) = envisioned/anticipated, but not at the time of research.

business partner: The application provided by the business partner “makes the platform more attractive ... [and] enriches the platform though its application” (E2) (expanded offering), whereas the business partner become well-known.

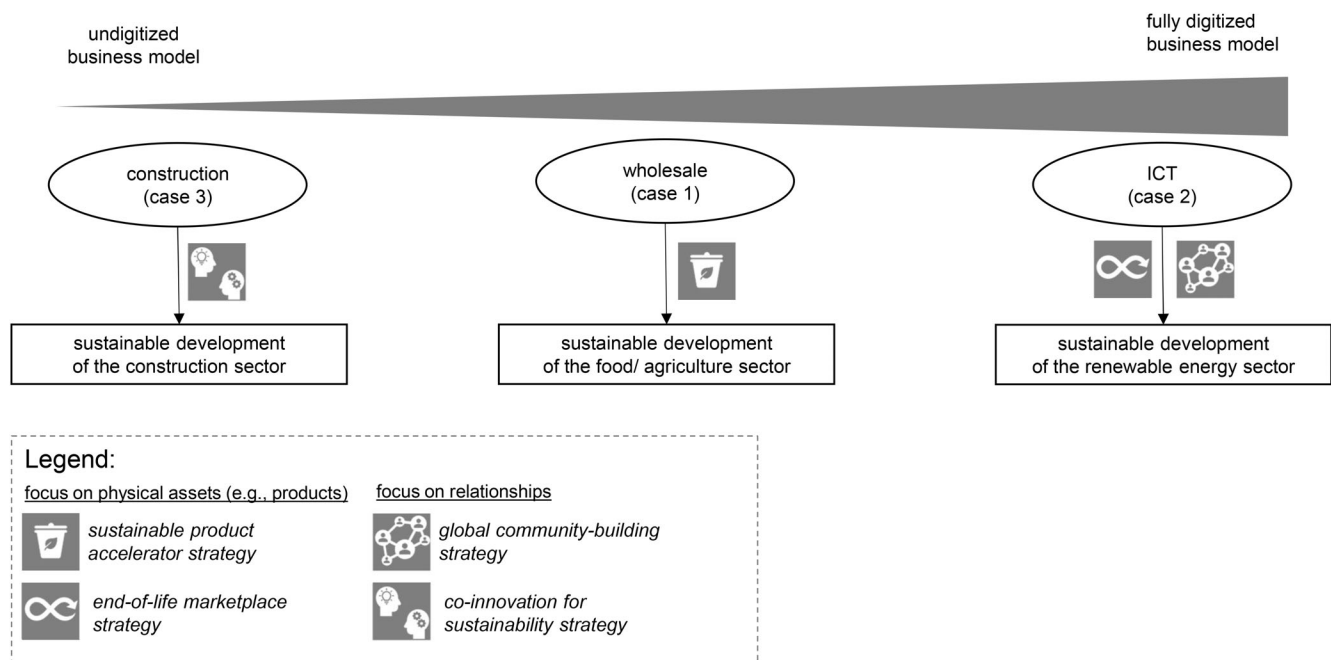
**TABLE 7** Platformization strategies to accelerate sustainable development.

Strategy	Description
Sustainable product accelerator	The digital platform provides a digital marketplace that facilitates transactions between producers of sustainable products and costumers and thus promotes sustainable production and consumption.
End-of-life marketplace	End-of-life marketplaces facilitate the reuse of products that have reached their end of life in specific sectors or regions in other/developing countries or sectors, which at the same time promotes the circular economy and increases the affordability of sustainable transitions for countries with lower financial budgets, scientific, and technological capacity.
Global community building	The digital platform connects actors within and between sectors globally and increases their cooperation for sustainable development.
Co-innovation for sustainability	The digital platform provides a digital multi-stakeholder ecosystem, which mirrors and supports analog processes to increase transparency and facilitate co-innovation processes for sustainability transitions.

### 4.3 | Platformization for sustainability strategies

The five MSP strategies insufficiently represent the identified contribution to the SDGs. In other words, a contextualized theory of platformization should include refined platformization strategies ultimately linked with the system goal of sustainable development. Hence, after specifying the SDG contributions of the platformization (Table 6), we derived four superordinate platformization strategies (Table 7).

Figure 3 assigns the newly defined strategies to the case they originated from. Mapping the evidence against the platformization definition by Poell et al. (2019) provides potential nuances for the economic processes (case 1 + 2) and governmental frameworks (case 3 + 4) of digital platforms in the SME sector. In case 1, the platform enables producers of organic food to present themselves (which is rather uncommon in this sector) and offer b-product organic food more cheaply, which supports sustainable agriculture (Anshari et al., 2019) and prevents food loss (SDG 12) (de Almeida Oroski & da Silva, 2022). This informs the *sustainable product accelerator strategy*. In case 2, the platform connects actors of the renewable energy sector globally to enhance the reuse of wind power plants that have reached their end of life in developed countries (SDG 7). This informs the *end-of-life marketplace strategy* and the *global community building strategy*. Drawing from the platform envisioned in case 3, the *co-innovation for sustainability strategy* suggests that a connection of platform stakeholders would create an ecosystem that could achieve integrative value creation (Gregori & Holzmann, 2020) or even industry co-innovation (Li et al., 2023; Mancha & Gordon, 2021) regarding the



**FIGURE 3** Visualization of the cases and derived strategies.

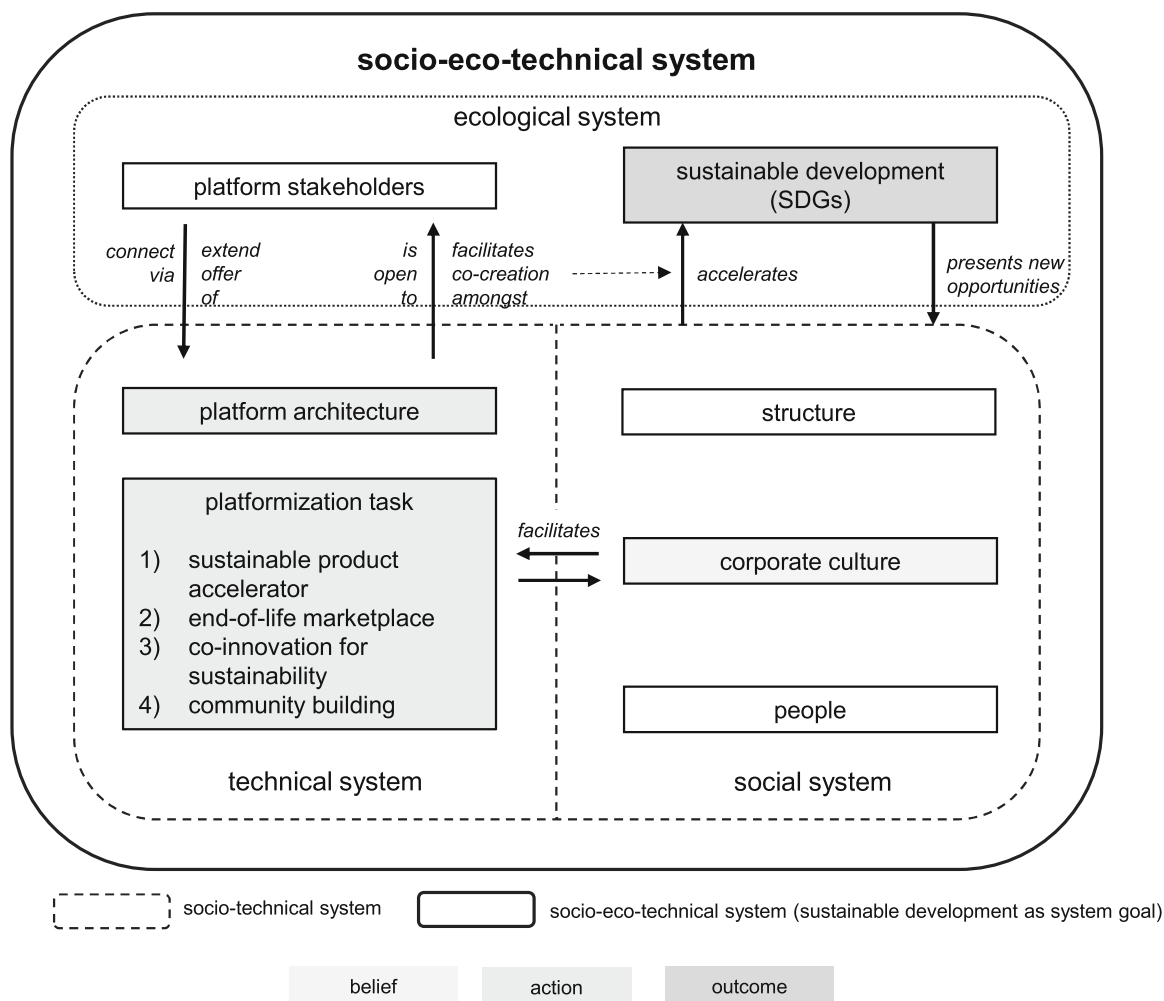
sustainable and digital development of specific sectors. This strategy is closely linked with the industry co-innovation strategy by Mancha and Gordon (2021) and the potential for co-creation or sustainable supply chain finance offered through crowdfunding platforms (Kukurba et al., 2021; Reza-Gharehbagh et al., 2021, 2023). Beyond that, it emphasizes the need for co-creation in sustainable development, which requires collective global efforts.

As a result of a deeper exploration of how the strategies accelerate the SDGs, we observed two different foci. The *sustainable product accelerator strategy* and the *end-of-life marketplace strategy* are centred around physical assets (e.g., products or industrial facilities). Accordingly, they would always address the challenges defined in SDG12 (responsible production and consumption). The *global community building strategy* and the *co-innovation for sustainability* are centred around stakeholder relationships. Accordingly, they would always address the challenges defined in SDG17 (partnerships for the goals).

#### 4.4 | Socio-eco-technical framework on platformization for sustainability in SMEs

Following the general understanding of digital platforms as socio-technical systems, integrating the findings in a socio-eco-technical framework presents a valuable contribution to the notion of sustainability-oriented platformization.

The model in Figure 4 partly adapts previous graphical representations (Bostrom & Heinen, 1977). While the research question was one-directed, the integration of extended BAO theory (Isensee et al., 2020; Melville, 2010) with socio-eco-technical theory motivated us to depict bidirectional links between platformization (*action*) as a socio-technical system and the ecological ecosystem (*outcome*), as well as between the elements of distinct subsystems. Ideally, this should motivate and help SMEs from all sectors engage in platformization for sustainability.



**FIGURE 4** Socio-eco-technical framework on platformization for sustainability in SMEs. Own illustration based on Bostrom & Heinen, 1977.

## 4.5 | Ecological system and system goal

We newly introduced two elements that are directly or indirectly affected by platformization (Heller, 1997) and also effect platformization, that is, sustainable development (SDGs) and platform stakeholders. Similar to the framing of COVID-19 as a crisis driver of platformization (Ratten, 2022), the SDGs can be viewed as environmental, social, and economic crisis drivers (Dyllick & Hockerts, 2002). More specifically, the SDGs can increase awareness of sustainability issues and present two sides of the same coin. On the one hand, the empirical evidence demonstrated that SMEs could accelerate the SDGs through platformization. On the other hand, the sustainability issues present new opportunities for platformization, such as offering a service for improving energy efficiency (SDG 7) or waste reduction (SDG 12) (Fuster Morell et al., 2021). Ideally, this problem-opportunity belief would spread among SMEs to help them better deal with the necessary changes in the context of sustainable development. In case 1 and 2, the positive contribution to sustainable development was in fact guiding the platformization. This presents empirical evidence that the SDGs can offer a governmental framework of digital platforms (Poell et al., 2019). In case 3, the main motivation was not linked with accelerating the SDGs. Instead, the owner-manager wants to overcome the low level of digitization in the construction sector and increase information availability among all stakeholders. Still, enhancing environmental sustainability is a general concern acknowledged by the owner-manager.

**Proposition 1.** *As a system goal, the SDGs present new platformization opportunities for SMEs.*

We enhanced the understanding of the acceleration of the SDGs through focusing on environmental and social value creation and capture. In case 1 and 2, the employment of the MSP (*action*) resulted in blended value proposition, integrative value creation and multi-dimensional value capture (*outcome*) (Gregori & Holzmann, 2020). This extends the economic perspective of how the analyzed MSPs have the potential to remove barriers and lower search costs (Berg & Wilts, 2019; Rohn et al., 2021) as intermediaries for trade (Nambisan et al., 2018). Hence, this sheds light on the economic processes covered through digital platforms (Poell et al., 2019).

**Proposition 2.** *The positive contribution of SME's platformization to the SDGs unfolds through blended value proposition, integrative value creation, and multi-dimensional value capture regarding environmental and social value.*

Stakeholders play a dominant role in sustainability-oriented platformization (Bonina et al., 2021) as their interactions can accelerate sustainable development (Gregori et al., 2023; Hellemans et al., 2022). The insights on stakeholder engagement add very clear examples of what kind of governmental frameworks digital platforms can offer (Poell et al., 2019). The notion of platform openness adapted in case 2 (new platform generation that is open to include other applications)

emphasizes the connection of different actors (platform stakeholders), such as clients or other companies. Thereby, it points toward open innovation and co-creation (Nambisan et al., 2018; Qureshi et al., 2021; Warnecke et al., 2018). For example, the proposed end-of-life marketplace strategy expresses the opportunity to connect companies from different sectors or regions to ensure a reuse of products that have reached their end of life in sector or region A in sector or regions B. Neligan et al. (2022) additionally point toward the fostering of internal cycle management, while Liu et al. (2022) present further examples how information platforms and connection platforms can foster industrial symbiosis. This emphasizes the need for a more nuanced view on the role of stakeholder relations in value creation. Cenamor et al. (2019) showed that network capability, including partner knowledge and a mutual support between business partners, mediates the effect of platformization capability on entrepreneurial performance in SMEs. Among our cases, we observed different ways of value creation regarding stakeholders (Hein et al., 2019). First, opening the platform to products or services of business partners, SMEs could enhance the value proposition of the platform, which would strengthen the business itself in line with the digital sustainable platform business model archetype by Böttcher et al. (2023). Second, SMEs could directly create value for stakeholders, for example through increasing the visibility of Start-Ups (case 2) or providing the perceived platformization value of reducing transaction costs for clients (Gama Amaral & Orsato, 2022), or through offering business partners a platform to offer their services. Third, in creating a digital ecosystem where platform stakeholders can connect with each other, SMEs could facilitate the co-creation of environmental and social value. This forms an indirect contribution of platformization to the SDGs. Following Xin et al. (2022), SMEs could even enhance green innovation if a B2B platform would allow for “coopetition, defined as the simultaneous presence of cooperative and competitive interactions” (p.3).

**Proposition 3.** *Platform stakeholders can be co-creators or recipients of value. Thus, there are different ways of value creation (enhanced value proposition of the platform through cooperation, direct value creation for stakeholders, value co-creation between stakeholders).*

## 4.6 | Technical system

The technical system is comprised of the platform architecture and the platformization task. As sustainable development forms the system goal (Dwyer, 2011), the newly identified platformization for sustainability strategies (*action*) offer a contextualized refinement of previous platformization strategies. Hence, they specify the platformization task. For example, the B2B marketplaces in case 1 and 2 fulfilled the task of waste reduction.

Based on the focus of the identified strategies, two superior categories could be distinguished. The strategies focusing on physical assets (sustainable product accelerator, end-of-life marketplace), such as

products or industrial facilities, would always address the challenges defined in SDG12 (responsible production and consumption). The strategies focused on stakeholder relationships (*co-innovation for sustainability, community building*) would always address the challenges defined in SDG17 (partnerships for the goals).

Platformization approaches might draw from different strategies at the same time. Hence, a conscious combination of strategies from the two categories seems advisable to amplify the SDG contribution. For example, an integrative view on the *end-of-life marketplace strategy* and the *co-innovation for sustainability strategy* would suggest an extension of the work of Berg and Wilts (2019) emphasizing the potential of digital platforms for the circular economy. That is, beyond the promotion of the circular economy, digital platforms should be designed as digital marketplaces where transaction process would also accelerate co-creation for sustainability.

**Proposition 4.** *SMEs can adapt four platformization strategies to accelerate sustainable development (sustainable product accelerator, end-of-life marketplace, co-innovation for sustainability, global community building).*

#### 4.7 | Social system

The proposed framework for the first time acknowledges corporate culture (*beliefs*) as a central element of the social system besides structure and people (Bostrom & Heinen, 1977). This underscores corporate culture as a key success factor of digital platform-based business models in line with Rohn et al. (2021) and Poell et al. (2019). More specifically, sustainability-oriented corporate culture appears as a relevant internal factor (Poniatowski et al., 2021) and capability (Mancha & Gordon, 2021) of platformization for sustainability in SMEs. Throughout the cases, a sustainability orientation, the development of a sustainability-related joint purpose, the creation of artifacts (e.g., vision statements) manifesting the sustainability-orientation (Schein, 2010), beliefs on the complementarity of sustainability and digitalization, and participative Bottom-Up approaches *built* a foundation for the recognition of platformization as a promising solution to accelerate sustainable development. It can be concluded that a sustainability-oriented corporate culture can help understand the role of social attributes for platformization in the context of sustainable development on a collective organizational level. Furthermore, in support of Isensee et al. (2023, 2020), we argue that a sustainability orientation of platformization determined by the sustainability-oriented corporate culture is linked with the strategic orientation beyond the platformization context. That is, following the bidirectional link between platformization (*action*) and *beliefs* postulated by BAO theory, we expect that when SMEs engage in platformization for sustainability, it is likely that the sustainability orientation of the whole company will increase. The reason for this is that the deep changes and reflections associated with the platformization will affect the business model, the business functions, and consequently the understanding of the responsibility of the

company members to act in a way that would accelerate sustainable development.

**Proposition 5.** *As an element of the social system, sustainability-oriented corporate culture facilitates platformization for sustainability.*

#### 4.8 | BAO relations and implications

Following BAO logic (Isensee et al., 2020; Melville, 2010), it appears that corporate culture (*beliefs*) represents the institutionalization of sustainable development as the foundation of the company's *actions*. This includes the awareness and targeted use of platformization for achieving this goal. The *actions*, including the employment of platformization for sustainability strategies and stakeholder involvement, would then contribute to the SDGs (*outcome*) in different ways. In turn, the achievements can also be expected to influence the corporate culture, that is, the sustainability-orientation of the corporate culture and the platformization strategy.

Table 8 presents relevant implications for theory and practice to be drawn from the proposed relations.

#### 4.9 | Seven-step-approach for continuous improvement

To facilitate SME's adaptation of the propositions (P), Figure 5 proposes a seven-step approach, which is described in the following with sector-specific guidance.

**Planning:** SMEs should identify the platformization opportunities provided by the SDGs (step 1, P1) (Fuster Morell et al., 2021; Qureshi et al., 2021). Following the definition of platformization by Poell et al. (2019), the ambition of the findings would be to establish the SDGs as a governmental framework of digital platforms. This extends previous research foci, for example highlighting that a policy framework focusing on social welfare instead of economic influence should guide the government of a MSP (Reza-Gharehbagh et al., 2023). Food SMEs can find guidance and inspiration in the handbook for SDG-aligned food companies by the Columbia Center on Sustainable Investment. The IT sector should explore both opportunities of using technical capabilities to revisit the own business model and to find partners in a sector of interest. Construction SMEs can find initial inspiration and benchmarking opportunities in the EU-funded project SUSTAINBUILD. Using such inspiration, SMEs should develop a platformization strategy in refining or even combining the suggested platformization strategies (step 2, P5) and identify relevant platform stakeholders and their roles as co-creators or recipients of value (Gallina et al., 2024) following the notion of platform openness (Benlian et al., 2015; Nambisan, 2017; Rohn et al., 2021), (step 3, P3-4).

**Capability building and culture development:** In support of previous works considering the reorganization of corporate culture as an element of platformization (Poell et al., 2019), we emphasize that after completion of the planning phase, SMEs should build the capability





for platformization, especially through developing a sustainability-oriented corporate culture (step 4, P5). For example, SMEs in the food sector should strengthen their awareness about more cooperative

**TABLE 8** Summary of propositions (P) and implications.

Proposition	Implications
<b>Ecological system (outcome)</b>	
P1: SDG opportunity	<ol style="list-style-type: none"> <li>1. SMEs should identify relevant SDGs for their business model.</li> <li>2. Policy makers should provide support programs to familiarize SMEs with the SDGs.</li> </ol>
P2: Value creation	<ol style="list-style-type: none"> <li>1. Policy makers should develop incentives for platformization in favor of the SDGs.</li> <li>2. Longitudinal studies are needed to validate the influence of platformization on single SDGs.</li> </ol>
P3: Platform stakeholders	<ol style="list-style-type: none"> <li>1. SMEs should identify platform stakeholders and define their potential roles as value co-creators or recipients of value.</li> </ol>
<b>Technical system (action)</b>	
P4: Platformization for sustainability strategies	<ol style="list-style-type: none"> <li>1. SMEs should identify relevant strategies for their business model and continuously improve their platformization approach, thereby ideally combining strategies focused on physical assets with one focusing on relationship building.</li> <li>2. IS design researchers and IS professionals should provide support programs for strategy building.</li> <li>3. Future research should assess the realization of the strategies in different SME sectors.</li> </ol>
<b>Social system (beliefs)</b>	
P5: Corporate culture	<ol style="list-style-type: none"> <li>1. SMEs should develop a sustainability-oriented corporate culture that acknowledges platformization as a socio-eco-technical issue (instead of just a technical issue).</li> </ol>

Abbreviations: IS, information systems; SDG, sustainable development goals; SMEs, small and medium sized enterprises.

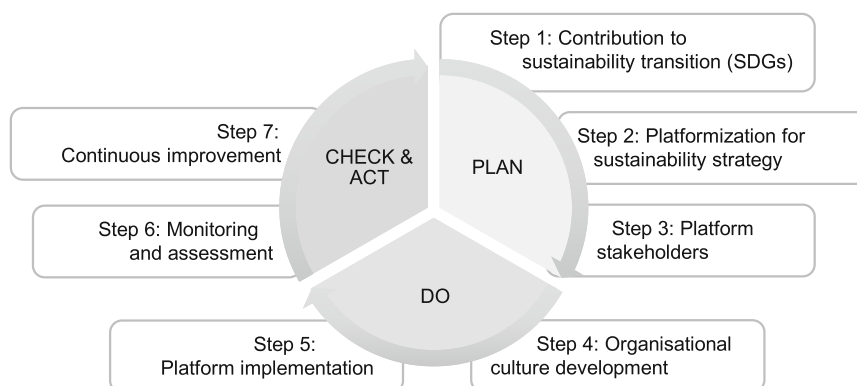
business models centered around shared value disrupting the sector (Berti et al., 2017).

**Launch:** After successful planning and capability building, the platform can be launched (step 5). Through this, SMEs will actually (newly) introduce the economic processes covered by the chosen platformization strategy (Poell et al., 2019) to the targeted sector. The platformization success, for example the achieved business model configurations, the SDG contribution, the environmental sustainability of the technologies associated with the platform (Fuster Morell et al., 2020), or the status of the sustainability-oriented corporate culture, should be constantly monitored and assessed (step 6).

**Continuous improvement:** Cyclically following all steps would ensure a continuous improvement of the platformization for sustainability approach (step 7). In fact, the results provide starting points for identifying gaps and achieving continuous improvements for positively contributing to sustainable development of the ecological system. The continuous improvement approach requires a constant refinement of the platformization strategy. For example, in accordance with the *community building* and the *sustainability co-innovation strategy*, the Organic Wholesale Ltd. (case 1) could add a social network function (Anshari et al., 2019) motivating the sharing of positive experiences with the b-products and fostering co-innovation (Recker et al., 2016) for the reduction of food waste. While the Renewables Marketplace Ltd. (case 2) currently relies on an industry-based seek/offer-basis (Berg & Wilts, 2019), the *end-of-life marketplace strategy* suggests an extension toward a marketplace for the circular economy (Berg & Wilts, 2019) fostering between-sector transactions that would ensure that goals and principles of the circular economy will reach the private sector faster (Schwanholz & Leipold, 2020). Similarly, relying on real-time information, the Handicraft Ltd. (case 3) could promote the circularity of construction materials, for example in automatically offering dismantled, reusable materials on the platform. Furthermore, the *sustainable product accelerator strategy* suggests a connection of producers of sustainable construction materials with construction firms.

## 5 | CONCLUSION

To raise awareness on a promising trajectory on how SMEs could effectively manage the complex relationship between sustainability



**FIGURE 5** Seven step approach toward platformization for sustainability.

and digitalization, the present study provided frameworks and empirical insights on the potential of platformization to accelerate the SDGs.

The empirical insights from comparing three cases demonstrating the positive influence of platformization on selected SDGs in different industry sectors provide a more nuanced view on an early stage, predominantly conceptual research field. While SMEs currently widely miss out on these opportunities, the insights from three sustainability-oriented SMEs in Germany in which MSPs play a central role revealed best practice approaches and four strategies for SMEs from different sectors and with varying levels of digitalization.

The consolidated seven-step-approach along the Plan-Do-Check-Act cycle facilitates the implementation of recommendations of results across SMEs. SMEs can use this blueprint for developing and continuously improving a platformization roadmap. This involves revisiting the use case of the four presented platformization strategies (sustainable product accelerator, end-of-life marketplace, global community building, and co-innovation for sustainability), which extend the increasing research efforts on presenting solutions targeted to SMEs facing the challenge to manage the sustainable and digital transformation (twin transformation).

For a more thorough theoretical contribution, this paper developed a contextualized theory of platformization for sustainable development from a socio-eco-technical perspective drawing from theoretical propositions from the fields of IS and sustainability, that is, BAO theory, business model configurations through IS, digital platform strategies, and the SDGs. The resulting first holistic research framework allows to study, plan, monitor, and report on how platformization accelerates the SDGs, considering the sustainable development of the ecological system as a system goal and emphasizing that platformization is more than a technical issue.

A general recommendation for SMEs is to analyze and leverage the linkages between corporate culture (belief), platformization (action), and sustainable development (SDGs) (outcome) for their business development. Regarding the emphasized interactions with the ecological system, a first recommendation in the strategic planning of the platformization process is to analyze and leverage opportunities and challenges provided by the SDGs. A second recommendation involves the strategic consideration of the role of platform stakeholder as recipients and (co-)creators of environmental, social, and economic value.

Overall, the findings contribute to numerous research streams, including digitization as a tool for corporate sustainability, digital platform business models in the context of the circular economy, as well as corporate culture in the context of sustainable digital development. As such, the findings should be of interest to researchers, decision makers in SMEs, IS developers, policy makers, and other practitioners interested in digital social innovation.

## 5.1 | Limitations and future research

Like every research, this study is subject to limitations pointing toward future research opportunities. Overall, the generalizability of the results is limited, which requires further validation in specific sector

and geographical locations outside Germany. For example, due to the limited number of cases, we could not identify a potential contribution of platformization for each SDG (Fuster Morell et al., 2021). Furthermore, we only considered SMEs in which platformization already played a central role. Therefore, the study somehow neglects a potential reluctance of SMEs to use cloud-computing technologies for stakeholder collaboration or e-commerce in the agriculture sector (Gupta et al., 2013; Schulze Schwering et al., 2023). Thus, empirical investigations into sector-specific barriers or motivations to adapt the strategies, including an improved understanding of attitudes and beliefs toward sustainability in general as well as platformization for sustainability, are needed. Also, it was beyond the scope of this paper to analyze structure and people, the interactions between the elements of the social system, or the influence of the technical system on the social system, as suggested by extended BAO theory, in detail.

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## REFERENCES

- Akpan, I. J., & Ibidunni, A. S. (2021). Digitization and technological transformation of small business for sustainable development in the less developed and emerging economies: A research note and call for papers. *Journal of Small Business & Entrepreneurship*, 35(5), 671–676. <https://doi.org/10.1080/08276331.2021.1924505>
- Anshari, M., Almunawar, M. N., Masri, M., & Hamdan, M. (2019). Digital marketplace and FinTech to support agriculture sustainability. *Energy Procedia*, 156, 234–238. <https://doi.org/10.1016/j.egypro.2018.11.134>
- Bartczak, K. (2021). Digital technology platforms as an innovative tool for the implementation of renewable energy sources. *Energies*, 14(23), 7877. <https://doi.org/10.3390/en14237877>
- BDI. (2021). Deutsche digitale B2B-Plattformen: Digitalisierung und Nachhaltigkeit verzahnen. Entwicklung eines industriellen B2B-Plattformökosystems in Deutschland fördern. BDI Bundesverband der Deutschen Industrie e.V. Retrieved from BDI Bundesverband der Deutschen Industrie e.V. [www.bdi.eu/publikation/news/Deutsche-digitale-B2B-Plattformen](http://www.bdi.eu/publikation/news/Deutsche-digitale-B2B-Plattformen)
- Bender, B., Habib, N., & Gronau, N. (2021). Digitale Plattformen: Strategien für KMU. *Wirtschaftsinformatik & Management*, 13(1), 68–76. <https://doi.org/10.1365/s35764-020-00292-w>
- Benlian, A., Hilkert, D., & Hess, T. (2015). How open is this platform? The meaning and measurement of platform openness from the Complementers' perspective. *Journal of Information Technology*, 30(3), 209–228. <https://doi.org/10.1057/jit.2015.6>
- Berg, H., & Wilts, H. (2019). Digital platforms as market places for the circular economy—Requirements and challenges. *Sustainability Management Forum*, 27(1), 1–9. <https://doi.org/10.1007/s00550-018-0468-9>



- Berti, G., Mulligan, C., & Yap, H. (2017). Digital food hubs as disruptive business models based on coopetition and “shared value” for sustainability in the Agri-food sector. In S. Sindakis & P. Theodorou (Eds.), *Global opportunities for entrepreneurial growth: Coopetition and knowledge dynamics within and across firms (advanced strategies in entrepreneurship, education and ecology)* (pp. 415–438). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78714-501-620171023>
- Bonina, C., Koskinen, K., Eaton, B., & Gawer, A. (2021). Digital platforms for development: Foundations and research agenda. *Information Systems Journal*, 31(6), 869–902. <https://doi.org/10.1111/isj.12326>
- Bostrom, R. P., & Heinen, J. S. (1977). MIS problems and failures: A socio-technical perspective, part II: The application of socio-technical theory. *MIS Quarterly*, 1(4), 11–28. <https://doi.org/10.2307/249019>
- Böttcher, T., Empelmann, S., Weking, J., Hein, A., & Krcmar, H. (2023). Digital sustainable business models: Using digital technology to integrate ecological sustainability into the core of business models. *Information Systems Journal*, 34(3), 736–761. <https://doi.org/10.1111/isj.12436>
- Bruscia, K. E. (2005). Data analysis in qualitative research. *Music Therapy Research*, 2, 179–186.
- Burinskienė, A., & Nalivaikė, J. (2024). Digital and sustainable (twin) transformations: A case of SMEs in the European Union. *Sustainability*, 16(4), 1533. <https://doi.org/10.3390/su16041533>
- Bush-Mecenas, S., & Marsh, J. A. (2018). The DIVE approach: Using case-ordered meta-matrices and theory-based data displays to analyze multiple case study data. In C. R. Lochmiller (Ed.), *Complementary research methods for educational leadership and policy studies* (pp. 33–56). Springer International Publishing. [https://doi.org/10.1007/978-3-319-93539-3\\_3](https://doi.org/10.1007/978-3-319-93539-3_3)
- Cachia, M., & Millward, L. (2011). The telephone medium and semi-structured interviews: A complementary fit. *Qualitative Research in Organizations and Management: An International Journal*, 6(3), 265–277. <https://doi.org/10.1108/17465641111188420>
- Cardinali, P. G., & De Giovanni, P. (2022). Responsible digitalization through digital technologies and green practices. *Corporate Social Responsibility and Environmental Management*, 29(4), 984–995. <https://doi.org/10.1002/csr.2249>
- Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research*, 100, 196–206. <https://doi.org/10.1016/j.jbusres.2019.03.035>
- Clark, S., MacLachlan, M., Marshall, K., Morahan, N., Carroll, C., Hand, K., Boyle, N., & O'Sullivan, K. (2022). Including digital connection in the United Nations sustainable development goals: A systems thinking approach for achieving the SDGs. *Sustainability*, 14, 1883. <https://doi.org/10.3390/su14031883>
- Constantiou, I., Eaton, B., & Tuunainen, V. K. (2016). The evolution of a sharing platform into a sustainable business. In 2016 49th Hawaii international conference on system sciences (HICSS) (pp. 1297–1306). IEEE. <https://doi.org/10.1109/HICSS.2016.164>
- de Almeida Oroski, F., & da Silva, J. M. (2022). Understanding food waste-reducing platforms: A mini-review. *Waste Management & Research*, 41, 816–827. <https://doi.org/10.1177/0734242X221135248>
- de Reuver, M., Sørensen, C., & Basole, R. C. (2018). The digital platform: A research agenda. *Journal of Information Technology*, 33(2), 124–135. <https://doi.org/10.1057/s41265-016-0033-3>
- Dwyer, C. (2011). Socio-technical systems theory and environmental sustainability. *Sprouts: Working Papers on Information Systems*, 11(3). <http://sprouts.aisnet.org/11-3>
- Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business Strategy and the Environment*, 11(2), 130–141. <https://doi.org/10.1002/bse.323>
- Fuster Morell, M., Espelt, R., & Renau Cano, M. (2020). Sustainable platform economy: Connections with the sustainable development goals. *Sustainability*, 12, 7640. <https://doi.org/10.3390/su12187640>
- Fuster Morell, M., Espelt, R., & Senabre Hidalgo, E. (2021). Data for sustainable platform economy: Connections between platform models and sustainable development goals. *Data*, 6(2), 7–17. <https://doi.org/10.3390/data6020007>
- Gallina, V., Steinwender, A., Zudor, E., Preuveneers, D., & Schlund, S. (2024). Business model development concept for SMEs in the era of twin transition. *Procedia Computer Science*, 232, 523–532. <https://doi.org/10.1016/j.procs.2024.01.052>
- Gama Amaral, D., & Orsato, R. J. (2022). Digital platforms for food waste reduction: The value for business users. *Business Strategy and the Environment*, 32(4), 1373–1387. <https://doi.org/10.1002/bse.3193>
- Gebler, M., Juraschek, M., Thiede, S., Cerdas, F., & Herrmann, C. (2022). Defining the “positive impact” of socio-technical systems for absolute sustainability: A literature review based on the identification of system design principles and management functions. *Sustainability Science*, 17(6), 2597–2613. <https://doi.org/10.1007/s11625-022-01168-1>
- Geissinger, A., Laurell, C., Öberg, C., & Sandström, C. (2019). How sustainable is the sharing economy? On the sustainability connotations of sharing economy platforms. *Journal of Cleaner Production*, 206, 419–429. <https://doi.org/10.1016/j.jclepro.2018.09.196>
- Gregori, P., & Holzmann, P. (2020). Digital sustainable entrepreneurship: A business model perspective on embedding digital technologies for social and environmental value creation. *Journal of Cleaner Production*, 272, 122817. <https://doi.org/10.1016/j.jclepro.2020.122817>
- Gregori, P., Holzmann, P., & Audretsch, D. B. (2023). Sustainable entrepreneurship on digital platforms and the enactment of digital connectivity through business models. *Business Strategy & the Environment*, 33(2), 1173–1190. <https://doi.org/10.1002/bse.3551>
- Gupta, P., Seetharaman, A., & Raj, J. R. (2013). The usage and adoption of cloud computing by small and medium businesses. *International Journal of Information Management*, 33(5), 861–874. <https://doi.org/10.1016/j.ijinfomgt.2013.07.001>
- Hein, A., Weking, J., Schreieck, M., Wiesche, M., Böhm, M., & Krcmar, H. (2019). Value co-creation practices in business-to-business platform ecosystems. *Electronic Markets*, 29(3), 503–518. <https://doi.org/10.1007/s12525-019-00337-y>
- Helleman, I., Porter, A. J., & Diriker, D. (2022). Harnessing digitalization for sustainable development: Understanding how interactions on sustainability-oriented digital platforms manage tensions and paradoxes. *Business Strategy and the Environment*, 31(2), 668–683. <https://doi.org/10.1002/bse.2943>
- Heller, F. (1997). Sociotechnology and the environment. *Human Relations*, 50(5), 605–624. <https://doi.org/10.1177/001872679705000507>
- Iensee, C., Teuteberg, F., & Gries, K.-M. (2023). How can corporate culture contribute to emission reduction in the construction sector? An SME case study on beliefs, actions, and outcomes. *Corporate Social Responsibility and Environmental Management*, 30(2), 1005–1022. <https://doi.org/10.1002/csr.2368>
- Iensee, C., Teuteberg, F., Gries, K.-M., & Topi, C. (2020). The relationship between organizational culture, sustainability, and digitalization in SMEs: A systematic review. *Journal of Cleaner Production*, 122944, 122944. <https://doi.org/10.1016/j.jclepro.2020.122944>
- Iensee, C., Teuteberg, F., & Gries, K. M. (2023). Success factors of organizational resilience: A qualitative investigation of four types of sustainable digital entrepreneurs. *Management Decision*, 61(5), 1244–1273. <https://doi.org/10.1108/MD-03-2022-0326>
- KfW Research. (2022). KfW-Innovationsbericht Mittelstand 2022: Innovatoren sinkt im zweiten Jahr der Corona-Pandemie. KfW Banking Group. <https://www.kfw.de/%C3%9Cber-die-KfW/Service/Download-Center/Konzernthemen/Research/KfW-Innovationsbericht/?redirect=299648>
- Kolk, A., & Ciulli, F. (2020). The potential of sustainability-oriented digital platform multinationals: A comment on the transitions research agenda. *Environmental Innovation and Societal Transitions*, 34, 355–358. <https://doi.org/10.1016/j.eist.2019.12.008>

- Kovacic, I., Honic, M., & Sreckovic, M. (2020). Digital platform for circular economy in AEC industry. *Engineering Project Organization Journal*, 9(1). <https://doi.org/10.25219/epoj.2020.00107>
- Kukurba, M., Waszkiewicz, A. E., Salwin, M., & Kraslawski, A. (2021). Co-created values in crowdfunding for sustainable development of enterprises. *Sustainability*, 13(16), 8767.
- Leso, B. H., Cortimiglia, M. N., & Ghezzi, A. (2022). The contribution of organizational culture, structure, and leadership factors in the digital transformation of SMEs: A mixed-methods approach. *Cognition, Technology & Work*, 25, 151–179. <https://doi.org/10.1007/s10111-022-00714-2>
- Li, X., Zhang, L., & Cao, J. (2023). Research on the mechanism of sustainable business model innovation driven by the digital platform ecosystem. *Journal of Engineering and Technology Management*, 68, 101738. <https://doi.org/10.1016/j.jengtecman.2023.101738>
- Liu, Q., Trevisan, A. H., Yang, M., & Mascarenhas, J. (2022). A framework of digital technologies for the circular economy: Digital functions and mechanisms. *Business Strategy and the Environment*, 31(5), 2171–2192.
- Mancha, R., & Gordon, S. (2021). Multi-sided platform strategies for organizations: Transforming the business model. *Journal of Business Strategy*, 43(3), 175–183. <https://doi.org/10.1108/JBS-09-2020-0203>
- Martin, C. J., Upham, P., & Klapper, R. (2017). Democratizing platform governance in the sharing economy: An analytical framework and initial empirical insights. *Journal of Cleaner Production*, 166, 1395–1406. <https://doi.org/10.1016/j.jclepro.2017.08.123>
- Melville, N. P. (2010). Information systems innovation for environmental sustainability. *MIS Quarterly*, 34(1), 1–21. <https://doi.org/10.2307/20721412>
- Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055. <https://doi.org/10.1111/etap.12254>
- Nambisan, S., Siegel, D., & Kenney, M. (2018). On open innovation, platforms, and entrepreneurship. *Strategic Entrepreneurship Journal*, 12(3), 354–368. <https://doi.org/10.1002/sej.1300>
- Neligan, A., Baumgartner, R. J., Geissdoerfer, M., & Schögl, J. P. (2022). Circular disruption: Digitalisation as a driver of circular economy business models. *Business Strategy and the Environment*, 32(3), 1175–1188.
- Piscicelli, L., Ludden, G. D. S., & Cooper, T. (2018). What makes a sustainable business model successful? An empirical comparison of two peer-to-peer goods-sharing platforms. *Journal of Cleaner Production*, 172, 4580–4591. <https://doi.org/10.1016/j.jclepro.2017.08.170>
- Poell, T., Nieborg, D., & van Dijck, J. (2019). Platformisation. *Internet Policy Review*, 8(4). <https://doi.org/10.14763/2019.4.1425>
- Poniatowski, M., Lüttenberg, H., Beverungen, D., & Kundisch, D. (2021). Three layers of abstraction—A conceptual framework for theorizing digital multi-sided platforms. *Information Systems and E-Business Management, Special Issue on Platform Business Models and Platform Strategies*, 20, 257–283. <https://doi.org/10.1007/s10257-021-00513-8>
- Pouri, M. J., & Hilty, L. M. (2018). Conceptualizing the digital sharing economy in the context of sustainability. *Sustainability*, 10(12), 4453. <https://doi.org/10.3390/su10124453>
- Qureshi, I., Pan, S. L., & Zheng, Y. (2021). Digital social innovation: An overview and research framework. *Information Systems Journal*, 31(5), 1–25. <https://doi.org/10.1111/isj.12362>
- Ratten, V. (2022). Digital platforms and transformational entrepreneurship during the COVID-19 crisis. *International Journal of Information Management*, 72, 102534. <https://doi.org/10.1016/j.ijinfomgt.2022.102534>
- Recht, R., & Wilderom, C. (1998). Kaizen and culture: On the transferability of Japanese suggestion systems. *International Business Review*, 7(1), 7–22. [https://doi.org/10.1016/S0969-5931\(97\)00048-6](https://doi.org/10.1016/S0969-5931(97)00048-6)
- Recker, J., Malsbender, A., & Kohlborn, T. (2016). Using Enterprise social networks as innovation platforms. *IT Professional*, 18(2), 42–49. <https://doi.org/10.1109/MITP.2016.23>
- Reza-Gharehbagh, R., Arisian, S., Hafezalkotob, A., & Makui, A. (2023). Sustainable supply chain finance through digital platforms: A pathway to green entrepreneurship. *Annals of Operation Research*, 331, 285–319. <https://doi.org/10.1007/s10479-022-04623-5>
- Reza-Gharehbagh, R., Asian, S., Hafezalkotob, A., & Wei, C. (2021). Reframing supply chain finance in an era of reglobalization: On the value of multi-sided crowdfunding platforms. *Transportation Research Part E: Logistics and Transportation Review*, 149, 102298.
- Rohn, D., Bican, P. M., Brem, A., Kraus, S., & Clauss, T. (2021). Digital platform-based business models – An exploration of critical success factors. *Journal of Engineering and Technology Management*, 60, 101625. <https://doi.org/10.1016/j.jengtecman.2021.101625>
- Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). Jossey-Bass.
- Schulze Schwering, D., Focke-Meermann, L., & Spiller, A. (2023). E-commerce in German agriculture: A case study investigating farmer satisfaction applying the thinking aloud method. *German Journal of Agricultural Economic*, 72(2), 117–123. <https://doi.org/10.30430/gjae.2023.0200>
- Schwanholz, J., & Leipold, S. (2020). Sharing for a circular economy? An analysis of digital sharing platforms' principles and business models. *Journal of Cleaner Production*, 269, 122327. <https://doi.org/10.1016/j.jclepro.2020.122327>
- Smith, H., Discetti, R., Bellucci, M., & Diletta Acuti, D. (2022). SMEs engagement with the sustainable development goals: A power perspective. *Journal of Business Research*, 149, 112–122. <https://doi.org/10.1016/j.jbusres.2022.05.021>
- Sultan, N. A. (2011). Reaching for the “cloud”: How SMEs can manage. *International Journal of Information Management*, 31(3), 272–278. <https://doi.org/10.1016/j.ijinfomgt.2010.08.001>
- United Nations General Assembly. (2015). *Transforming our world: The 2030 agenda for sustainable development* (Vol. No. A/RES/70/1, p. 35). United Nations. <https://sdgs.un.org/2030agenda>
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Wang, M., Yuan, R., Guan, X., Wang, Z., Zeng, Y., & Liu, T. (2024). The influence of digital platform on the implementation of corporate social responsibility: From the perspective of environmental science development to explore its potential role in public health. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1343546>
- Warnecke, D., Heeren, I., & Teuteberg, F. (2018). Open Innovation durch Online-Plattformen – aber welche? In *Lecture Notes in Informatics (LNI). Projektmanagement und Vorgehensmodelle 2018-Der Einfluss der Digitalisierung auf Projektmanagementmethoden und Entwicklungsprozesse* (pp. 147–155). Gesellschaft für Informatik.
- Xin, X., Miao, X., & Cui, R. (2022). Enhancing sustainable development: Innovation ecosystem coopetition, environmental resource orchestration, and disruptive green innovation. *Business Strategy and the Environment*, 32(4), 1388–1402.
- Yin, R. K. (2012). Case study methods. In *APA handbooks in psychology®. APA handbook of research methods in psychology, vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 141–155). American Psychological Association. <https://doi.org/10.1037/13620-009>

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