Chapter 7
Sustainable business models and artificial intelligence. Opportunities and challenges

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Abstract This chapter aims to shield light on the pivotal role played by artificial intelligence (AI) in supporting sustainable business models' development.
To achieve this objective, the chapter starts by illustrating relevant previous studies about sustainable business models with a specific focus on the economic, social, and environmental (ESG) dimensions of sustainability and by briefly exploring the literature about AI and its potential impacts on business models.
Subsequently, the chapter deepens the investigation by developing specific subsections about the implications of adopting AI for each ESG dimension. Each subsection provides an explicative example illustrating how a multinational company (each located in a different country - U.S., Spain, Italy) has implemented AI techniques toward sustainability performance.
These examples provide an empirical view and yield insights about sustainable business models' development, driving general implications for practitioners. The study also illustrates future research opportunities for academics about the link between sustainability and artificial intelligence.

Keywords Business model • Artificial Intelligence • Sustainability • Strategy Innovation • ESG

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1.1 Introduction

The increasing relevance of sustainability topics at global level resulted, in 2015, in the launch of the Sustainable Development Goals through which the business world is called upon contributing to the global sustainability Agenda 2030 (European Commission, 2017; United Nations, 2015a). Working toward sustainable development implies challenging simultaneously National Governments, the International Community, and companies toward collaborating to ensure progress without neglecting environmental, social, and governance (ESG) matters. At the same time, adopting a sustainable development approach implies, for companies, a profound shift in their way of doing business considering their impact on the environment, on the society, and their approach toward governance. To achieve a greater long-term social and environmental sustainability, organizations have to consider innovating their business models to make them sustainable (Bocken, Short, Rana, & Evans, 2014).

Business models are a means for explaining how organizations create, deliver and capture value (Nielsen, Lund, Montemari, Paolone, Massaro, & Dumay, 2018; Osterwalder & Pigneur, 2010; Zott, Amit, & Massa, 2011) and for consenting managers' envision and implementation of their business' strategy (Bagnoli, Massaro, Dal Mas, & Demartini, 2018; Biloslavo, Bagnoli, & Edgar, 2018). As observed by Osterwalder and Pigneur (2010, p. 246), the innovation of a business model "rarely happens by coincidence. It is something that can be managed, structured into processes, and used to leverage the creative potential of an entire organization". Often, developing a new business model represents, for companies, a challenge and may fail (Geissdoerfer, Vladimirova, & Evans, 2018). To effectively implement strategies and practices toward sustainable development, businesses should be thoughtful about their values and willing to embrace possibilities related to sustainability (Fleming, Wise, Hansen, & Sams, 2017). In this regard, Artificial intelligence (AI) is among the most important enablers for developing a sustainable business model (Manyika, 2017).

The role of technology in supporting and driving a sustainable development was already being empathized in 1987 when the United Nations presented the Brundtland Report. Thirty years later, in 2015, the World Economic Forum underlined the importance of a technological shift, recognizing AI as a fundamental technology playing a key role in the next years (Espinel, Brynjolfsson, Annunziata, Brechbuhl, Cao, Crawford, De Filippi, et al., 2015). Accordingly, in a recent paper, Brynjolfsson and Mcafee (2017, p. 19, p. 3) underlined how AI "is the most important general-purpose technology of our era", explaining that "[i]n the sphere of business, AI is poised to have a transformational impact, on the scale of earlier general-purpose technologies". Given the rapid progress of this highly disruptive technology, business leaders must adopt a mindset and new practices that accept and embrace this change, translating technological possibilities into business value for customers, partners and society (Biloslavo *et al.*, 2018; Teece, 2010).

With a potential contribution of $15 trillion to the world economy by 2030 (Rao, Verweij, & Cameron, 2017), AI is listed as the number one strategic technology (Panetta, 2018). The Gartner survey 2018 showed that 59% of organizations are still gathering information to build their AI strategies, while the remainder has already made progress in piloting or adopting AI solutions (Panetta, 2018). AI will come to

act as a preponderant element in the transformation and reconfiguration of organizational and management elements, such as strategy, processes, structure, and culture (Mendonça & Andrade, 2018). “Executives in companies around the world are increasingly looking to AI to create new sources of business value” (Ransbotham, Gerbert, Reeves, Kiron, & Spira, 2018, p. 1). This chapter aims to shield light on the increasingly relevant role played by technology, and specifically by AI in supporting sustainable business models’ development.

1.2 Sustainability and sustainable business models

The concept of sustainable development, from which the one of sustainability originates, was initially defined by the United Nations World Commission for Environment and Development in the Brundtland Report (Holden, Linnerud, & Banister, 2014; Manes-Rossi, Tiron-Tudor, Nicolò, & Zanellato, 2018; Marx & Ahmed, 2014). Published in 1987, the report of the United Nations (1987, p. 24) explained that: “Humanity can make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.”

More than thirty years later, the European Union still adopts this definition when recalling that sustainability is “at the heart of the European project” (European Commission, 2018, p. 9). Since the Brundtland Report, the trend toward sustainable development has been increasingly supported by global leaders through the signing of Kyoto Protocol in 1997, the Copenhagen Conference in 2009 and the Paris Agreement in 2015 (Alrazi, De Villiers, & Van Staden, 2016; Falkner, 2016; Massaro, Dumay, & Bagnoli, 2018). With the launch of the Sustainable Development Goals (SDG), in 2015, the European Union explicitly called upon the business world to contribute to the Global Sustainability Agenda 2030 (European Commission, 2017; United Nations, 2015a).

Following the United Nations’ (UN) Agenda 2030 for Sustainable Development (United Nations, 2015b) and the UN’s principles for responsible investments, the European Parliament and Council introduced the Environmental, Social and Governance (ESG) factors into guidelines for sustainable investments decision making and for the non-financial disclosure (Directive 2014/95/EU) guiding organizations through the harmonization of their business’ models (European Commission, 2018; European Parliament and Council, 2014). Widely accepted concepts, the ESG factors are defined by the European Commission (2018, p. 10) as follows: “Environmental (E) issues related to the quality and functioning of the natural environment and natural systems; Social (S) issues related to the rights, well-being, and interests of people and communities; Governance (G) issues related to the governance of companies and other investee entities”. These actions toward a

sustainable economy are in line with the increasing international concerns for a genuinely sustainable economic growth (Beltramello, Haie-Fayle, & Pilat, 2013) and with the fears for the social and environmental consequences of climate change and global warming (Alrazi *et al.*, 2016; Capstick, Whitmarsh, Poortinga, Pidgeon, & Upham, 2015).

Transitioning toward a sustainable economy implies for companies embracing, or rethinking, their way of doing business by innovating themselves through acting upon environmental, social, and governance matters. Thus, firms' integration of a sustainability approach can be enacted through innovating their business model allowing "re-conceptualizing the purpose of the firm and the value-creating logic and rethinking perceptions of value" (Bocken *et al.*, 2014, p. 43). More precisely, companies should develop a business model "that creates competitive advantage through superior customer value and contributes to the sustainable development of the company and society" (Lüdeke-Freund, 2010, p. 23). Thus, a sustainable business model seeks to align interests and to create value for a broad range of stakeholders, including the society and the environment (Bocken, Short, Rana, & Evans, 2013; Bocken *et al.*, 2014).

1.3 Artificial intelligence

According to the Brundtland Report, technology can be "managed and improved to make way for a new era of economic growth (United Nations, 1987, p. 24)." Thirty years later, the role of technology in supporting and driving a sustainable development not only is still being emphasized, but it is getting momentum. For instance, in 2015, the World Economic Forum remarked the need for a technological shift illustrating how specific elements, such as AI will profoundly change the society during the future ten years (Espinel *et al.*, 2015). Considered as one of the most important technologies for developing sustainability (Panetta, 2018), AI enables new ways of creating, delivering and capturing value among stakeholders, affecting all the business models' dimensions (Ransbotham *et al.*, 2018). Accordingly, the Global Reporting Initiative (2011, p. 2) evidenced that the progress in knowledge and technology not only contribute to the economic development in a broad sense, but also support the resolution of "risks and threats to the sustainability of our social relations, environment, and economies." The adoption of advanced technologies implies business disruption and reshape (Manyika, 2017).

The term AI was coined in 1956 by John McCarthy during the first academic conference on the subject at Dartmouth College to develop the concept around thinking machines (Marr, 2018). Today, AI has become an umbrella term that can refer to various computer science technologies and applications, ranging from neural networks to speech and pattern recognition, genetic algorithms and deep learning (Bughin, Hazan, Ramaswamy, Chui, Allas, Dahlström, Henke, *et al.*, 2017; Jarrahi, 2018; Ransbotham *et al.*, 2018). An accurate picture of the AI field is hampered by the lack of a precise and universally accepted definition (Stanford University, 2016). However, adopting the Oxford English Dictionary's definition, AI can be described as

"the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages" (www.oed.com). A widely accepted distinction is between strong and weak AI (KPMG, 2018a). Strong AI refers to systems with complete human or superhuman intelligence, which still do not exist at present (Hengstler, Enkel, & Duelli, 2016). Weak AI, or narrow AI, refers to specific tasks that require single human capabilities, e.g., visual perception, understanding context, probabilistic reasoning, and dealing with complexity (Russel & Norvig, 2010). Currently, only weak AI is implemented in commercial applications, such as expert systems, or knowledge-based systems, which include tools for medical diagnosis, loan approval, insurance underwriting, decision making support (Duan, Edwards, & Dwivedi, 2019; KPMG, 2018b).

Interestingly, AI allows finding new ways of generating and sharing value affecting business models (Ransbotham *et al.*, 2018), constituting a major source of innovation (Russel & Norvig, 2010). For example, AI provides several significant research opportunities to change the role of resources within a company's business model (Biloslavo *et al.*, 2018). Consistent with the digital transformation of businesses, we are witnessing extensive automation of physical tasks and production processes, putting practical technologies to work (Baccala, Curran, Garrett, Likens, Rao, Ruggles, & Shehab, 2018). On the bright side, AI will expand companies' intuition and peoples' creativity (Ferràs-Hernández, 2018). On the dark side, the workplace environment will experience a paradigm shift through the replacement of jobs with robots and intelligent machines (Huang & Rust, 2018). Similarly, looking at products and services, AI is making them more intelligent, providing new applications and functionalities (Rosenberg, 2008). For example, smartphones now incorporate AI characteristics such as speech recognition and understanding, completing words when writing, and providing customized advice (Makridakis, 2017).

AI also offers new ways of analyzing, interpreting, and using customer data with significant implications for developing customer loyalty and a more competitive value proposition (Huang & Rust, 2018). For example, in the retail industry, the entire online and physical shopping experience is being revolutionised (Grewal, Roggeveen, & Nordfält, 2017), as AI forecasting algorithms enable companies to project demand accurately and to reach the right target customers through new forms of distribution and communication channels, like personalized marketing and advertising (Bughin *et al.*, 2017). Considering the extended network of relationships outside the company (Biloslavo *et al.*, 2018), AI can enable the development of new approaches for capturing value in the ecosystem beyond company boundaries providing a new research context for sustainability and stakeholder engagement. For example, swarm intelligence algorithms can detect information and patterns behaviors in online community platforms facilitating the systematization of knowledge and the

understanding of a company's activity impact on society (Martinez-Torres & Olmedilla, 2016).

The disruptive potential embedded in AI technologies is a key driver for innovating business models towards sustainability, allowing companies to fulfill ESG criteria. In the following section, the potential applications of AI for the environment, society, and governance in companies are described.

1.4 Artificial intelligence for sustainable business models

Environmental sustainability

Six of the seventeen UN Sustainable Development Goals apply directly to the environment and humans' influence over it: fighting climate change, using the ocean and marine resources wisely, managing forests, fighting diversification, reversing land degradation, developing sustainable cities and providing clean, affordable energy (Waughray, Herweijer, & Leape, 2018). Companies can apply AI tools to fulfill environmental criteria to turn their business models towards environmental sustainability. To increase energy efficiency in operations, organizations are starting to adopt smart grids which take full advantage of AI techniques supporting real-time demand response and delivering power that is stable and affordable (Bassiliades & Chalkiadakis, 2018). Indeed, with more complex grids gathering energy from different sources, both non-renewable and renewable, AI can analyze massive datasets, improving the management of these sources towards higher grid stability and autonomy (CBInsights, 2018).

Energy efficiency is a primary concern in manufacturing: the growing interest in environmentally friendly manufacturing is pushing the industry to adopt cleaner production processes (Kristianto, Gunasekaran, & Helo, 2017). This translates into the development of supply chain optimization models, raising concern for energy consumption to the entire global manufacturing (Elia, Baliban, Xiao, & Floudas, 2011; You, Tao, Graziano, & Snyder, 2012). Artificial Intelligence can support the development of decision support systems, which help to minimize energy costs while maximizing the technological innovation that could reduce energy consumption and the environmental impact (Kristianto *et al.*, 2017).

Similarly, AI techniques may help support pollution and waste management (Khakurel, Penzenstadler, Porras, Knutas, & Zhang, 2018). In the agriculture and food industry, post-harvest loss and food waste are the two major problems in the supply chain management and logistics (Gustavsson, Cederberg, & Sonesson, 2011; James & James, 2010). Artificial Intelligence in sensors and communication technologies provide the foundations for the development of smart supply chain systems and intelligent food logistics (Haass, Dittmer, Veigt, & Lütjen, 2015). For example, data gathered from GIS and smart devices based on sensor technologies allow supply chain managers to automate shipping and to deliver by monitoring and forecasting the perishability of the cargo traveling in intelligent containers (Bogataj, Bogataj, & Hudoklin, 2017; Haass *et al.*, 2015). Additionally, signals from the smart measurement devices can be transmitted to a decision support system, which helps supply chain

professionals regarding the final use and the changed price of the cargo or by anticipating the cargo rerouting decisions, enabling the cut of logistics cost and time (Bogataj *et al.*, 2017). In Example 1 we illustrate the application of AI inside a multinational company that, following the European Commission (2018, p. 10) definition of sustainability, allowed to improve environmental issues related to the quality and functioning of the natural environment and system.

Example 1 Xcel Energy

Xcel Energy Inc. is a utility company based in Minnesota, which creates electricity from burning coal plants in Texas[1]. One major by-product of this activity is nitrous oxide emissions, a greenhouse gas that contributes heavily to climate change. Xcel has started to look at different artificial intelligence techniques to become more sustainable. To reduce emissions of nitrous oxide, the company uses artificial neural networks, that simulating the human brain, allow to quickly analyze the data that results from the processes of coal combustion. This system provides accurate recommendations about how to adjust the plant's operations to reduce the negative emissions and operate at peak efficiency.

Additionally, Xcel is the first utility company in the US to systematically use drones with machine learning algorithms to automatically inspect its infrastructures for potential failures. To address the issue of intermittency and forecasting error, the company has also partnered with the National Centre for Atmospheric Research to use machine learning to provide more accurate wind forecasts, providing data from sensors on hundreds of wind turbines. Thanks to artificial intelligence techniques, Xcel Energy has been able to reduce costs to end customers by $60 million and to reduce annual CO2 emissions from fossil-reserve power generation by more than a quarter of a million tonnes per year (Schiermeier, 2016).

Social sustainability

Social responsibility plays an important role in the differentiation of companies: fulfilling social criteria improves their reputation and promote their market share, gaining an opportunity for superior competitive advantage (Massaro *et al.*, 2018; Zhao, 2018). There are many social issues AI can contribute to, such as workforce development, gender diversity, employees' safety, and working conditions (Makridakis, 2017). It is acknowledged that the advent of artificial intelligence will reshape the workplace environment by replacing many jobs: 30% of jobs are at potential risk of automation by mid-2030s (Rao *et al.*, 2017). However, the more jobs being automated, the greater the skills that would be required to perform the remaining tasks (Makridakis, 2017) adequately. This means that companies can employ AI to

[1]Company website: https://www.xcelenergy.com/

free people from repetitive, monotonous and hard jobs to use their competencies and capabilities to more meaningful and creative occupations (Davenport & Ronanki, 2018; Dignum, 2016).

Interestingly, these new opportunities bring new challenges for the whole higher educational system (Lombardi, Massaro, Dumay, & Nappo, 2019; Secundo, Massaro, Dumay, & Bagnoli, 2018). For example, at Amazon's warehouses, employees who previously lifted and stacked objects are becoming robot operators, monitoring the automated arms and resolving issues such as an interruption in the flow of objects (Wingfield, 2017). The reduced workload can enhance working conditions, contributing to employees' wellbeing inside and outside the organization (Rosenberg, 2008). Looking at safety conditions, AI has been present in the manufacturing industry for years through assembly line robots that replace humans where hazards may be present, and risks may be high (Manyika & Sneader, 2018).

Concerning safety issues, Cisco, for example, has partnered with Cortexica, an AI start-up, to develop an automated intelligent system which combines real-time video analysis with advanced algorithms and machine learning to ensure that employees are correctly wearing the personal protective equipment required by safety regulation (Chrissos, 2018). At the same time, AI tools can be used to train and reskill the workforce, promoting efficient collaboration between humans and machines, especially when tackling complex decision making (Jarrahi, 2018). Miller (2018) calls for a new human-machine symbiosis, where humans and machines need to work symbiotically to augment and enhance each other's capabilities. Additionally, AI can help to close the gender gap in the workplace, bringing a data-driven view of the issue. For example, AI techniques can identify inequity in pay and promotion recommendations before they reach the employee, allowing management to make more equitable decisions (Wielgosz, 2018).

Similarly, tools and technologies driven by AI can help reduce biases in the recruitment process by following a standardized and objective candidate assessment methodology (Strohmeier & Piazza, 2015). This fosters a culture of transparency and collaboration, which is critical to engage a productive workforce and to promote the company's reputation (Grbac & Lončarić, 2009). In Example 2, we illustrate how the application of AI inside a multinational company allowed to improve social issues relating to the rights, well-being, and interests of people and communities (European Commission, 2018, p. 10).

Example 2 Telefónica

Telefónica[2] is a Spanish multinational telecommunications company and one of the largest telephone operators and mobile network providers in the world. In 2018, its pioneer company in integral security technology, Telefónica Ingeniería de Seguridad, has partnered with AnyVision[3], the world's leading designer and developer of artificial intelligence and recognition platforms. Both companies share a deep commitment to creating safer and smarter environments all over the

[2] Company website: https://www.telefonica.com/
[3] Company website: http://www.anyvision.co/

world (Telefónica, 2018). The partnership enabled Telefónica to integrate its technologies with AnyVision's advanced AI solutions of face, body and object recognition across a variety of verticals, such as homeland security, transportation, critical infrastructures, and smart cities. The two companies are working together on major projects in airports, smart cities, stadiums, and banks providing onboarding and authentication solutions, as well as seamless access control solutions, among other services. Together with AI techniques, Telefónica is also making use of IoT and Big Data to develop smart city initiatives. For example, gaining data from traffic movement sensors, it is possible to report on the intensity of vehicles' movement through a city and enable flexible parking tariffs and intelligent signage which reacts in real-time to help citizens plan their day's journeys.

Similarly, data from monitoring stations and weather data are used to inform decisions on when motorway speed limits should be put in place to stop pollution levels becoming high in an area. In Valencia, Telefónica is monitoring car parking using sensors to gain information on the density of parking across the city in real-time (Marr, 2017). This helps set parking fees to achieve a fairer distribution of parking, reduce CO2 emissions, and fuel consumption. Telefónica's Valencia Smart City project aims to improve citizens and tourists' quality of life through AI, IoT, and Big Data.

Governance sustainability

The general definition of corporate governance includes the mechanisms, processes, and relations by which corporations are controlled and directed (Shailer, 2004). Many corporate governance issues have been identified in the literature which refers to bankruptcy, money laundering, corruption, bribery, gender diversity of the board, auditing and decision making (Bonime-Blanc, 2018; Liang, Lu, Tsai, & Shih, 2016). AI techniques like statistical and machine learning algorithms can be used, for example, to develop bankruptcy prediction models assisting financial institutions in making better lending decisions (Liang *et al.*, 2016). Chang and Wang (2013) employed the learning ability of artificial neural networks and the optimization ability of the evolution strategies for the development of an evaluation model linking accounting and non-accounting information, to identify true corporate value, providing a relevant reference both for enterprises and investors.

AI may also serve to address the gender imbalance in the board and drive an organizational culture change, as men still dominate the boardrooms (Stephens, 2013). For example, the introduction of AI in daily operations can make the issues of biased data and inaccurate results more visible, therefore, resulting in more transparent decision-making processes, especially in recruitment pools (Sutherland, 2019). Indeed, AI can enhance complex decision-making processes in the board and create sophisticated tools to monitor and analyze behaviors and activities in real-time,

improving organizations' capabilities in areas such as corporate governance, regulatory compliance, and risk management (Ferràs-Hernández, 2018; Libert, Beck, & Bonchek, 2017). The ability of AI to handle big data, identify patterns and detect anomalies or bias makes it a potential anti-corruption, anti-fraud and anti-money laundering tool (Chang & Wang, 2013; Salehi, Ghazanfari, & Fathian, 2017).

Detecting management fraud is a difficult task when using normal audit procedures; there are too many transactions in most companies for auditors to go through manually (Forbes, 2019). By introducing machine learning techniques at different stages of the transaction monitoring process, AI offers immediate opportunities to reduce operational costs with no loss of effectiveness (Singh, Fernandes, Lim, & Ang, 2018). Additionally, AI engines like data mining may be able to stop violations before they happen rather than catching them after the fact (Forbes, 2019). In Example 3, we illustrate the application of AI for developing sustainable business models that affected the governance of the company and other investees.

Example 3 Generali

Generali is a multinational group, a major player in the global insurance industry[4]. In line with its innovation and digitalization strategies, in January 2018, Generali signed an agreement with Expert System[5], a company specialized in text mining solution, for implementing, during the first trimester 2018 in Spain, an AI technology named Cogito. Cogito is a text analytics and cognitive computing software designed to autonomously operate 24 hours per day and enabling to rapidly classify a large amount of information, thus accelerating decision processes, reducing costs, and improving business processes. Despite starting with the aim of optimizing the registration and processing of clients' refund applications, Generali's objective is to extend this AI technology to other business units (La Cava, 2018). Discussing AI and digital transformation, Alessandra Chiuderi, Head of Generali's Analytics Solutions Centre, underlined the changes brought by AI to the insurance sector, from processes' automatization to frauds prevention. In this regard, she explained: "The projects we are working on together with our Business Units range from providing new insights for product definition to strengthening existing fraud detection systems, from back-office automation to claims management streamlining, from identifying the best Customers for specific products to helping the NGOs that are part of The Human Safety Net" . Given Generali' s activity toward digital transformation, on March 2018, Generali Italia (the Italian branch) was awarded for its adoption of AI and robotics as a means for reshaping the business insurance sector (Agalliu, Leva, & Bollea, 2018).

[4] Company website: https://www.generali.com/
[5] Company website: https://www.expertsystem.com/

1.5 Conclusion

This chapter illustrates how digital technologies, and specifically AI, play a pivotal role in the development of sustainable business models. The aim is to emphasize the reason behind the necessity for companies to align with the technological change effectively contributing to the sustainability goals.

The chapter opens with the definition of sustainable business model briefly illustrating the present state of the literature and recalling the ESG criteria. Subsequently, the investigation expands, exploring previous studies investigating the AI topic and its potential implications for innovating business models. In this stage, the authors deepen the analysis investigating the application of the AI techniques in the environmental, in the social and in the governance dimensions, respectively. Additionally, to provide a concrete demonstration of how AI can be adopted to enhance sustainability, the authors present three examples selecting, for each, a multinational company based in different countries (U.S, Spain, Italy). Each example reports the sources used to transparently inform the reader (Massaro, Dumay, Garlatti, & Dal Mas, 2019).

Additionally, each example describes the impact that the adoption of AI has on a specific ESG aspect. More specifically, the authors explain how the partnerships between the AI companies and the multinational ones allowed the latter to implement AI techniques inside their organizations, thus improving and reshaping their business models towards sustainability. By demonstrating how AI techniques can be implemented in the different ESG dimensions, these examples provide an empirical view and yield insights about sustainable business models' development.

Thus, the study drives general implications for practitioners by illustrating the potentiality of the AI techniques for sustainable business models' development from the environmental, social, and governance perspectives. More specifically, the chapter presents explicative examples for managers who want to approach AI. As the examples demonstrate, by creating partnerships with AI companies or start-ups, managers can best achieve their needs and are provided with the technical know-how to innovate their business models towards sustainability. From the academic perspective, given the scarcity of the literature about AI, future challenges for academics may be to undertake broader literature reviews, extending the knowledge about the topic. Additionally, a better understanding of how to improve sustainability through AI can derive from undertaking further empirical analyses. For instance, a multiple-case study approach may allow to collect and compare best practices regarding the application of AI techniques for reshaping business models toward sustainability.

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