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# Fostering Awareness of Social Sustainability in Digital Business

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## Abstract

With the increasing adoption of advanced technologies for designing innovative business models, business success relies heavily on the competencies needed to intelligently and responsibly utilize various technologies to create value. This chapter introduces teaching activities that equip business graduates with the competencies required to utilize advanced technologies, such as generative artificial intelligence (AI) and blockchain, for digital business in a socially sustainable manner. Awareness of social sustainability is crucial in digital business development and management, as such business makes both positive and negative societal impacts globally and within local communities. For example, adoption of advanced technologies in digital business may result in the need for workforce re-skilling, potential job losses, changes in consumer behavior, and the ability to either obscure or enhance transparency in global value chains. To promote digitalization that is socially sustainable, this chapter offers hands-on exercises grounded in Kolb's experiential learning framework. These exercises immerse learners in the realities of digital business, increasing the opportunities and threats that technology utilization may bring. The learners get to explore AI and blockchain applications, reflect on their societal implications, and devise solutions that prioritize social sustainability. Thereby, this chapter supports the implementation of specific Sustainable Development Goals (SDGs): SDG 9 (Industry, Innovation, and Infrastructure), SDG 10 (Reduced Inequalities), SDG 12 (Responsible Production and Consumption), and SDG 16 (Peace, Justice, and Strong Institutions).

**Keywords:** Digital business, Experiential learning, Artificial intelligence (AI), Blockchain, Social sustainability

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# Introduction

By leveraging digital capabilities and digital-technology-enabled business models, firms create value, enhance customer experiences, and optimize internal processes. This shift towards digitalization has significantly transformed the global market, resulting in a significant rise of digital businesses. Digital business is a business model that integrates digital technologies into core operations, offerings, and interactions (Ahmad et al. 2020). Digital businesses like Amazon and Uber stand as testament to this transformation, not only dominating their respective industries but also heralding a new era of commerce and service. As of 2022, Amazon's net revenue amounted to over 514 billion U.S. dollars, indicating the extensive magnitude and global scale of digital businesses (Coppola 2023). Emerging technologies like blockchain and generative artificial intelligence (AI) are paving the way for the next stage in the evolution of digital businesses. These technologies not only further expand the business opportunities (Bican and Brem 2020) but also bring forth numerous social challenges related to job displacement, a risk of discrimination stemming from biased algorithmic training, and the complexity surrounding ethics and accountability in socio-technical business environments, among others.

The surge in digital business growth and the increasing adoption of AI and blockchain within it, underscores the need for fostering social sustainability in digital business strategies. However, there is a discernible knowledge gap in integrating socially sustainable strategies within the digital realm (Becker and Schmid 2020). Addressing this gap, we must refine the educational approaches taken in training (future) managers. If this gap remains unaddressed, businesses may struggle to align their digital strategies and operational models with broader societal goals and address social impact such businesses have, potentially leading to missed opportunities for positive societal impact and producing unintended negative consequences. To ensure that businesses grow holistically, and that digital changes benefit everyone fairly (Soto Setzke et al. 2023), it is essential to include issues around how to develop digital businesses that support social sustainability in business curricula.

This chapter seeks to bridge this gap by providing a set of principles, based on Kolb's (1984) experiential learning framework, for teaching about digital business with awareness of social sustainability. These principles are illustrated through the introduction of multiple hands-on exercises that allow learners to immerse themselves in digital business realities by exploring generative AI and blockchain business applications, reflecting on their role in digital business and their social impact, and developing solutions with social sustainability at their core. The introduced exercises support learner explorations of social sustainability issues related to consumption patterns and influences on consumers, the socio-economic composition of various countries, transparency, and ethical considerations in the digital business landscape. These exercises aim to equip learners with the tools and perspectives needed to make informed decisions that prioritize both business growth and societal well-being. Thus, the chapter supports the implementation of Sustainable Development Goals (SDGs): SDGs 9 (Industry, Innovation, and Infrastructure), 10

(Reduced Inequalities), 12 (Responsible Production and Consumption), and 16 (Peace, Justice, and Strong Institutions). These SDGs address some fundamental competencies and ethical principles that businesses must develop to navigate the digital landscape responsibly (UN 2023). By aligning the offered teaching method with these SDGs, educators can ensure a targeted and impactful learning experience, preparing learners to advocate for social sustainability within the digital business domain.

The chapter first briefly introduces the concept of socially sustainable digital strategies, then provides an overview of the principles of experiential learning in the context of teaching digital business, and finally delves into hands-on exercises for learners exploring the comprehension and development of socially sustainable strategies for digital business built on the application of AI and blockchain technologies.

## **Digital Business and Social Sustainability: Issues to be Considered in Business Education**

The digital age has ushered in a transformative era in which business strategy concerns not only value creation through the strategic management of material resources, location choices, and knowledge, but also significantly benefits from the opportunities provided by digital platforms and ecosystems (DPEs) (Nambisan et al. 2019). Companies across various sectors that utilize DPEs benefit from well-orchestrated digital interactions among diverse user groups (Stallkamp and Schotter 2021), new funding and stakeholder management opportunities, and institutional settings globally (Šilenskytė et al. 2022). Digital business aims at leveraging digital technologies to create new value in business models, customer experiences, and the internal capabilities that support its core operations (Bican and Brem 2020). Digital business extends beyond just integrating technology into business operations. Instead, it emphasizes transforming the way businesses operate to make them inherently digital regardless of its industry.

While technology is a powerful vehicle driving digital business, the social dimension remains equally important, despite being highly ignored in the literature (Xiao-feng et al. 2019) and business practice. Social sustainability encompasses aspects such as “trust, common meaning, diversity, capacity for learning, and capacity for self-organization” (Missimer et al. 2016, p. 5). In practice, this means attention to employee rights and well-being, impacts on social communities within and outside the organizations, and creating firms and institutions that support inclusion, good health, well-being, socio-economic stability, and safety for all (Yaqub and Alsabban 2023).

Comprehending the link between digital business, empowered by technologies such as AI or blockchain, and social sustainability is crucial because of their mutual influences. For example, Šilenskytė et al. (2022) demonstrate that a lack of trust in the community, social malpractices, disregard of consumer rights, and scams on consumers hinder the entire blockchain-based

industry's development and prevent honest digital business from thriving. The recent emergence of generative AI-based businesses has underscored a realization in society that these businesses have a significant influence on various industries, and this influence is not just limited to the digital world but also has implications in the real world, e.g., significant workforce reductions in various sectors, exploitation of supply chains, substantial adverse environmental effects, and implications for learning and competency development (Crawford 2021; Sabzalieva and Valentini 2023; Stephens et al. 2023b). Educating prospective and current business leaders without an awareness of these interconnections raises sustainability concerns not only for the digital businesses they (will) manage, but also for the wider local and global societies. Additionally, leaders need to realize that, unlike traditional business, digital business has access to vast amounts of data for decision making, is rapidly scalable, and has a reduced physical footprint. Moreover, digital business' access to the constantly evolving technological landscape can, as well as driving sustainability innovations, be equally likely to create electronic and other waste challenges locally and overseas.

To address this, educators can present any topic regarding digital business, such as the diversity of DPEs (Nambisan et al. 2019), internationalization through digital business models (Stallkamp and Schotter 2021), network externalities, i.e., the effects on a user caused by other users, or the importance of operations that span across borders (Adamus 2019), among others, linking it to the SDGs. This is because the use of digital technologies for value creation and digitalization, i.e., the use of such technologies to transform services and businesses, can play a major role, not only for profitability, but also in achieving the SDGs (Clark et al. 2022). Digital technologies and businesses can play an important role in digital inclusion and connectivity (Clark et al. 2022) and thereby address future economic and environmental challenges sustainably (Bican and Brem 2020). Therefore, aspects that shape digital businesses, including digital capabilities, technology, infrastructure, and governance, are central to the consideration of social sustainability.

For example, when considering the relationship between digital business and social sustainability, four specific SDGs: 9, 10, 12, and 16, can be explored. SDG 9 (Industry, Innovation, and Infrastructure) underscores the importance of inclusivity in the realm of industrial advancements. Specifically, target 9.2 touches upon and emphasizes the promotion of inclusive and sustainable industrialization (SDG Indicators 2023). As industries continue to evolve and innovate, it is becoming paramount to ensure that these advancements are inclusive. This means that the progress made should be accessible and beneficial to everyone, irrespective of their background or circumstances. Moreover, technological innovations, especially those associated with this goal/indicator, should be deeply rooted in ethical considerations. This is to ensure that these innovations do not inadvertently cause harm to society or the environment (Shettima 2016).

SDG 10 (Reduced Inequalities) highlights the transformative role digital businesses can play in the interconnected world. More precisely, target 10.2 aims to empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion, or economic or other status (SDG Indicators 2023). Digital businesses can actively

contribute to bridging the inequality gap by ensuring that their services and platforms are universally accessible and offer representation of all the diverse individuals. This accessibility and representation should transcend barriers of socio-economic status or geographical location, ensuring that everyone, regardless of their circumstances, can inclusively benefit from the digital revolution (Nakamura 2018).

SDG 12 (Responsible Production and Consumption) brings to the forefront the unique position digital businesses occupy in the consumer-driven society. More categorically, target 12.6 encourages companies, especially large and international ones, to adopt sustainable practices and to integrate sustainability information into their reporting cycle (SDG Indicators 2023). Digital platforms, with their vast reach and real-time data analytics, can influence consumer choices by promoting sustainable (or not) products, providing transparency about product origins, and/or offering eco-(un)friendly alternatives. Given their vast influence on consumer behavior, these businesses have the potential to champion sustainable consumption patterns, e.g., by nudging consumers towards eco-friendly choices, facilitating the sharing economy, and reducing waste through predictive analytics. Considering the production and supply sides, which make products available for sale on the online platforms, the importance of ethical operations across the entire supply chain must also be considered (Shettima 2016).

Lastly, SDG 16 (Peace, Justice, and Strong Institutions) underscores the importance of transparency in business operations. Specifically, target 16.6 focuses on the development of effective, accountable, and transparent institutions at all levels (SDG Indicators 2023). Digitalization plays a critical role in this aspect, as it offers tools and platforms that can make business operations more transparent and just, allowing stakeholders to have real-time access to information, ensuring accountability, and fostering trust among stakeholders. Ethical operations, which are a recurring theme across multiple SDGs, are paramount to this goal. With the aid of digitalization, businesses can ensure transparency in their supply chains, financial transactions, and/or stakeholder communications. They are expected to uphold justice and fairness in all their dealings, ensuring that no community or individual is exploited or harmed in the process (Nakamura 2018). The innovativeness of digital business may result in institutional lagging behind, in terms of regulations and the needed policy framework. Thus, digital business has an influence on regulatory and normative institutional development and (mis)use, especially under conditions of institutional voids around pioneering digital businesses globally and locally (Šilenskytė et al. 2022).

The interconnectedness of all these selected SDGs underscores the importance of digital businesses recognizing the potential of technologies for achieving these goals. Technologies offer businesses the tools to monitor, evaluate, report, and optimize their operations in line with these SDGs, recognizing links among them. For instance, data analytics can help businesses track their carbon footprint, blockchain can ensure transparency in supply chains, and AI can optimize resource use (Cordova and Nava-Aguirre 2022). By leveraging these and other technologies,

businesses can more effectively align their operations with the SDGs, ensuring they contribute to a more sustainable, inclusive, and equitable future.

By teaching about socially sustainable digital business, educators can ensure that (future) leaders will be better prepared to navigate the digital age, and that their businesses will remain agile, responsive, and sustainable amidst evolving challenges. The socially sustainable digital business is not just about the use of technology; it is about how technology can redefine the entire business landscape, positively impacting broader society. To enhance awareness about social sustainability issues in digital business, we next delve into pedagogical approaches and hands-on activities that can help develop the needed competencies of (future) business leaders.

## **Pedagogical Pathway: Experiential Learning for Teaching Social Sustainability in Digital Businesses**

Traditional teaching methods, while retaining their merit, might not encapsulate the dynamism and nuances of the digital world. This is where experiential learning becomes instrumental when educators are hoping to achieve a desired impact. Experiential learning is widely accepted in literature (Leung et al. 2016; Robson 2017) as a pedagogical approach that emphasizes learning through a continuous cycle of experience, reflection, conceptualization, and active experimentation. It is rooted in the foundational work of David Kolb in 1984 and has been expanded upon by numerous scholars over the years (e.g., Miettinen 2000; Simm and Marvell 2015).

Experiential learning consists of a cycle including four stages (concrete experience, reflective observation, abstract conceptualization, and active experimentation) that are interconnected, with each stage feeding into the next, thereby accumulating the learning (Kolb 1984). It is a process whereby knowledge is created through the transformation of experience. Hence, the educator plays a pivotal role in guiding learners through each stage, ensuring they derive maximum value from the process.

The essence of experiential learning is *learning by doing* (Beard 2018; Chavan 2015). Therefore, incorporating it into teaching digital business can be particularly impactful and easily implementable due to the digital form that makes it accessible across borders. Experiential learning ensures that learners are not merely absorbing information about digital business but are actively participating in exploring it as users (its services, products, business models) and designing strategies for its transformation towards social sustainability. Table 1 illustrates how experiential learning can be conceptualized in the context of teaching digital business.

**Table 1.** Kolb’s experiential learning stages defined for the context of teaching digital business.

<b>Stages of experiential learning</b>	<b>Definition of the experiential learning stage</b>	<b>Example relevant to teaching digital business</b>
<b>Concrete experience (CE)</b>	Learners engage directly, immersing themselves in a specific situation or activity.	Learners use the services of a digital business.
<b>Reflective observation (RO)</b>	Learners reflect on their actions post-experience, analyzing and interpreting their encounters.	Learners reflect on the quality and effectiveness of the service.
<b>Abstract conceptualization (AC)</b>	Based on their reflections, learners formulate or modify ideas, deepening their understanding.	Learners theorize improvements based on their reflections.
<b>Active experimentation (AE)</b>	With newfound insights, learners apply their understanding in new contexts, completing the cycle.	Learners design an improved service model based on their suggestions.

Given that evolution towards social sustainability in digital business is vital, as elaborated in the previous sections, we further provide three teaching activities based on experiential learning. Through these activities, learners can enhance their competencies in assessing and developing socially sustainable business within the areas of SDGs 9, 10, 12, and 16.

## **Exercises for Experiential Engagement with Social Sustainability in Digital Business**

The exercises outlined in this section dig into the practical applications of emerging digital technologies, such as generative AI, virtual assistants, and blockchain, illuminating their roles in shaping business strategies. Such hands-on exploration ensures that learners not only master the intricacies of these digital tools but also critically engage with their broader social implications, particularly in the context of the SDGs. Given the experimental nature of some of the exercises, especially those involving new technologies such as generative AI, educators are strongly advised to instruct their learners to create a dedicated email address solely for the purpose of these exercises. This precaution ensures the safety and privacy of personal information. Additionally, using a separate email address reduces the risk of personal accounts being flagged or compromised due to the nature of the exercises.

### **Harnessing AI to reflect on social sustainability (SDG 9) when designing a brand for a digital**

For digital businesses, visual branding is a powerful tool for communicating the organization's ethos and mission. It serves as an imperative, forcing businesses to recognize the intrinsic link between their visual brand and strategic objectives, and acknowledge that a well-crafted logo is not merely a visual symbol, but a representation of a strategy for achieving long-term success and sustainability (Luffarelli et al. 2019). Yet many digital startups have limited budgets for an innovative brand representation of their business. This activity introduces learners to the cutting-edge world of image generative AI, such as Midjourney ([www.midjourney.com](http://www.midjourney.com)) or Adobe's Firefly (<https://www.adobe.com/firefly>), equipping them with the skills to meld technology and creativity in a digital business context. The learners are tasked with conceptualizing and crafting a logo for a socially sustainable company using AI. The context of the startup for which the logo will be created can be defined by the learners or modeled by an educator to reflect the local needs and business environment. Once the logo design is produced, the students also analyze the final outcomes and their impact for the startup and society. The duration of this exercise is 90 minutes. It can be done in class or as a homework assignment.

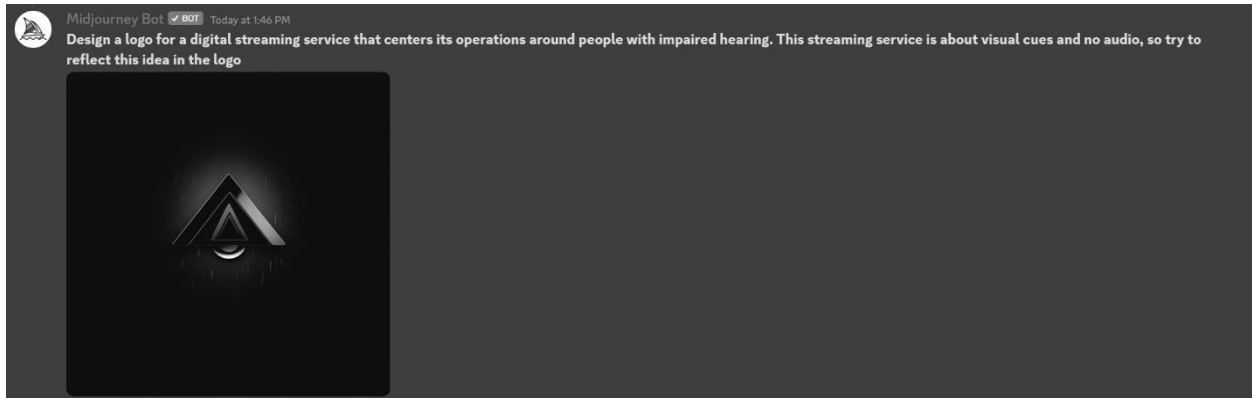
1. *Concrete Experience (CE)*: Learners in small teams of three begin by brainstorming about the hypothetical sustainable digital business. They can use generative AI (e.g., ChatGPT) to produce several descriptions of the firm, including its vision and mission. The educator may allow learners to experiment with different prompts to develop the firm's description. If learners are struggling to formulate a prompt that helps them to define the digital business, the educator may provide several examples (for more examples, refer to various works by Dr. Ethan Mollick), such as “*Write a short (150 word) description of a sustainable digital business firm that aims to create a video streaming platform that focuses on serving people with hearing impairments, meaning that the*

*videos are without audio and tailored to this audience's needs. Formulate vision and mission statements for this company.*” Once learners are satisfied with the firm’s description, they experiment with image-generating AI, such as Midjourney, to produce an image for their firm. If learners are struggling to find the correct prompt for developing an image, educators may show several examples of relevant prompts, one of which would be: */imagine prompt: design a logo for a digital streaming service that centers its operations around people with impaired hearing. This streaming service is about visual cues and no audio, so try to reflect this idea in the logo* (see Figure 1).

2. *Reflective Observation (RO)*: Following their initial exploration, learners are tasked to reflect: (a) the functionality of the generative AI in defining digital business’ vision and mission; (b) the stereotypes about (social) sustainability the AI was drawing upon when producing the firm’s description; (c) the challenges and opportunities presented by generative AI in logo design; (d) the alignment between their firm’s mission and social sustainability cause, and the preliminary AI-generated logos; (e) how visual elements can effectively communicate their firm’s social sustainability goals and whether this adds value to their digital business; (f) implications for the firm and society, of a firm using AI-based tools to develop its communication materials instead of relying on its own workforce or competent designers.

3. *Abstract Conceptualization (AC)*: At this stage, educators could help learners develop conceptualizations of their observations gained when reflecting. By introducing relevant theories and academic research insights, the educators can help learners to do the following: (a) understand the principles of AI’s functioning and its implications for the solutions it designs (see, e.g., Ntoutsis et al. 2020); (b) understand the significance of brand identity in digital business strategies, especially for firms striving for social impact (see, e.g., Aaker 1996; Kapferer 2012); (c) learn about the nuances of crafting effective prompts for generative AI to ensure desired outcomes (see, e.g., Goodfellow et al. 2016); (d) discuss the broader implications of AI’s role in digital design and branding for modern businesses (see, e.g., West et al. 2019; Zuboff 2019). Some of these insights (depending on the course and the lecture in which this exercise takes place) could be introduced to the learners with a further request that they apply the theory when building digital business marketing and communication with the AI’s support.

4. *Active Experimentation (AE)*: Equipped with these insights, learners are next tasked to work further on improved prompts for the generative AI, with the aim to produce a logo that encapsulates their company’s ethos (Goodfellow et al. 2016). This way, the learners iteratively experiment with the AI, refining their prompts based on the generated results, until they achieve a satisfactory logo (McCormack et al. 2019). Finally, the learners briefly present their final logo to the class, showcasing the philosophy behind it, the iterative process of its creation, and its strategic significance in their digital business strategy (Kapferer 2012).



**Figure 1.** Example of the logo produced by Midjourney for a fictional digital streaming service for customers with hearing impairments.

To debrief the exercise, it is essential to reflect on the implications the produced results have for digital business and society. While generative AI platforms like Midjourney offer innovative tools for design, it is crucial to approach them with caution. Image generative AI platforms have faced criticism for allegedly using copyrighted material in their machine learning processes and have undergone legal challenges (Brundage et al. 2020). There is also the ever-present risk of such platforms being banned or restricted (Zuboff 2019). Moreover, generative AI exploits labor and has a huge carbon footprint (Crawford 2021). Further, there are implications of using AI for decision making, e.g., it can introduce biases and challenge fairness (Stephens et al. 2023a). Educators should lead the debates around these ethical and legal concerns (O'Neil 2016) so that the interconnectedness of digital business and social sustainability concerns can be uplifted, increasing interest and awareness towards social sustainability.

By the end of this exercise, the learners are likely to be able to (1) harness AI for designing descriptions of business-focused content and visuals such as logos to support a business' brand development in line with its mission and values; (2) link the use of advanced technology in digital business with SDG 9 (Industry, Innovation, and Infrastructure): while some technologies benefit business, they may have negative implications for wider society; and (3) comprehend the capabilities of generative AI (refer to Goodfellow et al. 2016; Kapferer 2012; McCormack et al. 2019; West et al. 2019; Zuboff 2019) and evaluate advantages and disadvantages of AI tools in the context of digital business and wider society (Crawford 2021; Stephens et al. 2023b).

The topic of leveraging AI for design is also useful for the development of digital skills. This exercise provides a tangible way for learners to understand the real-world implications of these digital tools in the context of business. Further, by reflecting on their observations and formulating strategies, learners can develop a comprehensive understanding of the challenges and opportunities presented by AI in the realm of digital branding. This exercise enables learners to comprehend the intersection of technology, innovation, design, strategic branding, and social sustainability.

## **Personalization of digital business offerings: Digital assistants and their alignment with SDGs 10 and 12**

For digital business, personalization should be among the primary strategies used for differentiation in the marketplace (Napalkova and Loboda 2022). As businesses aim to provide a unique experience for every user, understanding how digital tools, such as virtual assistants, curate personalized content becomes paramount. With Siri and Google Assistant at the forefront of this personalized digital interaction, there is an imperative to understand the depth, breadth, and potential biases of their recommendations. This is an exercise aimed at immersing learners in the world of tailored digital business recommendations, using the most ubiquitous virtual assistants as their gateway. The duration of this exercise is 60-90 minutes, and it can be done in class or as a take-home assignment.

1. CE: Learners are grouped based on their preferred virtual assistant: Apple Siri, Amazon Alexa, Snap AI Friend, Microsoft Cortana, or Google Assistant. Then, they engage with their chosen assistant, asking for personalized recommendations for various business situations: organizing an event, a business dinner, or planning a travel itinerary. This engagement offers learners firsthand experience of how AI-driven tools curate personalized content. It is important to organize this engagement with the virtual assistant, when working in diverse teams, so that learners can compare the suggestions the virtual assistants provide given their backgrounds and requests. If the teams are highly homogeneous, or learners are tasked to reflect on specific diversity dimensions, they could assume certain scenarios, for instance, a person with disability is searching for a restaurant that is accessible with a wheelchair – what would the virtual assistant suggest?

2. RO: After the interactions with the virtual assistants, the learners document the recommendations they have received, focusing on (a) the variety and relevance of the suggestions; (b) any perceived biases or patterns, especially when comparing answers to the same request given to diverse team members; and (c) their reflections on how these recommendations could shape consumer choices and perceptions in real-world scenarios. Ideally learners should cross-reference these answers with their own desk research. They should note any choices that are missing. Consider the example of Siri's recommendations of books about African culture. Students passionate about African literature and culture and/or willing to learn more about their own heritage asked Siri for book shopping suggestions. To their surprise, the recommendations were largely books by mainstream authors. There was a glaring absence of suggestions of books by African authors. This observation underscored a potential bias in Siri's recommendations, highlighting an opportunity for digital business to address this gap and champion more diverse voices.

3. AC: To place these reflections into context, the educator could introduce learners to various related concepts, or assign individual research. The latter would be aimed at increasing awareness of the following: (a) The mechanisms or algorithms and data driving personalization in virtual

assistants. For instance, one example is the use of multi-domain Dialogue State Tracking models in Virtual Personal Assistants (VPAs) to monitor goals throughout a conversation. These models, such as the Similarity-based Multi-Domain Dialogue State Tracking model (SM-DST), use retrieval-inspired and fine-grained contextual token-level similarity approaches to track dialogue state efficiently and effectively (Manotumruksa et al. 2022). (b) The potential strategic implications for businesses capitalizing on personalized recommendations. For example, the plus point could be that personalized recommendations enhance the consumer experience, especially in the fashion e-commerce sector, through virtual fitting rooms, for a more tailored shopping experience (Sartortt et al. 2020). (c) The challenges and ethical considerations of relying on AI for curating personalized content. While AI-driven personalization offers numerous benefits, it also presents challenges in areas like speech recognition, especially when modeling spoken information queries for virtual assistants (Van Gysel 2023), and can lead to bias, non-inclusiveness, and loss of human agency (Kamoonpuri and Sengar 2023).

4. AE: Armed with the insights described above, learners brainstorm and draft digital strategies for hypothetical businesses aiming to provide personalized experiences. They should focus on addressing the observed biases and gaps in virtual assistant recommendations (Noble 2018; O'Neil 2016), optimizing the use of virtual assistants for curating hyper-personalized content (Zuboff 2019), and testing their strategies in mock scenarios to evaluate potential business outcomes (Kolb 1984).

The intended learning outcomes (ILOs) of this activity are as follows: (1) Increasing awareness of biases in digital offerings: learners will identify and comprehend the inherent biases present in the suggestions of digital assistants. (2) Recognizing links between digital business offerings and SDG 10 (Reduced Inequalities): by pinpointing the underrepresentation in virtual assistant recommendations, learners can draw parallels to the overarching goal of diminishing inequalities. They can grasp the significance of inclusive representation on digital platforms to ensure equitable opportunities and mitigate biases. (3) Understanding the foundations of socially sustainable digital business: learners will fathom the importance of businesses ensuring that their digital strategies are inclusive, allowing diverse voices from all geographies to be better heard, and representative of all customers. Such representation in business offerings not only expands digital business market penetration but also champions social sustainability by acknowledging and showcasing diversity and diverse preferences. (4) Designing strategies to diminish biases in digital recommendations. The students brainstorm and devise potential strategies, such as diversifying data sources, incorporating feedback loops, or partnering with diverse content creators, to ensure a more balanced and representative set of recommendations.

Educators can easily replicate this exercise in a classroom setting, asking learners to seek recommendations on a topic of their choice and then analyzing the results for biases and gaps. This hands-on approach, combined with the reflection and analysis stages, ensures a comprehensive understanding of the topic, making it accessible even to those new to using digital assistants like

Siri or Google Assistant. By combining hands-on interaction with reflection and conceptualization (Kolb's model), learners are prepared to harness the power of personalization, while also being made aware of its potential pitfalls, ensuring they are well-equipped to strategize in the personalized digital business landscape, a segment that will just keep growing in popularity.

The activity also allows awareness to be raised of the limitations of technology-supported decision making in business and when consuming. Revolutionary virtual assistants like Siri and Google Assistant are not without their flaws. Their recommendations are driven by algorithms that can inadvertently perpetuate biases present in their training data (O'Neil 2016). This can lead to a lack of diversity of suggestions, potentially marginalizing certain groups or cultures (Noble 2018). Additionally, these platforms are proprietary, meaning their inner workings are not fully transparent, making it challenging to pinpoint the exact cause of biases (Pasquale 2015). There is also the concern over data privacy, as these assistants access user data to provide personalized recommendations (Zuboff 2019). For more examples and insights, refer to O'Neil (2016), Noble (2018), Costanza-Chock (2020), Selbst et al. (2019), and Barocas and Selbst (2016). Educators should be prepared for debates around these ethical, transparency, and privacy concerns. While these tools offer valuable insights into personalization, it is essential to approach them critically and use their limitations as learning moments.

## **Risks and opportunities of blockchain-based business (SDGs 10 and 16)**

Blockchain's potential for equitable wealth distribution is immense (Du et al. 2023), in addition to its addressing of many other social sustainability concerns, as was covered in the previous chapters of this book. This transformative power brings the need to educate about the intricacies of trading in crypto-economies, particularly addressing challenges such as scams and societal misconceptions that can harm this quickly emerging blockchain-based industry (Šilenskytė et al. 2022). This exercise is recommended to be done over a long period of time, for example, over the duration of a course or even semester.

1. CE: Learners are tasked to immerse themselves in renowned online platforms like BitcoinFlip ([www.bitcoinflip.app](http://www.bitcoinflip.app)) or CryptoParrot ([www.cryptoparrot.com](http://www.cryptoparrot.com)). These platforms, while simulating real-time trading environments with virtual capital, offer a hands-on introduction to crypto-economy-based trading. Every learner receives a specific amount of fictional capital, setting the stage for a semester-long exploration of real-world public permissionless blockchain business applications.

2. RO: Beyond tracking their investments, learners are encouraged to reflect on (a) the societal perceptions surrounding blockchain and its business applications; (b) how scams, fraudulent activities, and cyber-security tarnish the perceived benefits of the blockchain-based industry; and (c) the broader implications of these negative perceptions on honest developers and innovations in the field. To support these reflections, the educator may use the Lympo case featured in this book

(Chapter 7.2) that presents the blockchain-based business environment in more detail. The case of SpectroCoin–Pervesk (Butkevičienė and Šilenskytė 2024) and the short video cases on “Crypto and compliance” (Šilenskytė 2023, June 29) and “SUPER HOW? Developing legitimacy in crypto” (Šilenskytė 2023, May 31) may help further to prompt learners’ reflections on various social-sustainability-related challenges in blockchain-based business.

3. AC: Learners will delve deeper into (a) the risks and opportunities inherent in blockchain technology (Narayanan et al. 2016); (b) the societal injustices that might arise from misinformation about or the misuse of blockchain (Tapscott and Tapscott 2016); and (c) strategies to support and promote developers who are genuinely contributing positively to the industry (Mougayar 2016; Šilenskytė et al. 2022). Educators may use insights from Chapter 1.5 of this book to support these reflections.

4. AE: With their newfound understanding, learners engage in simulated trading activities with a focus on identifying and mitigating potential risks. They formulate strategies that promote equitable and honest trading practices within the simulated environment (Zohar 2015). Additionally, they collaborate on projects that aim to educate the wider public on the benefits of blockchain, countering prevalent misconceptions (Casey and Vigna 2018).

**Example:** Bridging the Blockchain Gap: Financial Inclusion in a Digital Age

For this individual exercise, learners are tasked with exploring trading on platforms like BitcoinFlip. Each learner is required to analyze trading patterns, read discussion streams, and review demographic data related to traders. Learners are also encouraged to participate in community forums (e.g., Reddit, CryptoCompare, or BitcoinTalk Forum), posing questions related to regional participation and potential barriers to entry. During their exploration, a learner might notice that certain regions or demographics seem underrepresented in the trading community. This could be due to factors such as unreliable access to the internet, a lack of necessary devices, or even socio-economic barriers. Such observations should lead learners to question whether blockchain, despite its potential for equitable wealth distribution, might inadvertently be perpetuating financial inequalities.

The ILOs for this activity are as follows: (1) Understanding financial inclusion through innovative institutions: relating to SDG 16, learners will recognize the potential of public permissionless blockchain for democratizing financial systems, as something considered to be a technological institution (Davidson et al. 2018) but which also faces challenges in ensuring inclusivity for all demographics and regions (SDG 10). (2) Comprehending links between blockchain-based business and SDG 10: The exercise highlights the importance of reducing inequalities in access to financial systems and tools, emphasizing the role of technology in this endeavor. (3) Being able to design digital business strategies for businesses whose aim is to promote social sustainability. For more examples and insights into topics concerning this exercise, refer to Narayanan et al. (2016),

Tapscott and Tapscott (2016), Mougayar (2016), Zohar (2015), Furlonger and Uzureau (2019), and Casey and Vigna (2018).

The topic of financial inclusion in the context of blockchain business applications is both timely and universally relevant. Even educators who might not be deeply familiar with blockchain-based crypto-asset trading can appreciate the broader societal implications of financial inequalities. The exercise of engaging with simulated trading platforms provides a tangible way to understand the real-world implications of blockchain business applications and blockchain-based business. Since the exercise includes a lot of social observation and is meant to teach about trading under crypto-economy principles, initially, advanced financial literacy is not required. For advanced learners in business finance, the evaluation may include analytical reports on financial ratio computations, critiques of trading strategies, and grade distributions favoring the most successful learners (refer to Latifah and Fauziah 2022, for ideas on grading methodologies). However, learners who are primarily focusing on exploring social sustainability issues in emerging digital business, such as blockchain-based business, may deliver periodic reflection essays on their observations, targeted at social issues.

Blockchain technology is still in its nascent stages and comes with a set of challenges. This exercise opens up the possibility to discuss what blockchain can and cannot do, unfolding various misconceptions about blockchain, including its decentralization and taken-for-granted trust promise, which is not present beyond the public permissionless blockchain type, and which some argue is not present at all (Nabben 2021). Moreover, the decentralized nature of blockchain can sometimes be a double-edged sword, leading to potential security vulnerabilities, scams, and fraudulent activities (Šilenskytė et al. 2022; Zohar 2015). Platforms like BitcoinFlip and CryptoParrot, although designed to simulate real-time trading environments, might not capture the full spectrum of real-world blockchain intricacies (Narayanan et al. 2016). Furthermore, the volatile nature of cryptocurrencies can lead to misconceptions and hesitations among potential users (Casey and Vigna 2018). Educators and learners should approach these platforms with a critical mindset, recognizing their limitations while also appreciating the transformative potential of public permissionless blockchain. It is essential to use these platforms as learning tools, understanding their constraints, and extrapolating lessons for real-world applications.

## **Conclusions**

The digital age has brought about an unprecedented rate of change, compelling businesses to adapt while ensuring they remain grounded in social sustainability. By utilizing the principles of experiential learning, business educators are able to support learners in exploring the interrelation between digital business and SDGs 9, 10, 12, and 16. Such a comprehensive perspective can prepare learners to create strategies that will not only drive business success, but also contribute positively to global social sustainability goals.

However, as we integrate these platforms into our teaching, it is essential to be aware of their limitations. Some platforms might be under scrutiny for using copyrighted material for training purposes, and others might be banned by the time this book comes out. Learners might also bring critiques of these platforms to the discussion. It is important to recognize that there is a learning opportunity in every scenario. Educators should embrace all the nuances of these platforms. Even if one platform is banned, another will rise, and the materials can be further enriched by discussing such digital business cases.

The activities introduced in this chapter could become part of courses such as Digital Marketing, Business Strategy, Entrepreneurship, Corporate Social Responsibility, and Sustainable Business Practices, to name a few. The exercises can be integrated as described or adjusted to learner and educator needs. The goal of this chapter was to inspire the adoption of experiential learning, enhanced with newly emerged technologies that can easily be employed for teaching and learning about digital business and the social sustainability issues in and beyond it. The issues discussed about digital business should also be adapted to the environment in which the exercises are implemented. For example, maybe the country has just introduced a ban on crypto currencies? Maybe AI has recently caused a disruption in local industry? Through the educator's selection of contextually relevant situations, the motivation and interest of the learners can be boosted further.

### **Suggested further readings on the topic:**

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