

Artificiality and Sustainability in Entrepreneurship. Exploring the Unforeseen and Paving the Way to a Sustainable Future



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Abstract This edited collection explores the past, present, and future of artificiality and sustainability in entrepreneurship, the unforeseen consequences, and how to head forward to a sustainable future. First, we integrate the concepts of entrepreneurship and artificiality. We propose that entrepreneurs produce artefacts of entrepreneurship—new ventures, entrepreneurial firms, etc.—that have functions and goals set to respond to the conditions of the diverse environments in which they operate. Second, we contend that the prevailing technological environment can be perceived as an artefact that significantly impacts entrepreneurs, new ventures, and entrepreneurial firms. Digital technologies effectuated new forms of ventures such as born-digital and transformed incumbents to adopt them. Digital technologies come with virtualising our everyday environments and induce behavioral and cognitive changes, which call for new capabilities, e.g., dynamic capabilities. Finally, we conclude with further research questions to be addressed by the entrepreneurship, technology management and sustainability scholars.

Keywords Artificiality · Entrepreneurship · Sustainability · Unforeseen consequences

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1 Introduction

This edited collection explores the past, present, and future of artificiality and sustainability in entrepreneurship—the unforeseen consequences and ways forward to a sustainable future. In particular, we link artificiality, sustainability and entrepreneurship, and the adaptation that is characteristic of the artificial with the specific phenomenon of those novel digital technologies that provoke continuous and significant change in our lives and business. While digital entrepreneurship research focuses on digital technology development and management, this book covers processes and mechanisms of sustainable adaptability of entrepreneurs, start-ups' business logic, and the collaborative behaviors in the context of digital transformation, including the prevalence of Artificial Intelligence.

The term “artificial” has, in recent years, almost by default, become associated with the science of Artificial Intelligence. Herbert A. Simon’s ideas, as presented in *The Sciences of the Artificial* (Simon, 1996), remind us that the artificial exists as synthesized things—artefacts—which may or may not imitate natural phenomena. Further, artefacts have functions and goals designed in response to the environmental conditions in which they exist. As such, the artificial has a special resonance with the concept of entrepreneurialism. Daily, entrepreneurs design novel and adapted products, services, processes, business models, organizational designs, ventures, relationships, collaborations, ecosystems, discourses, and practices; these may be considered the artefacts of entrepreneurship.

Simon (1996) argued that the core intellectual activity of devising artefacts to attain goals is to change existing situations into desired states. The sustainability agenda, digital transformation, and economic recovery in a post-Covid-19 world indicate possible future desired states. As JG Ballard noted in his novel *Empire of the Sun*, “reality itself is a stage set that can be dismantled literally overnight. Our day-to-day routine, our home life, schools. Nothing is as secure as we like to think it is.”

How has entrepreneurship reacted to such challenges previously? What lessons have been learned and need to be carried forward? How can entrepreneurship and the artefacts of entrepreneurship respond to current challenges? What should be the mindset of the entrepreneur to assure sustainable adaptation? How can we embrace and embed new business logics?

This edited collection contributes to the theory of entrepreneurship in two ways. First, we integrate the concepts of entrepreneurship and artificiality. We propose that entrepreneurs produce artefacts of entrepreneurship—new ventures, entrepreneurial firms, etc.—that have functions and goals set to respond to the conditions of the diverse environments (e.g., business, political, cultural, and technological) in which they operate. This notion helps to translate the principles of artificiality into the framework of entrepreneurship. Second, we contend that the prevailing technological environment can itself be perceived as an artefact that significantly impacts entrepreneurs, new ventures, and entrepreneurial firms. Digital technologies effectuated new forms of ventures such as born-digital and transformed incumbents to adopt them. Digital technologies come along with virtualization of our everyday

environments and induce behavioral and cognitive changes in daily entrepreneurial activities.

Furthermore, the collection contributes to discussions on artificiality by proposing that not only can new ventures and entrepreneurial firms be regarded as artefacts of entrepreneurship, but also their external environment, such as prevailing digital technologies, are an artefact of the innovation economy. To date, external environments, themselves comprised of artefacts, have been regarded as natural or at least not conceptualized as artificial. However, our preceding argument opens a novel perspective that external environments fall under the principle of artificiality on a more macro level. As a result, new research questions arise: how do different artefacts interact? How do higher aggregation level artefacts such as technological environment affect lower aggregation level artefacts such as new ventures and entrepreneurial firms? What are the new challenges entrepreneurs face acknowledging that they create both artefacts—new ventures and their external environments? Finally, what is the typology and hierarchy of the artefacts?

We have organized our chapter to spotlight the phenomenon of artificiality which is less discussed in management and entrepreneurship in particular. Next, we interlink artificiality and sustainability with the theory of entrepreneurship. Finally, after we have defined and explicated the key concepts of the edited collection, we provide analyses of the current research represented by the chapters of the book—the analysis results in distilling the unforeseen consequences of artificiality in sustainable entrepreneurship future research avenues.

2 Defining the Concept of Artificiality

Simon (1996, p. 4) defined artificiality as “produced by art rather than by nature; man-made as opposite to natural.” Simon and Barenfeld (1969) identified four main features which distinguish artificial from natural: (1) artificial things are made by human beings; (2) artificial things can imitate the outlook and presence of natural things; however, they still differ from natural things in different aspects; (3) artificial things are functional, purposeful, and adaptive (molded by the environment); (4) artificial things are described in terms of imperatives and are descriptive. Simon (1996) further argued that when discussing artificial things, we need to consider the purpose or mission as well as features of the artefact, and the environment itself in which artificial things perform. For example, a new venture or an entrepreneurial firm as a human-made artefact can be defined by its mission, which can be in general terms to serve society or earn profits for owners and investors. When we describe the features or characteristics of a new venture or an entrepreneurial firm, we might focus on the number of employees, size of revenues, design of the organization, culture, or other factors. Finally, new ventures and entrepreneurial firms operate in specific environments that mold their performance and impinge on the internal features of an organization (Krippendorff, 2011; Hein & Hein, 2000). For instance, start-ups operating in venture capital intense environments such as Silicon Valley need to

develop an organizational design suitable for rapid scaling: such a requirement is not necessarily echoed for start-ups establishing in less investment intensive regions. Furthermore, with the prevalence of digital technologies in recent years, new ventures and entrepreneurial firms need to adapt to changing technological and thus business, cultural, and political environments. This adaptation brings in several changes in the firm's internal environment—fine tuning the organizational design and relationships with customers, including developing a broader ecosystem, building capabilities, and learning mechanisms to embrace significantly new imperatives (e.g., Simon, 1988; O'Rourke et al., 2020; Milleville-Pennel & Charron, 2015).

3 Artificiality in Entrepreneurship

As discussed above, new ventures or entrepreneurial firms are man-made artefacts. Thus, they comply with all the principles of artificiality. Furthermore, firms interact with artificial environments created by human-made digital technologies. However, there is little research on what happens when artefacts collide, mainly when the second artefact represents an external environment bringing new imperatives to the firm: the meeting of internal and external artefacts.

For example, Milleville-Pennel and Charron (2015), investigating driving simulators versus driving a real car, have distinguished several indicators to measure differences in driver behavior in the different environments. They monitored: (1) behavior validity (the extent to which an actor behaves the same in both “virtual” organization and conventional settings); (2) cognitive validity (similarity of the cognitive functions that are deployed in virtual organization compared with conventional settings); (3) validity of affecting feelings (similarity of feelings [e.g. stress, anxiety, pressure, and feelings of mastery that are boosted in a virtual organization in contrast to conventional settings]); and (4) feeling of presence (a subjective feeling of place illusion and plausibility illusion). These four indicators could be easily translated to entrepreneurship research, to compare born-digital or go-digital firms against conventional start-ups. Most “born-digital” or “go-digital” firms are based solely on the digitalized value chain and business model empowered by digital technology infrastructure (Vadana et al., 2021; Sarasvathy, 2003; Pundziene & Geryba, *Forthcoming*). Consequently, the organization itself, relationships, and intra- and inter-unit communications, products and services, and interaction with customers and ecosystem may occur virtually. Thus, considering behavior validity, cognitive validity, and the validity of affecting feelings and feelings of the presence of entrepreneurs (founders and co-founders), investors, boards, and employees more generally is a relevant research question. However, to the best of our knowledge, the field remains under-researched.

4 Sustainability in Entrepreneurship

Most commonly sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” according to the United Nations (WCED, 1987). This definition encompasses intra- and inter-generational justice in terms of social, ecological, and economic factors. This combination makes the concept of sustainability highly complex and hard to grasp. The 17 Sustainable Development Goals (SDGs) proposed by the UN (2015) serve as a roadmap towards a global sustainable future for all. Achieving these goals will require an immense effort, nothing short of a “great transition” of our society in numerous ways involving all societal actors.

At the micro-level of this great transition toward a sustainable world, sustainable entrepreneurs are stepping up to advance change alongside political, civil, and other business actors. The genuine economic role of entrepreneurs establishing sustainable ventures and business models will be to provide “future goods and services that sustain the natural and/or communal environment and provide development gain for others” (Shepherd & Patzelt, 2011, p. 632) as well as “promoting sustainable development through entrepreneurial corporate activities” (Lüdeke-Freund 2020, p. 667). However, this will not merely be a conventional function of economic supply. Rather, sustainable entrepreneurs, among others, serve as change agents in this process.

Sustainable entrepreneurs support the above transition via bottom-up “[i]nventions with the potential to create positive ecological and social effects, [however, they] need to leave their niches to turn into effective sustainability innovations” (Lüdeke-Freund 2020, p. 665). To extend their impact from local niches to the regime level (and potentially beyond), sustainable entrepreneurs may cooperate with stakeholders with a sustainability mission in the ecosystem around them acting as “an interconnected group of actors in a local geographical community committed to sustainable development” (O’Shea et al. 2021, p. 1097). The society-wide sustainable transition of, for example, production methods, value chains, or entire industries necessitates change of structures and institutions emerging from institutional entrepreneurs acting as the above change agents (Beckert, 1999). This requirement directly connects the entrepreneurial and the artificial, the inner- and the outer environments, through the notion of designing in respect of a desired future state (Simon & Barenfeld, 1969).

Sustainable development and digitization rank amongst the two greatest challenges, but also opportunities, our society is presently facing. Hence, they are often brought together under the term “twin transition.” The digital age could provide essential technical innovations to achieve decarbonization. However, while digitalization offers a plethora of opportunities to advance sustainable development, if both challenges are not solved with the other in mind, the long-term consequences could also be highly disadvantageous.

A key strategic ingredient of transforming bricks and mortar industries and their traditional supply and value chains will be the accompanying technological

innovation and ongoing digitalization of industrial routines, for example, employing IoT (Internet of Things), VR (virtual reality), or AI (artificial intelligence) technologies in sustainable new venture ideas or sustainable business models at the corporate level. The twin transition towards more sustainability and artificiality in social and economic life is the central arena of sustainable entrepreneurs who merge sustainable business ideas and digital technologies. Yet how entrepreneurs integrate both sustainability and digitalization into their processes remains poorly understood.

Considering this complex transition, entrepreneurs are adopting the role of suppliers of novel sustainable goods and services as well as being agents of change. In addition, sustainable entrepreneurs are also tasked with bearing the risks of exploring alternative promising, yet uncertain, sustainable problem solutions in the decarbonization of different domains of society such as mobility or food production. Towards this end, novel virtual and digital technologies carry great potential, but also encapsulate substantial uncertainty in terms of technical feasibility, societal acceptance, and commercial use. Navigating this unknown future is, and has always been, at the heart of risk-taking sustainable and general entrepreneurship.

5 Unforeseen Consequences of Artificiality in Sustainable Entrepreneurship

Current research on sustainable entrepreneurship in the context of artificial environments such as digital platforms and collaborative virtual environments, media spaces, video conferencing, and telepresence, in general, can be classified into three significant narratives: (1) new venture and entrepreneurial firms adapting to digital transformation and embracing it to open up for new business opportunities; (2) building new capabilities and learning mechanisms to enhance the competitiveness of a new venture or an entrepreneurial firm operating in the market predominated by the artificial environments, and finally, (3) setting new imperatives to relate with the customers and stakeholders in the ecosystems. The most ambitious sustainable entrepreneurs, in contrast to those who aim simply to do less harm or salve consciousness through optically aware CSR activities, intentionally seek net positive environmental and social impacts. As George et al. (2021) indicate, this commitment to transformative change “empowers a system view” that directly connects the inner and outer environments of the firm.

5.1 Embracing Digital Transformation and Opening Up New Business Opportunities

Digitalization and its impact on the internationalization models of SMEs by Aleksandra Gaweł, Katarzyna Mroczek-Dąbrowska and Maciej Pietrzykowski

Digitalization became a game-changing innovation in many aspects, including internationalization of the SMEs. The chapter poses an important question—how has digital transformation affected internationalization models of Polish SMEs? Based on a quasi-focus group study, the authors explore the unexpected consequences of digitalization in building competitive internationalization models. Several insights are offered at this point: digitalization shifted the notion of network from relatively small and co-dependent circle of partners to limitless, platform-like network of stakeholders; SMEs pursuing internationalization are keen to create and maintain excellent reputation, especially in that way addressing potential and still unknown partners; finally, digitalization shifted the focus from market knowledge and business experience to digital capabilities and maturity. The authors conclude that based on their exploratory study, Polish SMEs less acknowledge “stage model” and more appreciate “resource-based” internationalization model. This can be explained by increasing value of the digital capabilities and proficiency in contrast to operationally defining consecutive steps of international expansion.

Born digitals: understanding the sustainable competitive advantage across different markets
by Jurgita Sekliuckiene

The digitization of business is one of the driving forces in today's environment and appears to be an irreversible trend. Currently, we are seeing a digital transformation of companies and the emergence of companies that are digital from the start. Such born-digital companies have characteristics that enable them to expand rapidly in international markets and remain competitive in the long term. *Born digitals: understanding the sustainable competitive advantage across different markets* aims to analyze the characteristics of born-digital companies that lead to sustainable competitive advantage and develop a conceptual model that will serve as a basis for future research. Several sources of competitive advantage for digital companies are identified, such as innovativeness, creativity, responsiveness, digital technology, and digital workforce capabilities. A key finding relates to the role of creativity in the responsiveness of born-digital enterprises in times of change—a characteristic that supports their sustainable competitiveness. The newly defined characteristics and sources of competitive advantage of born digitals should conceptualize the approach of their competitive advantage across different markets as a complex dynamic construct that includes technology advantages, human capital advantages, and differentiation advantages.

The Value Chain Configuration in the Digital Entrepreneurship Age: Location Decisions and the Paradoxical Role of Digital Technologies by Zulima Fernández and Alicia Rodríguez

The Value Chain Configuration in the Digital Entrepreneurship Age: Location Decisions and the Paradoxical Role of Digital Technologies examines the relationship between Digital Entrepreneurship and Global Value Chains (GVCs). The analysis of the configuration of GVCs in the digital entrepreneurship age is presented by clarifying past contributions, examining work resulting from the Covid-19 pandemic, and outlining suggestions for future research. The chapter provides a

conceptual framework to understand the impact of Digital Technologies (DTs) on Digital Entrepreneurship, and how this impact is driving the transformation of GVCs. The framework also considers the impact of Covid-19, the new opportunities created for Digital Entrepreneurship, and consequences of Covid-19's on various other factors impacting GVCs.

The digital transformation of the global economy represents a shift to a new technological paradigm and, so, opportunities for the *creative destruction* that Schumpeter wrote of. In other words, a new landscape in which entrepreneurs can discover and launch new value-creating opportunities. At the heart of the chapter is a discussion of what the authors regard as the paradox the digital technologies bring to global value chains: the facility to extend or contract value chains. This is framed as the location paradox, the idea that digital technologies help firms to expand their geographical scope and reduce co-ordination costs in large and dispersed networks (which favours offshoring) while reducing the importance of the location of activities and shortening supply chains (which favours reshoring).

This chapter critically reviews the research on value chain configurations that has appeared as a result of the Covid-19 pandemic. And it also presents that Covid-19 has accelerated digital transformation upon which many sustainable competitive advantages for firms may depend. Further, it proposes that examination of the intersection between the literature on Digital Entrepreneurship, GVCs and Sustainability could be hugely important for the configuration of more sustainable value chains.

This chapter concludes with identifying promising areas of research that could yield insights that will advance the understanding of value chain configurations in the digital entrepreneurship age. The areas of research opportunities are presented in three sets: the specificities of different DTs and locations; new digital business models; and digital sustainability.

Entrepreneurial Thinking and Acting in the Context of Great Transformations in Germany—On the Relevance and Potential of Erschließung as an Integrative Approach by Ulrich Braukmann, Dominik Bartsch, Larissa Sternkopf and Thomas Schauf

Digital and sustainability transformation as an artefact of the global innovation economy inflict changes on the level of economy, politics, and society in Germany. Entrepreneurial mindset is seen as relevant measure to address these changes. The authors of the chapter aim to answer the question of how entrepreneurs and entrepreneurial organizations in Germany can effectively and legitimately engage in the Great Transformations of digitalization and sustainability and proactively shape them. As a result of the study four characteristics of the Great transformation are defined: a long-lasting nature which leads to the fundamental changes; big complexity and interdependencies; significant impact on societal changes; global reach of the Great Transformations. Consequently, digitalization and sustainability transformation cause “fundamental, intergenerational, intertemporal and international” challenges that are non-trivial. The solution can be offered by innovation intensive, sustainable entrepreneurial ventures that shift challenges into opportunities and develop new products, services, and processes that can drive less sustainable

products and service out of the market. Finally, the authors propose a number of future research avenues leading to a deeper understanding of the impact of Great Transformations on macro and organizational levels.

5.2 *Building New Capabilities and Learning Mechanisms to Enhance Competitiveness in the Market Predominated by the Artificial Environments*

The Evolution of the Dynamic Capabilities Framework by David J. Teece

David Teece's Dynamic Capabilities Framework has changed the way research looks at the innovation potential of companies. What distinguishes this framework from other perspectives on innovation is the dynamic nature with which we look at resources and capabilities of companies. And this is where entrepreneurship comes in. In this chapter "The Evolution of the Dynamic Capabilities Framework," Teece speaks of dynamic capability management, which must be entrepreneurial. Entrepreneurship takes place in a highly complex and dynamic context. Sustainability and artificiality in entrepreneurship are emerging relevant concepts that bring these dynamics in their ongoing evolution. Therefore, we cannot dive deeper into the different areas of these concepts without applying the flexible perspective that the Dynamic Capabilities Framework offers us.

Transforming a Highly Tactile Entrepreneurship Course "Ideas to Innovation" to an Entirely Online Delivery Model: Lessons for Theory and Practice by Egle Vaiciukynaitė, Orsolya Ihasz, Sergey Portyanko and Shailendra Vyakarnam

Long-lasting sustainability requires that practices can be adapted and flexibly adjusted to continue their success. However, maintaining successful practices was particularly difficult during Covid-19. Most importantly, new ways of learning had to be devised. This was particularly difficult in entrepreneurship education, where physical interactions to share ideas and expand one's network are crucial. In this chapter "Transforming a Highly Tactile Entrepreneurship Course 'Ideas to Innovation' to an Entirely Online Delivery Model: Lessons for Theory and Practice" Vaiciukynaitė et al. detail how the Ideas to Innovation course was redesigned for a remote online environment, yet achieved the same goals as physically collocated entrepreneurship training. The authors describe their journey, the obstacles they faced, and their recommendations for how digital interaction and collaboration can be facilitated to promote entrepreneurial self-efficacy and the development of an entrepreneurial mindset.

Applying eye-tracking technologies in the field of entrepreneurial education by Lina Kaminskienė, Ling Yi Chu and Kateryna Horlenko

Eye-tracking application in social sciences, including entrepreneurship education, has increased significantly. Traditional research with eye-tracking applications mainly concentrates on visual aspects in the learning process, including text

comprehension. A growing area of eye-tracking technologies is focused on entrepreneurship education, including teacher education, as schools are considered an essential stage for developing entrepreneurial competencies. However, as the field has evolved, it is time to take stock of the research that has been conducted and examine the growing methodological challenges associated with eye-tracking technology. The chapter in this book attempts to synthesize the current state of research, including its application and limitations, and offers fruitful ideas for future research.

5.3 *Setting New Imperatives to Relate with the Customers and Stakeholders in the Ecosystems*

Solutions of brand posts on Facebook to increase customer engagement using the Random Forest prediction model by Egle Vaiciukynaitė, Ineta Zickutė and Justas Salkevičius

Arguably, social media platforms have become the de facto archetypical artefact of the digital transformation of social and economic activity, both disrupting business models and providing opportunities for new. The context for the chapter *Solutions of brand posts on Facebook to increase customer engagement using the Random Forest prediction model* is the dilemma presented to businesses in managing the increasing use of social media platforms for a variety of purposes and the concurrent lack of predictability of the outcomes, in terms of customer engagement, of those efforts.

To address this, the authors look to predict Customer Engagement Behaviour (CEB), comprising of likes, shares, comments, and emoji reactions, by users of social media platforms on brand posts (posts by businesses) on social media platforms—in this case, Facebook in Lithuania. Specifically, the authors address the question “How to predict Customer Engagement Behaviours on Facebook based on features of a company’s posts (e.g., content types, media types, emotional cues)”?

Empirical data were collected from a sample of 1109 brand posts on Facebook pages of businesses based in Lithuania. The data were used to train models, based on the Random Forest method, to predict customer engagement behaviour based on features of brand posts, including time frame, content, and media type. A collection of nine binary classification models is created that can predict the popularity of a company’s post. Learning from the extant literature, a predictive model of CEB on Facebook is created and is trained based on the gathered data set. The study provides evidence to suggest that both the time frame and content types of brand posts matter for CEB on Facebook prediction. The findings support different drivers of posts that influence the number of likes and comments on Facebook and identify features that can be added to existing classifications of brand posts for improved customer engagement.

The chapter concludes that this approach to features of brand posts might be applied to other social media platforms such as Instagram and LinkedIn. The findings from this research may help organizations strategize to increase customer

engagement on social media and guide scholars for future research on brand posts on social media.

Entrepreneurial University and Social Innovation Ecosystems: Do They support HEIs knowledge-based Economic Development? by Nibedita Saha, Tomas Sáha and Petr Sáha

In general, universities and Higher Education Institutions (HEI) are shifting toward active players in the innovation and entrepreneurship ecosystem. University–Business interaction creates a mutual benefit through sharing knowledge relevant to advancing the entrepreneurial university’s social innovation ecosystem and sustainability. The authors aim to explore the nexus of the entrepreneurial university and the social innovation ecosystem that produce knowledge spillover. The study provides insights into how HEIs knowledge development approaches enact mechanisms that stimulate entrepreneurial mindset and spirit through leadership and governance.

Cultivating the impact of sustainable entrepreneurship—a discussion of upscaling approaches in sustainable entrepreneurial ecosystems by Kristin Krebs, Christine Volkmann and Marc Grünhagen

The Chapter seeks to build a discussion around the research question—how do entrepreneurial ecosystems support upscaling sustainable ventures and help them overcome associated barriers and dilemmas? The authors integrate existing knowledge on upscaling sustainable innovations and entrepreneurial ecosystem support for sustainable ventures. In the context of artificiality and sustainable entrepreneurship this chapter draws attention of the reader to engage stakeholders of the entrepreneurial ecosystems to support upscaling of the sustainable innovations in all its phases. Authors contend that, at present, the main focus of scholars has been on the early-stages of the formation of the sustainable ventures and their economic success. However, to upscale sustainable innovations new metrics of sustainable performance are needed to ensure the attention of all stakeholders in the entrepreneurial ecosystems. The chapter suggests that entrepreneurial ecosystems need to embrace non-economic performance of the sustainable ventures and appreciate their contribution in solving societal challenges. The unexpected consequences of the artefact of the sustainable ventures is that entrepreneurial ecosystems stumble to build and maintain sustainability orientation through the long term, especially when sustainable ventures require significant support in all phases of the upscaling.

6 Paving the Way for the Sustainable Future of Entrepreneurship in Artificial Environments

In their Academy of Management Review article Reflections on the 2010 AMR decade award: whither the promise? Moving forward with entrepreneurship as a science of the artificial, Venkataraman et al. (2012: 30) suggest that “Artefacts resulting from entrepreneurial actions and interactions embody knowledge combined with use in ways that transform the extant world into new opportunities.

These opportunities allow us not only to fashion new ways to achieve old ends but also to fabricate new ends.” In this edited collection, we have sought to illustrate these possibilities with an exploration of the past, present, and future of artificiality and sustainability in entrepreneurship, the unforeseen consequences, and how to head forward to a sustainable future. The concept of “Artificiality” was introduced by H.A. Simon, in his book “The Science of the Artificial” in 1969. Since then, the concept has been rooted in humanities, psychology, design and information and communication theory. However, much less the “Artificiality” concept was applied in management and business, including entrepreneurship. Simon himself was very limited in mentioning entrepreneurship in his works. Despite that, the concept of artificiality makes a significant contribution to the entrepreneurship literature by drawing the attention of entrepreneurs and other stakeholders in the entrepreneurship and innovation ecosystem to the possible consequences of the human-made artefacts (Benford et al., 1996). This calls for more attention to be paid to the sustainable entrepreneurship concept that, according to Shepherd and Patzelt (2011) and Lüdeke-Freund (2020), acknowledges innovative products/ services that sustain natural environments and assure development gain to other.

Consequently, the Edited collection based on the results of the diverse studies posed new questions that can serve as future research avenues. For example, how to assure sustainable internationalization of SMEs while shifting the focus from *market knowledge and business experience to digital capabilities and maturity?* How *born-digital enterprises* in times of change can build and maintain sustainable competitiveness? What is “Great transformation” and how innovative enterprises can help to diffuse more sustainable approach into the entrepreneurship and innovation ecosystem? Furthermore, still we need to explore the specificities of different digital technologies, new digital business models and digital sustainability.

Another robust set of future research question is around the capabilities sustainable entrepreneurs and ventures need. Still we have limited understanding in what are dynamic capabilities that assure competitiveness of born-digital ventures, ventures shifting towards digital and successful growth of the digital ventures. How we can better use digital technologies to educate a new generation of sustainable digital entrepreneurs?

Finally, despite the growing body of research on ecosystems, still there is room for new insights on sustainable customers’ engagement, the role of entrepreneurial university and how to develop social innovation ecosystem. Last but not least, how to maintain sustainable orientation of the ventures over longtime horizons? What is the role of each stakeholder of the entrepreneurial ecosystem in assuring long standing ventures’ sustainability focus?

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