

Elli Verhulst, Lise Aaboen, and Simon Jebsen*

Editorial: Sustainability in Entrepreneurship and Small- and Medium-Sized Enterprises

The UN Sustainable Development Goals (SDGs) are ubiquitous today. The SDG Business Forum (2017) recognised businesses' vital role in delivering the promise of sustainable and inclusive development. Until now, most academic research has focused on sustainability in large companies. This stands in stark contrast to the number of small- and medium-sized enterprises (SMEs) and start-ups, representing 9 out of 10 enterprises in Europe (European Commission, 2020), thereby playing a significant role in controlling the industry's footprint and contribution to a more sustainable society (Schaltegger & Wagner, 2011). In business ecosystems, SMEs act as customers, suppliers and complementors (Cenamor, 2021; Theodoraki et al., 2018), so as a group, they are influential actors controlling the resource flows. There are still many unanswered questions about approaching sustainability in entrepreneurship and SMEs. To become sustainable, entrepreneurs and SMEs need to consider social and environmental aspects in their business operations, in addition to being financially sound. Even though entrepreneurs and SMEs have many similar challenges, they are also different. Entrepreneurs start with a sustainable mission that may be challenged over time, while SMEs transfer to embed sustainability within an existing mission. Over the years, the research on sustainability in existing businesses has moved from an end-of-life focus looking at technical solutions for material recycling to reducing resources throughout the life cycle of products and services. A recent literature review by Cillo et al. (2019) emphasised internal managerial issues related to sustainability in innovation activities, studying structures, resources, capabilities and processes that can support environmental and social aims in innovation management. This resonates with Schaltegger and Wagner's (2011) study that proposed a comprehensive framework that can seamlessly integrate sustainable entrepreneurship with sustainable innovation. This approach assesses a company's environmental and social orientation and its market impact, thereby providing valuable insights for both theoretical understanding and practical

* Elli Verhulst: Norwegian University of Science and Technology (NTNU), Department of Industrial Economics and Technology Management, Academic Section Experts in Teamwork, and Engage, Centre for Engaged Education through Entrepreneurship, E-mail: elli.verhulst@ntnu.no

Lise Aaboen: Norwegian University of Science and Technology (NTNU), Department of Industrial Economics and Technology Management, NTNU School of Entrepreneurship, and Engage, Centre for Engaged Education through Entrepreneurship, E-mail: lise.aaboen@ntnu.no

Simon Jebsen: University of Southern Denmark, Department of Business and Sustainability/Center for Organising Social Sustainability, Campus Sønderborg, E-mail: simonf@sam.sdu.dk.

application in identifying those firms that are likely to advance in sustainability innovation. In addition, sustainability in entrepreneurship is an emerging and fast-growing research area (Hummels & Argyrou, 2021; Shepherd & Patzelt, 2011), with a focus on innovation, business models and the broader implications for sustainable development and societal well-being (Malpani & Ghosh, 2022; Ostermann et al., 2021).

This special issue focuses on three research topics indicated in recent research (Terán-Yépez et al., 2020; Sreenivasan & Suresh, 2023) that are receiving growing attention and need further exploration.

First, there is agreement on the need for a transition towards sustainability in entrepreneurship and SMEs. In this context, it is crucial to highlight the differences between SMEs and entrepreneurship. While SMEs adapt their business model towards sustainability (Caldera et al., 2019), nascent entrepreneurs start sustainable businesses (Vuorio, 2017). Previous research has gathered insights into the drivers and barriers during the integration process, showing that the route to take is seldom straightforward (Álvarez Jaramillo et al., 2019; Davies & Chambers, 2018). A growing number of studies in this field have focused on the shift from traditional to sustainable business models (Tsvetkova et al., 2020), whereby embedding sustainability in the business model can lead to hybridity tensions or dilemmas, such as sustainable resources of supply versus resources focusing on convenience and costs (Davies & Chambers, 2018). Recent studies moved the research in this field from a value chain towards an ecosystem perspective of sustainable business models, diving deeper into the innovation processes of such business models while pointing out the need for studying interconnections between business models and collaboration between stakeholders in the ecosystem (Bocken et al., 2019; Snihur & Bocken, 2022). Moreover, researchers have also advocated the inclusion of the social dimension, addressing processes of good work, organised well-being, fairness and inclusion (Lueg & Jebsen, 2024), as well as empowerment and engagement (Edmondson, 2019; Hauff & Rastetter, 2021; Verhulst & Boks, 2014).

Second, several tools have been proposed in the literature to support small business managers in increasing their awareness and improving their businesses' environmental and social performance (Johnson, 2013). These tools for integrating sustainability range from supporting environmental management systems (EMS) and environmental, social and governance reporting (ESG) to sustainability assessments, sustainable design and sustainable business model innovations. More research is needed on how sustainability tools can be adapted to specific contexts to ensure the adoption of the tools (Delgado-Serrano et al., 2016). This entails adaptations from approaches fitting the characteristics of larger existing companies to those of small businesses or start-ups.

Finally, sustainability challenges require competencies for sustainable development and entrepreneurship—generic and specific knowledge, skills and attitudes—to

tackle future complex sustainability challenges (Ploum et al., 2018; UNESCO, 2022). Higher education plays a significant role in educating future change agents (Zhou et al., 2020). More specifically, entrepreneurship education is highlighted as a crucial component of education for sustainable development (Zahrani, 2022). Several entrepreneurship education approaches have enabled universities to educate change agents in all disciplines (Aadland & Aaboen, 2020; Neergård et al., 2022), as evidenced by a recent study that revealed five distinct profiles among business students based on their sustainable and entrepreneurial attitudes, highlighting the need for targeted educational strategies that address the varied entrepreneurial intentions within these groups to effectively foster sustainable business practices (Jebsen et al., 2023). International collaborative educational initiatives present the teaching frameworks, methods and tools that connect sustainability with entrepreneurship education (Fauske et al., 2022; Zitek, 2021). However, there is a need for additional theoretical and empirical insights into which and how learning philosophies and pedagogical theories support sustainability and the role that curricular and extra-curricular sustainability initiatives play in moving entrepreneurial universities towards a sustainable transition.

In conclusion, this special issue highlights the need to explore critical research topics in sustainability, entrepreneurship, and SMEs further. Although significant strides have been made in these areas, additional theoretical and empirical insights remain needed to advance the understanding of sustainability in entrepreneurship and SMEs and support the transition towards a more sustainable future.

This Special Issue: The Process and Its Content

This special issue was connected to the Its21 conference in Trondheim, Norway 2022, with the theme 'Critical perspectives and the way forward' and a special track 'Sustainability in entrepreneurship and small businesses' at the NCSB Conference 2022 in Kolding, Denmark. In addition, there was an open call for papers for the special issue with a submission deadline of 31 August 2022. The submitted papers were sent for double-blind review with at least two reviewers for each paper, and the four papers that were finally accepted were through two to three rounds of review.

The four papers in this special issue bring together research addressing topics related to the integration of sustainability in SMEs, entrepreneurship, and learning for sustainability. Many of the articles focused on the methods, tools, and frameworks for sustainability, indicating the need for companies to provide more practical support in the integration process of sustainability in their businesses.

Simon et al. (this issue) investigate the underlying resources and capabilities when small agrifood firms integrate sustainability in their value chains in northern Germany, using a natural resource-based view. The authors find that stakeholder alignment in integrating sustainability is particularly important for these firms. Product stewardship and local philanthropy are highly related to this stakeholder

alignment. The practical impact of increasing the level of sustainability is large because the agrifood industry has traditionally been connected to adverse environmental impacts.

Küchler et al. (this issue) report on the development of a sustainability compass to be used by SMEs when managing sustainability. The tool includes a self-check, goal setting, and evaluation of fulfilment. It was developed for food manufacturing SMEs based on comparing eight existing frameworks. Using expert interviews, the tool is then critically evaluated; it is argued that the successful use of the tool depends on the intrinsic motivation for sustainability among the SME's management and employees.

Ademi et al. (this issue) review and categorise 40 support tools for business model innovations for sustainability (BMIfS), which is based on the following dimensions: BMIfS innovation stage, BMIfS type, BMIfS component, dynamic and iterative perspective and validation status. A key finding is that the tools generally tend to be static and focus on the business model innovation process rather than sustainability. Furthermore, there are still no tools available for BMIfS through acquisition.

Fauske et al. (this issue) map 51 types for learning sustainable entrepreneurship in higher education and evaluate them using Ploum et al.'s (2018) framework. The paper shows that most tools are borrowed from other disciplines, emphasising opportunity recognition and strategy by adding sustainability rather than tools designed explicitly for combining entrepreneurship and sustainability. Furthermore, it is suggested that the effectiveness of the tools needs to be evaluated and that they may need to be combined in education for students to become fully equipped for sustainable entrepreneurial action.

Avenues for Further Research

The papers in this special issue primarily focus on tools, showing that integrating sustainability in SMEs depends on the context of the SME and its employees. Stakeholders, value chains, customers and employees need to be aligned with and preferably intrinsically motivated by the goals that contribute to sustainable development. Simultaneously, the tools available to SME practitioners and educators for strengthening sustainability in SMEs and entrepreneurship tend to be general rather than context-specific and borrowed from different disciplines with other goals rather than designed to embed sustainability in businesses or start-ups. As a result, available tools mainly focus on a limited number of competencies for and dimensions of sustainable development. In other words, even though there is consensus in previous research that a transition to sustainable business is needed, this change has not yet become profound enough to develop tools for SMEs to support this transition. The research so far has primarily focused on the tools for strategic thinking and planning connected to business models, while other areas that may be particularly relevant for embedding sustainability in SMEs and among

entrepreneurs—such as tools for measuring outcomes and impact—remain largely unexplored.

Fauske et al. (in this issue), Küchler et al. (in this issue) and Ademi et al. (in this issue) all emphasise that the current tools for sustainability are static and simplistic. Future research on the development of tools for sustainability in SMEs and entrepreneurship needs to move beyond business models and facilitate activities other than strategising. This means that future tool development should incorporate interdisciplinarity to develop tools that align with the wicked problems with complicated interdependencies that sustainability challenges can be characterised as (Pryshlakivsky & Searcy, 2013). We encourage the design of iterative dynamic tools that focus on these interdependencies. Furthermore, future tools should facilitate interdisciplinary collaboration, often considered a prerequisite for organisations becoming sustainable (Koria et al., 2011), but it seldom receives substantial attention or support. Moreover, the tool by Küchler et al. (in this issue) assumes that SMEs use it several times to build on the results of the last use, but many tools are primarily designed for planning the transition. Based on this, we suggest that more tools be developed to measure the outcome and impact of the transition towards sustainability.

According to Snihur and Bocken (2022) and Theodoraki et al. (2018), sustainability research is moving from value chains to sustainable ecosystems. This highlights the interdependencies mentioned above and the need to continuously interact with a multitude of stakeholders. Simon et al. (in this issue) mention the importance of stakeholders when transitioning to sustainability. These studies emphasise the particular importance of SMEs by considering the surrounding ecosystem. Even though SMEs as a group play essential roles in ecosystems and the transfer to the sustainability of these ecosystems, individual SMEs have limited control and power in the ecosystem while simultaneously depending on it to survive. SMEs need to negotiate to develop their sustainability levels continuously. Hence, we encourage more research on how SMEs and start-ups should act and interact in their ecosystems over time to develop their level of sustainability.

Sustainability tools are only tools and, as mentioned by Küchler et al. (in this issue), their result depends on the user's motivation. For the tools to be helpful, SMEs and entrepreneurs need to have the competence to know when and how to use these tools and what other activities they need to do to support sustainable development. Fauske et al. (this issue) show that sustainable entrepreneurship education tends to revolve around the concept as well as how to plan and which issues to consider when managing sustainability. However, in the entrepreneurship education literature, action-based education and experience-based learning have become established forms of education to emphasise entrepreneurial action (Neck & Corbett, 2018; Verzat et al., 2017). Because it is an action towards sustainable development that is needed on several levels, not only managerial thinking, we also encourage a shift

in sustainable entrepreneurship education towards action-based learning. This shift also calls for developing train-the-trainer courses and tools that can help educators from different disciplines teach sustainable entrepreneurship or transition towards sustainability as part of their courses. Even though Fauske et al. (this issue) mention studies in higher education for sustainable entrepreneurship and educating future employees for SMEs, a similar competence development must also occur among management and employees inside and around existing SMEs.

This special issue presents promising research on developing tools for SMEs transitioning to sustainability and enhancing sustainable entrepreneurship education; it suggests exciting future research directions for fostering interdisciplinarity, practical action in education, and navigating complex ecosystems involving multiple stakeholders. However, given that the logic of sustainability is counterintuitive compared with traditional entrepreneurship based on growth, only a small portion of new ventures may be classified as sustainability transformers (Olteanu & Fichter, 2022). Moreover, because several stakeholders are involved in transitioning to sustainability and developing new ventures, policy regulations need to accelerate this shift. Given the complexity of sustainability at the societal level, further research is needed to investigate efficient policy regulations and how they may be implemented among entrepreneurs, SMEs and larger companies.

References

Aadland, T., & Aaboen, L. (2020). An entrepreneurship education taxonomy based on authenticity. *European Journal of Engineering Education*, 45(5), 711–728. <https://doi.org/10.1080/03043797.2020.1732305>

Álvarez Jaramillo, J., Zártha Sossa, J. W., & Orozco Mendoza, G. L. (2018). Barriers to sustainability for small and medium enterprises in the framework of sustainable development—Literature review. *Business Strategy and the Environment*, bse.2261. <https://doi.org/10.1002/bse.2261>

Bocken, N., Boons, F., & Baldassarre, B. (2019). Sustainable business model experimentation by understanding ecologies of business models. *Journal of Cleaner Production*, 208, 1498–1512. <https://doi.org/10.1016/j.jclepro.2018.10.159>

Cenamor, J. (2021). Complementor competitive advantage: A framework for strategic decisions. *Journal of Business Research*, 122, 335–343. <https://doi.org/10.1016/j.jbusres.2020.09.016>

Cillo, V., Petruzzelli, A. M., Ardito, L., & Del Giudice, M. (2019). Understanding sustainable innovation: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, 26(5), 1012–1025. <https://doi.org/10.1002/csr.1783>

Davies, I. A., & Chambers, L. (2018). Integrating hybridity and business model theory in sustainable entrepreneurship. *Journal of Cleaner Production*, 177, 378–386. <https://doi.org/10.1016/j.jclepro.2017.12.196>

Delgado-Serrano, M. del M., Vanwildeveldt, P., London, S., Ortiz-Guerrero, C., Escalante Semerena, R., & Rojas, M. (2016). Adapting prospective structural analysis to strengthen sustainable management and capacity building in community-based natural resource management contexts. *Ecology and Society*, 21(2). <https://doi.org/10.5751/ES-08505-210236>

Edmondson, A. C. (2018). *The fearless organisation: Creating psychological safety in the workplace for learning, innovation and growth*. John Wiley & Sons.

European Commission (Ed.). (2020). *User guide to the SME definition*. Publications Office of the European Union. <https://op.europa.eu/en/publication-detail/-/publication/79c0ce87-f4dc-11e6-8a35-01aa75ed71a1/language-en>

Fauske, I. M., Vallipuram, H., Foldnes, B.-E., Verhulst, E., Wigger, K., & Solvoll, S. (2022). *Teaching sustainable entrepreneurship: Learning approaches, pedagogical methods and teaching tools*. Nord Universitet. <https://hdl.handle.net/11250/2994028>

Hauff, S., & Rastetter, D. (2021). Good work: Eroding and new standards in a changing world. *Management Revue – Socio-Economic Review*, 32(3), 147–151. <https://doi.org/10.5771/0935-9915-2021-3-147>

Hummels, H., & Argyrou, A. (2021). Planetary demands: Redefining sustainable development and sustainable entrepreneurship. *Journal of Cleaner Production*, 278, 123804. <https://doi.org/10.1016/j.jclepro.2020.123804>

Jebsen, S., Senderovitz, M., & Winkler, I. (2023). Shades of green: A latent profile analysis of sustainable entrepreneurial attitudes among business students. *The International Journal of Management Education*, 21(3), 100860. <https://doi.org/10.1016/j.ijme.2023.100860>

Johnson, M. P. (2015). Sustainability management and small and medium-sized enterprises: Managers' awareness and implementation of innovative tools. *Corporate Social Responsibility and Environmental Management*, 22(5), 271–285. <https://doi.org/10.1002/csr.1343>

Koria, M., Graff, D., & Karjalainen, T.-M. (2011). Learning design thinking: International design business management at Aalto University. *Review on Design, Innovation and Strategic Management*, 2(1), 1–21. https://www.researchgate.net/profile/Mikko-Koria/publication/301279472_Learning_Design_Thinking_International_Design_Business_Management_at_Aalto_University/links/570eace108aee76b9dadf8c8/Learning-Design-Thinking-International-Design-Business-Management-at-Aalto-University.pdf

Lueg, K., & Jebsen, S. (2024). Social sustainability and good work in organisations: Exploring how and why a recent phenomenon is being enacted. In K. Lueg & S. Jebsen (Eds.), *Social sustainability and good work in organisations* (pp. 1–17). Taylor & Francis. <https://doi.org/10.4324/9781003306436-1>

Malpani, R., & Ghosh, A. (2023). Corporate social responsibility practices: A strategy for Indian startups to sustain. *Business Perspectives and Research*, 11(2), 246–268. <https://doi.org/10.1177/22785337211070357>

Neck, H. M., & Corbett, A. C. (2018). The scholarship of teaching and learning entrepreneurship. *Entrepreneurship Education and Pedagogy*, 1(1), 8–41. <https://doi.org/10.1177/2515127417737286>

Neergård, G.-B., Aaboen, L., & Politis, D. (2022). Enabling entrepreneurial empowerment through a three-day entrepreneurship camp. *Entrepreneurship Education and Pedagogy*, 5(4), 658–685. <https://doi.org/10.1177/25151274211070457>

Olteanu, Y., & Fichter, K. (2022). Startups as sustainability transformers: A new empirically derived taxonomy and its policy implications. *Business Strategy and the Environment*, 31(7), 3083–3099. <https://doi.org/10.1002/bse.3065>

Ostermann, C. M., Nascimento, L. da S., & Zen, A. C. (2021). Business model innovation for circular economy in fashion industry: A startups' perspective. *Frontiers in Sustainability*, 2. <https://doi.org/10.3389/frsus.2021.766614>

Ploum, L., Blok, V., Lans, T., & Omta, O. (2018). Towards a validated competence framework for sustainable entrepreneurship. *Organization & Environment*, 31(2), 113–132. <https://doi.org/10.1177/1086026617697039>

Pryshlakivsky, J., & Searcy, C. (2013). Sustainable development as a wicked problem. In S. F. Kovacic & A. Sousa-Poza (Eds.), *Managing and engineering in complex situations* (pp. 109–128). Springer Netherlands. https://doi.org/10.1007/978-94-007-5515-4_6

Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: Categories and interactions. *Business Strategy and the Environment*, 20(4), 222–237. <https://doi.org/10.1002/bse.682>

Shepherd, D. A., & Patzelt, H. (2011). The new field of sustainable entrepreneurship: Studying entrepreneurial action linking “What is to be sustained” with “What is to be developed.” *Entrepreneurship Theory and Practice*, 35(1), 137–163. <https://doi.org/10.1111/j.1540-6520.2010.00426.x>

Snihur, Y., & Bocken, N. (2022). A call for action: The impact of business model innovation on business ecosystems, society and planet. *Long Range Planning*, 55(6), 102182. <https://doi.org/10.1016/j.lrp.2022.102182>

Sołoducha-Pelc, L. (2020). Sustainable entrepreneurship. Utopian idea or a new business model for the 21st century? In *Contemporary organisation and management. Challenges and trends* (pp. 205–219). Wydawnictwo Uniwersytetu Łódzkiego. <https://doi.org/10.18778/8220-333-2-12>

Sreenivasan, A., & Suresh, M. (2023). Exploring the contribution of sustainable entrepreneurship toward sustainable development goals: A bibliometric analysis. *Green Technologies and Sustainability*, 1(3), 100038. <https://doi.org/10.1016/j.grets.2023.100038>

Terán-Yépez, E., Marín-Carrillo, G. M., Casado-Belmonte, M. del P., & Capobianco-Uriarte, M. de las M. (2020). Sustainable entrepreneurship: Review of its evolution and new trends. *Journal of Cleaner Production*, 252, 119742. <https://doi.org/10.1016/j.jclepro.2019.119742>

Theodoraki, C., Messeghem, K., & Rice, M. P. (2018). A social capital approach to the development of sustainable entrepreneurial ecosystems: An explorative study. *Small Business Economics*, 51(1), 153–170. <https://doi.org/10.1007/s11187-017-9924-0>

Tsvetkova, D., Bengtsson, E., & Durst, S. (2020). Maintaining sustainable practices in SMEs: Insights from Sweden. *Sustainability: Science Practice and Policy*, 12(24), 10242. <https://doi.org/10.3390/su122410242>

UNESCO. (2022). *Knowledge-driven actions: Transforming higher education for global sustainability*. UNESCO Global Independent Expert Group on the Universities and the 2030 Agenda. <https://doi.org/10.54675/ybtv1653>

United Nations. (2017). *SDG business forum – Sustainable development knowledge platform*. <https://sustainabledevelopment.un.org/hlfp/SDGBusinessForum>

Verhulst, E., & Boks, C. (2014). Employee empowerment for sustainable design. *The Journal of Corporate Citizenship*, 55, 73–101. <http://www.jstor.org/stable/jcorpciti.55.73>

Verzat, C., O’Shea, N., & Jore, M. (2017). Teaching proactivity in the entrepreneurial classroom. *Entrepreneurship and Regional Development*, 29(9–10), 975–1013. <https://doi.org/10.1080/08985626.2017.1376515>

Zahrani, A. A. (2022). Promoting sustainable entrepreneurship in training and education: The role of entrepreneurial culture. *Frontiers of Environmental Science & Engineering in China*, 10. <https://doi.org/10.3389/fenvs.2022.963549>

Zhou, L., Rudhumbu, N., Shumba, J., & Olumide, A. (2020). Role of higher education institutions in the implementation of sustainable development goals. In G. Nhamo & V. Mjimba (Eds.), *Sustainable development goals and institutions of higher education* (pp. 87–96). Springer International Publishing. https://doi.org/10.1007/978-3-030-26157-3_7

Zitek, A. (2021). *The Sustainable Entrepreneurship Teaching Model & Design Tool (I03)*. Final Multiplier Event and 1st International Conference for Sustainable Entrepreneurship Education, online. <https://intrinsic.eu/index.html#Publications>