Received: 21 November 2022 | Revised: 11 January 2023 | Accepted: 15 January 2023

DOI: 10.1002/bse.3377

RESEARCH ARTICLE

Business Strategy and the Environment

WILEY

Creating shared value through open innovation approaches: Opportunities and challenges for corporate sustainability

Mark Anthony Camilleri[1,2,3] | Ciro Troise[4] | Serena Strazzullo[5] | Stefano Bresciani[4]

[1]Department of Corporate Communication, Faculty of Media and Knowledge Management, University of Malta, Msida, Malta

[2]Medill School of Journalism, Media, Integrated Marketing Communications, University in Evanston, Evanston, Illinois, USA

[3]The Business School, University of Edinburgh, Edinburgh, UK

[4]Department of Management, University of Turin, Turin, Italy

[5]Department of Industrial Engineering, University of Naples Federico II, Naples, Italy

Correspondence
Mark Anthony Camilleri, Department of Corporate Communication, Faculty of Media and Knowledge Management, University of Malta, Msida MSD2080, Malta.
Email: mark.a.camilleri@um.edu.mt

Funding information
This research was supported by the University of Malta's academic resources.

Abstract

To date, few researchers have linked open innovation approaches with triple bottom line corporate sustainability objectives in terms of economic, social, and environmental performance. A systematic review suggests that the businesses' collaborative relationships with external consultants or organizations can increase their competitive advantage, as external stakeholders could assist them in the development of sustainable innovations, diversification into different markets, and in the generation of new revenue streams. At the same time, they can support them in addressing numerous deficits in society. On the other hand, this contribution implies that an organizational culture that promotes open innovation approaches could expose practitioners to risks and uncertainties, like revealing sensitive information to outsiders, among others. In reality, it may prove difficult for the businesses to trust new partners, as they are not subject to their organizations' codes of conduct, rules, and regulations.

KEYWORDS
corporate social responsibility, corporate sustainability, creating shared value, open innovation, stakeholder engagement, strategic CSR

1 | INTRODUCTION

Big businesses are breaking down traditional silos among their internal departments to improve knowledge flows within their organizations and/or when they welcome external ideas and competences from external organizations (Aakhus & Bzdak, 2015; Chesbrough, 2003; Chesbrough & Bogers, 2014). Open innovation is related to the degree of trust and openness with a variety of stakeholders (Chesbrough, 2020; Leonidou et al., 2020; Zhu et al., 2019). Debately, this concept clearly differentiates itself from closed innovation approaches that are associated with traditional, secretive business models that would primarily rely on the firms' internal competences and resources. In the latter case, the companies would withhold knowledge about their generation of novel ideas, including incremental and radical innovations within their research and development (R&D) department. They would be wary of leaking information to external parties. This is in stark contract with open innovation.

Open innovation is rooted in the belief that the dissemination of knowledge and collaboration with stakeholders would lead to win-win outcomes for all parties. Chesbrough (2003) argued that companies can maximize the potential of their disruptive innovations if they work in tandem with internal as well as with external stakeholders (rather than on their own) in order to improve products and service delivery. His open innovation model suggests that corporations ought to

Abbreviations: CESI, Cultural Ecosystem Service Innovation; COVID-19, coronavirus disease 2019; CSR, corporate social responsibility; ESG, environmental, social and governance; KBV, knowledge-based view; OI, open innovation; OI2, open innovation 2.0; OIS, open innovation for sustainability; PPP, public-private partnership; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses; R&D, research and development; RBV, resource-based view; ROA, return on assets; SMEs, small and medium sized enterprises.

benefit from diverse pools of knowledge that are distributed among companies, customers, suppliers, universities, research center industry consortia, and startup firms.

Chesbrough (2020) distinguished between different types of insider information that could or could not be leaked to interested parties. He cautioned that sensitive information (he referred to as the "Crown Jewels") ought to be protected and can never be revealed to external stakeholders. Nevertheless, he argued that an organization can selectively share specific communications with a "Middle Group" comprising key customers, suppliers, and/or partners in order to forge closer relationships with them. The companies' internal R&D departments can avail themselves from their consumers' insights as well as from external competences, capabilities, and resources, to cocreate value to their business and to society at large.

Chesbrough (2020) went on to suggest that a company should open-up their "long tail of intellectual property to everyone." He contended that organizations may do so to save on their patent renewal fees. During the coronavirus (COVID-19) pandemic, many businesses joined forces and adopted such an intercompany open innovation approach to mass produce medical equipment. For instance, Ford Motor Co. sent its teams of engineers to consult with counterparts at 3M and General Electric to produce respirators, ventilators, and new 3-D-printed face shields, for the benefit of healthcare employees and COVID-19 patients (Washington Post, 2020).

Corporations are increasingly collaborating with experts hailing from diverse industry sectors to innovate themselves and to search for new sources of competitive advantage (Porter & Kramer, 2011; Roszkowska-Menkes, 2018). They may usually resort to open innovation approaches when they engage with talented individuals who work on a freelance basis or for other organizations, to benefit from their support. There is scope for companies to forge fruitful relationships with external stakeholders, who may be specialized in specific fields, to help them identify trends, penetrate into new markets, to develop new products, or to diversify their business model, to establish new revenue streams for their firm (Camilleri & Bresciani, 2022; Centobelli, Cerchione, Chiaroni, et al., 2020; Su et al., 2022). These stakeholders can add value to host organizations in their planning, organization, and implementation of social and environmentally sustainable innovations (Camilleri, 2019a; Sajjad et al., 2020).

Open innovation holds great potential to create shared value opportunities for business and society (Aakhus & Bzdak, 2015; Alberti & Varon Garrido, 2017; Roszkowska-Menkes, 2018). This argumentation is closely related to the strategic approach to corporate social responsibility (CSR) and to the discourse about corporate sustainability (Camilleri, 2022a; Eweje, 2020). Previous literature confirmed that open innovation processes can have a significant effect on the companies' triple bottom line in terms of their economic performance as well as on their social and environmental credentials (Gong et al., 2020; Grunwald et al., 2021; Mendes et al., 2021; Testa et al., 2018).

The businesses' ongoing engagement with their valued employees may result in a boost in their intrinsic motivations, morale, job satisfaction, and low turnover levels and could increase their productivity levels (Camilleri, 2021; Chang, 2020; Kumar & Srivastava, 2020; Schmidt-Keilich & Schrader, 2019). Their collaboration with external (expert) stakeholders may lead to positive outcomes including to knowledge acquisition, operational efficiencies, cost savings, and to creating new revenue streams from the development of innovative projects, among others (Ghodbane, 2019; Huizingh, 2011). Open innovation agreements are clearly evidenced when businesses forge strong relationships with internal and external stakeholders to help them plan, develop, promote, and distribute products (Bresciani, 2017; Camilleri, 2019b; Chesbrough & Bogers, 2014; Greco et al., 2022; Loučanová et al., 2022; Troise et al., 2021). They may do so to be in a better position to align corporate objectives (including to increase their bottom lines) with their social and environmental performance (Alberti & Varon Garrido, 2017; Herrera & de las Heras-Rosas, 2020; Mendes et al., 2021).

1.1 | Research questions

Currently, there are limited perspectives in academia linking open innovation approaches with the business ethics literature (Amor-Esteban et al., 2019; Roszkowska-Menkes, 2018). Even fewer are elaborating on the importance of forging fruitful and collaborative agreements with internal and external stakeholders, to foster social innovations in terms of environmental, social, and governance (ESG) performance (Ben Hassen & Talbi, 2022; Camilleri, 2022b; Ghodbane, 2019; Herrera & de las Heras-Rosas, 2020; Kumar & Srivasava, 2020; Roszkowska-Menkes, 2018; van Lieshout et al., 2021). Therefore, this contribution addresses a knowledge gap in academia. Specifically, its research questions are: *How and to what extent could for-profit entities engage in trustworthy, open innovation approaches to leverage their financial performance? Can their cooperative partnerships with external stakeholders lead to beneficial outcomes to society and the environment? What are the opportunities and challenges facing host organizations and their collaborators?*

The authors of this research are pleased to share the findings from their rigorous review of the relevant literature that is focused on "open innovation," "corporate sustainability," and "corporate responsibility." They rely on the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)* methodical protocol to extract publications from high impact journals and to synthesize their content. The researchers shed light on past contributions' research questions, methodologies, and implications. Moreover, they clarify the opportunities and threats of using open innovation approaches to create shared value for the businesses and to society at large. In short, it implies that specific stakeholders may turn out to be very useful for host organizations, as they can help them create a competitive advantage, particularly when they share their knowledge, capabilities, and resources to advance incremental and radical social innovations (Ben Hassen & Talbi, 2022; Döll et al., 2022). In conclusion, the authors of this original article put forward their implications, identify its limitations, and present future research directions to academia.

2 | METHODOLOGY

PRISMA's robust protocol was used to capture and analyze articles focused on open innovation approaches that create value for business

and society. This analytical method instills confidence in the results as it meets rigorous and trustworthiness criteria for inductive research (Lincoln & Guba, 1985). Hence, future scholars can replicate this study in different contexts if they follow the same procedures that are employed in this research. PRISMA increases the confidence in the results as the applied methodology can be corroborated by other scholars. It provides a clear account of the inclusion and exclusion criteria that were used to extract the findings from previous literature.

The researchers' systematic review involved a thorough evaluation of high impact articles and reviews that feature "open innovation" and "corporate social responsibility" or "corporate sustainability" or "shared value" or "triple bottom line," in their title, abstracts or keywords (through Scopus-indexed journals). Table 1 summarizes the search criteria:

Scopus yielded a list of 45 publications. It identified the contributing authors, identified their documents' titles, year of publication, number of citations, and the publishing sources (e.g., journal titles). Moreover, it sorted them (chronologically, by number of citations, by relevance, alphabetically, and/or by source title). It shed light on the most prolific authors, source titles, the subject areas, keywords, and even distinguished between different publication stages, author affiliations, funding sponsors, and countries/territories.

The findings revealed that there were no publications on topics linking open innovation to CSR, corporate sustainability, triple bottom line, and/or to the shared value argumentations before the year 2007. The most listed keywords from the extracted contributions were as follows: Open Innovation (23), Sustainability (11), Innovation (10), Corporate Social Responsibility (9), Business Model (4), Corporate Sustainability (4), Sustainable Development (4), COVID-19 (3), Human (3), and Shared Value (3).

3 | ANALYSIS OF THE EXTRACTED ARTICLES AND A SYNTHESIS OF THEIR CONTENT

Table 2 outlines all those authors who published articles on the topics of this research. It clearly indicates each article's source title, year of publication, research question(s), and description of the methodology that was used to collect primary and/or secondary data and also summarizes its implications. The following publications are sorted in alphabetical order (as of October 30, 2022)

The researchers identify main themes that were discussed in the extracted articles. They also provide a clear definition of the key concepts, as reported in Table 3. The following section synthesizes the content of past contributions to deliberate about open innovation opportunities and challenges for host organizations as well as for their collaborators.

TABLE 1 Inclusion and exclusion criteria for the systematic review

Search Criterion	Inclusion	Exclusion
Repository	Scopus	Other sources
Publication type	Articles, including experimental, quantitative (survey), qualitative (interviews), reviews (conceptual, content analyses, discursive, meta-analyses)	Books, book series, chapters, conference proceedings, trade publications
Date	Open (no specific date was specified)	
Language	English	Other languages

3.1 | Open innovation opportunities

In the main, many commentators noted that open innovation approaches have brought positive outcomes for host organizations and their collaborators. The research questions of the extracted contributions (that are reported in Table 2) indicated that in many cases, companies are striving in their endeavors to build productive relationships with different stakeholders (Mtapuri et al., 2022; Peña-Miranda et al., 2022; Shaikh & Randhawa, 2022), to create value to their businesses as well as to society (Döll et al., 2022; Ghodbane, 2019; Roszkowska-Menkes, 2018). Very often, they confirmed that open innovation practitioners are promoting organizational governance (Aakhus & Bzdak, 2015; Sánchez-Teba et al., 2021), fair labor practices (Chang, 2020; Herrera & de las Heras-Rosas, 2020; Kumar & Srivastava, 2020; Schmidt-Keilich & Schrader, 2019), environmentally responsible investments (Aakhus & Bzdak, 2015; Cigir, 2018; Mendes et al., 2021; van Lieshout et al., 2021; Yang & Roh, 2019), and consumer-related issues (Greco et al., 2022; Loučanová et al., 2022; Wu & Zhu, 2021; Yang & Roh, 2019), among other laudable behaviors.

Many researchers raised awareness on the corporate sustainability paradigm (van Marrewijk, 2003) as they reported about the businesses' value creating activities that are synonymous with the triple bottom line discourse, in terms of their organizations' social, environment, and economic performance (Chang, 2020; Döll et al., 2022; Su et al., 2022; van Lieshout et al., 2021; Yang & Roh, 2019).

Other authors identified strategic CSR (Fontana, 2017; Porter & Kramer, 2006) practices and discussed about shared value perspectives (Abdulkader et al., 2020; Porter & Kramer, 2011) that are intended to improve corporate financial performance while enhancing their social and environmental responsibility credentials among stakeholders (Ghodbane, 2019; Roszkowska-Menkes, 2018; Sánchez-Teba et al., 2021).

Mendes et al. (2021) argued that strategic CSR was evidenced through collaborative approaches involving employees and external stakeholders. They maintained that there is scope for businesses to reconceive their communication designs with a wide array of stakeholders. Similarly, Aakhus and Bzdak (2015) contended that stakeholder engagement and open innovation processes led to improved decision making, particularly when host organizations consider investing in resources and infrastructures to be in a better position to address the social, cultural, and environmental concerns.

TABLE 2 Academic articles focused on the intersection of open innovation approaches and corporate sustainability

Authors	Year	Source title	Research question	Methodology	Implications
Aakhus and Bzdak	2015	*Journal of Public Affairs*	This research elaborates on stakeholder engagement and shared value communication designs.	Conceptual/literature review	This contribution implies that stakeholder networks add value to the business as they address matters of social, cultural, environmental, and economic concerns. It suggests that stakeholder engagement improves organizational decision making about investing in communication resources and infrastructure.
Abdulkader et al.	2020	*Business Process Management Journal*	This research sheds light on value co-creation through the integration of open innovation principles and mechanisms of business process management approaches that support value systems.	Conceptual/literature review	The contribution puts forward a new framework that links strategic models with operational planning. It integrates the characteristics of value systems and open innovation approaches.
Alberti et al.	2017	*Journal of Business Strategy*	This research explores how hybrid organizations have developed commercially viable business models to create positive social and environmental change. Its purpose is to raise awareness on how traditional businesses can utilize open innovations approaches to improve their business.	Case studies	This contribution posits that there is scope for businesses to create shared value by aligning profits and societal impact as the latter are a driver of long-term competitive advantage.
Altuna et al.	2015	*European Journal of Innovation Management*	This research delves into how for-profit organizations can develop a capability to manage social innovation projects.	Case study	This contribution reveals that profitable organizations can utilize ambidextrous approaches to integrate social innovations in their business strategy.
Baima et al.	2020	*Business Process Management Journal*	This research investigates how the dissemination of knowledge leads to value creation in the craft beer industry.	Case study	This contribution suggests that open innovations can help businesses to develop their networks, to enhance the culture of their territory, and to increase their competitiveness, among other positive outcomes.
Ben Hassen and Talbi	2022	*International Journal of Innovation Management*	This research examines the impact of innovation on corporate financial and social performance among listed firms.	Quantitative	This contribution reports that product innovation and open innovation approaches add value to the firms' performance in terms of their return on assets (ROA). The researchers found that open and technological innovations (process and product innovations) have a positive effect on their CSR strategies.
Boehmke and Hazen	2017	The Future of Supply Chain Information Systems: The Open Source Ecosystem	This research discusses about the advantages of open sourcing products across several domains.	Conceptual/literature review	This contribution implies that firms should consider open sourcing information systems. It reported that open sourcing may result in improvements in flexibility,

TABLE 2 (Continued)

Authors	Year	Source title	Research question	Methodology	Implications
					agility, and operational performance and can add value to the businesses' triple bottom line objectives.
Boersma	2007	*Journal of Management History*	This research describes the history of the research and development (R&D) of Royal Philips Electronics of The Netherlands.	Case study	This contribution indicates that manufacturing organizations ought to find a trade-off between scientific activities and industrial production.
Brenner	2018	*Sustainability* (Switzerland)	This research relies on the resource-based view and the relevant literature focused on digitization to explain how organizations can capitalize on dynamic transformative capabilities to generate value propositions.	Conceptual/literature review	This contribution puts forward a multifaceted framework of transformative sustainable business models, spanning three levels: the external environment, the organization, and the individual.
Carayannis et al.	2021	*IEEE Transactions on Engineering Management*	This research relies on the quadruple/quintuple helix innovation models to put forward an integrated framework for social innovation.	Conceptual/case studies	This contribution raises awareness on the nature and dynamics of social co-opetitive fractal ecosystems that link civil society, political structures, environment, and sustainability issues.
Chang	2020	*International Journal of Environmental Research and Public Health*	This research investigates green co-innovation performance in Taiwanese manufacturing companies.	Quantitative	This contribution shows that companies need to improve their appropriability regime measures (to safeguard intangible assets). The authors suggest that they should increase the perceived similarity (of their employees sharing a similar work ethic or common cultural background) and green open innovation activities.
Chaurasia et al.	2020	*Journal of Knowledge Management*	This research explores themes of open innovation for sustainability (OIS). It examines critical success factors (i.e., knowledge management systems, openness, and organizational structures) that can create value in micro, small, and medium manufacturing enterprises.	Conceptual/literature review	This contribution demonstrates that knowledge management systems, openness, and communicative organizational structures are important antecedents that can lead to the creation of shared value for the businesses and to society.
Cigir	2018	*WIT Transactions on Ecology and the Environment*	This research sheds light on the living lab concept (i.e., a user-centered open-innovation notion that integrates concurrent research and innovation processes), in the context of sustainable and responsible tourism.	Conceptual/literature review	This contribution promotes the understanding of a living lab environment. The researchers suggest that a living lab is dependent on collaborative relationships among stakeholders in order to create and maintain sustainable innovations in the tourism context.

(Continues)

TABLE 2 (Continued)

Authors	Year	Source title	Research question	Methodology	Implications
Colabi et al.	2022	*Journal of Information Technology Management*	This research examines the effects of digital transformation, open innovation, and value co-creation on corporate sustainability.	Quantitative	This contribution indicates that digital transformation (specifically a gamification process) has a significant effect on corporate sustainability and value co-creation.
Curley	2015	*Journal of Innovation Management*	This research discusses about the evolution of open innovation and proposes a new paradigm, entitled, Open Innovation 2.0 (OI2).	Discursive	This contribution implies that OI2 could create a different order of quadruple helix (sustainable) innovations.
Döll et al.	2022	*Journal of Open Innovation: Technology, Market, and Complexity*	This research explores corporate venture capital programs of listed companies in the Corporate Sustainability Index (ISE B3).	Quantitative	This contribution reports that listed companies are increasingly implementing programs that contemplate sustainability initiatives in addition to financial investments. The researchers reported that companies spend from 10% to 15% of their capital on sustainable businesses in order to remain competitive.
Ferraris et al.	2020	*International Entrepreneurship and Management Journal*	This research analyzes (open) innovation in public governments. It sheds light on the barriers and challenges that public governments face in smart city development.	Qualitative	This contribution suggests that the lack of planning, organization and coordination of resources, and risk aversion, among other factors, are having an impact on smart city development.
Friedrich	2021	*Journal of Cleaner Production*	This research explores the conditions required for an innovative plastics transition within the fashion industry.	Qualitative	This contribution raises awareness on the bioplastics derived from clothing. The researcher argues that they are recyclable via reverse logistics. He suggests that the bioplastics that are used in apparel packaging could be used as compost and returned to the natural cycle by the consumers themselves.
Ghodbane	2019	*Journal of System and Management Sciences*	This research investigates the mediating effect of open innovation on the relationship between corporate social responsibility and corporate performance.	Quantitative	This contribution implies that different modes of strategic corporate social responsibility can achieve positive outcomes that increase organizational performance, particularly if practitioners engage in R&D and open innovation approaches.
Greco et al.	2022	*Industrial Marketing Management*	This research sheds light on the motivations behind inter-organizational collaborations that are intended to support COVID-related innovation projects.	Qualitative	This contribution indicates that radical innovations are supported by either transversal alliances involving horizontal collaboration (for R&D purposes) and/or by

TABLE 2 (Continued)

Authors	Year	Source title	Research question	Methodology	Implications
					vertical alliances like supplier–customer collaborations. The researchers suggest that incremental innovations often occur without industrial motivations and are supported by either vertical or horizontal collaborations with stakeholders.
Grunwald et al.	2021	*Journal of Entrepreneurship and Public Policy*	This research delves into the requirements for stakeholder integration in sustainability project partnerships during COVID-19. The researchers develop a conceptual framework for stakeholder integration.	Conceptual/literature review	This contribution reports that the pandemic has increased the need for constant and comprehensive exchange of data between organizations and their stakeholders. The researchers provide their recommendations for the successful implementation of sustainability projects during crisis situations.
Herrera and de las Heras-Rosas	2020	*Journal of Open Innovation: Technology, Market, and Complexity*	This research explores economic and non-economic aspects relating to the sustainability of family businesses.	Bibliometric analysis	This contribution posits that "socioemotional-wealth," corporate social responsibility, and human resources practices can improve the sustainability of family businesses. The researchers commend that firms ought to foster business-oriented organizational cultures and should continuously invest in intergenerational knowledge transfer, ongoing innovations, and in internationalization strategies.
Holmes and Smart	2009	*R and D Management*	This research elaborates on how open innovation practices can be applied in inter-organizational contexts within the voluntary or charitable sectors.	Case studies	This contribution shows that the value of an open innovation approach is driven by the need to address societal issues rather than by motivations to increase profits. The authors maintain that stakeholder engagement practices add value to the businesses as they deliver innovations while improving organizational legitimacy in society.
Ketonen-Oksi and Valkokari	2019	*Technology Innovation Management*	This research provides insights about innovation ecosystems. The researchers describe them as structures that foster multi-actor value co-creation.	Case study	This contribution implies that efforts must be made by various actors to ensure the successful implementation of ecosystem activities that co-create value for all stakeholders.
Khan et al.	2022				

(Continues)

TABLE 2 (Continued)

Authors	Year	Source title	Research question	Methodology	Implications
		Journal of Open Innovation: Technology, Market, and Complexity	This research discusses about alternative funding opportunities for higher education institutions.	Conceptual/literature review	This contribution raises awareness on the importance to attract investors to finance higher education, to ease the burden on the government. The researchers suggest that the universities ought to collaborate with industry practitioners to deliver quality education.
Loučanová et al.	2022	*Journal of Open Innovation: Technology, Market, and Complexity*	This research examines the individuals' attitudes toward purchasing eco-innovative products.	Quantitative	This contribution finds that consumers are not well acquainted with eco-innovative products. They indicate that they consider them as costlier than other options. The researchers recommend that businesses ought to use marketing communications to promote such sustainable products.
Marsh et al.	2022	*Sustainability: Science, Practice, and Policy*	This research raises awareness on the European Union-funded Horizon 2020 project that has been successful in creating a European network of Textile and Clothing Business Labs that promote open innovation approaches.	Case studies	This contribution shows that businesses can reap the benefits of innovation and could achieve long-term competitive advantage through collaborative agreements with stakeholders.
Mendes et al.	2021	*Innovation and Management Review*	This research uses the resource-based view (RBV) and knowledge-based view (KBV) theories, to explore how CSR contributes to stakeholder engagement and to enhance the firms' innovation processes.	Quantitative	This contribution demonstrates that corporate social and environmentally responsible eco-innovation initiatives, as well as stakeholder relationships, can create value to the businesses in the long run.
Michelino et al.	2019	*Sustainability* (Switzerland)	This research examines the relationship between sustainability and innovation performance. It investigates ambidextrous innovation processes and strategies leading to sustainable processes.	Quantitative	This contribution reveals that research and development activities based on open innovation strategies are more sustainable if they fall into the specializations and technological domains of practitioners.
Mohelska and Sokolova	2017	*Amfiteatru Economic*	This research explores the organizational cultures in socially responsible companies.	Quantitative	This contribution implies that the implementation of open innovation and of corporate social responsibility practices can contribute to the companies' development. These practices enable them to enhance their credibility among different stakeholders.

TABLE 2 (Continued)

Authors	Year	Source title	Research question	Methodology	Implications
Naruetharadhol et al.	2022	*International Journal of Technology*	This research examines the psychometric properties of open innovation in small and medium-sized enterprises (SMEs) by incorporating centralization, knowledge management, and technology transfer evaluation processes and collaborative networks.	Quantitative	This contribution posits that SMEs ought to consider managerial and organizational dimensions of open innovation. The researchers suggest that there is scope for manufacturing SMEs to interact with certain stakeholders, such as industry practitioners, universities, government, and customers/users, to remain competitive.
Rabbani et al.	2021	*Journal of Open Innovation: Technology, Market, and Complexity*	This research elaborates about open innovation approaches in the context of an Islamic financial system.	Discourse and content analysis	This contribution indicates that particular Islamic financial systems are using fintech and open innovation approaches including social finance to counter the aftershocks of COVID-19 pandemic. The authors put forward their recommendations for governments and policy makers.
Rialti et al.	2022	*British Food Journal*	This research investigates how 4.0 technologies can help agrifood businesses to engage in open innovation (OI) approaches with suppliers.	Qualitative	This contribution reports that 4.0 technologies and knowledge management techniques can support OI approaches between agrifood businesses and their suppliers.
Roszkowska-Menkes	2018	*Social Responsibility Journal*	This research sheds light on the link between open innovation (in terms of outside-in, inside-out, and on coupled processes) and deliberates on strategic corporate social responsibility.	Conceptual/literature review	The contribution raises awareness on four themes, namely, employee engagement, external stakeholder engagement, CSR-driven motivations, and open approaches. The researcher contends that these factors support corporate social innovation and lead to the creation of shared value to business and society.
Sánchez-Teba et al.	2021	*Journal of Open Innovation: Technology, Market, and Complexity*	This research discusses about the effects of gender diversity in boards of directors on open innovation processes.	Conceptual/literature review	This contribution indicates that women are contributing to the boards of directors as they promote open innovation approaches, they raise awareness on the needs of interest groups, and also demonstrate a heightened perception of risks.
Schmidt-Keilich and Schrader	2019	*International Journal of Innovation and Sustainable Development*	This research explains how the capabilities of employees (as well as of embedded lead users) could enhance corporate innovation approaches.	Conceptual/literature review	This contribution demonstrates that employees can lead their employers to improve their open innovation approaches that can ultimately add value to their organizations' economic and sustainable development.

(Continues)

TABLE 2 (Continued)

Authors	Year	Source title	Research question	Methodology	Implications
Shaikh and Randhawa	2022	*Technovation*	This research develops a tripartite scheme of open innovation (OI) governance to clarify how senior leaders (primary agents) can be incentivized to generate OI from the top, show how project leaders (secondary agents) can be motivated to absorb OI at the backend, and to demonstrate how external stakeholders (tertiary agents) can be engaged to disseminate the benefits of OI to society.	Conceptual/literature review	This contribution reveals that senior leaders are not always successful in the implementation of OI approaches. The researchers argue that host organizations ought to utilize non-pecuniary rewards and informal controls to ensure that OI practices create value for them and to their stakeholders.
Shamah et al.	2015	*Journal of Modelling in Management*	This research develops a standardized instrument that is intended to measure open innovation and trust (among customers, competitors, and suppliers) in supply chains.	Quantitative	This contribution indicates that trust has a significant effect on open innovation. The researchers imply that it enhances customer satisfaction and leads to better internal-customer performance and the provision of innovative products in the context of multinational automobile assembly lines in Egypt.
Shapovalov et al.	2019	*International Journal of Innovative Technology and Exploring Engineering*	This research provides a comparative analysis of interdisciplinary concepts relating to social entrepreneurship and open innovation.	Conceptual/literature review	This contribution sheds light on different definitions of social entrepreneurship. The researchers noted that this concept is used in different disciplines.
Su et al.	2022	*International Journal of Environmental Research and Public Health*	This research raises awareness on influential studies relating to the intersection of corporate sustainability and digital transformation processes.	Bibliometric analysis	This contribution implies that businesses ought to embrace digital transformation processes in a post COVID-19 context. The researchers propose various strategies including portfolio diversification, service delivery innovation, product redesign, new market development, and recommend partnerships with competitors and/or complementary service providers, in order to foster open innovation approaches.
Tamburis and Bonacci	2019	*International Journal of Pharmaceutical and Healthcare Marketing*	This research examines open innovation approaches in healthcare networks. It investigates clusters or localized networks involving industrial, academic, and institutional players, within a (bio) pharmaceutical setting.	Social network analysis	This contribution puts forward a comprehensive perspective to better understand the dynamics of modularity of innovation networks. The researchers suggest that innovation networks promote and support paths of knowledge creation and transfer.

TABLE 2 (Continued)

Authors	Year	Source title	Research question	Methodology	Implications
van Lieshout et al.	2021	*Business Strategy and the Environment*	This research explores the organizations' strategic orientations in terms of their instrumental, equidistant, and stewardship orientations, as well as innovation strategies including organizational ambidexterity and open innovation approaches that could influence their sustainability performance.	Qualitative	This contribution postulates that the organizations' commitment to sustainable development increases as they shift from an instrumental to a stewardship orientation and when they implement an open innovation strategy.
Wu and Zhu	2021	*Frontiers in Psychology*	This research suggests that the promotion of CSR engagement through social media could help businesses improve their image with customers, thereby improving purchase intentions, brand loyalty, and e-word-of-mouth publicity.	Quantitative	This contribution implies that CSR engagement provides open innovation opportunities for businesses, during an expected COVID-19 crisis.
Yan et al.	2019	*Journal of Open Innovation: Technology, Market, and Complexity*	This paper elaborates on how innovations and systematic operations management can help an international city to improve the efficiency and effectiveness of a Public-Private Partnership (PPP) model.	Qualitative	The contribution puts forward a Cultural Ecosystem Service Innovation (CESI) framework. The researchers argue that governments could support the businesses' strategies and operations, while adding value to the cities' communities and to their urban environment.
Yang and Roh	2019	*Sustainability* (Switzerland)	This research investigates the link between open innovation and green innovation. It also sheds light on the businesses' collaborative relationships with marketplace stakeholders.	Quantitative	This contribution reports that open innovation and green process innovation approaches contribute to enhance corporate sustainability and to create significant improvements to the businesses' environmental performance.

TABLE 3 A list of the most popular paradigms relating to the intersection of open innovation approaches and corporate sustainability

Research area	Definition	Source
Architectural innovation	Architectural innovation refers to the adaptation of extant technologies to develop new products and services to attract new markets (via diversification strategies).	Chalvatzis et al. (2019); Park & Tangpong (2021).
Corporate social responsibility	Corporate social responsibility refers to the businesses' economic, legal, ethical and philanthropic responsibilities toward various stakeholders and the general public.	Carroll (1991); McWilliams & Siegel (2001).
Corporate sustainability	Corporate sustainability refers to a business strategy that is intended to create long-term stakeholder value through economic, social, and environmental dimensions. This term has its roots in environmental policy and sustainable development discourse following a number of ecological disasters.	van Marrewijk (2003).
Creating shared value	Creating shared value refers to corporate behaviors that create value to the business by addressing societal deficits. This proposition suggests that shared value can be achieved if businesses reconceive products and markets, redefine productivity in their value chain activities, and by enabling the development of local clusters.	Aakhus & Bzdak (2015); Alberti & Varon Garrido (2017); Porter & Kramer (2011); Roszkowska-Menkes (2018).
Green economy	A green economy refers to low carbon, resource efficient, and socially inclusive economic activities. Typically, this notion involves public and private investments in economic activities, infrastructures, and assets that are intended to safeguard the natural environment, to prevent the loss of biodiversity and ecosystem services.	Loiseau et al. (2016); UNEP (2011).
Incremental innovation	Incremental innovation refers to technological innovation that builds upon existing organizational knowledge. Small improvements in the businesses' operations as well as in their products' attributes and features can result in added value to customers.	O'Reilly & Tushman (2013).
Innovation	Innovation refers to the businesses' or nations' capacity in terms of their resourcefulness and creativity, to develop and distribute a new technology or a combination of technologies, that is/are intended to add value to their users.	(Teece, 2010).
Open innovation	Open innovation refers to an information age mindset involving the businesses' collaborative activities with internal and external stakeholders. This term promotes outside-in (for host organizations to gain external knowledge), inside-out (to generate ideas from employees), and coupled processes (as they enable them to co-create value with internal and external partners through alliances, cooperation, and joint ventures) to develop and commercialize innovations.	Enkel et al. (2009); Huizingh (2011); Roszkowska-Menkes (2018).
Organizational ambidexterity	Organizational ambidexterity refers to the organizations' ability to segregate exploratory units from their traditional units; Ambidextrous organizations are capable of developing new business models, technologies, processes, structures, and cultures that are flexible and autonomous (in parallel to existing ones with mature markets). They are in a position to quickly respond to changes in the marketing environment.	Altuna et al. (2015); Michelino et al. (2019); van Lieshout et al. (2021); O'Reilly & Tushman (2013).
Radical innovation	Radical innovations refer to newly developed products or processes that are distinct from current or existing activities within the firm. The production of differentiated products may require different manufacturing, distribution, and marketing approaches than extant products within the firm. The development of such breakthrough innovations is risky, as they involve a number of challenges including technological uncertainty, technical inexperience, business inexperience, and high technological costs.	Chandy & Tellis (2000); Greco et al. (2022); McDermott & O'Connor (2002); Tellis et al. (2009).
Social entrepreneurship	Social entrepreneurship refers to innovative activities that create social value, rather than personal and shareholder wealth. These activities are driven by social objectives of individual entrepreneurs, business entities, or by nonprofit organizations who develop ideas, solutions, and products that create value to society.	Peredo & McLean (2006); Shapovalov et al. (2019).

Firms could implement open innovation approaches to benefit from outsiders' capabilities and competences (of other organizations, including funders, partners, and beneficiaries, among others) (Alberti & Varon Garrido, 2017). They may benefit from the external stakeholders' support to diversify their business and/or to develop innovative products and services. Their involvement could help them augment their financial performance in terms of their margins and return on assets (Ben Hassen & Talbi, 2022).

Ongoing investments in open and technological innovations in terms of process and product development can result in virtuous circles and positive multiplier effects for the businesses as well as to society. Practitioners can forge cooperative agreements with social entrepreneurs, for-profit organizations, or with non-profit entities. Many companies are increasingly recruiting consultants who are specialized in sustainable innovations. Alternatively, they engage corporate reporting experts to help them improve their ESG credentials with stakeholders (Holmes & Smart, 2009).

Such open innovation approaches are intrinsically related to key theoretical underpinnings related to CSR including the stakeholder theory, institutional theory, signaling theory, and to the legitimacy theory, among others (Authors; Freudenreich et al., 2020). Firms have a responsibility to bear toward societies where they operate their business (in addition to their economic responsibility to increase profits). Their collaborative stance with knowledgeable professionals may provide an essential impetus for them to improve their corporate reputation and image with customers and prospects.

The open innovation paradigm suggests that it is in the businesses' interest to engage with stakeholders through outside-in (to benefit from external knowledge and expertise), inside-out (to avail themselves of their extant competences and capabilities), and coupled (cocreation) processes with internal and external stakeholders (Enkel et al., 2009; Roszkowska-Menkes, 2018). Its theorists claim that outside-in processes are intended to enhance the company's knowledge as they source external information from marketplace stakeholders including suppliers, intermediaries, customers, and even competitors, among others.

Many researchers emphasize that there are a number of benefits resulting from coopetition among cooperative competitors. Their inside-out collaborative processes stimulate innovations, lead to improvements in extant technologies, and provide complementary resources, resulting in new markets and products. Competing businesses can exchange their ideas and innovations with trustworthy stakeholders, outside of their organizations' boundaries in order to improve their socio-emotional wealth (Herrera & de las Heras-Rosas, 2020). The proponents of open innovation advocate that businesses ought to foster an organizational culture that promotes knowledge transfer, ongoing innovations, and internationalization strategies.

Michelino et al. (2019) held that organizations ought to engage in ambidextrous approaches. These authors commended that practitioners should distinguish between exploratory and traditional units of their business model. They posited that it would be better for them if they segregated the former from the latter ones, especially if they want to develop new processes, products, and technologies in mature markets. The organizations' exploratory units could be in a better position to flexibly respond to ongoing changes in their marketing environment.

Other researchers noted that it would be better if the businesses' R&D activities are attuned with the practitioners' expertise and/or with their stakeholders who are involved in their open innovation knowledge sharing strategies (Talab et al., 2018). Companies can generate new sources of revenue streams, even in areas that are associated with social issues and/or with green economies, if they reach new customers in different markets (Centobelli, Cerchione, & Esposito, 2020; Chang, 2020; Su et al., 2022; Yang & Roh, 2019). They may partner with other organizations to commercialize their (incremental or radical) innovations through licensing fees, franchises, joint ventures, mergers and acquisitions, spinoffs, and so forth.

Many commentators made reference to coupled processes involving a combination of outside-in and inside-out open innovation processes (Roszkowska-Menkes, 2018). The businesses' transversal alliances involving horizontal and vertical collaborative approaches with external stakeholders can help them co-create ideas to foster innovations (Greco et al., 2022; Rupo et al., 2018). Several open innovation theorists are increasingly raising awareness on how collaborative relationships with stakeholders including consumers, lead users, organizations who may or may not be related to the company per se, universities as well as research institutions, among others, are supporting various businesses in their R&D stages and/or in the design of products (Khan et al., 2022; Naruetharadhol et al., 2022). Very often, their research confirmed that such cocreation processes are utilized in different contexts, for the manufacturing of a wide range of technologies.

The findings from this review reported that, for the time being, just a few researchers are integrating open innovation's cocreation approaches with corporate sustainability outcomes. A number of contributing authors insisted that there are many advantages for socially and environmentally responsible companies to embrace open innovation approaches (Carayannis et al., 2021; Cigir, 2018; Mendes et al., 2021; Yang & Roh, 2019). In many cases, they argued that the practitioners' intentions are to broaden their search activities and to avail themselves from talented employees and external experts in exchange for enhanced social legitimacy, thereby availing themselves of innovation capital for future enterprising activities (Greco et al., 2022; Holmes & Smart, 2009).

Hence, businesses may benefit from the competences and capabilities of individual consultants and organizations (from outside their company) to tap into the power of co-creation, to source ideas for social and green innovations (van Lieshout et al., 2021). These alliances are meant to support laudable causes, address the deficits in society, and/or to minimize the businesses' impact on the natural environment (Altuna et al., 2015; Khan et al., 2022). For-profit organizations can resort to open innovation approaches to avail themselves of resources and infrastructures that are not currently available within their firm. This way they can reduce their costs, risks, and timescales when diversifying into sustainable business ventures, including those related to social entrepreneurship projects (Peredo & McLean, 2006; Shapovalov et al., 2019). They may do so to leverage their business, to gain a competitive advantage over their rivals.

3.2 | Open innovation challenges

Open innovations could expose the businesses to significant risks and uncertainties associated with enmeshed, permeable relationships with potential collaborators (Gomes et al., 2021; Madanaguli et al., 2023). Various authors contended that practitioners should create an organizational culture that is conducive to open innovation (Herrera & de las Heras-Rosas, 2020; Mohelska & Sokolova, 2017). Generally, they argued that host organizations should communicate and liaise with employees as well as with external partners, during the generation of ideas and in different stages of their R&D projects. Some researchers noted that open innovation practitioners tend to rely on their external stakeholders' valuable support to diversify their business models, products, or services (Chalvatzis et al., 2019; Park & Tangpong, 2021; Su et al., 2022).

A number of academic commentators argued that practitioners have to set clear, specific, measurable, attainable, relevant, and timely goals to them before they even start working on a project together (Alberti & Varon Garrido, 2017). In many cases, they maintained that host organizations are expected to foster a strong relationship with collaborators. At the same time, they should ensure that the latter ones comply with their modus operandi (Dahlander & Wallin, 2020). In reality, it may prove difficult for the business leaders to trust the new partners. Unlike their employees, the external parties are not subject to the companies' codes of conduct, rules, and regulations (Chesbrough, 2020; Shamah & Elssawabi, 2015). A few authors indicated that senior management may utilize extrinsic and intrinsic incentives to empower and motivate internal as well as external stakeholders to pursue their organization's open innovation objectives (Chang, 2020; Greco et al., 2022; Holmes & Smart, 2009; Roszkowska-Menkes, 2018; Schmidt-Keilich & Schrader, 2019).

Some researchers identified possible threats during and after the implementation of joint projects. Very often, they contended that host organizations risk losing their locus of control to external stakeholders who are experts in their respective fields (Madanaguli et al., 2023). The latter ones may possess unique skills and competences that are not readily available within the organization. A few authors cautioned that the practitioners as well as their collaborators are entrusted to safeguard each other's intangible assets. A number of researchers warned and cautioned that they may risk revealing insider information about sensitive commercial details relating to their intellectual capital (Gomes et al., 2021). As a result, companies may decide to collaborate on a few peripheral tasks as they may be wary of losing their return on investments if they share trade secrets with their new partners, who could easily become their competitors. Their proprietary knowledge concerns are of course real and vital for their future prospects. Therefore, their relationships with internal and external stakeholders should be based on mutual trust and understanding in order to increase the confidence in the projects' outcomes (Ferraris et al., 2020; Sánchez-Teba et al., 2021).

TABLE 4 A research agenda on responsive chatbot technologies for automated customer services

	Research gap	Future research avenues
#1	Currently, there are limited empirical studies that sought to explore how, why, where, and when open innovation approaches are adding value to the business as well as to society.	There is scope for future researchers to use quantitative research designs to investigate whether open innovation factors are affecting corporate sustainability and triple bottom line objectives.
#2	The few contributions that are centered on the topics of this research presented theoretical, conceptual, or discursive frameworks. For the time being, a few researchers conducted qualitative studies to investigate open innovations for corporate sustainability, in more depth and breadth.	Inductive research can shed light on the businesses' stakeholders' opinions and beliefs about cocreating incremental and/or radical innovations. It can also identify contingent issues that are affecting the practitioners' negative perceptions and attitudes toward open innovation approaches and/or influencing them from engaging with other individuals or organizations to implement social entrepreneurship projects and environmentally sound initiatives.

4 | CONCLUSIONS

The companies' ongoing engagement with internal and external stakeholders as well as their strategic CSR initiatives and environmentally sustainable innovations can generate economic value, in the long run. This review confirms that for-profit organizations are increasingly using open innovation approaches. At the same time, they are following ethical practices, adopting responsible human resources management policies, and investing in green technologies to gain institutional legitimacy and to create competitive advantages for their business. Many authors reported that their corporate sustainability behaviors can enhance their organizations' reputation and image among customers as well as with marketplace stakeholders. At the same time, their laudable practices may even improve their corporate financial performance.

During COVID-19, many businesses turned to open innovation's collaborative approaches. Various stakeholders joined forces and worked with other organizations, including with competitors, on social projects that benefit the communities where they operate their companies. In many cases, practitioners have realized that such partnerships with certain stakeholders (like researchers, knowledgeable experts, creative businesses, and non-governmental institutions, among others) enable their organizations to find new ways to solve pressing problems and at the same time helped them build a positive reputation. Indeed, open innovation approaches can serve as a

foundation for future win-win alliances, in line with sociological research demonstrating that trust develops when partners voluntarily go the extra mile, to create value to their business and to society at large.

Yet, this research revealed that there is still a gap in the academic literature that links CSR/corporate sustainability with open collaborative approaches. At the time of writing, this paper, there were only 45 contributions on the intersection of these notions.

4.1 | Limitations and future research avenues

The findings from this systematic review are focused on "open innovation" and "corporate social responsibility)" or "corporate sustainability" or "shared value" or "triple bottom line." In future, other academics may refer to CSR by using different semantics like "corporate citizenship," "business social responsibility," "responsible management," or "social issues in management" (e.g., this latter notion is used by the Academy of Management), among others. Therefore, future researchers may also consider using these keywords when they explore secondary research sources.

Nevertheless, this bibliographic study has identified some of the most popular research areas relating to open innovation approaches that are intended to cocreate value to the business and society. Hence, this research opens future research avenues to academia. Table 4 clearly specifies that there are untapped opportunities for further empirical and theoretical research in this promising field of study.

ACKNOWLEDGMENT

The authors would like to thank the editor, Professor Richard Welford, his associate editors and the anonymous reviewers.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

ETHICS STATEMENT

This research was carried out in in accordance with the principles stated in the Declaration of Helsinki, and it is congruent with the European Union's General Data Protection Regulations (GDPR).

ORCID

Mark Anthony Camilleri https://orcid.org/0000-0003-1288-4256
Ciro Troise https://orcid.org/0000-0002-8899-8949
Serena Strazzullo https://orcid.org/0000-0002-0845-634X

REFERENCES

Aakhus, M., & Bzdak, M. (2015). Stakeholder engagement as communication design practice. *Journal of Public Affairs*, *15*(2), 188–200. https://doi.org/10.1002/pa.1569

Abdulkader, B., Magni, D., Cillo, V., Papa, A., & Micera, R. (2020). Aligning firm's value system and open innovation: A new framework of business process management beyond the business model innovation. *Business Process Management Journal*, *26*(5), 999–1020. https://doi.org/10.1108/BPMJ-05-2020-0231

Alberti, F. G., & Varon Garrido, M. A. (2017). Can profit and sustainability goals co-exist? New business models for hybrid firms. *Journal of Business Strategy*, *38*(1), 3–13. https://doi.org/10.1108/JBS-12-2015-0124

Altuna, N., Contri, A. M., Dell'Era, C., Frattini, F., & Maccarrone, P. (2015). Managing social innovation in for-profit organizations: The case of Intesa SanPaolo. *European Journal of Innovation Management*, *18*(2), 258–280. https://doi.org/10.1108/EJIM-06-2014-0058

Amor-Esteban, V., Galindo-Villardón, M. P., García-Sánchez, I. M., & David, F. (2019). An extension of the industrial corporate social responsibility practices index: New information for stakeholder engagement under a multivariate approach. *Corporate Social Responsibility and Environmental Management*, *26*(1), 127–140. https://doi.org/10.1002/csr.1665

Baima, G., Santoro, G., Busso, D., & Quaglia, R. (2020). Exploring the outcomes of external revealing of knowledge: A case study in the craft beer industry. *Business Process Management Journal*, *26*(5), 1183–1201. https://doi.org/10.1108/BPMJ-03-2019-0138

Ben Hassen, R. I. M., & Talbi, D. (2022). Investigating the effect of innovation strategies on firm's social and financial performance: Evidence from French listed firms. *International Journal of Innovation Management*, *26*, 12250004. https://www.worldscientific.com/doi/abs/10.1142/S1363919622500049

Boehmke, B. C., & Hazen, B. T. (2017). The future of supply chain information systems: The open source ecosystem. *Global Journal of Flexible Systems Management*, *18*, 163–168.

Boersma, K. (2007). Managing between science and industry: An historical analysis of the Philips Research and Development Department's management. *Journal of Management History*, *13*(2), 122–134. https://doi.org/10.1108/17511340710735546

Brenner, B. (2018). Transformative sustainable business models in the light of the digital imperative-a global business economics perspective. *Sustainability*, *10*(12), 4428. https://doi.org/10.3390/su10124428

Bresciani, S. (2017). Open, networked and dynamic innovation in the food and beverage industry. *British Food Journal*, *119*(11), 2290–2293. https://doi.org/10.1108/BFJ-08-2017-0458

Camilleri, M. A. (2019a). Measuring the corporate managers' attitudes towards ISO's social responsibility standard. *Total Quality Management & Business Excellence*, *30*(13-14), 1549–1561. https://doi.org/10.1080/14783363.2017.1413344

Camilleri, M. A. (2019b). The SMEs' technology acceptance of digital media for stakeholder engagement. *Journal of Small Business and Enterprise Development*, *26*(4), 504–521. https://doi.org/10.1108/JSBED-02-2018-0042

Camilleri, M. A. (2021). The employees' state of mind during COVID-19: A self-determination theory perspective. *Sustainability*, *13*(7), 3634. https://doi.org/10.3390/su13073634

Camilleri, M. A. (2022a). Strategic attributions of corporate social responsibility and environmental management: The business case for doing well by doing good! *Sustainable Development*, *30*(3), 409–422. https://doi.org/10.1002/sd.2256

Camilleri, M. A. (2022b). The rationale for ISO 14001 certification: A systematic review and a cost–benefit analysis. *Corporate Social Responsibility and Environmental Management*, *29*(4), 1067–1083. https://doi.org/10.1002/csr.2254

Camilleri, M. A., & Bresciani, S. (2022). Crowdfunding small businesses and startups: A systematic review, an appraisal of theoretical insights and future research directions. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-02-2022-0060

Carayannis, E. G., Grigoroudis, E., Stamati, D., & Valvi, T. (2021). Social business model innovation: A quadruple/quintuple helix-based social innovation ecosystem. *IEEE Transactions on Engineering Management*, *68*(1), 235–248. https://doi.org/10.1109/TEM.2019.2914408

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders.

Business Horizons, *34*(4), 39–48. https://doi.org/10.1016/0007-6813(91)90005-G

Centobelli, P., Cerchione, R., Chiaroni, D., del Vecchio, P., & Urbinati, A. (2020). Designing business models in circular economy: A systematic literature review and research agenda. *Business Strategy and the Environment*, *29*(4), 1734–1749. https://doi.org/10.1002/bse.2466

Centobelli, P., Cerchione, R., & Esposito, E. (2020). Pursuing supply chain sustainable development goals through the adoption of green practices and enabling technologies: A cross-country analysis of LSPs. *Technological Forecasting and Social Change*, *153*, 119920. https://doi.org/10.1016/j.techfore.2020.119920

Chalvatzis, K. J., Malekpoor, H., Mishra, N., Lettice, F., & Choudhary, S. (2019). Sustainable resource allocation for power generation: The role of big data in enabling interindustry architectural innovation. *Technological Forecasting and Social Change*, *144*, 381–393. https://doi.org/10.1016/j.techfore.2018.04.031

Chandy, R. K., & Tellis, G. J. (2000). The incumbent's curse? Incumbency, size, and radical product innovation. *Journal of Marketing*, *64*(3), 1–17. https://doi.org/10.1509/jmkg.64.3.1.18033

Chang, C.-H. (2020). Green open innovation activities and green co-innovation performance in taiwan's manufacturing sector. *International Journal of Environmental Research and Public Health*, *17*(18), 6677.

Chaurasia, S. S., Kaul, N., Yadav, B., & Shukla, D. (2020). Open innovation for sustainability through creating shared value-role of knowledge management system, openness and organizational structure. *Journal of Knowledge Management*, *24*(10), 2491–2511. https://doi.org/10.1108/JKM-04-2020-0319

Chesbrough, H. (2020). To recover faster from Covid-19, open up: Managerial implications from an open innovation perspective. *Industrial Marketing Management*, *88*, 410–413. https://doi.org/10.1016/j.indmarman.2020.04.010

Chesbrough, H., & Bogers, M. (2014). *Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation* (pp. 3–28). Oxford University Press, Oxford, UK. https://doi.org/10.1093/acprof:oso/9780199682461.003.0001

Chesbrough, H. W. (2003). *Open Innovation: The New Imperative for Creating And Profiting from Technology*. Harvard Business Press.

Cigir, K. (2018). Creating a living lab model for tourism and hospitality businesses to stimulate CSR and sustainability innovations. *2018WIT Transactions on Ecology and the Environment*, *217*, 569–583.

Colabi, A. M., Sharaei, F., & Alipour, S. (2022). The relationship between Gamification and Sustainability of small and medium enterprise: Explaining the role of digital transformation in open innovation and value co-creation. *Journal of Information Technology Management*, *14*(4), 118–137.

Curley, M. (2015). The evolution of open innovation. *Journal of Innovation Management*, *3*(2), 9–16.

Döll, L. M., Ulloa, M. I. C., Zammar, A., Prado, G. F. D., & Piekarski, C. M. (2022). Corporate Venture Capital and Sustainability. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3), 132. https://doi.org/10.3390/joitmc8030132

Enkel, E., Gassmann, O., & Chesbrough, H. (2009). Open R&D and open innovation: exploring the phenomenon. *R&D Management*, *39*(4), 311–316. https://doi.org/10.1111/j.1467-9310.2009.00570.x

Eweje, G. (2020). Proactive environmental and social strategies in a small- to medium-sized company: A case study of a Japanese SME. *Business Strategy and the Environment*, *29*(7), 2927–2938. https://doi.org/10.1002/bse.2582

Ferraris, A., Santoro, G., & Pellicelli, A. C. (2020). "Openness" of public governments in smart cities: removing the barriers for innovation and entrepreneurship. *International Entrepreneurship and Management Journal*, *16*(4), 1259|–1280. https://doi.org/10.1007/s11365-020-00651-4

Fontana, E. (2017). Strategic CSR: a panacea for profit and altruism? An empirical study among executives in the Bangladeshi RMG supply chain. *European Business Review*, *29*(3), 304–319. https://doi.org/10.1108/EBR-12-2015-0172

Freudenreich, B., Lüdeke-Freund, F., & Schaltegger, S. (2020). A stakeholder theory perspective on business models: Value creation for sustainability. *Journal of Business Ethics*, *166*(1), 3–18. https://doi.org/10.1007/s10551-019-04112-z

Friedrich, D. (2021). What makes bioplastics innovative for fashion retailers? An in-depth analysis according to the Triple Bottom Line Principle. *Journal of Cleaner Production*, *316*, 128257. https://doi.org/10.1016/j.jclepro.2021.128257

Ghodbane, W. (2019). Corporate social responsibility and performance outcomes of high technology firms: Impacts on open innovation. *Journal of System and Management Sciences*, *9*(4), 29–38.

Gong, Y., Putnam, E., You, W., & Zhao, C. (2020). Investigation into circular economy of plastics: The case of the UK fast moving consumer goods industry. *Journal of Cleaner Production*, *244*, 118941. https://doi.org/10.1016/j.jclepro.2019.118941

Gomes, L. A., Facin, A. L. F., & Salerno, M. S. (2021). Managing uncertainty propagation in innovation ecosystems. *Technological Forecasting and Social Change*, *171*, 120945.

Greco, M., Campagna, M., Cricelli, L., Grimaldi, M., & Strazzullo, S. (2022). COVID-19-related innovations: A study on underlying motivations and inter-organizational collaboration. *Industrial Marketing Management*, *106*, 58–70. https://doi.org/10.1016/j.indmarman.2022.07.014

Grunwald, G., Schwill, J., & Sassenberg, A.-M. (2021). Sustainability project partnerships in times of crisis: conceptual framework and implications for stakeholder integration. *Journal of Entrepreneurship and Public Policy*, *10*(3), 352–378. https://doi.org/10.1108/JEPP-04-2021-0044

Herrera, J., & de las Heras-Rosas, C. (2020). Economic, non-economic and critical factors for the sustainability of family firms. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 119. https://doi.org/10.3390/joitmc6040119

Holmes, S., & Smart, P. (2009). Exploring open innovation practice in firm-nonprofit engagements: A corporate social responsibility perspective. *R and D Management*, *39*(4), 394–409. https://doi.org/10.1111/j.1467-9310.2009.00569.x

Huizingh, E. K. (2011). Open innovation: State of the art and future perspectives. *Technovation*, *31*(1), 2–9. https://doi.org/10.1016/j.technovation.2010.10.002

Ketonen-Oksi, S., & Valkokari, K. (2019). Innovation ecosystems as structures for value co-creation. *Technology Innovation Management Review*, *9*(2), 25–35. https://doi.org/10.22215/timreview/1216

Khan, P. A., Johl, S. K., Akhtar, S., Asif, M., Salameh, A. A., & Kanesan, T. (2022). Open innovation of institutional investors and higher education system in creating open approach for SDG-4 quality education: A conceptual review. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(1), 49. https://doi.org/10.3390/joitmc8010049

Kumar, V., & Srivastava, R. (2020). New perspectives on business model innovations in emerging markets. *Journal of the Academy of Marketing Science*, *48*(5), 815–825. https://doi.org/10.1007/s11747-019-00713-2

Leonidou, E., Christofi, M., Vrontis, D., & Thrassou, A. (2020). An integrative framework of stakeholder engagement for innovation management and entrepreneurship development. *Journal of Business Research*, *119*, 245–258. https://doi.org/10.1016/j.jbusres.2018.11.054

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry* (Vol. 9) (pp. 438–439). Sage Publications. https://doi.org/10.1016/0147-1767(85)90062-8

Loiseau, E., Saikku, L., Antikainen, R., Droste, N., Hansjürgens, B., Pitkänen, K., Leskinen, P., Kuikman, P., & Thomsen, M. (2016). Green economy and related concepts: An overview. *Journal of Cleaner Production*, *139*, 361–371. https://doi.org/10.1016/j.jclepro.2016.08.024

Loučanová, E., Olšiaková, M., & Štofková, J. (2022). Open business model of eco-innovation for sustainability development: Implications for the open-innovation dynamics of Slovakia. *Journal of Open Innovation:*

Technology, Market, and Complexity, *8*(2), 98. https://doi.org/10.3390/joitmc8020098

Madanaguli, A., Dhir, A., Talwar, S., Clauss, T., Kraus, S., & Kaur, P. (2023). Diving into the uncertainties of open innovation: A systematic review of risks to uncover pertinent typologies and unexplored horizons. *Technovation*, *119*, 102582. https://doi.org/10.1016/j.technovation.2022.102582

Marsh, J., Boszhard, I., Contargyris, A., Cullen, J., Junge, K., Molinari, F., Osella, M., & Raspanti, C. (2022). A value-driven business ecosystem for industrial transformation: the case of the EU's H2020 "Textile and Clothing Business Labs". *Sustainability: Science, Practice, and Policy*, *18*(1), 263–277. https://doi.org/10.1080/15487733.2022.2039491

McDermott, C. M., & O'Connor, G. C. (2002). Managing radical innovation: An overview of emergent strategy issues. *Journal of Product Innovation Management*, *19*(6), 424–438. https://doi.org/10.1111/1540-5885.1960424

McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of Management Review*, *26*(1), 117–127. https://doi.org/10.2307/259398

Mendes, T., Braga, V., Correia, A., & Silva, C. (2021). Linking corporate social responsibility, cooperation and innovation: the triple bottom line perspective. *Innovation and Management Review*. https://doi.org/10.1108/INMR-03-2021-0039

Michelino, F., Cammarano, A., Celone, A., & Caputo, M. (2019). The linkage between sustainability and innovation performance in IT hardware sector. *Sustainability*, *11*(16), 4275. https://doi.org/10.3390/su11164275

Mohelska, H., & Sokolova, M. (2017). Innovative culture of the organization and its role in the concept of Corporate Social Responsibility. Czech Republic case study. *Amfiteatru Economic*, *19*(46), 853–865.

Mtapuri, O., Camilleri, M. A., & Dłużewska, A. (2022). Advancing community-based tourism approaches for the sustainable development of destinations. *Sustainable Development*, *30*(3), 423–432. https://doi.org/10.1002/sd.2257

Naruetharadhol, P., Srisathan, W. A., Gebsombut, N., Wongthahan, P., & Ketkaew, C. (2022). Industry 4.0 for Thai SMEs: Implementing open innovation as innovation capability management. *International Journal of Technology*, *13*(1), 48–57. https://doi.org/10.14716/ijtech.v13i1.4746

O'Reilly, C. A. III, & Tushman, M. L. (2013). Organizational ambidexterity: Past, present, and future. *Academy of Management Perspectives*, *27*(4), 324–338. https://doi.org/10.5465/amp.2013.0025

Park, W. Y., & Tangpong, C. (2021). Performance and survival implications of sourcing choice sequence across an architectural innovation life cycle. *Journal of Operations Management*, *67*(6), 656–679. https://doi.org/10.1002/joom.1134

Peña-Miranda, D. D., Guevara-Plaza, A., Fraiz-Brea, J. A., & Camilleri, M. A. (2022). Corporate social responsibility model for a competitive and resilient hospitality industry. *Sustainable Development*, *30*(3), 433–446. https://doi.org/10.1002/sd.2259

Peredo, A. M., & McLean, M. (2006). Social entrepreneurship: A critical review of the concept. *Journal of World Business*, *41*(1), 56–65.

Porter, M. E., & Kramer, M. R. (2006). The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, *84*(12), 78–92.

Porter, M. E., & Kramer, M. R. (2011). Creating shared value: Redefining capitalism and the role of the corporation in society. *Harvard Business Review*, *89*(1/2), 62–77.

Rabbani, M. R., Bashar, A., Nawaz, N., Karim, S., Ali, M. A. M., Rahiman, H. U., & Alam, M. S. (2021). Exploring the role of islamic fintech in combating the aftershocks of covid-19: The open social innovation of the islamic financial system. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(2), 136. https://doi.org/10.3390/joitmc7020136

Rialti, R., Marrucci, A., Zollo, L., & Ciappei, C. (2022). Digital technologies, sustainable open innovation and shared value creation: Evidence from an Italian agritech business. *British Food Journal*, *124*(6), 1838–1856. https://doi.org/10.1108/BFJ-03-2021-0327

Roszkowska-Menkes, M. T. (2018). Integrating strategic CSR and open innovation. Towards a conceptual framework. *Social Responsibility Journal*, *14*(4), 950–966. https://doi.org/10.1108/SRJ-07-2017-0127

Rupo, D., Perano, M., Centorrino, G., & Sanchez, A. V. (2018). A framework based on sustainability, open innovation, and value cocreation paradigms—A case in an Italian maritime cluster. *Sustainability*, *10*(3), 729. https://doi.org/10.3390/su10030729

Sajjad, A., Eweje, G., & Tappin, D. (2020). Managerial perspectives on drivers for and barriers to sustainable supply chain management implementation: Evidence from New Zealand. *Business Strategy and the Environment*, *29*(2), 592–604. https://doi.org/10.1002/bse.2389

Sánchez-Teba, E. M., Benítez-Márquez, M. D., & Porras-Alcalá, P. (2021). Gender diversity in boards of directors: A bibliometric mapping. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 12. https://doi.org/10.3390/joitmc7010012

Schmidt-Keilich, M., & Schrader, U. (2019). Sustainability innovation by integrating employees: The potential of sustainable embedded lead users. *International Journal of Innovation and Sustainable Development*, *13*(1), 98–115. https://doi.org/10.1504/IJISD.2019.096733

Shaikh, I., & Randhawa, K. (2022). Managing the risks and motivations of technology managers in open innovation: Bringing stakeholder-centric corporate governance into focus. *Technovation*, *114*, 102437. https://doi.org/10.1016/j.technovation.2021.102437

Shamah, R. A. E., & Elssawabi, S. M. (2015). Facing the open innovation gap: Measuring and building open innovation in supply chains. *Journal of Modelling in Management*, *10*(1), 50–75. https://doi.org/10.1108/JM2-02-2013-0009

Shapovalov, V., Igropulo, I., & Arutyunyan, M. (2019). Practices of defining the notion of social entrepreneurship. *International Journal of Innovative Technology and Exploring Engineering*, *9*(1), 3790–3794. https://doi.org/10.35940/ijitee.A4830.119119

Su, R., Obrenovic, B., Du, J., Godinic, D., & Khudaykulov, A. (2022). COVID-19 pandemic implications for corporate sustainability and society: A literature review. *International Journal of Environmental Research and Public Health*, *19*(3), 1592. https://doi.org/10.3390/ijerph19031592

Talab, A. H., Scholten, V., & van Beers, C. (2018). Knowledge sharing and open innovation. In S. Durst, S. Temel, &, & Aisenberg *Open innovation and knowledge management in small and medium enterprises*, 117–140. https://doi.org/10.1142/9789813233591_0007

Tamburis, O., & Bonacci, I. (2019). Clusters and communities: Raising the bar towards open innovation 2.0 paradigms. *International Journal of Pharmaceutical and Healthcare Marketing*, *13*(3), 288–305. https://doi.org/10.1108/IJPHM-01-2018-0001

Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, *43*(2-3), 172–194.

Tellis, G. J., Prabhu, J. C., & Chandy, R. K. (2009). Radical innovation across nations: The preeminence of corporate culture. *Journal of Marketing*, *73*(1), 3–23. https://doi.org/10.1509/jmkg.73.1.003

Testa, F., Boiral, O., & Heras-Saizarbitoria, I. (2018). Improving CSR performance by hard and soft means: The role of organizational citizenship behaviours and the internalization of CSR standards. *Corporate Social Responsibility and Environmental Management*, *25*(5), 853–865. https://doi.org/10.1002/csr.1502

Troise, C., Tani, M., Dinsmore, J. Jr., & Schiuma, G. (2021). Understanding the implications of equity crowdfunding on sustainability-oriented innovation and changes in agri-food systems: Insights into an open innovation approach. *Technological Forecasting and Social Change*, *171*, 120959. https://doi.org/10.1016/j.techfore.2021.120959

UNEP. (2011). Towards a green economy: Pathways to sustainable development and poverty eradication. https://sustainabledevelopment.un.org/content/documents/126GER_synthesis_en.pdf

van Lieshout, J. W. F. C., Nijhof, A. H. J., Naarding, G. J. W., & Blomme, R. J. (2021). Connecting strategic orientation, innovation strategy, and corporate sustainability: A model for sustainable development through stakeholder engagement. *Business Strategy and the Environment*, *30*(8), 4068–4080. https://doi.org/10.1002/bse.2857

van Marrewijk, M. (2003). Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of Business Ethics*, *44*(2), 95–105. https://doi.org/10.1023/A:1023331212247

Washingtonpost. (2020). Ford, 3M and GE team up to make ventilators and respirators, but process could take months. https://www.washingtonpost.com/business/2020/03/24/ford-ge-3m-ventilators-coronavirus/

Wu, Y., & Zhu, W. (2021). The role of CSR engagement in customer-company identification and behavioral intention during the COVID-19 pandemic. *Frontiers in Psychology*, *12*, 721410. https://doi.org/10.3389/fpsyg.2021.721410

Yan, M.-R., Chi, H.-L., Yang, J.-Y., & Chien, K.-M. (2019). Towards a city-based cultural ecosystem service innovation framework as improved public-private-partnership model-A case study of Kaohsiung Dome. *Journal of Open Innovation: Technology, Market, and Complexity*, *5*(4), 85. https://doi.org/10.3390/joitmc5040085

Yang, J. Y., & Roh, T. (2019). Open for green innovation: From the perspective of green process and green consumer innovation. *Sustainability*, *11*(12), 3234. https://doi.org/10.3390/su11123234

Zhu, Q., Zou, F., & Zhang, P. (2019). The role of innovation for performance improvement through corporate social responsibility practices among small and medium-sized suppliers in China. *Corporate Social Responsibility and Environmental Management*, *26*(2), 341–350. https://doi.org/10.1002/csr.1686

How to cite this article: Camilleri, M. A., Troise, C., Strazzullo, S., & Bresciani, S. (2023). Creating shared value through open innovation approaches: Opportunities and challenges for corporate sustainability. *Business Strategy and the Environment*, *32*(7), 4485–4502. https://doi.org/10.1002/bse.3377