

## ORIGINAL RESEARCH ARTICLE

# Creating Long-Term Relationships with International Stakeholders to Favor Sustainable Open Innovation

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## Abstract

The literature in recent decades has underscored that long-term relationships with international stakeholders are essential for sustainable open innovation (SOI); however, this literature provides little guidance on how such relationships are to be built. This study addresses this gap by examining public and private actors in Japan, who are widely recognized for their ability to create and sustain long-term relationships with international stakeholders. Using a qualitative research approach based on semi-structured interviews with Japanese actors engaged in projects aligned with one or more Sustainable Development Goals, our analysis highlights the pivotal role of technology in fostering successful interactions with international stakeholders. However, challenges such as rigid decision-making processes, limited digitalization, and varying international regulations act as barriers to this process. Hence, this study underscores as well the importance of human capital in aligning internal processes with external dynamics and ensuring the longevity of these relationships. By shedding light on how firms worldwide can cultivate long-term engagement with international stakeholders, this research advances the literature on SOI and offers practical recommendations for businesses as well as policymakers.

**Keywords:** *Sustainable open innovation; Japan; International business; Stakeholder analysis; Long-term relationships*

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Firms, it has been argued, have the potential to provide solutions that respond to one or several of the 17 Sustainable Development Goals (SDGs) adopted by the United Nations (UN, 2015). Converging on such solutions often requires open innovation (OI) initiatives and, more specifically, collaborative projects with stakeholders around the globe (Voegtlin & Scherer, 2017). However, integrating sustainability – understood here in the sense of providing solutions that will assist in achieving the SDGs – within a firm's OI strategy is generally associated with higher complexity due to the higher risks and costs involved, as well as the potential for antagonistic stakeholder demands (Kennedy et al., 2017). Undeterred by this complexity, research on OI conducted over the last decade has sought increasingly to take account of the need for sustainability (Payán-Sánchez et al., 2021), leading to the emergence of sustainable open innovation (SOI) as a key concept (Bogers et al., 2020). As Voegtlin and Scherer (2017) point out, further research is warranted to better

understand the mechanisms of collaboration and negotiation with stakeholders within the context of OI initiatives, with the aim of furthering the progress toward the SDGs. At the same time, and especially for firms that must maintain relationships with various international stakeholders, sustainability is increasingly key to competitive advantage (Denicolai et al., 2021; Khojastehpour & Shams, 2020). The literature, however, points to a potential trade-off between economic prosperity in the short term and sustainability gains in the long term (Hall & Wagner, 2012; Rauter et al., 2019). While this trade-off has been widely discussed in the literature, it seems that there is currently no consensus on how to address it. On the one hand, firms seem to be confronted by short-term losses, as sustainability requires investments in the long term without short-term profitability (Kennedy et al., 2017; Touboul & Kozan, 2020); on the other hand, Allal-Chérif et al. (2023) have shown that a long-term perspective on sustainability also has a positive impact on a firm's economic viability – sustainability is seen

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here not only as a key to meeting the SDGs but also as a strategy that increases a firm's long-term competitive advantage. Yet, while the authors highlight the importance of long-term supplier relations, they do not propose strategies to sustain firm-wide stakeholder relationships in an SOI framework, especially across multiple countries. Hence, they call for more research on this matter to elicit innovations that not only respond to profit-oriented goals but also serve the public good.

Hence, we seek to answer the following research question: *How can actors create and sustain long-term relationships with international stakeholders to foster SOI?*

Considering that the positive outcomes of sustainability as well as OI require a long-term perspective if firms are to be successful with respect to them (Allal-Chérif et al., 2023; Bogers et al., 2020; Touboul & Kozan, 2020), we opted for a qualitative research design investigating various private and public actors that are already applying the SDGs framework in a setting where a long-term perspective for business is already well anchored: thus, we concentrate on the case of private and public actors in Japan. Large conglomerates in Japan have traditionally implemented long-term strategies, and this is a trait that is deeply embedded in Japanese business practices. As of 2022, Japan had 37,550 firms that had passed the century mark, significantly more than any other country (Morishita, 2022). Interestingly, many of those firms already have a clear focus on sustainability through the application of the SDGs (Pan Fagerlin et al., 2019). Meanwhile, in 2016, the Japanese government introduced the concept of Society 5.0 as a comprehensive approach that leverages OI and digital transformation to address societal challenges, promote sustainable development, and contribute to the achievement of the SDGs.

In the following, we set out the links between sustainability and OI as posited by our theoretical framework and introduce stakeholder theory as an underlying concept for integrating international stakeholders. We then explain our qualitative research design. In a third section, we provide insights on SOI drawn from our interview partners. This leads us to formulate recommendations: we point to the fact that a long-term perspective by itself is not sufficient, and that technology leadership and creativity based on human capital are equally important.

## Theoretical framework

Since Chesbrough's (2003) seminal work on OI, the concept has increasingly become a standard analytical framework for examining firms' international collaborative strategies (Bigliardi et al., 2021). OI has also been described as essential not only to ensure a firm's long-term survival with regard to its competitors (Enkel et al., 2020), to guarantee the potential for innovation (Lykourantzou et al., 2021), but also to implement new

growth models (Iwamoto & Yasuda, 2017). As shown by the systematic literature review by Bigliardi et al. (2021), the OI literature has increased exponentially over the last decade. The authors point to several research areas that have since emerged, such as a focus on collaborative frameworks, on the organizational dimensions of OI, or on the latest technological developments. Researchers have also begun to focus on the link between sustainability and OI – which has become a stream in its own right within the OI literature over recent years (Payán-Sánchez et al., 2021).

## Sustainability and OI in an international setting

While the literature has discussed a potential trade-off between sustainability efforts and economic performance (Hall & Wagner, 2012), recent research suggests that both elements are synergetic when it comes to a firm's innovation capacity (Kennedy et al., 2017; Rauter et al., 2019). Denicolai et al. (2021) even go further and recommend that sustainability is the next competitive advantage for firms, as innovations addressing the SDGs are more likely to gain social acceptance and so meet with commercial success (Allal-Chérif et al., 2022; Rauter et al., 2019). From this perspective, sustainability is not only seen as necessary due to global problems but has also been described as a business driver that can improve performance and offer a source of competitive advantage (Hall & Wagner, 2012). Specifically, it facilitates dialogue with national and international stakeholders such as industry experts, universities, or other partners (Kennedy et al., 2017; Touboul & Kozan, 2020).

As a consequence, sustainability coupled with OI and internationalization is what drives competitive advantage (Chiambaretto et al., 2020; Denicolai et al., 2021). Despite its costs and risks (Kennedy et al., 2017), integrating sustainability into OI fosters economically viable SDG-aligned solutions for firms operating in several countries (Allal-Chérif et al., 2022; Bogers et al., 2020; Khojastehpour & Shams, 2020). At the same time, OI projects also help facilitate firms' sustainability efforts (Chistov et al., 2021). OI with external stakeholders has thus been described as a means to create product and service innovations that provide solutions that will help in attaining the SDGs (Arnold, 2017). In this sense, Bogers et al. (2020) introduced the concept of SOI, describing it as an innovation process at the firm level that strategically manages knowledge across stakeholders, aligning with business models to support new product development in order to promote one or several SDGs.

However, this approach is confronted with several difficulties. First, sustainable outcomes are less visible and are difficult to measure with short-term Key Performance Indicators (KPIs) (Arnold, 2017), thus increasing the financial uncertainty and risks for the innovation process (Hall & Vredenburg, 2003;

Kennedy et al., 2017). Second, Arnold (2017) notes that firms struggle to assess and absorb sustainability-related knowledge. Finally, several difficulties have also been discussed with regard to firms' degree of innovation, as incremental innovations in the area of sustainability do not sufficiently address the underlying problems (George et al., 2016; Whiteman et al., 2013). This can be traced back to the fact that firms do not necessarily take their whole value chain into consideration and are therefore not addressing all the negative externalities they generate (Arnold, 2017; Hall & Wagner, 2012).

Hence, it is important to take into account all relevant national and international stakeholders if a firm aims at SOI (Henderson, 2020). This approach is consistent with Porter and Kramer's (2011) concept of shared value creation, which emphasizes the involvement of all stakeholders regardless of location. However, firms operating in more than one country are, once again, responsible to various stakeholders – international as well as local. In their study combining international business literature with stakeholder theory, Khojastehpour and Shams (2020) reveal that internationally active firms, specifically those that are active in cross-border markets, need to proactively manage relationships with various international stakeholders if they are to successfully integrate sustainability into their innovation processes.

### **From stakeholder theory to SOI on an international scale**

Regarding sustainability and the consideration of multiple stakeholders in the OI process, Rauter et al. (2019) recommend considering not only customers and suppliers but also experts, universities, intermediaries, and public players including non-governmental organizations (NGOs) and municipalities. The value of considering such a larger range of stakeholders is widely recognized in research as well as in practice and thus has found its place in norms such as the ISO 26000, acknowledged as fundamental for reaching sustainability goals (Arnold, 2017). Several authors therefore underline that firms should set up long-term collaborations with stakeholders to foster SOI (Allal-Chérif et al., 2023; Breuer & Lüdeke-Freund, 2017; Feng et al., 2020).

All these considerations are rooted historically in Freeman's (1984) stakeholder theory. According to his three-level stakeholder analysis, a firm needs to (1) define stakeholders and identify their stakes (rational level), (2) align internal processes with their external environment (process level), and (3) sustain and deepen the transactions they have with those stakeholders over time (transactional level) (Elias et al., 2002; Parmar et al., 2010). In essence, stakeholder theory as it has developed since then comprises a joint consideration of three distinct branches: descriptive, normative, and instrumental (Donaldson & Preston, 1995). According to Parmar et al. (2010), those

three elements are a fundamental part of stakeholder theory and cannot be considered separately, and in particular, Parmar et al. (2010) show that the normative element including ethical considerations corresponds to a firm's role in corporate social responsibility (CSR). This is why, since then, sustainability has become a key area of focus and has been studied at various levels (Mahajan et al., 2023). Most recently, Allal-Chérif et al. (2023) found that a long-term relation with suppliers fosters trust and loyalty, even if short-term cash flows are not as high as with other as-yet uncertain partners. Considering that societal challenges cannot be resolved by a few actors alone, research has attempted to identify how stakeholder theory can help to address sustainability on a larger scale (Mahajan et al., 2023).

However, different stakeholders have different interests, and these interests might even be in conflict, which could then restrict the development of SOI (Breuer & Lüdeke-Freund, 2017). The problem is not that financial, and moral values are opposed as such, but rather that the various stakeholders may not share the same interests (Parmar et al., 2010). Dittrich and Duysters (2007) argue that innovation networks with exploration strategies tend to be based on flexible legal structures with a generally high partner turnover. According to them, long-term collaborations tend to exist in the form of exploitation alliances, and their findings raise questions about the role of long-term relationships in OI. Specifically, in line with Neukam and Bollinger (2022), we add to this discussion that SOI requires not only exploitation but also exploration strategies, if it is to provide solutions for global problems. Hence, we currently observe a discrepancy in the literature between, on the one hand, the role of long-term relations with stakeholders to favor sustainability, and, on the other hand, the observed high partner turnover when it comes to exploration strategies in an OI framework. Regarding the fact that cross-border business also requires global considerations of sustainability efforts, making firms responsible to local as well as international stakeholders (Khojastehpour & Shams, 2020), this adds further complexity to the negotiation process between multiple stakeholders, as country-specific characteristics additionally multiply stakeholders' expectations (Riehl et al., 2022). Hence, trade-offs between those values need to be taken into account by firms – and even more so if they are required to maintain relationships with multiple stakeholders (Garcia-Castro & Aguilera, 2015). Still, Freeman and Ginena (2015) consider such conflict between stakeholder interests to be a source of value creation, as it provides a starting point for innovation. Hence, to overcome that difficulty, Breuer and Lüdeke-Freund (2017) underline the necessity for firms to create robust relations with their national and international stakeholders – not to negotiate interests but to develop shared values. From an international business perspective, this then leads, again, to positive impacts from SOI with international stakeholders

(Melane-Lavado & Alvarez-Herranz, 2020). Figure 1 summarizes the theoretical framework concerning long-term collaborations with international stakeholders for SOI.

By using stakeholder theory, our research is positioned at the intersection of work on OI and sustainability. While Bogers et al. (2020) emphasize the need for long-term collaborations with all national and international stakeholders, there is still limited insight into how firms can establish and maintain such partnerships (Dittrich & Duysters, 2007; Kennedy et al., 2017). Recent studies (Allal-Chérif et al., 2022; Rauter et al., 2019) call for more research on effective practices to overcome barriers such as divergent interests. The literature provides insights about the potential levers that can be used to sustain stakeholder relations for sustainability, such as the use of OI platforms, applying a broader stakeholder approach including competitors (Rauter et al., 2019) and active knowledge management (Ayuso et al., 2011), but less research addresses the complexity of international collaborations and the potential levers and barriers. All in all, our goal is to address those gaps and explore how actors create and sustain long-term relationships with international stakeholders to foster SOI.

## Methodology

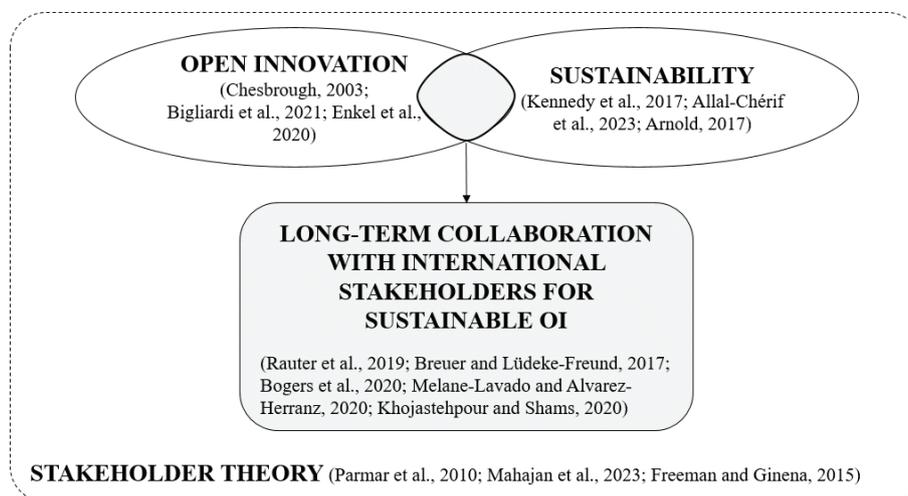
Following calls by Kennedy et al. (2017), Rauter et al. (2019), and Allal-Chérif et al. (2023), we aim to better understand the interconnections between the concepts of SOI and a firm's management of international stakeholders, which is best addressed with a qualitative research design (Yin, 2011). We opted for a very specific context in which to observe firms operating in a SOI setting: the context of Japan. In what follows,

we justify this context choice and outline our data collection process.

## Context description: Japan

Known for its long-term business strategies (Davis, 2014; Goto, 2021), Japan leads in technological innovation. Japan has often been described as a 'rational state' or 'developmental state' in which government policies have shaped the patterns of innovation pursued by private firms (Johnson, 1982). These policies aimed to improve the Japanese economy by supporting leading firms and providing protection from foreign competition, with a strong focus on technological innovation. This industrial strategy was successful until the early 1990s. In the period when the country was trying to catch up with the more technologically advanced nations, the success of Japan's innovation system was due in part to several projects that were initiated by the government.

Japan's unique approach to handling and sharing information, as well as its decision-making structures, has inspired extensive academic research, with works dating back to Aoki (1988), Nonaka et al. (1996), and Odagiri and Goto (1996). However, the bursting of the bubble in the late 1980s, along with changes in international financial and corporate governance structures (Renou et al., 2023), led to questions about Japan's innovation system. Traditionally, the Japanese innovation model was characterized by emphasizing incremental improvements (*kaizen*) rather than radical breakthroughs. Since the early 2000s, however, changes driven mainly by the digital economy and the internationalization of the innovation landscape have led to a more decisive role for universities, public research institutions, public sector agencies, entrepreneurial



Source: Own elaboration.

OI: open innovation.

**Figure 1.** Summary of theoretical framework.

firms, and citizens (Fukugawa, 2016). This has led to a redefinition of the innovation landscape in which a more OI-friendly environment has been promoted by the government, large firms, entrepreneurial firms, and universities.

In response to societal and economic difficulties, the government sought additional ways to regain momentum, making investments in science and technology and initiating major policy changes. As a result, in 2016, the Japanese government launched the Society 5.0 program, introducing a new societal paradigm. This official commitment to sustainability predates the formal introduction of CSR from the West in the previous decade, and for Japanese, firms have historically embraced the notion of serving society as part of their core values and operating philosophy (Kuriyama, 2020; Sasaki et al., 2023). Society 5.0 addresses the rapid evolution of information and communication technology and proposes a coordinated, forward-looking strategy to ensure Japan's leadership in digital transformation (Carraz & Harayama, 2018). Society 5.0 aims therefore to address the challenges of digitization and connectivity while promoting a human-centered society that balances economic progress, technological and scientific research, and the pursuit of sustainable solutions to social problems. As a strong supporter of the initiative, Japan's business federation, Keidanren (2018), promotes the Society 5.0 initiative as a means to achieve the SDGs. In line with this vision, in November 2017, it revised its Charter of Corporate Behavior, urging member corporations to actively contribute to the SDGs by realizing Society 5.0. Moreover, Japan's demographic challenges, particularly its super-aging society (Heinrich & Galan, 2018), have intensified the need for firms and policymakers to look beyond national borders for collaboration and innovation. With the highest old-age dependency ratio in the world today (UN, 2020) and a shrinking domestic labor market, firms are required to actively engage with international stakeholders, whether through foreign talent acquisition, cross-border relationships, or global investments. This demographic reality has made OI a strategic imperative as firms seek to leverage external knowledge, technology, and resources to maintain competitiveness.

In sum, the case of Japan is perfectly adapted to our research question as (1) actors are known to adopt a long-term perspective on business, (2) a governmental framework specifically promotes innovation and sustainability by creating a more OI-friendly environment, and (3) current demographic difficulties push actors to look for international stakeholders. All those elements propel Japanese actors toward SOI practices with a wide range of national and international stakeholders.

### Research design

Between January 2023 and July 2024, we collected qualitative data from Japanese public and private actors. As Rauter et al.

(2019) show, SOI concerns not only firms and their customers and suppliers but also public institutions, cities, and NGOs, as well as universities, intermediaries, and experts. Hence, our objective was to interview at least two participants of each category. In line with our research framework and as shown in Table 1, we identified relevant interview partners, all of whom had in common that (1) they already actively apply the SDGs framework internally and (2) they already engage in OI projects with international stakeholders.

All in all, we conducted 13 semi-structured interviews (Table 2) to obtain broad insights from various partners. Our objective in a second step was to identify common patterns within this diversity.

We collected a total of 773 min of interviews, all conducted in English or French. They have been exhaustively transcribed via NVivo transcriptions for analysis. Our interview guide was structured in three categories and included questions about the actors' (1) approach to sustainability, (2) innovation capacity with a specific focus on OI, and (3) alignment of potential international stakeholders. In addition, we collected secondary data about those actors from their institutional websites, official ESG reports, and other publicly available data and made observations through firm visits, as shown in Table 3.

This diverse data collection enabled us to achieve theoretical saturation and capture the practices and perceptions of Japanese actors regarding SOI. We analyzed the collected material in line with Miles et al.'s (2014) recommendations on vertical and horizontal coding. After data collection, we first provided individual reports for each actor. Those reports were reviewed again by the interview partners to verify the accuracy of the coded information. In a second step, we engaged in a horizontal coding where we compared the individual reports to identify common patterns.

For coding, we applied a stakeholder-analysis framework, due to its relevance to sustainability issues and its inclusion of the rational, process, and transactional levels of analysis. Several authors have applied the methodology of stakeholder theory in their research, notably for instance in the improvement of Research & Development (R&D) projects (Elias et al., 2002) or in ethical decision-making (De Colle, 2005). In line with this approach, we analyzed the barriers and levers concerning how Japanese actors (1) define international stakeholders and identify their stakes (rational level), (2) align internal processes with their external environment (process level), and (3) sustain and deepen the transactions they have with stakeholders over time (transactional level).

### Results

In the process of horizontal coding, our interview partners provided us with insights about several potential levers and barriers to creating long-term relationships with international stakeholders.

**Table I.** Justifications for interview partners

Interview partner*	Role of SDGs	Examples of OI projects and firm-level experience with international stakeholders
Firms, customers, and suppliers		
CAR	Consideration of SDGs in the car industry in order to not fall behind competition.	<i>Project level:</i> a project with international suppliers to accelerate alternative energy cars. <i>Organizational level:</i> high exportation efforts since the late 1980s and high collaboration with international suppliers and subcontractors of the same industry since then.
ENGINEERING	Provide technological solutions for energy.	<i>Project level:</i> an international project in the energy sector. <i>Organizational level:</i> various collaborations in different countries and close customer relations to provide adapted solutions. Also, as only few actors exist around the world who have the required technological knowledge for collaborative projects, the firm has maintained a good relationship with them for several years.
IMP	Embedding SDGs into the core of the firm's innovation strategy by ensuring each project aligns with sustainability goals.	<i>Project level:</i> launch of an open innovation platform engaging international customers and partners to co-develop digital solutions for workplace sustainability and energy-efficient operations. <i>Organizational level:</i> work with stakeholders with whom they already have a good legacy relationship. Possibility to identify potential stakeholders through open innovation calls worldwide.
CABLO	Leverage SDGs as a driver of competitive advantage.	<i>Project level:</i> a co-development initiative with customers to design innovative suspension solutions, leveraging rapid prototyping and sustainable design principles. <i>Organizational level:</i> close internal collaboration with European factories since its foundation in order to adapt products to local customer demands.
Universities, experts, and intermediaries		
EDUCATION	Articulate SDGs on all strategic and operational levels.	<i>Project level:</i> a project for an online certificate training for youth and households in various Philippine communities. <i>Organizational level:</i> long-term research collaborations with universities in other countries.
GLOBSTUD	Contribute as an academic expert to efforts integrating SDGs into firm and university strategies.	<i>Project level:</i> develop international scientific collaboration as an executive director of a national research center. <i>Organizational level:</i> actor is a long-term stakeholder of several public and private organizations that are active on a national and international levels.
NGOs, public institutions, and communes		
ACT	Justify new projects in line with SDGs.	<i>Project level:</i> creation of a university in the Middle East to foster local knowledge acquisition. <i>Organizational level:</i> maintain relations with project partners above the project itself.
ECONGLO	Focus on SDGs linked to social equality and providing education to all kinds of young people.	<i>Project level:</i> promote the international mobility of students on sustainability projects. <i>Organizational level:</i> a young organization that seeks to create close relations with international and national students and businesses to promote international exchanges.

Source: The displayed names are acronyms to ensure anonymity of the interview partners

SDG: Sustainable Development Goals; NGO: non-governmental organization; OI: open innovation.

With a vision of creating SOI, one of our interview partners at IMP summarized this well: 'Our chairperson is saying that we can't do this kind of chicken race any more. We need to

team up together and make environmentally friendly and ESG applied products – very strong products' (IMPJP300124). Specifically, interview partners are aware of the importance

**Table 2.** Overview of semi-structured interviews

Code	Function	Date	Minutes
Firms, customers, and suppliers			
CAR	Manager	23.1.2024	54
		4.3.2024	60
ENGINEERING	Project manager	31.1.2024	75
IMP	Corporate vice president	6.1.2023	89
	Deputy general manager, brand manager	17.1.2023	74
	Deputy general manager, brand manager	30.1.2024	25
CABLO	Head of factory	11.1.2023	59
Universities, experts, and intermediaries			
EDUCATION	Directory team and SDGs Promotion Center	26.1.2024	48
	Professor of social entrepreneurship	2.2.2024	72
	SDG Student Ambassador	25.6.2024	36
GLOBSTUD	Executive director	11.7.2024	60
NGOs, public institutions, and communes			
ACT	Assistant general manager	7.2.2024	60
	Former vice-president of university		
ECONGLO	Director, marketing manager	2.2.2024	61
Total			773

Source: Own elaboration.

SDG: Sustainable Development Goals; NGO: non-governmental organization.

of international collaborations, considering that ‘the world is interdependent and we cannot survive by ourselves. Our survival depends on the international environment as well and we need to contribute to that’ (ACT JP070224).

Horizontal coding revealed four key categories: technology, external pressure, organizational strategy, and shared dialogue. These are discussed later. We structure the following section using our analysis grid, which is based on stakeholder theory. Table 4 provides an overview of our vertical coding organized according to the barriers and levers for each of the stakeholder levels (rational, process, and transactional), as well as the horizontal coding revealing the four common patterns.

### Level 1: Rational level and the role of technology

Our coding process specifically points to the technology expertise and the knowledge of the actors and their international stakeholders as a key element that facilitates the identification process at the rational level. First, several actors

**Table 3.** Overview of secondary data and observations through on-site visits

Actor	Secondary data	Visit	Date
IMP	Official firm website	Development Center	6.1.2023
	ESG briefing (PDF)		
	Human capital strategy (PDF)	Innovation department	17.1.2023 + 30.1.2024
	Conference presentation (video)		
CABLO	Official firm website	Commercial office	11.1.2023
	CO <sub>2</sub> calculation (paper)		
EDUCATION	Institutional website including SDG strategy	University campus	23.1.2024–08.2.2024
	Presentation of SDG Promotion Center (paper)		
ACT	Official website	Headquarters	07.2.2024
	5th medium-term plan (PDF)		
	Institutional presentation (PDF)		
ECONGLO	Institutional presentation (PDF)	Headquarters	29.1.2024 + 02.2.2024
	Presentation about demographic statistics of Japan (PDF)		
ENGINEERING	Official website	–	–
	Employee handbook (PDF)		
	Sustainability report (PDF)		

Source: Own elaboration.

SDG: Sustainable Development Goals.

underlined that their being among the top runners in technology not only in Japan but also on the international level enables them ‘to choose the best partners and if that position is lost, you have to wait to be chosen by other actors’ (ENGJP310124). From that perspective, and to start the selection process, IMP, for instance, uses regular press releases to obtain adapted proposals from their international suppliers.

Second, once actors have identified several potential stakeholders, thanks to their technology leadership, they are in a comfortable position to make a choice about with whom they want to collaborate. Technology expertise is a selection criterion, but this time on the side of the stakeholder: ‘One of our criteria for selection is that they need to be the leading [actor] in their country’ (ACTJP070224). Both aspects – technology leadership compared to competitors in Japan and choosing the best internationally available competencies – need to be aligned. This pushes actors to favor internal R&D (IMP, ENG, and CAR).

**Table 4.** Coding table based on stakeholder analysis

Long-term relations with international stakeholders in Japan to favor SOI		Horizontal coding
Vertical coding		
BARRIERS	LEVERS	
RATIONAL LEVEL: define international stakeholders and identify their stakes		
<ul style="list-style-type: none"> <li>Galápagos syndrome (CAR, EDU, and ECON)</li> <li>Key competencies not locally available (CAR)</li> <li>Limited digitalization (CAR)</li> <li>High-quality expectations (CAR)</li> </ul>	<ul style="list-style-type: none"> <li>Technology leadership: 'choose' rather than 'be chosen' (ENG, IMP, CAR, and ACT)</li> <li>Predominant selection criteria of international partners (ACT)</li> <li>Decentralized innovation per country approach through visibility (IMP)</li> <li>Mutual respect of technological know-how (ECON and ACT)</li> </ul>	TECHNOLOGY EXPERTISE AND KNOWLEDGE
PROCESS LEVEL: align internal processes with external environment		
<ul style="list-style-type: none"> <li>Demographic and social evolution (ACT)</li> <li>Decreasing international orientation of younger generations (language barriers and experiences) (ECON and GLOB)</li> <li>Limited internalization of SDGs in society (ECON and CAR)</li> <li>National culture (EDU and ECON)</li> <li>Varying international regulations (IMP)</li> <li>Long and tedious decision-making processes (EDU)</li> <li>Traditional practices: strong organizational culture (ECON)</li> <li>Limited change management: continuous improvement instead of radical innovation strategy (EDU and ECON)</li> <li>Strong hierarchical structure (ECON)</li> </ul>	<ul style="list-style-type: none"> <li>External pressure (<i>gaiatsu</i>): having no choice but to open up to international partners (ACT, CAR, and ENG)</li> <li>Key competencies not locally available (CAR)</li> <li>Fast-changing international markets (IMP)</li> <li>Institutional framework that favors sustainability (IMP and GLOB)</li> <li>KPIs for board members (IMP)</li> <li>Founders' strong commitment to SDGs (IMP and ENG)</li> <li>Internal focus on human capital (ACT and IMP)</li> <li>Adapt corporate strategy to regional specificities</li> </ul>	EXTERNAL PRESSURE
TRANSACTIONAL LEVEL: sustain and deepen transactions with stakeholders over time		
<ul style="list-style-type: none"> <li>Varying customer expectations (IMP)</li> <li>Focus on internal processes (EDU)</li> <li>Communication style: top-down + high-context (rules) (EDU)</li> <li>No concrete SDG actions: measurement difficulties of SDGs (IMP)</li> </ul>	<ul style="list-style-type: none"> <li>Share same values (ACT, IMP, and ENG)</li> <li>Focus on supply chain (IMP)</li> <li>Transparency: suppliers have to consent on ESG guidelines (IMP)</li> <li>Agree upon common challenges</li> <li>Good personal relations (ENG), legacy relation (IMP)</li> <li>Willingness to learn from others (ENG)</li> <li>Internal communication about SDGs (IMP and EDU)</li> </ul>	SHARED DIALOGUE

Source: Own elaboration.

SDG: Sustainable Development Goals.

Also, actors are aware that international stakeholders are crucial since not all competencies are available on a local (national) level. As our ACT interviewee summarized, actors need to find the right balance between internal R&D and international collaboration: 'If we don't have an advanced technology, we cannot continue to do [the project] in our society since we are based on debt. We are now focusing on revitalizing the Japanese society while contributing to the international society'.

Third, technology enables actors to obtain visibility with respect to relevant international stakeholders. This led IMP to create a decentralized innovation approach, thanks to which they are in a strong position to identify the best technology on the international

market and in a second step to spread it out across the world. In that specific case, the role of technology has been strengthened through a good brand image, which, again, can also be traced back to the actor's commitment to sustainability: 'We need to disclose everything to the end user [...]. Thanks to that, our customers trust us as the right partner for their business. This not only promotes ESG [Environmental, Social, and Governance] activities, but is also a driver for our business itself' (IMPJP300124).

And finally, once a potential partner is identified, technology expertise and knowledge facilitate the initiation of a collaboration, as it creates a first point of common interest between the stakeholders. Approaching a stakeholder with mutual respect for the

technological know-how of each partner decreases interpersonal problems while also mitigating cultural risks (ECONJP020224). In this respect, public actors play a supporting role. For instance, ACT provides research funds that help international stakeholders to start a technology project with them – but with the main objective of getting to know each other: 'Before they're doing research together, they need to know each other. So we support meetings with each other. If the human relationship is built, then we can just provide useful science research funds'.

Besides technology expertise and knowledge as a fundamental lever, we also observed several barriers to fully exploiting this potential for SOI. First, two interviewees mentioned the Galápagos syndrome, which depicts the Japanese innovation landscape as strongly focusing on the local market and thus being isolated from the rest of the world (CARJP230124, EDUJP020224). Hence, several interview partners raised concerns that actors tend to prefer to focus on internal processes instead of choosing international collaborations (EDUJP020224, ECONJP020224). Further barriers were demographic trends in Japan, which mean that key competencies are not locally available, limited digitalization, as well as high-level expectations.

All in all, the role of technology expertise and knowledge emerged in our data collection as a central element to identify the best international stakeholders for SOI. Once identified, actors then need to create a fit between the external environment and internal processes.

## **Level 2: Process level motivated by external constraints and the organizational strategy**

During our interviews on the process level, we observed that external constraints, as well as the existence of distinct organizational strategies, emerged as common patterns.

### **External constraints: Push factor or barrier?**

Although a barrier on the rational level, it was also pointed out that on the process level, the demographic situation can be a push factor for opening the innovation processes. Japanese actors 'do not have a choice but to open up to other countries' (ACTJP070224), specifically regarding digitalization (CARJP230124). The demographic trend thus creates an external pressure with a stimulating effect on the internal processes of Japanese actors: 'One of the characteristics of Japan is *gaiatsu*, which means "external pressure." I think Japan has always been able to evolve rapidly when under pressure' (CARJP230124). As key competencies are not available locally, actors have no choice but to open to international stakeholders, especially where the needed competency is very specific (ENGJP300124). Also,

fast-changing markets or institutional aspects such as the introduction of Society 5.0 by the Japanese government motivate actors to adapt their internal processes (IMPJP300124). This seems, again, to foster innovation on a national scale: 'It was important for the government to get active in order to get back to a good position on the international level, and so we constantly leverage technologies and innovations' (GLOBJPI10724).

Still, less human capital is available locally: 'I think that one of the challenges we have right now is that Japanese firms see that their R&D capacity is decreasing' (ACTJP070224). Also, due to language barriers and missing international experience, younger generations have a decreased capability to look for stakeholders outside of Japan: 'Japanese students are very serious students when they go to school. [...] They learn a lot and that's good. But they learn a lot about other countries from books and this is not enough. They don't go abroad, but they should experience it so that they get real global students' (ECONJP020224).

Hence, due to that evolutionary trend, 'social transformation is a pressing obligation' (GLOBJPI10724). In addition, the SDGs are omnipresent in public dialogue, and each of our actors had a specific section about them on their institutional webpage. Still, the level to which the SDGs have really been internalized by the population was questioned: 'Many people know the concept but don't internalize it. They don't feel it. I don't think that many people know what they contribute to that topic' (ECONJP020224), and as one interviewee summarized it: 'So the image that Japan is far ahead in environmental matters is not all that true. You really have to look at the details' (CARJP230124).

Finally, our interviewees also pointed to systemic elements, such as a strong national culture that emphasizes hierarchy and risk avoidance, which make change management difficult for actors (EDUJP020224). This was specifically underlined in connection with sustainable development: 'It is so very difficult to change something for Society 5.0. It takes such a long time. If we want to make a decision, we have to go to seven or eight different departments. That's the traditional corporate system in Japan. In firms, but also in the government. To carry a new thing out, it's very difficult' (ECONJP020224).

Finally, actors mentioned barriers resulting from varying international regulations on sustainability, as this makes it difficult for them to adapt to varying constraints in OI projects: 'We see a totally different attitude from the market in each country and then especially from the governments' (IMPJP300124).

### **Organizational strategy**

The organizational strategy developed by our interview partners enabled them to align their internal processes with

external stakeholders. This includes KPIs for board members regarding the fulfillment of specific SDGs (e.g., IMP), strong commitment to SDGs by the firm's founder (through, e.g., strong mission statements regarding SDGs and founders who regularly participate in round tables and in other public arenas where they defend this approach; several firms also have formal SDG reporting systems implemented by sustainability officers), or an internal focus on the human capital that facilitates the alignment process, as it was underlined, for example, by ACT: 'That's what – what we like to say – facilitates this "brain circulation" as one of the jargons of communicating together. And we like to continue to work on this brain circulation'. Similarly, thanks to their strategy, IMP is readily able to absorb external knowledge for the purposes of successful SOI: 'The success of our sustainable innovation initiatives relies heavily on the involvement of multiple stakeholders [...] the ability to recruit and align employees with a strong vision and passion for the future is critical for driving innovative projects' (IMPJP1701232).

A final strategy was linked to the varying international regulations. For instance, IMP adopted a decentralized approach within their corporate strategy in order to align with regional specificities: 'We transformed our value creation process to a decentralized approach, not necessarily regarding R&D, but the value production function. We have it in each region and sometimes we acquire local competencies as well' (IMPJP1701232).

However, creating an internal–external process fit also has its difficulties. Our interviewees mentioned long and tedious decision-making processes (EDUJP020224), traditional practices anchored in strong organizational cultures, and a hierarchical structure typical of Japanese organizations that leads to a limited scope for change management. These aspects foster the continuous improvement of already existing structures but makes it difficult for radical innovation strategies to find their place in a firm's corporate strategy (ECONJP020224).

### Level 3: The transactional level and a shared dialogue

As was expected, our interview partners confirmed that Japanese actors have a high capacity to maintain good relations with their stakeholders over time. Specifically, one interviewee explained that 'They [Japanese actors] are very good at creating partnerships and they'll remain good at forging those collaborations' (CARJP230124). Hence, at the transactional level, we investigated exactly how Japanese actors sustain those relationships over time. Strategies extended from legacy relations on the organizational level (IMPJP300124) to personal relations on the individual level, where these latter were more valued than external factors such as culture or linguistic aspects.

ACT found itself confronted with several administrative difficulties when engaged in an international SOI project; still, several years later, the final project outcome was evaluated very positively by an external evaluation institution. Our interviewee explained this success: 'One of the keys for overcoming challenges in our international collaborations is a shared passion or a shared goal. As soon as we have a common goal that we believe in, then we can overcome all differences' (ACTJP070224). The value of working with a stakeholder that shares the same goal, one that goes beyond profit incentives, was specifically underlined. This shared dialogue enables actors to align their objectives with their stakeholders and to create trust between them (IMPJP300124). IMP, for example, mentioned a focus on their supply chain where their objective together with their suppliers is to reduce CO<sub>2</sub>. Hence, they seek to maintain a transparent and trustworthy relationship with them over time with a strong focus on the individuals working for those suppliers. On an international level, it seemed that a common vocabulary facilitated agreement upon common challenges, as the identified international stakeholders shared the same concerns about sustainability in the long run.

The resulting good and long-lasting personal relations are, however, only possible if actors have the willingness to learn from their stakeholders (ENGJP310124). Finally, then, good internal communication about the SDGs was mentioned as advantageous to motivate employees to act as ambassadors (e.g., IMP and EDU). The fact of being proud of their organization makes them advocate that causes with their international stakeholders, which, again, enhances interpersonal relations with them: 'So that's why our CEO is clearly mentioning a new mission statement: "We invest in people." [...] Because if we unlock the people's strength or their ability, then we might be able to get more valuable products or services' (IMPJP300124).

A shared dialogue is, however, not without challenges: 'Cultural differences, and institutional differences, but also different subjects can be a barrier for such a cooperation' (ACTJP070224). Those challenges are linked to the varying expectations of international stakeholders, as this makes it difficult to manage a shared dialogue: 'One of our challenges is that we actually deliver our service to global customers who do not have the same level [of ESGs]' (IMPJP300124). In addition, a focus on internal processes can also be constraining for long-lasting stakeholder relationships, especially if combined with a top-down and highly ritualized communication style: '[Japanese actors] have a good attitude towards creating something together. But they are inflexible to foreign people, newcomers, or some crazy people, young people' (EDUJP020224).

Finally, the measurement difficulties associated with the SDGs can also represent a barrier for a shared dialogue with external stakeholders, as it might not be easy to identify concrete SDG-promoting actions that the stakeholder is

undertaking. This is why IMP provides individual plans for each country before scaling up SDG initiatives to other countries: 'We clearly mention to the customer the plan for how we can reach a specific level [of the ESG priority] by country. So that's how the customer can get a picture. In some cases, maybe first we start with the brand image. And then once you get that position, we extend our plan and services to [other countries]' (IMPJP300124).

To sum up, by going through the rational, process, and transactional levels of stakeholder analysis, we succeeded in identifying a few levers as well as barriers structured into four common patterns. In the next section, we discuss these insights in order to suggest potential elements that can help to create long-term relations with international stakeholders that could be exploited for SOI.

## Discussion

Our Japanese interview partners provided us with insights into how to build long-term relationships with international stakeholders. The fact that the concept of the SDGs is deeply embedded in the business philosophy of our interviewees correlates with current literature about major corporate players in Japan that use them as part of their core values and operating philosophy (Kuriyama, 2020; Sasaki et al., 2023). It was confirmed by several of our interviewees that Japanese actors have a very good capacity to nourish the long-term relations necessary to foster SOI.

Hence, in the following, we show, first, that technology expertise and knowledge are fundamental for the identification of international stakeholders and to understand what stake they have in the collaboration (rational level). Second, we underline that the focus on human capital enables actors to align their internal processes with their external environment (process level) and to create a shared dialogue to sustain and deepen the relations with their stakeholders over time (transactional level).

### **Technology expertise and knowledge: A mediating element for SOI**

We saw that in today's Japan, technology expertise and knowledge is well integrated, and that attaining excellence in these respects functions as an objective for firms. Our results correlate with previous studies, which underline that Japanese firms are known for providing value-added products characterized by high standards and exceptional quality achieved through manufacturing excellence (Bhamu & Singh Sangwan, 2014). Our study extends those insights insofar as this role of technology is not only relevant for the innovation process among Japanese actors but also a common pattern that can foster SOI with international stakeholders.

This is in line with Kennedy et al. (2017) who stress that 'technology super-scouting' is necessary to identify a value proposition for sustainability on the market place. While sustainable product innovations can lead to technological excellence, Allal-Chérif et al. (2023) also specifically show that the focus on technology itself helps firms to guide the market toward more sustainable solutions, as they may set the standard for others. By underlining that technology has a central role in SOI processes, our results contribute to that discussion. Beyond its purely technical role in identifying appropriate technology projects, technology also mediates stakeholder analysis and fosters international collaboration (rational level). This is possible by (1) putting actors in a position to choose between several offers instead of waiting to be chosen, (2) providing an objective topic concerning which to engage in collaboration, and (3) transcending cultural barriers through fostering a shared vocabulary.

However, our results suggest that Japanese society might be at a turning point due to its current demographic difficulties. As Pedrini and Ferri (2019) underline, the importance of communication, and specifically digital communication, should not be underestimated in the process of forging international partnerships. From this point of view, our interviews illustrate that Japanese actors seem to be lagging other international competitors regarding latest technology evolutions, specifically regarding digitalization, and that this may in the future impede the innovation process. Our interview partners observed here that Japanese actors seem historically to have chosen to act alone and then to export their products internationally, instead of systematically seeking international collaborations. Hence, the barriers that we observed in our study linked to demographic difficulties show that besides technology expertise and knowledge, the other three observed patterns of our horizontal coding (external pressure, organizational strategy, and a shared dialogue) specifically impact relations with international stakeholders in the long term and thus on the process and transactional levels. Taking a closer look at the levers and barriers that were identified, we argue that the role of human capital is central.

### **From human capital to societal change**

Studies such as Ayuso et al. (2011) have identified that stakeholder engagement is necessary to push forward on sustainable innovation projects, but they do not provide detail on how exactly actors should interact with their partners. Our study extends this research and argues that such interactions rely heavily on an actor's human capital. First, external pressure comes to be exerted on actors due to the lack of relevant human capital in Japan. This pushes the actors to look for international stakeholders with whom to collaborate. Second, Japanese actors rely on their internally available human capital

to successfully align internal and external requirements through direct personal relations that go beyond legal contracts. And third, the potential for acquiring external knowledge motivates Japanese actors to create a shared dialogue with stakeholders of the entire supply chain, based on trust, transparency, and common values. To summarize, a conscious focus on human capital by a firm's managers occupies a fundamental place in the process and transactional levels of stakeholder analysis. Our results therefore combine insights from recent research about the significance of human capital for providing sustainable solutions (Henderson, 2020) and in the management of long-term stakeholder relations for sustainability (Ayuso et al., 2011). From this perspective, our results support the study of Allal-Chérif et al. (2022), who underlined the importance of collaborations between multiculturally, multiorganizationally, and multifunctionally various players for sustainable innovations. Similar to their study, we also found that learning opportunities with stakeholders are crucial and extend an actor's available human capital. But our results extend that vision and point to several barriers linked to organizational factors, which are detrimental to SOI, such as limited change management capacity and long decision-making processes. This also adds to the study of Kennedy et al. (2017) by providing a more nuanced vision on the success factors and potential difficulties linked to rigid processes limiting the efficient exploitation of human capital.

Still, despite those observed barriers, we suggest that Japan has the potential for fundamental societal change in the future. The Japanese government's pursuit of the concept of Society 5.0 (Keidanren, 2018) intends to align technology excellence with the vision of a human-centered society. From this perspective, the Japanese government has determined that the digital transformation has the potential to address challenges posed by an aging population (Harayama & Carraz, 2022).

Comparing this governmental initiative with the results of our study, this leads us to suggest that the focus on human capital together with technology expertise and knowledge does indeed have the potential to lead to fundamental societal change. By facilitating long-term collaborations with international stakeholders, this approach may reposition Japanese actors as leading players with regard to SOI. Table 5 summarizes our results and illustrates how exactly those two enablers enhance long-term relations through stakeholder analysis.

Technology expertise and knowledge mediate collaborations through furnishing the relationship with three key elements of success, namely, visibility, content, and culture; key dimensions to initiate the relationship. Those three elements facilitate the rational level of stakeholder analysis. In contrast, human capital relates to the access to competencies within and outside the country in order to respond to demographic evolutions on the process level, and to learning opportunities, personal relations, and shared values on the transactional level. Finally, both enablers together cover all three levels of stakeholder analysis and, therefore, facilitate the creation of long-term relationships with international stakeholders to foster SOI.

## Conclusion

This paper analyzed how exactly actors can create and sustain long-term relationships with international stakeholders to foster SOI. Since both sustainability and OI rely on long-term stakeholder relations, we focused on Japanese actors, known for their long-term business orientation (Davis, 2014). Through qualitative research on Japanese public and private actors who are experienced in maintaining relations with international stakeholders over time, we applied stakeholder analysis and identified technology expertise and knowledge as well as human capital as key enablers of SOI.

**Table 5.** Success factors for long-term relations with international stakeholders

The role of technology expertise and knowledge	The role of human capital
<p><b>(1) Rational level: identification of international stakeholders and their stakes</b></p> <ul style="list-style-type: none"> <li>• <i>Visibility</i>: a position where actors choose between international stakeholders instead of waiting to be chosen</li> <li>• <i>Content</i>: an objective topic to engage in international collaborations</li> <li>• <i>Culture</i>: mitigating cultural barriers through a shared vocabulary</li> </ul>	<p><b>(2) Process level: align internal processes with external environment</b></p> <ul style="list-style-type: none"> <li>• <i>External pressure</i>: respond to demographic and social evolutions</li> <li>• <i>Competencies</i>: obligation to look for key competencies outside national borders</li> </ul> <p><b>Transactional level: sustain and deepen the transactions over time</b></p> <ul style="list-style-type: none"> <li>• <i>Learning</i>: willingness to learn from international partners</li> <li>• <i>Relations</i>: Creation of good personal relations beyond legal contracts</li> <li>• <i>Values</i>: shared values based on SDGs to align internal processes with international partners</li> </ul>

Source: Own elaboration.

SDG: Sustainable Development Goals.

Our research contributes to discussions on the role of technology in SOI (e.g., Allal-Chérif et al., 2022; Kennedy et al., 2017). While technology enhances international visibility and facilitates stakeholder selection, it also mediates collaboration by providing a common ground for engagement. This reduces barriers such as cultural and linguistic differences. However, technology expertise alone is insufficient – human capital to enhance learning opportunities is also essential to align internal and external processes and foster a shared dialogue that sustains these relationships over time.

### Managerial implications

Our study reinforces the importance of international collaboration for SOI. Since global challenges such as those outlined in the UN's (2015) 17 SDGs require international cooperation (Henderson, 2020; Voegtlin & Scherer, 2017), firms around the world should adopt long-term strategies similar to those observed in Japan. Regardless of their country of origin, businesses should prioritize sustained stakeholder engagement to maximize sustainability outcomes.

While our findings apply globally, they are also relevant for domestic initiatives. Technology expertise and knowledge also enhance visibility and facilitate stakeholder alignment on a local level. This becomes even more critical when seeking expertise beyond national boundaries, as this links to higher complexity and coordination difficulties. Hence, firm managers must be aware that technology leadership alone should not dictate SOI. They also must evaluate their internal human capital and leverage external pressure to acquire missing competencies locally and internationally. What is more, they need to proactively sustain stakeholder relations by creating transparency around their commitments (internally as well as transcending firm boundaries) and negotiating common values on sustainability with stakeholders along the entire supply chain. Technology facilitates the identification process, but firms need to rely on the relational capability of their employees to create personal relations that last long-term. Also, by creating an organizational context that provides space for learning opportunities without restraining change through rigid processes, managers can fully exploit their available internal and external human capital for SOI.

For policymakers, our study suggests that governmental initiatives, such as Japan's Society 5.0, which seek to support sustainability initiatives as well as to promote technology development, have the potential to lead societal change. However, the Society 5.0 initiative is not yet mature enough to fully evaluate its impact on Japanese actors. Nonetheless, it could serve as a blueprint for assessing comparable policy efforts that blend innovation and sustainability perspectives, such as the EU Industry 5.0 agenda proposed by the European Commission in 2021.

### Limits and future research

Our study has several limitations. The qualitative approach, based on a limited sample, restricts generalizability. Despite covering various stakeholder categories (Rauter et al., 2019), our results may be influenced by the cultural specificity of the Japanese context. Nevertheless, the internal validity of our interviews enabled us to capture various perspectives. Future research should incorporate quantitative methods to strengthen findings and explore different national contexts. From this perspective, it could also be valuable to distinguish relations with international stakeholders from those with national stakeholders in the context of SOI and focus on potential similarities as well as differences. Another limitation is cultural and linguistic constraints. Due to language barriers, most interviews involved multiple participants, limiting individual responses. Future studies should integrate native speakers to enhance data collection. Finally, as Society 5.0 was only recently introduced in Japan, a longitudinal study could assess its impact on the international competitiveness of Japanese firms over time.

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