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Research Article

Landing sustainable innovation values in business management

Implementación de valores de innovación sostenible en la práctica empresarial

Ana Pedreño-Santos[1]**:** Universidad Complutense de Madrid, Spain.
apedreno@ucm.es
Carmen Abril: Universidad Complutense de Madrid, Spain.
acabrilba@ucm.es

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Abstract

Introduction: Values define the organizational culture, identity, and other essential attributes of the company. Hence the importance of their definition, which must be assumed by all parties involved, and if possible be aligned with them. This is especially relevant in companies seeking sustainability-oriented innovation. **Methodology**: In this work, we analysed 234 studies focused on sustainability-oriented innovation, in order to learn about the values that govern these types of organizations and how they are put into practice. In the research conducted, we found four types of values that influence the implementation of sustainability-oriented innovation in the company: institutional values, organization's values, individual values and consumer values. **Results:** The implementation of these values in the company is problematic due to a lack of knowledge about them and show the need for symbiotic learning. We present a conceptual framework of sustainability-oriented innovation values that is not static but feeds back. Likewise, we collect innovative practices of sustainability-oriented companies, organized according to the typology of values studied. **Conclusions**: Sustainable innovation in companies is deeply influenced by a complex interplay of institutional, organizational, individual, and consumer values. Continuous learning and adaptability,

[1] **Corresponding author:** Ana Pedreño Santos. Universidad Complutense de Madrid (Spain).

driven by strong leadership and stakeholder engagement, are crucial for embedding sustainability into corporate practices and achieving long-term sustainable development goals.

Keywords: sustainability; innovation; values; SOI; orientation; customer; strategy; learning.

Resumen
Introducción: Los valores definen la cultura organizativa, la identidad y otros atributos esenciales de la empresa. Su definición debe ser asumida por todas las partes implicadas. Esto es especialmente relevante en las empresas que buscan una innovación orientada a la sostenibilidad. **Metodología**: Analizamos 234 estudios centrados en la innovación orientada a la sostenibilidad, con el fin de conocer los valores que rigen en este tipo de organizaciones y cómo se llevan a la práctica. Encontramos cuatro tipos de valores que influyen en la puesta en práctica de la innovación orientada la sostenibilidad en la empresa: los institucionales, los de la organización, los del individuo y los del consumidor. **Resultados:** La implementación de estos valores en la empresa es problemática debido una falta de conocimiento sobre los mismos, siendo necesario un aprendizaje simbiótico. Presentamos un marco conceptual de los valores de innovación orientada a la sostenibilidad que no es estático, sino que se retroalimenta. Así mismo, recogemos prácticas innovadoras de empresas, organizadas en base a la tipología de valores estudiados. **Conclusiones**: La innovación sostenible en las empresas está profundamente influida por una compleja interacción de valores institucionales, organizativos, individuales y de los consumidores. El aprendizaje continuo y la adaptabilidad, impulsados por un liderazgo fuerte y el compromiso de las partes interesadas, son cruciales para integrar la sostenibilidad en las prácticas empresariales y alcanzar los objetivos de desarrollo sostenible a largo plazo.

Palabras clave: sostenibilidad; innovación; valores; IOS; orientación; cliente; estrategia; aprendizaje.

1. Introduction

In recent years, there has been a strong uptake of various sustainability criteria in business organisations, with varying degrees of success. This is due both to an increase in legislation in this area and to the individual and collective will to take steps in this direction. It is a process that started in the 1980s and has been strongly boosted by the publication of the 17 Sustainable Development Goals by the United Nations in 2017, in line with the 2030 Agenda for Sustainable Development (Daub et al., 2020). Institutions and society are demanding that companies accelerate the processes towards a sustainable reality. This has led the most committed companies to focus on various areas of improvement within the company and its processes. Sustainability-Oriented Innovation (SOI) involves the introduction of deliberate changes to an organisation's philosophy and values, as well as its products, processes or practices, with the specific aim of creating and realising social and environmental value in addition to economic benefits (Adams et al., 2016).

The effective implementation of a SOI in the company, like other corporate goals and processes, depends on the company's commitment to its sustainability goals. This commitment is reflected in the company's values, which are the best tool to articulate the implementation of actions within the organisation (Martinuzzi et al., 2018). Therefore, the study of the values that lead to a SOI is particularly relevant to the achievement of the goals of the United Nations Agenda 2030 for Sustainable Development.

However, although the number of studies related to SOI has increased significantly over the last decade, there are few studies that examine values and their relationship to SOI (Globocnik et al., 2020; Rubio-Andres & Abril, 2024). With this work, we hope to fill this gap in the literature and to bring a holistic view of the values influencing SOI in organizations. To this end, we analyse the most relevant studies on SOI with the aim of finding out what values make SOI possible, who holds them, how they are acquired and transmitted, and how they are put into practice in organisations.

This work presents a conceptual framework of values for sustainable innovation. We also collect actions of innovative companies organised on the basis of these values, so that these practices can be transferred to other companies depending on the point of the conceptual framework where the company is located.

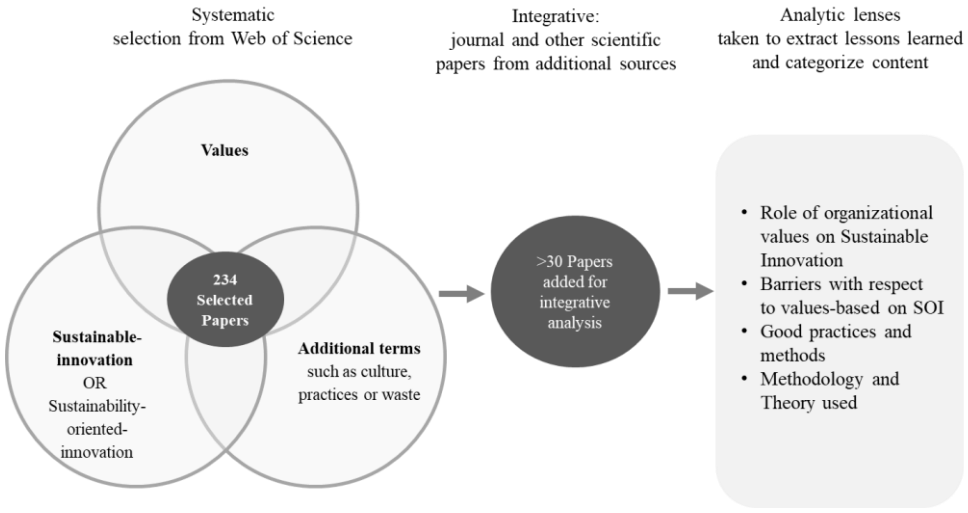
2. Method

In order to deepen the literature on value-based sustainability-oriented innovation, a systematic selection was made within the Web of Science, starting with the search terms "values" AND "sustainable-innovation" "sustainability-oriented innovation", including additional (OR) terms such as "culture", "practices", among others, yielding a total of 234 articles in journals indexed in the Web of Science. A further thirty journal articles and other scientific articles from additional sources were added to provide an integrative analysis.

The review process was carried out as described in Figure 1.

Figure 1.

Scoping review executive summary



Source: Own elaboration (2024).

Based on the literature we classify the values that have been researched in this context according to the person, organization area or strategy that leads them. We first describe the values and next we describe the practices that have made possible landing them in the innovative organizations.

3. Sustainability-oriented innovation values' framework

3.1. The importance of values in sustainability-oriented innovation

Organisational values are "socially shared cognitive representations of institutional goals and demands" (Bansal, 2003). They provide the decision rules for interpreting the complex and numerous signals from the organisational environment and influence the structure and culture of the organisation. The importance of specifying the organisation's values lies in the fact that these values guide the implementation of actions, provide a means of interpreting them and suggest certain behaviours (Reficco et al., 2018). Therefore, the explicit definition of the organisation's values in relation to sustainable innovation is a crucial element for the effective implementation of these values.

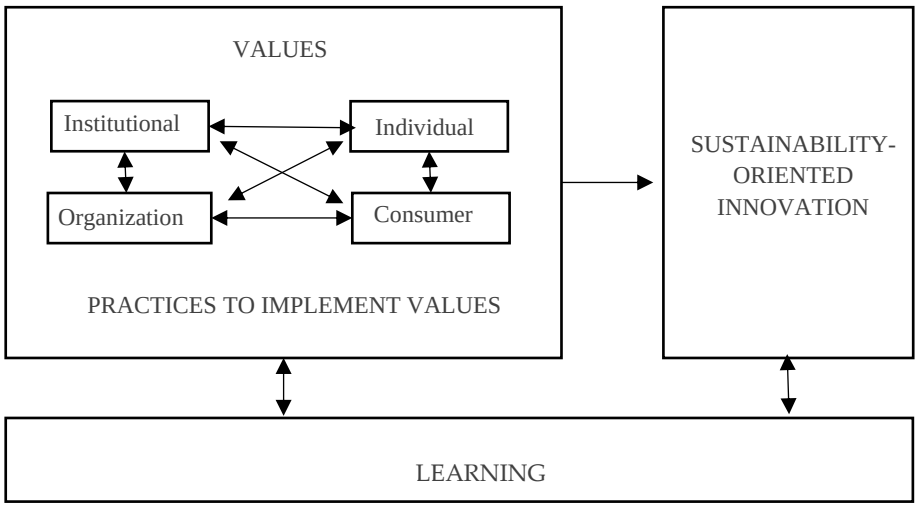
There are few references to values in the SOI literature. The lack of explicit reference to values may be due to the assumption that a sustainability-oriented company has values that are assumed by all to be sustainable. This assumption can lead to confusion, as the values held by organisations have changed dramatically over time. In 2003, the values of "sustainable organisations" analysed by Bansal were profit generation, value creation, cost reduction, market share increase, return on assets, good corporate image, employee satisfaction and customer satisfaction. In 2018, Breuer et al. include values such as life cycle thinking, product-service system design and the creation of a quality management system, and in 2021, Oskam et al. speak of "addressing the interests of a wide range of actors and stakeholders, including nature and society" (p., 5).

In the review of SOI-related research, we found four groups of values according to the bearer of the values: institutional values (Adams et al., 2016; Daub et al., 2020), organisational values (Watson et al., 2018; Globocnik et al., 2020), individual values (Bansal, 2003; Biberhofer, 2019) and consumer values (Vernay et al., 2020; Kandampully et al., 2023). Of these, consumer values are surprisingly the least mentioned.

Interestingly, one agent of values transmission in much of the research is learning through education and training (Tura et al., 2019; Klapper & Fayolle, 2023). Therefore, we propose a reference framework of values for sustainability-oriented innovation, the graphical representation of which is shown in Figure 2.

Figure 2.

Sustainability-oriented innovation values' conceptual framework



Source: Own elaboration (2024)

The four types of values identified, and the role of learning are explained in the following section.

3.2 Types of values affecting sustainable innovation in the company

3.2.1. Institutional values

In the early 1980s, the United Nations determined that sustainable development can only be achieved if each generation ensures that the next generation will also be able to meet its essential needs (Cillo et al., 2019). Sustainability thus becomes a normative guiding idea, and humanity is asked to act collectively to ensure its own long-term survival on the planet (Khan et al., 2022). To operationalise this concept, in 2015 the United Nations approved the 2030 Agenda for Sustainable Development, a global roadmap comprising 17 Sustainable Development Goals (SDGs), 168 targets and approximately 220 indicators (Daub et al., 2020). Since then, companies have assumed a central role in shaping the future of the planet, as the concept of sustainability is based on three interrelated dimensions: society, environment and economy. The concept of sustainability implies that when specific measures are implemented in one dimension, the other two dimensions must be taken into account (Daub et al., 2020). Therefore, the challenge facing sustainability-oriented companies is to find the right balance between firm's benefits and public values (Dyllick & Rost, 2017). This has resulted in an increasing number of calls for reflection on the political and socioeconomic system and its relationship to responsible innovation (Lubberink et al., 2017).

The existing literature on SOI does not address values at the institutional level, such as those set out in the Countries' Magna Charters or those of the United Nations. These values, however, affect SOI through legislation directed at companies. These are "normative stimuli" (Adams et al., 2016) or normative codes of conduct (Stilgoe et al., 2013) that may not generate added value in the company (Adams et al., 2016), but engage the different stakeholders, making them move in the direction of sustainability (Globocnik et al., 2020).

These institutional frameworks serve as the foundation for business models designed to facilitate sustainable innovation (Boons et al., 2013). These models should respond to the values of stakeholders and the general public through an institutionalised collective co-responsibility for the development of innovation, considering the knowledge, perspectives, views and norms that emerge during the innovation process (Khan et al., 2022). Given that the majority of companies adopt a passive and reactive stance, with significant gaps in knowledge, motivation, education, or willingness (Schaltegger et al., 2024), legislation and profit-making remain the primary drivers when innovating for sustainability (Lubberink et al., 2017).

3.2.2. Organization's values

Organization's values represent the primary determinants of an organizational culture, identity, and other structural attributes of a social system (Bansal, 2003). Sustainability-oriented innovation (SOI) is defined as the intentional alteration of an organisation's philosophy and values, as well as its products, processes or practices, with the specific objective of creating and realising social and environmental value in addition to economic benefits (Martinuzzi et al., 2018). A shift in philosophy, values and behaviour is required to align with this approach, which should be reflected in the company's innovation activity (Kneipp et al., 2019). The underlying value and belief systems exert a profound influence on the development of innovation, as well as on the role of the organisation and its innovation within the broader political and socioeconomic system (Khan et al., 2023). The discourse on corporate responsibility increasingly urges organisations to incorporate ecological and social

aspects into their structures, processes and activities (Rubio-Andrés & Abril, 2024). Indeed, mission-driven companies tend to be perceived more favourably than conventional companies (Daub et al., 2020).

The determination of organisational values is a function of the top management team, with these values often explicitly stated in corporate documents. In contrast, the emergence of identity and culture is a function of shared experiences. Consequently, organisational identity and culture are distinctive to the organisation, whereas its values may not be (Bansal, 2003). It is evident that company values are not uniform. The studies reviewed detail that there are not only differences in values between companies, but also between companies and their external stakeholders, between company departments and between the employee and the company. It can be observed that different stakeholders are driven by very different concerns and operate according to different value sets and cultures (Watson et al., 2018). In addition, some values are accorded greater priority or importance (Guldmann & Huulgaard, 2020). Organisations must therefore adopt a proactive approach to navigating these competing values frameworks. Table 1 presents a list of the main organisational values as described in the SOI literature grouped by business area.

Table 1.

Organizational values in the literature on sustainability-oriented innovation

Business area	Values of a SOI organization
Social Responsibility	Contribute positively to each community and society. Have a good corporate image. Creating and capturing social, environmental and economic value to improve sustainability. Concern for the ecology of the earth. Orientation to sustainability. Consider the interests of a wide range of actors and stakeholders, including nature and society. To have a broad notion of value beyond mere economic value.
Economic	Generate profits. Create added value. Reduce costs. Increase market share. Ensure customer satisfaction. Reflect on the possible results of a new business model.
Production	Clean production Reducing the environmental footprint Have life cycle thinking, product-service system design and the creation of a quality management system.
With Stakeholders	Commitment to supplier welfare (which generates trust). Contribute to the economic and social development of local communities. Create partnerships with suppliers and build long-term relationships. Ensure corporate respect Ensure employee satisfaction, health and safety at work.

Source: Own elaboration (2024).

The transition from theoretical to practical implementation of values for sustainable innovation is accompanied by a number of challenges, including the assertion that the implementation of sustainable social and environmental policies may result in a competitive

disadvantage (Adams et al., 2016). This argument has, however, been challenged by numerous scholars (Rubio-Andrés & Abril, 2024). The objective is to achieve greater integration of social value creation in addition to economic profitability (Martinuzzi et al., 2018).

Undoubtedly, the implementation of sustainability models is not without challenges. The size and nature of the company's activity will affect the implementation of sustainability models, as well as the tangible and intangible resources available to it: research and development, related capital, intangible value (Cillo et al., 2019). Guldmann & Huulgaard (2020) identify several barriers to the innovation of circular business models, which are applicable to a wider range of contexts. These include:

- External barriers: regulatory barriers; lower virgin raw material costs compared to recycled materials; little evidence of financial and/or environmental benefits; time to invest to build new partnerships and mutual trust; lack of interest and understanding by the value chain; need for training and education.

- Internal barriers: a fundamental change in corporate culture, policies and market engagement is needed, requiring internal reorganization; resistance to change; lack of commitment from top management.

Consequently, the determination of an approach to SOI necessitates that the company prioritise the sustainability agenda, thereby moving from a reactive to a proactive model (Adams et al., 2016). In a similar vein, Dyllick & Rost (2017) propose a shift in mindset from an inside-out perspective to an outside-in perspective, advocating a change in the way companies think. The truly sustainable company shifts its perspective from seeking to minimise its negative impacts to understanding how it can create significant positive impact in critical and relevant areas for society and the planet (Dyllick & Rost, 2017).

In many cases the firms' shift on perspective requires new business models. Therefore, is not surprising to find many studies researching the design of business models oriented towards sustainable innovation. For example, Oskam et al. (2021) proposes four principles for the design of sustainable innovation models. These are: 1) Sustainability orientation, 2) Value creation beyond economic value, 3) A systemic approach (life cycle, product design and potential effects), and 4) Consideration of all stakeholders. The implementation of innovation orientation will be influenced by the company culture, which can be classified as clan, adhocracy, market, or hierarchical (Globocnik et al., 2020). This will depend on the firm's value proposition, its own socio-ecological burdens, the way it relates to the customer and the way economic costs are distributed among the actors (Boons et al., 2013). If knowledge and social exchange occur between them, this enables the generation of innovation outcomes, including technological, human and social innovation (Barile et al., 2020). Should the exchange be conceptualised as a trade-off, inconsistencies may be introduced into the value framework, which could impede the innovation process (Watson et al., 2018).

In their 2013 publication, Stilgoe et al. propose a framework comprising four phases or dimensions for the implementation of sustainability oriented innovation. These are: anticipation (systematic reflection on any knowledge), reflexivity (critical examination of one's own activities), inclusion and deliberation (engagement of stakeholders and the general public to open discussions), and responsiveness (having the ability to change the form or direction of innovation in response to stakeholder and public values). These dimensions can be employed heuristically in the context of innovation management (Attanasio et al., 2022).

The research reviewed revealed a prevalence of practices for implementing organisational values, with 46% of these being business case studies. Table 2 presents a summary of the main organisational values identified in the SOI literature grouped by destination group. It is important to note that the implementation of these practices should consider the diverse range of stakeholders within the organisation. It is possible that these individuals may hold different values and motivations, which could influence the development of innovation. In instances where values are in conflict, it may be more beneficial to pursue compatibility between different stakeholders than to seek shared values (Rok et al., 2020). In this regard, it is crucial to foster open communication, as it enables the recognition of the subjective nature of knowledge and facilitates the reconciliation of disparate conceptions of reality (e.g., Lubberink et al., 2017).

The majority of the literature reviewed indicates that the coincidence of values between different stakeholders represents a significant strength for sustainable organisations. However, there are instances where collaboration with individuals or entities holding disparate values can facilitate the emergence of new values, particularly in contexts where the advancement of sustainable innovation is particularly challenging.

The organisational culture of a company is shaped by the beliefs, values and educational backgrounds of its employees. The literature emphasises the significance of top management support and line managers' commitment to sustainability (Rok et al., 2020). It is therefore important that employees are aware of the organisation's values, as several studies have indicated that employees prefer to work within a known business configuration (Guldmann & Huulgaard, 2020), as they do not wish to have to confront their values with those of the organisation (Bansal, 2003).

Finally, as in other areas of the company, it is necessary to establish indicators that measure the performance of the actions designed in this direction in order to ensure the implementation of values (Martinuzzi et al., 2018). It is of little consequence that values are espoused if they are not reflected in the policies that guide the company's actions (Reficco et al., 2018). However, in the literature on SOI, there is a paucity of references to methods of measuring values in companies (with exceptions such as Dyllick & Rost, 2017 and Barile et al., 2020). Consequently, this remains an open question for future research (Rubio-Andrés & Abril, 2024).

Table 2.

Practices for applying organizational values in the literature on sustainability-oriented innovation

Destination group	Practices to implement organisational values
Overall company strategy	− Develop knowledge-based structures consisting of beliefs shared throughout the organization that guide and direct the company strategically and then take actions to innovate that lead to sustainability. − Shifting from Inside-Out-Thinking to Outside-In-Thinking. Moving from seeking to minimize the company's negative impact, to understanding how it can create a positive impact for society and the planet. − Invest in product and service innovation by working across the value chain and, in some cases, challenging the business model on which it is based. − Prioritize the company's sustainability agenda over a reactive model. − Accepting limits to the company's growth and reorienting demand by redirecting customer consumption. − Have clear organizational policies embodied in written guidelines, documents that present the value propositions (code of conduct, mission, policy document, etc.). − Focus on value creation through innovation. − Use mission-oriented approaches with the objective of creating social values. − Demonstrate and measure the positive impact of implementing sustainable values.

	Reporting on progress is transparent, consistent, authentic and independently verified where possible. Establish indicators of sustainable, social and ethical development of the company.
Stakeholder strategy	− Balancing transparency and openness in relationships and the innovation process, and welcoming input from external stakeholders. − Seek stable partnerships. build long-term, socially embedded relationships (price incentives may be insufficient to safeguard trade-offs). − Collaborate with experts (e.g. from the plastics recycling industry to develop a sustainable product). − Work with stakeholders who share the same values, creating positive ethical networks. − Work with stakeholders with different (sometimes opposite) values, building bridges or creating new values. − Seek compatibility among stakeholders, rather than seeking shared values. − Establish trusting face-to-face relationships. − Collaborate with capacity building and knowledge transfer. − Work closely with communities in stable partnerships that will ensure quantity and quality. − Have "bridge organizations" that can act as mediators. − Establish fair prices with suppliers and customers.
Internal organization	− Have human resources management practices aligned with the sustainability approach, as they contribute to fostering employee creativity to find new products, solutions or processes that substantially improve existing ones. − Communicate sustainability values and objectives that go beyond operational and ecological efficiency. − Conduct activities that encourage rethinking of problems and/or solutions, or that encourage stakeholders to question their own and the company's approaches (to help the company reflect on its thinking and practices). − Strengthen teamwork. − Establish a form of open communication, calling for action. With clarity of objectives and long-term strategies.

Source: Own elaboration (2024)

3.2.3. Individual values

The innovation process is frequently driven by the personal values and aspirations of the business leaders involved, which can have a profound impact on the values and culture of the organisation (Attanasio et al., 2022). Conversely, a subset of employees deliberately selects their employer based on their commitment to sustainability. A shared purpose serves to establish the direction of both individual and corporate actions. Furthermore, when individual and corporate purposes are aligned, managers observe that employees are willing to work further to see their values realised (Geradts & Bocken, 2019).

Values are abstract and enduring beliefs about desirable goals, ranked according to their relative importance, that guide individuals in evaluating events, people and actions, and making decisions (Biberhofer et al., 2019). Discrepancies between an individual's expectations or desires and reality can give rise to feelings of unease, which can prompt a shift in behaviour (Bansal, 2003). Values and motivations are employed as heuristics when decisions must be made in the face of uncertainty or when individuals are confronted with conflicting options (Khan et al., 2023).

At the level of organisational analysis, values are more relevant than at the individual level because individuals are not agents of change, but rather targets of change. In fact, firm's values impede, shape, and filter change efforts initiated by individuals (Reficco et al., 2018).

However, the innovation process is frequently driven by the personal values and aspirations of the business leaders themselves, which can have a profound impact on organisational

values and culture (Rok et al., 2020). The transition towards a sustainable economy is inextricably linked with a dual understanding of the role of sustainability-driven entrepreneurs in the growth paradigm (Biberhofer et al., 2019). On the one hand, they engage in critical reflection on the current neoliberal market economy and the constant growth paradigm. On the other hand, they are acutely aware of the dilemma of acting in a growth-based economic system and wanting to transform it at the same time (Attanasio et al., 2022). The objective is to conduct business in a manner that addresses the needs of the present on a social, environmental, and economic scale, while ensuring the ability of future generations to meet their own needs (Schaltegger et al., 2024).

Nevertheless, the SOI literature does not extensively address the role of individual values in the sustainability-oriented innovation process. Table 3 presents a list of the most frequently mentioned values.

Table 3.

Individual values in the literature on sustainability-oriented innovation

Individual values
− Social conscience. Strong sense of responsibility towards the future of our societies (intra and intergenerational equity). − Environmental awareness (preservation of the natural environment, concern about overexploitation of nature; climate protection and orientation towards zero waste systems). − Belief in the legitimacy of entrepreneurship as a vehicle for change. − General confidence in transformation capabilities of human beings. − Conception of work as a productive and rational-instrumental activity vs. an economic view of human motivation (motivation by external rewards such as money, power, status, etc.). − Search for a broader meaning for one's actions. − Recover, recycle, rethink, upcycle, reuse, repurpose, reduce, repair, renew, become moral values that set the direction of business operations and affect the sustainable lifestyle of the founders (Rok et al., 2020).

Source: Own elaboration (2024)

Top management teams are only responsive to issues that are pertinent to the organisation. Some individuals attempt to place on the organisation's agenda issues that they consider important according to their values (Boons et al., 2013). For the proposals to be successful, they must be led by command and be congruent with the company's values. Individuals are not willing to risk their positions to defend a value that is incongruent with the organisation (Stilgoe et al., 2013). Moreover, individuals tend to avoid engaging with activities that address moral dilemmas, responsibilities, and ethical issues within the organization (Lubberink et al., 2017).

For the successful implementation of the values of organisations aiming at sustainability-oriented innovation, it is essential to seek organisational responses that involve the members, processes and resources of the organisation. Individual responses are limited to the individuals themselves and their responses may be discretionary (Kandampully et al., 2023). Individual values are positively correlated with the extent of the response. Furthermore, the authority held by the individual will moderate this relationship, such that the scope of the response will be greater in proportion to the individual's authority (Khan et al., 2023).

The congruence between individual and organisational values has been demonstrated to influence a number of key organisational outcomes, including employee satisfaction, corporate social responsibility, departmental power, culture and organisational identification

(Oskam et al., 2021). Furthermore, it affects the speed of the response, which is greater when the authority of the individuals carrying out the action is greater (Bansal, 2003).

Biberhofer et al. (2019) identify six key competencies that individuals must possess in order to effectively transfer sustainability values. These competencies include systems thinking, anticipatory thinking, normative thinking, strategic thinking, interpersonal competencies, and integrated problem-solving competence. Deeper levels of knowledge, such as worldviews, values, or assumptions, may not be consciously recognized and often remain unexamined, yet they affect more everyday thinking and actions (Biberhofer et al., 2019). Consequently, it is of paramount importance to provide guidance in entrepreneurship education for sustainability.

Table 4.

Practices for leveraging individual values in the literature on sustainability-oriented innovation

Individual values
– Avoid ecosystem degradation (reducing pollutants, waste and emissions). – Convince that existing environmental problems can and should be solved and that the organization and individuals can do something about them. – Take advantage of the desire for change, looking for new solutions that can be transformed into business opportunities. – Consider that congruence between organizational values and individual concerns is positively related to speed of response. – Know that speed will be faster the greater the individual authority and the greater the resources. – Good working conditions, including fair wages, family-friendly working hours or health projects, are measures that support good, long-term oriented employee relations. – Promote participation, gender equality, as well as cross-generational and cross-cultural collaboration. – Offer education and training, especially for new employees and apprenticeship programs, vocational training or seminars. – Encourage recycling practices and benchmarking of environmental performance

Source: Own elaboration (2024)

3.2.4 Customer values

Consumers represent a significant driving force for companies, serving as the primary rationale for their continued existence. In recent years, there has been a great deal of discussion about the changing values of consumers and how they drive sustainable innovation in companies (Kandampully et al., 2023). In the academic literature on SOI, there are few references to the impact of changes made by companies aimed at sustainable innovation on consumption and sales volume. Liedtke et al. (2012) posit that such changes have a positive effect, while Vernay et al. (2020) argue that they have a negative effect.

One potential explanation for this lack of research in customers' values is that the values of consumers interested in sustainable products and services are perceived to align with those of the companies they patronize (Rok et al., 2020). This is because these companies engage with customers and end users in order to respond to their needs (Lubberink et al., 2017). As posited by Vernay et al. (2020), customer needs may originate from their values. The impact of consumer values on the evolution of markets is a topic of contention, given that the same consumer may not act in accordance with their values, a phenomenon known as the attitude/behaviour gap. Furthermore, consumers may exhibit contradictory behaviours depending on the market in question. For instance, a consumer may be perceived as a "sustainable" consumer in organic products but a compulsive shopper of clothes. The literature

examines the manner in which these companies interact with customers and end-users in order to respond to their needs (Kandampully et al., 2023). However, the aforementioned dilemmas seem unresolved.

Björklund & Forslund (2018) highlight that these types of companies employ several enhancement tactics to align their offerings with customer values. The enhancement tactics may be classified as either setup tactics (when the product is sold) or engagement tactics (during product use). In the view of these authors, it is inadvisable to place undue reliance on consumers at an early stage in the product lifecycle, given the potential for sensitive information to become public. Conversely, Watson et al. (2018) posit that a democratic approach entails stakeholder involvement in decision-making processes, thereby enhancing the sense of ownership of a project and considering ethical issues pertaining to equity and citizen empowerment. The development of sustainable business models not only considers the interests of customers or end users, but also addresses the interests of a wide range of actors and stakeholders, including nature and society (Oskam et al., 2021).

Indeed, some advanced SOI models (Reficco et al., 2018) actively seek to establish a "community of values" with their customers. The construction of a macro-culture, founded upon shared assumptions and values that inform actions and align expectations, serves to facilitate collaboration among all stakeholders (Reficco et al., 2018). In many cases, this begins with the possession of the requisite information, training, and conviction to do so (Barile et al., 2020). The objective is not merely to sell a product, but to share a social and environmental conscience (Daub et al., 2020).

4. Learning the values of sustainability-oriented innovation

The implementation of sustainability in firms needs an understanding of the underlying causes of environmental, organisational, social and individual problems, as well as the requisite knowledge to resolve these issues. A systematic approach to innovation necessitates an orientation towards continuous learning, which in turn facilitates the management of relationships and the alignment of organisational and individual goals (Barile et al., 2020). The process of learning involves the recognition of the value of new knowledge, its assimilation and subsequent application in order to support sustainability. It establishes internal and external linkages that are crafted as opportunities for learning and influencing sustainability (Adams et al., 2016). Learning can involve and affect different levels of consciousness, personality and social identity, ambition, personal goals and personal values. These include ethical, social and environmental awareness, which are linked to deeper levels of knowledge (Biberhofer et al., 2019). Within the domain of knowledge, beliefs, values and paradigms, as well as concepts of the world, can be identified (Cillo et al., 2019). The role of values appears to be pivotal in comprehending the sustainability-oriented entrepreneur/manager and their motivational impulses to leverage competencies (Klapper & Fayolle, 2023).

Sustainability-oriented implies the integration of diverse knowledge related to economic, social and environmental considerations (Adams et al., 2016). Therefore, organisations that have effective knowledge management processes can leverage them to support sustainability-oriented innovation (Ayuso et al., 2011). These companies concentrate learning processes on four key areas: exploiting existing knowledge management capabilities to identify and access relevant knowledge; unlearning existing knowledge that contradicts sustainability principles; filling competence gaps through training, targeted recruitment or importing expertise; and integrating various elements of sustainability by issuing guidelines and monitoring compliance (Adams et al., 2016; Klapper & Fayolle, 2023).

The importance of adaptability to change and learning is a common feature of different forms of sustainability. The difficulties encountered in acquiring knowledge about sustainability are often attributed to a lack of comprehension of the intricacies of sustainability issues (Tura et al., 2019). Education serves as a tool to facilitate the creation of attitudes and values, as well as the development of competencies, routines and management processes, with the objective of building the capacity for sustainable innovation (Tura et al., 2019). To enhance their performance, organisations disseminate knowledge and new practices through learning communities, distributed learning platforms and participatory approaches, and invest in transformative learning, networks and communities of practice (Reficco et al., 2018). Barile et al. (2020) propose co-learning as a means of facilitating the continuous improvement of the skills and competencies of members of the innovation ecosystem. In order for a wide range of stakeholders to become familiar with responsible innovation (e.g. research communities, R&D-intensive companies and citizens), it is necessary to stimulate learning more responsible innovation practices and facilitate training and communication (Lubberink et al., 2017).

The organisation must adopt a creative approach that is focused on sustainable innovation. This will require the exchange of knowledge in order to exploit new values, services, products and social norms (Barile et al., 2020). The concept of inclusion and deliberation is a recurring theme throughout the literature on sustainable innovation. It implies an "active engagement of stakeholders in order to substantially improve decision making and mutual learning" (Lubberink et al., 2017, p. 4). One such example is the construction of a responsible supply chain, which entails the training of business partners and suppliers on the one hand and residential and business customers on the other (Rok et al., 2020). Alternatively, activities in the social sphere, such as education, social engagement or employee outreach (Klapper and Fayolle, 2023), may be conducted.

Both knowledge and experience facilitate the ability to identify problems and opportunities for positive innovation (Rok et al., 2020). Consequently, higher education institutions occupy a pivotal position in the development of entrepreneurial sustainability, as they educate the decision-makers of tomorrow who will occupy pivotal positions in business, politics and academia (Khan et al. 2023). In entrepreneurship education exist learning processes that are linked to will and motivation, as well as others that are linked to values and attitudes (Schaltegger et al., 2024). To implement this SOI-oriented learning, the forms of learning suggested by Biberhofer et al. (2019) can be employed: active learning; learner-centred learning; reflective learning; collaborative learning; experiential learning; problem-based learning; interdisciplinary learning; transdisciplinary learning; and transformative learning.

The cycle of sustainability-oriented innovation begins and ends with knowledge. It is through the establishment of a learning culture that failures and successes are transformed into business practices.

5. Conclusions

The scoping review of the literature on the values that give rise to sustainability-oriented innovation has led to the identification of four types of values: institutional, organisational, individual and consumer values. These values are interrelated through the sharing of knowledge and experience among practitioners, who provide feedback to each other on a continuous basis.

Institutional values establish the normative frameworks within which businesses operate, guiding them toward sustainability through collective responsibility and stakeholder engagement. Although many companies remain reactive, motivated mainly by legislation and

profits, the concept of sustainable development, championed by the UN and the 2030 Agenda, urges companies to balance private benefits with public values. These values exert an influence on actions through the enactment of laws and the establishment of norms, thereby aligning business models with broader sustainability goals. There is a growing call for companies to reflect on the ways in which political and socioeconomic systems influence responsible innovation.

The values on which the organization is founded define the company's culture and identity, which are of the essence for the embedding of sustainability into its core strategies. A shift from a reactive to a proactive approach necessitates the integration of sustainability into organisational structures and processes. This transformation needs the resolution of internal resistance and the alignment of company philosophy with broader ecological and social goals. The key principles guiding this shift include sustainability orientation, systemic approaches, and stakeholder inclusion, which foster technological, human, and social innovation. Organisations must navigate the differing values held by their stakeholders, aiming for compatibility rather than shared values, in order to facilitate sustainable innovation.

The individual values of business leaders and employees have a significant impact on the organisational culture and its response to sustainability. When personal and corporate values are in alignment, employees are more motivated to support sustainable practices. Individual values inform decision-making and influence organisational behaviour, particularly when individuals hold authority. The congruence between personal and organisational values affects employee satisfaction and corporate social responsibility. This emphasises the need for competencies in systems thinking, strategic thinking, and integrated problem-solving. The integration of sustainability into innovation requires the development of key competencies, including systems thinking, anticipatory thinking, strategic thinking, and collaborative skills.

Finally, customers are increasingly driving sustainable innovation through their evolving values. Companies that engage with consumers to address their sustainability needs can foster a "community of values", thereby aligning their products and practices with consumer expectations. This alignment frequently entails the enhancement of the customer experience throughout the product lifecycle, with a particular emphasis on shared social and environmental responsibilities. Advanced SOI models seek to establish a community of values with consumers, thereby fostering a macro-culture that aligns the actions and expectations of all stakeholders.

To achieve progress in the implementation of SOI, it is necessary to engage in continuous learning and knowledge management. It is imperative that companies cultivate a learning culture that facilitates the identification, assimilation, and application of new knowledge in order to address sustainability challenges. Higher education institutions play a pivotal role in developing the competencies required for sustainability, equipping future leaders with the capacity to integrate these values into their decision-making processes. Effective learning encompasses a range of approaches, including active, reflective, and experiential learning, which collectively facilitate continuous improvement in sustainable practices.

This research offers some theoretical and managerial implications. First, we advance the literature on sustainability-oriented innovation by providing a holistic perspective on the values that drive SOI and their interrelationships. Regarding managerial implications, by unveiling the different values involved in delivering SOI, and the practices found in the literature to land said values in firms, we suggest new ways for delivering and implementing SOI in organizations.

Future research should advance our results by understanding and measuring the interconnections of these values in delivering effective SOI. Moreover, as the implementation of sustainable innovation in companies is significantly influenced by the complex interplay of institutional, organisational, individual, and consumer values, we suggest management attention to the importance of the continuous learning and adaptability of the organisation, which are crucial for the embedding of sustainability into corporate practices and the achievement of long-term sustainable development goals

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Authors' contributions

Conceptualisation: Pedreño-Santos, Ana; **Software:** Abril, Carmen **Validation:** Abril, Carmen **Formal analysis:** Abril, Carmen; **Data:** Abril, Carmen **; Drafting-Preparation of the original draft:** Pedreño-Santos, Ana; Abril, Carmen **Writing-Revision and Editing:** Pedreño-Santos, Ana; Abril, Carmen **Visualisation:** Pedreño-Santos, Ana **Supervision:** Pedreño-Santos, Ana; Abril, Carmen **Project management:** Abril, Carmen **All authors have read and accepted the published version of the manuscript.**

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AUTHORS

Ana Pedreño-Santos
Universidad Complutense de Madrid, Spain.

Assistant Professor at the Business and Economics Faculty of the Universidad Complutense of Madrid, Spain. She is Ph.D. in Marketing and member of the University research teams "Markco2" and "Responsible Communication and Vulnerable Audiences". She has also an extensive experience as marketing manager in different international companies as well as in marketing and media consulting agencies.

apedreno@ucm.es

Orcid ID: https://orcid.org/0000-0002-9230-7872

Carmen Abril
Universidad Complutense de Madrid, Spain.

She has extensive experience in executive training and advisory to start-ups and Social entrepreneurs. Her mathematical background has helped her to better understand the opportunities that the new technologies and access to data pose to organisations; her extensive marketing experience and academic research helps her to understand how to convert these opportunities into stronger brand equity and firm value.

cabril@ccee.ucm.es

Orcid ID: https://orcid.org/0000-0003-1595-5195