

Responsible Entrepreneurship and Value Creation for Grand Challenges: Unveiling the Mediating Role of Knowledge Sharing

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Abstract

The purpose of this study is to explore the relationship between Responsible Entrepreneurship and Value Creation for Grand Challenges with the Mediating Role of Knowledge Sharing. Responsible entrepreneurship has been identified as one of the most important ways to overcome these challenges, but the organisation system in which it can bring value creation is not well understood. The study adopts a Stakeholder Theory approach to explore how knowledge sharing is the mechanism to connect responsible entrepreneurship with value creation for grand challenges. Data was collected by using a quantitative research design with a structured questionnaire from 352 small and medium-sized enterprises (SMEs) in Pakistan. The research model which was proposed was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) software developed by Smart-PLS 4. The insights show how positive an entrepreneurial attitude is to the knowledge sharing and value creation learning for a Grand challenge. Furthermore, knowledge sharing is also an enabler of value creation and has a significant mediating effect on the relationship between the responsible entrepreneurship and the value creation of grand challenges. It is concluded from these findings that responsible entrepreneurial practices generate more value to society through the process of creating knowledge through collaboration among the stakeholders. The present study joins the works on responsible entrepreneurship and Stakeholder Theory literature by revealing that knowledge sharing is an important organizational mechanism that facilitates the creation of sustainable societal outcomes from responsible entrepreneurial practices. Furthermore, the results offer practical suggestions to policies, managers and entrepreneurs on how to foster collaboration and knowledge sharing among stakeholders to support efforts and interventions in solving grand societal challenges.

Keywords: Responsible Entrepreneurship; Knowledge Sharing; Value Creation for Grand Challenges; Stakeholder Theory; Small and Medium-Sized Enterprises (SMEs)

Introduction

The characteristics of grand challenges differ from traditional business problems in that they involve uncertainty and systemic interdependence, and the issues are complex and therefore a challenge to solve in the traditional way through markets and marketplace approaches (Cuervo-

Cazurra et al., 2026). As a result, scholars and practitioners recognize that businesses are increasingly called to play a more active role in the solution-building process, as they shift from creating economic value to creating societal value concept of responsible entrepreneurship has become a strategic path for companies to adopt a specific position that enables them to achieve sustainable development without sacrificing competitiveness (Weinryb, 2025, Cuervo-Cazurra et al., 2026).

Nazir and Das (2025), explained that the entrepreneurship that incorporates social, environmental and moral aspects to entrepreneurial decision making and value creation processes is called responsible entrepreneurship. Entrepreneurs are proactive in interacting with various stakeholders and look to meet the needs of society while also obtaining economic value added that is compatible with or enhances social impacts. Societal demand for company responsibility is on the rise, thus responsible entrepreneurship has gained more and more traction in entrepreneurship, entrepreneurship management and entrepreneurship sustainability studies (Xie and Wu, 2022). Previous research indicates that ethical entrepreneurship will have a positive impact on organizational legitimacy, confidence of stakeholders, innovative results and sustainable performance (Chenavaz et al., 2023, Nazir and Das, 2025). Substantial though these achievements are, relatively little is known about how responsible entrepreneurship translates to value creation for tackling grand societal challenges. Moreover, value creation for grand challenges is the creation of solutions (Weinryb, 2025), capabilities (Cuervo-Cazurra et al., 2026), and resources that solve complex societal problems with value to multiple stakeholders (Weinryb, 2025, Rendtorff, 2024). Empirically the studies have concentrated on themes like social innovation, sustainability performance, corporate responsibility and social value. Although these studies have made significant contributions to the responsible entrepreneurship literature, they offer little understanding of how sustainable entrepreneurial actions can become tangible societal results through organizational processes (Weinryb, 2025). There is thus a theoretical gap that is quite significant, as far as mechanisms are concerned, between responsible entrepreneurship and value creation for grand challenges.

Moreover, knowledge sharing is a potential intervening variable in the connection between responsible entrepreneurship and value creation for grand challenges. Knowledge sharing is the sharing, dissemination and integration of knowledge, skills, experiences and insights between various members of the organization and external stakeholders (Lin et al., 2024). A diverse and complementary knowledge base is needed to achieve grand challenge solutions, knowledge that no single organization can acquire on its own. Entrepreneurs can play a particularly important role in such knowledge transfers, especially those responsible entrepreneurs, as they encourage collaboration, transparency, involvement of stakeholders, and problem solving together (Diriker et al., 2022). Businesses interact continuously with employees, customers, suppliers, communities, government and non-government organizations and acquire valuable knowledge, which can be applied to solutions to complex social issues (Qiu et al., 2022). In this context, knowledge sharing is an important but yet under-explored pathway for creating value for grand challenges in the context of responsible entrepreneurship.

Additionally, this study has some useful contributions to the literature. First it breaks new ground for the field of responsible entrepreneurship in terms of conceptualizing knowledge sharing as an organizational mechanism that connects responsible entrepreneurship to value creation for grand challenges. Third, it examines the micro-level mechanisms of organizations that brings about

value creation for society, following up on recent attention given to these in the literature. Third, combining Stakeholder Theory with the knowledge sharing approach provides a more comprehensive theory of how stakeholder cooperation can support value creation in tackling grand societal issues. Finally, it offers implications for entrepreneurs, managers and policy makers, as a way to manage and create collaborative knowledge sharing environments to maximize the societal impact of entrepreneurial initiatives. From the above discussion, this study aims to answer the following questions:

RQ1: What role does responsible entrepreneurship play in value creation where it can support grand challenges?

RQ2: How does knowledge sharing represent the link between responsible entrepreneurship and creation of value for grand challenges?

This paper continues with the following sequence: the next section provides a review of the related literature on responsible entrepreneurship, knowledge sharing, value creation for grand challenges, and stakeholder theory, followed by the formulation of the study hypotheses. The research method and data analysis are then demonstrated later. The results of the empirical research and test of hypotheses are shown in the next section. The potential for theory and practice is then explored, and limitations and future research avenues are considered. Finally, it summarizes the most important contributions to responsible entrepreneurship and the grand challenges literature.

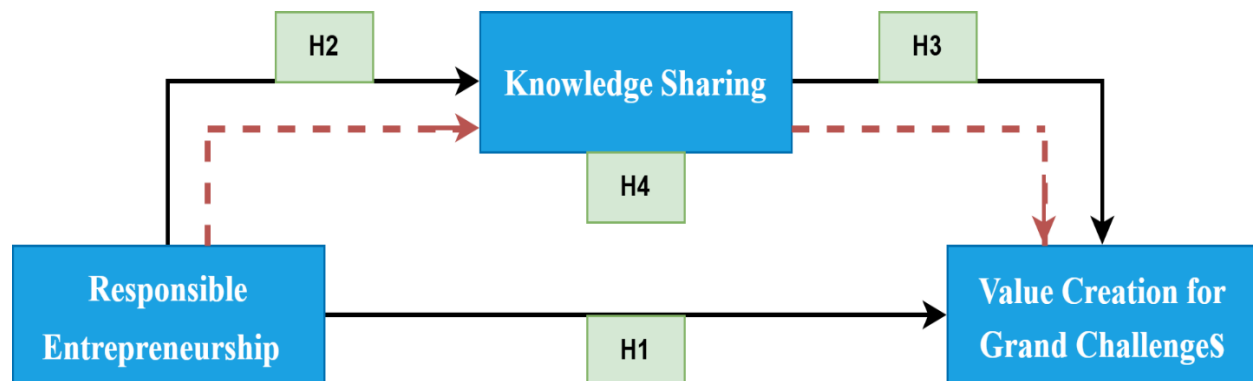


Figure 1: Research Model

Theoretical Foundation and Literature Review

Stakeholder Theory

The social and environmental challenges of today are becoming more complex, and the responsibilities of businesses have shifted from simple approaches to sustainable development and social well-being. The focus for appraising organizations is not just on their financial returns, but inclusive of their capacity to create value for a wide variety of stakeholders. In this scenario, Stakeholder Theory is one of the most influential and comprehensive theories of sustainable value creation through stakeholder engagement. Stakeholder Theory proposed by Freeman (1984) suggested that stakeholders should be considered when making decisions instead of

shareholders. The stakeholders of an organisation (customers, employees, suppliers, governments, communities, or NGO's) have resources, knowledge, legitimacy and capabilities that is influential to the success of an organisation. Therefore, companies that are able to identify, understand, and manage stakeholder relationships effectively, are likely to engender sustainable competitive advantages and at the same time tackle social issues. Simply, Stakeholder Theory depicts organizations as systems that involve multiple stakeholders which form a complex network of relationships, rather than entities that are widely recognized in traditional economic theories as solely focused on maximizing return for shareholders (Freeman et al., 2025). These interconnections allow for sharing information, resources, and knowledge to meet the challenges of environmental uncertainty and can be used to create shared value, as well as identify emerging opportunities.

Literature Review and Hypothesis Development

Responsible Entrepreneurship and Value Creation for Grand Challenges.

Grand societal challenges become more pressing, aspirations of entrepreneurship's contribution to sustainable economic and social value have grown. Entrepreneurs are no longer defined as opportunity-seekers and/or wealth creators but are also recognized as important players who can help solve important social and environmental issues (Abbas et al., 2024). In the context of this changing view, responsible entrepreneurship has become a type of entrepreneurship that combines economic goals with social, environmental and ethical aspects. Responsible entrepreneurs try not just to bring value to their businesses but also to a wide stakeholder community by incorporating the idea of responsibility into their business decisions (Dijkstra and Planko, 2023, Khasmafkan-Nezam, 2025). Value creation in this context is the capacity of an organisation to create solutions, capacities and resources that tackle complex societal issues and which offer extended value to a number of stakeholders over time. Value creation for grand challenges takes a different approach to value creation, where more focus is placed on creating value in terms of economic prosperity, social well-being and environmental sustainability than in the conventional approach that is more focused on financial performance (Kraa et al., 2025). These aims must be met by balancing the interests of multiple stakeholders, marshaling a range of resources, and establishing cooperative solutions to the challenges of society.

Furthermore, responsible entrepreneurship has been well explained in the context of grand challenges in terms of the Stakeholder Theory. The theory suggests that organizations can be successful over the long term if they create value for everyone involved in the organization, not just for shareholders (Freeman et al., 2025). In addition, responsible entrepreneurship also fosters the creation of long term value by rendering ethical principles, stakeholders and sustainability as integral parts of entrepreneurial activities. Under the concept of responsible business practices, entrepreneurs are more inclined to invest in socially beneficial projects, create environmentally sustainable business strategies and design business models that integrate the economic and societal goals (Abbas et al., 2024). It not only renders the stakeholders more trusting of the firm and enhances the firm's reputation but also contributes to the capacity of the firms to identify emerging societal opportunities (Chenavaz et al., 2023). Entrepreneurs are responsible in solving the concern of the stakeholders in advance so that it can create a positive environment for sustainable development and give contribution in the development of the society (Khasmafkan-Nezam, 2025). Empirical studies indicate that responsible entrepreneurship has a positive effect

on organizational and societal results. The relationship between responsible entrepreneurship and social innovation, sustainable performance, stakeholder trust, organizational legitimacy and long-term competitiveness has been shown in previous studies (Abbas et al., 2024, Chenavaz et al., 2023). The results indicate that the responsible entrepreneurial behavior can create value for companies beyond the conventional financial value, paving the way for their sustainability and positive social impact (Gonzales-Gemio et al., 2020). Despite that, the current literature largely treats intermediate organizational outcomes, while comparatively little attention has been paid to value creation for the specific purpose of responding to issues of grand societal problems. This has resulted in a lack of substantial understanding of how responsible entrepreneurship contributes directly to value creation for the grand challenges.

This restriction is significant since the grand challenges ask organisations to go beyond the traditional corporate responsibility approach to develop solutions that can be scaled-up and scaled-down to achieve benefits for a range of stakeholders (Weinryb, 2025). This objective can be realized with the right strategic focus of responsible entrepreneurship, which links entrepreneurial opportunity development to the interests of the stakeholders and the development of the society over time. The companies that are willing to become responsible entrepreneurs are thus more likely to call on resources, arrange the collaboration of stakeholders and build solutions that can tackle complex societal challenges and generate economic and social value (Rendtorff, 2024). This study claims that responsible entrepreneur can increase the commitment of the business to stakeholder engagement, ethical decision making and the creation of sustainable value based on the Stakeholder Theory. These traits help organizations to reflect on societal needs, improve stakeholder relationships, and focus resources on tackling grand challenges. Therefore, the scope of responsible entrepreneurship is expected to directly have a positive impact on firms to be a source of value creation for the organization and society. Hence, it is hypothesized that:

H1: Responsible entrepreneurship has a positive impact on value creation for great challenges.

Responsible Entrepreneurship and Knowledge Sharing

Responsible entrepreneurs participate in and actively involve these stakeholders by keeping them in a constant dialogue with them, involving them in decision-making processes, and continuously collaborating with them. These interactions foster relational trust, minimize information asymmetry and catalyst a flow of knowledge and expertise from stakeholders which would not otherwise be available. Thus, stakeholder relationships are not just a source of legitimacy, but also links through which organizations can obtain strategic information (Khasmafkan-Nezam, 2025). The trust is one of the most critical connections that can be made between responsible entrepreneurship and knowledge sharing. Other studies on knowledge management have found that people will share valuable information more readily if they feel that their relationships with their organizations are fair, open, reciprocal, and ethical (Abbas et al., 2024). The responsible entrepreneur develops exactly these relational qualities by being concerned, accountable and honest regarding the welfare of stakeholders. The more stakeholders trust (Stakeholder Theory) the organization in what they can achieve, the more they will be willing to share their knowledge, experiences, and ideas with the organization (Freeman et al., 2025, Khasmafkan-Nezam, 2025). Responsible entrepreneurship thus establishes the social conditions which support the continuous exchange of knowledge outside and inside the organisation. Collaborative

problem solving is also fostered through responsible entrepreneurship towards the sharing of knowledge. When it comes to grand societal challenges, their solutions are hardly straightforward; rather they involve multi-stakeholder collaboration seeking synergies and complementarities amongst the various stakeholders involved, with each having their own specific expertise. Entrepreneurs who care about the sustainability of a solution understand that it comes from a shared learning process, it is not the responsibility of one company (Dijkstra and Planko, 2023). Therefore, they create co-creative spaces to share information and generate knowledge with employees, customers, suppliers, communities, research institutions and policy makers. Interactions like these enhance the organizational knowledge repository as well as increase commitment and organizational legitimacy among stakeholders. Empirical evidence also favour the view that responsible actions of organisations have a positive impact on knowledge sharing processes. Companies with values linked to ethical leadership and engagement with stakeholders, corporate responsibility, and sustainability, often claim improved organizational trust, communication, collaborative learning and knowledge sharing (Maziliauske, 2024, Khasmafan-Nezam, 2025). Likewise, research on responsible innovation indicates that organizations that adopt a stakeholder perspective are more apt to have developed knowledge networks for knowledge learning and innovation. While the studies offer indirect evidence of a link between responsible entrepreneurship and knowledge sharing, they do not explicitly focus on the expression of responsible entrepreneurship as such, but rather on responsible behaviour in organisations in a broader context of sustainability or innovation (Abbas et al., 2024).

In addition, previous entrepreneurship studies have mainly focused on the outcomes in terms of innovation capability, social innovation, organizational legitimacy, sustainability performance, and financial performance (Chatterjee et al., 2023, Ratanavanich and Charoensukmongkol, 2025). However, less research has focused on understanding the organizational knowledge processes that underlie the generation of these outcomes by responsible entrepreneurship. This is a significant theoretical gap as such actions as the acquisition of knowledge, integration of knowledge and knowledge utilization in entrepreneurial activities are all related to the interactions with the stakeholders. If the knowledge processes associated with the competency of a responsible entrepreneur are not understood, explanations on the competency of a responsible entrepreneur are not complete. The other constraint of previous studies is that the majority of them has been centered on knowledge acquisition rather than knowledge sharing (Kraa et al., 2025). According to the Zhang et al. (2026), acquisition of knowledge is crucial but the effective transfer and embedding of knowledge between people and stakeholder networks are equally essential for organizational learning. In addition to learning and gaining knowledge from external sources, responsible entrepreneurs also create organizational culture which allows employees and stakeholders to share, combine and put knowledge into practice together. Knowledge sharing is therefore a specific competency of organizations, a competency that should be studied separately in the context of responsible entrepreneurship research.

Vallaster et al. (2019), stated that the connection between responsible entrepreneurship and knowledge sharing is especially applicable to small and medium-sized enterprises (SMEs). So, while large companies have resources to build in-house capacity, SMEs generally lack these resources, and consequently make greater use of networks of stakeholders to gain access to complementary knowledge, expertise and capabilities. Responsible entrepreneurial behavior allows SMEs to develop good relationships with customers, suppliers, local communities, government and educational institutions to create opportunities for learning together and sharing

knowledge (Gonzales-Gemio et al., 2020). Such relationships with the stakeholders can help SMEs overcome resource gaps and enhance their ability to address increasingly complex social issues. It proposes a stakeholder-centered perspective and responsible entrepreneurship that promotes trust, openness, collaboration and mutual commitment among stakeholders (Nelson, 2006). These relationships enable the flow of knowledge across the organizational boundary and ultimately increase organizational knowledge resources and organizational learning capability. Sustainable organizational development and societal value are created if responsible entrepreneurs actively include stakeholders in decision-making and problem-solving processes, thereby providing appropriate conditions for effective knowledge sharing. For this reason, it is suggested that:

H2: Responsible entrepreneurship positively influences the knowledge sharing process.

Knowledge sharing and value creation for Grand Challenges.

Grand challenges are those that are highly uncertain, systemically interdependent, complex, and have social, public health, resource, and climate implications. As a result, organizations need to break away from traditional ways of solving a problem and make use of various forms of knowledge that are scattered among many stakeholders (Zhang et al., 2026). Knowledge sharing, integration and application skills are crucial for societal value creation in this complex society, no single party has enough expertise to solve a complex societal problem alone. Knowledge sharing is the process of sharing, distributing, and fitting in knowledge, experiences and expertise amongst the members of the organization and/or external stakeholders (Chatterjee et al., 2023). Along with enhancing organizational learning, knowledge sharing facilitates the integration of diverse viewpoints, helps identify the new needs of society and can lead to joint solutions for complex issues within firms (Waseel et al., 2024). Therefore, knowledge sharing is growing in importance as an organizational competency which contributes to the enhancement of adaptive-ness, innovativeness and long-term value creation of organizations.

The relationship can be explained using the theory of Freeman (1984) Stakeholder theory. The theory suggests that sustainable value comes from an entrepreneurial process where the organization involves stakeholders in cooperation which involves the exchange of complementary resources and knowledge. Firms develop access to a wide range of knowledge when they interact with customers, suppliers, employees, governments, universities, communities, and non-governmental organisations, helping them to expand their knowledge of societal problems and to increase their capacity to come up with solutions (Khasmafkan-Nezam, 2025). These joint knowledge transfers can facilitate knowledge sharing within an organization as well as value creation for various stakeholder groups.

Diriker et al. (2022), indicated that in the case of grand challenges, the importance of knowledge sharing is even more obvious. In contrast to routine organization problems, grand challenges require an interdisciplinary understanding, collective learning, and coordinated action of a wide range of actors (Cuervo-Cazurra et al., 2026). Workplaces where knowledge sharing is encouraged and valued are more likely to spot opportunities in society, attract complementary business expertise and incorporate varied perspectives into actual solutions. “Co-learning” helps strengthen firms' ability to create products, services and business models that generate economic, social and environmental value (Shoham and Tennenholtz, 1994). Previous research discussed

that knowledge sharing improves the capacity of individual organizations in terms of knowledge innovation, decision making, problem solving and sustainable performance (Waseel et al., 2024, Cuervo-Cazurra et al., 2026). Firms with strong knowledge sharing cultures can use the knowledge of stakeholders to a better advantage, are better able to deal with changes in their environment and can react to the complicated need of society proactively. Despite the fact that a number of studies have investigated how knowledge sharing affects innovation and organizational performance, few of them have focused on how knowledge sharing impacts value creation for grand challenges (De Silva et al., 2026, Storey, 2025). Therefore, the social consequences of knowledge sharing has not been thoroughly investigated in the literature on responsible entrepreneurship.

Moreover, from a stakeholder point of view, knowledge sharing is the process that converts decentralized stakeholder knowledge into the collective and organisational capacities of a stakeholder group to meet societal needs (Freeman et al., 2025). Continuous information, experience and knowledge sharing helps organisations recognize the expectations of stakeholders that help to develop sustainable solutions and create shared values to serve them better (Scorrano et al., 2025). Thus, companies actively encouraging knowledge sharing are more likely to develop innovative and sustainable solutions to great societal challenges, and enhance stakeholder relationships and organizational legitimacy. With these arguments, the present study suggests that knowledge sharing is a vital organizational competency for the companies to realize the added value of knowledge within society. By facilitating collaboration, organizational learning, and collective problem-solving, knowledge sharing enhances firms' ability to create value for addressing grand challenges.

H3: Knowledge sharing positively contributes to value creation in grand challenges.

The Mediating Role of Knowledge Sharing

Empirically the direct impact of responsible entrepreneurship on the organizational legitimacy, sustainable performance, social innovation and stakeholder outcomes. These studies show that responsible entrepreneurship leads to positive organizational and societal outcomes, but do not provide much insight into the processes that enable the transformation of responsible intentions into value creation for the purpose of solving grand challenges (Gonzales-Gemio et al., 2020, Khasmafkan-Nezam, 2025). Thus the work on responsible entrepreneurship and value creation is still in the "black box" which is worthy of further research. This missing mechanism can be explained with a good explanation in the term of Stakeholder theory. These relationships are argued to be sustainable value building by bringing together knowledge, resources and perspectives from all the various stakeholders involved in an organization's activity (Lin et al., 2024). A responsible entrepreneur fosters a relationship of trust, transparency, respect and shared responsibility, where stakeholders can share valuable knowledge. These exchanges provide access to a variety of knowledge, skills and experiences, which help to strengthen organizational learning and improve their ability to respond to complex societal challenges (Nazir and Das, 2025). Further, Knowledge Sharing is an action of transferring, merging and using stakeholder knowledge to support organizational decision making and problem solving. The value of knowledge lies in sharing it and in combining it among people and stakeholder networks, unlike traditional resources in an organization (Nelson, 2006). Through open communication, collaborative learning, and stakeholder involvement, it is possible to promote this process of

change through open dialogue and cooperation. These practices allow organisations to better understand the needs of the society, to rally complementary knowledge assets, and to come up with more sustainable solutions that deliver value to the different stakeholders (Abbas et al., 2024). The knowledge-based perspective also supports the mediating role of knowledge sharing, considering knowledge as the most strategic resource of an organization to generate sustainable value. But, the value of knowledge depends on the extent to which it can be shared, integrated and used within an organization (Khasmafkan-Nezam, 2025). Responsible entrepreneurship establishes the relational context for knowledge exchange, and the creation of knowledge exchange, in turn, enables the stakeholders to move from interaction to action that can become an organization's relational capability to meet grand societal challenges (Zhang et al., 2026). Therefore, knowledge sharing is the key mechanism that contributes the transformation of responsible entrepreneurial practices into societal value. These indirect supports are also based on empirical evidence. The results of the previous research has demonstrated that responsible organizational practices help to improve stakeholder collaboration, organizational learning and exchange of knowledge while knowledge sharing has a positive impact on the capacity of organizations to innovate, their sustainability performance and value creation (Storey, 2025). However, these relationships have been primarily studied separately and connections between knowledge sharing, responsible entrepreneurship and value creation for grand challenges have not been well considered. Consequently, the mediation role of knowledge sharing is not sufficiently explored, especially in small and medium sized enterprises (SMEs) where enabling collaborative efforts of stakeholders may be crucial in the process of providing sustainable solutions when resources are limited.

In emerging economies like Pakistan, having an ethical mindset and stakeholder engagement will not necessarily bring value to the society as far as responsible entrepreneurship is concerned. Instead, benefits of responsible entrepreneurship are anticipated if stakeholders relations allows for continuous transfer and integration of knowledge that is conducive to the learning of the enterprise and joint problem solving (Vallaster et al., 2019). Knowledge sharing will help to close the gap between responsible entrepreneurship and value creation for the grand challenges by making possible access to a variety of knowledge sources and turning them into good answers to societal problems (Lin et al., 2024). In light of the theories of stakeholder theory, it makes sense that the responsible entrepreneurial attitude can strengthen stakeholder relations, inspire knowledge exchange and, in turn, increase an organizations capacity to generate value to solve society's complex problems (Abbas et al., 2024). Hence, knowledge sharing is the main organizational mechanism for value creation for grand challenges by responsible entrepreneurship. Based on this, the following hypothesis is formulated:

H4: Responsible entrepreneurship has a mediating effect on the relationship between knowledge sharing and value creation of grand challenges.

Methodology

Data Collection Methods

The research design for this study was quantitative with a cross-sectional approach to investigate the relationships between responsible entrepreneurship, knowledge sharing and value creation for grand challenges. A survey approach was used because it is appropriate for testing

theoretically derived hypotheses and complex relationships between latent constructs. Further, survey methodology allows standardized data from many companies to be gathered, improving the generalizability of the findings. The target population was small and Medium sized Business (SME) in Pakistan. SMEs are an appropriate setting to test empirical and provide an important empirical setting in the sense that they are an important part of economic growth, job creation, innovation, and sustainable development. Their fairly flexible organizational structures and strong connection with stakeholders also ensures their ability to adopt responsible entrepreneurial practices and knowledge sharing programs that help to tackle societal issues. Furthermore, the data were gathered from entrepreneurs themselves, chief executives Officers (CEO), founders, and senior managers who directly participated in the strategic decision-making process and had a good understanding of their firms' entrepreneurial practice and stakeholder engagement. These respondents were seen as a suitable group of key informants since they could give reliable indications of the behaviors and strategic capabilities of their organizations. A clearly designed questionnaire was prepared based on the previous studies with measurement scales validated on the literature. All the measurement items were carefully scrutinized and revised to capture the contextual meaning of SMEs in Pakistan while maintaining their conceptual meaning. There were two parts to the questionnaire. The first section gathered demographic and organizational data while the second section was the measurement of the study constructs as rated on a 5-point Likert scale of 1 to 5, (strongly disagree to 5 and 1= strongly agree). The data collection period was from February 2026 to May 2026. Convenience sampling methods were used and questionnaires were sent to the SMEs in major industrial and commercial areas of Pakistan. 600 questionnaires were sent out and 450 were returned. A total of 352 completed and usable questionnaires was obtained after discarding incomplete and/or poor response sheets, giving an effective response rate of 58.66%. The survey was volunteer driven. The academic goal of the research was explained to respondents and their answers were promised to be anonymous and confidential. No personal information was taken and all answers were counted in aggregate. The following procedures were adopted to reduce the incidence of social desirability bias, to ensure honest response and to comply with accepted ethical norms of survey research.

Table 1: Demographic Details of the Respondents

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	246	69.9
	Female	106	30.1
	Total	352	100.0
Experience	Less than 5 years	88	25.0
	5–10 years	142	40.3
	11–15 years	76	21.6
	More than 15 years	46	13.1
	Total	352	100.0
Education	Bachelor's Degree	118	33.5
	Master's Degree	171	48.6
	MPhil/MS	41	11.6
	PhD	22	6.3
	Total	352	100.0

Designation	Owner/Founder	97	27.6
	Chief Executive Officer (CEO)	61	17.3
	General Manager	88	25.0
	Department Manager	74	21.0
	Senior Executive	32	9.1
	Total	352	100.0

Measures

Content validity and reliability were ensured by using previously validated scales from the literature for all constructs included in this study. The items in the measurement were slightly modified to make them applicable to small and medium-sized enterprises (SMEs) in Pakistan, and to closely represent their original conceptual meaning. Items were rated on a 5 point Likert Scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The **responsible entrepreneurship (RE)** was assessed, based on five items adapted from Xie and Wu (2022). **Knowledge Sharing (KS)** was assessed with a seven-item scale adapted from Bock et al. (2005) and **Value Creation for Grand Challenges (VCGC)** was assessed with a seven-item scale adapted from Zahoor et al. (2024) and operationalized using the value creation framework at the organizational level developed by.

Common Method Bias

In this study, self-reported survey data was obtained from one questionnaire, and common method bias (CMB) was examined to address the possibility of systematic method variance in the relationships observed between constructs. Both procedural and statistical remedies were used to reduce the threat of CMB as recommended by Podsakoff et al., (2003). The questionnaire was explicit that there were no right or wrong answers and that participants were to be completely honest and objective. Also, the measurement items were informed by the well-known and validated measurement scales, reviewed by academic experts. The single-factor test of Harman was carried out first using exploratory factor analysis where the items used to measure the variables were grouped together on a single factor, statistically. The data showed that the common method bias is not likely to be a serious problem. Results show that there is no significant common method bias and it is also found that the construct elements do not suffer from collinearity problems, which does not affect the validity of the structural model. Overall, the procedural safeguards and statistical analyses leave no doubt that there is no significant common method bias in this study and thus the validity and authenticity of the following empirical analyses.

Statistical Analysis

Research model that proposed for existing study was carried out by using the method of Partial Least Squares Structural Equation Modeling (PLS-SEM) technique which was developed by SmartPLS 4 (Ringle et al., 2015, Cheah et al., 2024). Given the study's focus on the prediction and extension of the theory, multi-simultaneous relationships, including an indirect effect as a mediation process, PLS-SEM was deemed the most suitable analytical tool. PLS-SEM can be used for complex research models, is not constrained by the requirement of multivariate normality, and is better suited for research with multiple indicators for measuring latent

constructs, compared to covariance-based structural equation modeling (CB-SEM). Due to the above, PLS-SEM is one of the most widely used analytical methods in entrepreneurship, management and sustainability studies (Hair and Alamer, 2022). Furthermore, Data analysis was carried out using two stage, reliability and validity of the constructs were evaluated in the first stage, which was the measurement model. The internal consistency reliability was measured by Cronbach's alpha (α) and composite reliability (CR) with Cronbach's $\alpha > 0.70$ and composite reliability (CR) > 0.7 recommended as good reliability. Standardized factor loadings and the average variance extracted (AVE) were used as the criteria to test the convergent validity. The values of indicator loadings were above 0.70 and the AVE was above 0.50, showing that the constructs were sufficiently covering the variance of their indicators. The criterion of Fornell-Larcker, cross-loadings and the heterotrait-monotrait (HTMT) ratio were used to check the discriminant validity, which is satisfied as long as HTMT is located below 0.90 between the latent constructs. After an acceptable measurement model was assessed, the structural model was examined to assess the hypotheses. Hypothesis testing took place after checking for multicollinearity among the predictor constructs based on the variance inflation factor (VIF) value, which was below the suggested threshold for no concern with multicollinearity. The coefficient of determination (R^2) was used to determine the explanatory power of the model and predictive relevance of the model. Furthermore, effect sizes (f^2) were computed to identify exogenous constructs' relative contribution to endogenous variables. The direct and indirect relationships were explored with the non-parametric bootstrapping procedure with 5,000 bootstrap resamples recommended by Cheah et al. (2024). The significance of the hypothesized relationships was determined by the use of the path coefficients (β), t-values, and bias-corrected confidence intervals. To evaluate the mediating effect of the knowledge sharing, the indirect effects between the responsible entrepreneurship and value creation for grand challenges were studied. This extensive analytical process allowed for a demanding assessment of the properties of the instruments used as well as the structural relations, adding strength and verisimilitude to the empirical results of the study.

Results

Data Analysis Techniques

A primary goal of the study is to understand the theoretical connections between these concepts (responsible entrepreneurship, knowledge sharing and value creation for grand challenges), but also to maximize the explained variance of the dependent variable. The initial data evaluation being done was conducted using SmartPLS software which was chosen for its suitability in estimating a complex structural equation model. PLS-SEM can be especially suitable for predictive research as it exemplifies the predictive models and variance explanation. In addition, PLS-SEM has 352 respondents which are enough to estimate complex models and is an appropriate analytical technique for this research. Another benefit of PLS-SEM is that it does not require the assumption of multivariate normality. The data obtained from a Likert scale questionnaire is sometimes not normally distributed, so PLS-SEM is capable of being applied as an alternative method to covariance based structural equation modeling (CB-SEM) that is flexible and reliable. This attribute is especially suited for behavioral and management studies in the context of developing countries like Pakistan. Following (Hair and Alamer, 2022) suggestions, the bootstrapping method with 5000 resamples was carried out to assess the significance of the structural relationships. Bootstrapping provided large standard errors, t

values, p values and confidence intervals when testing the significance of the direct effect, indirect effect and interaction between the direct and indirect effects without relying on distributional assumptions.

Empirical Results and Measurement Model Assessment

The validity of the measurement model was checked in accordance with the indicator reliability, internal consistency reliability and convergent validity criteria. As seen in Table 2, the results indicate that the measurement model is satisfying the recommended evaluation criteria. The reliability of indicators was evaluated using outer factor loadings. The loading values for all the measurement items were in the range of 0.706 to 0.898, which is above the minimum recommended value of 0.70 (Hair et al., 2014). The results show that all the items observed have an adequate representation of each latent construct. The acceptable threshold for the loading of KS2 (0.706) was less since it remained on the acceptable range, but it was included in analysis. Generally, the loading values mean there is enough support for the appropriateness of the indicators as measures of their intended constructs. Cronbach's Alpha (CA) and Composite Reliability (CR) were also used to assess the reliabilities of the measurement scales. For grand challenges, Cronbach's Alpha values were: responsible entrepreneurship (0.871), knowledge sharing (0.908) and value creation (0.915). Similarly, the CR indexes were between 0.900 and 0.933. All reliability coefficients were greater than the recommended index of 0.70 (Hair et al., 2021), indicating that the measurement scales have a good degree of internal consistency and reliability. To measure convergent validity, Average Variance Extracted (AVE) for each construct was calculated. For Grand Challenges the AVE values were 0.785 for responsible entrepreneurship, 0.564 for knowledge sharing and 0.667 for value creation. All values are above the suggested threshold of 0.50 (Fornell and Larcker, 1981) suggesting that the underlying constructs account for more than 50% of the variance of its indicators. So, the variables observed reflect the concepts measured in an acceptable manner. In general, it was found that the measurement model has good psychometric properties. The indicator loadings meet the acceptable criteria and Cronbach's Alpha and Composite Reliability are good to excellent. Besides that, all the constructs have a satisfactory convergent validity based on the AVE. From the results obtained, the instrument data measurement is reliable and valid, so that the structural relationship between the variables in this study can be assessed.

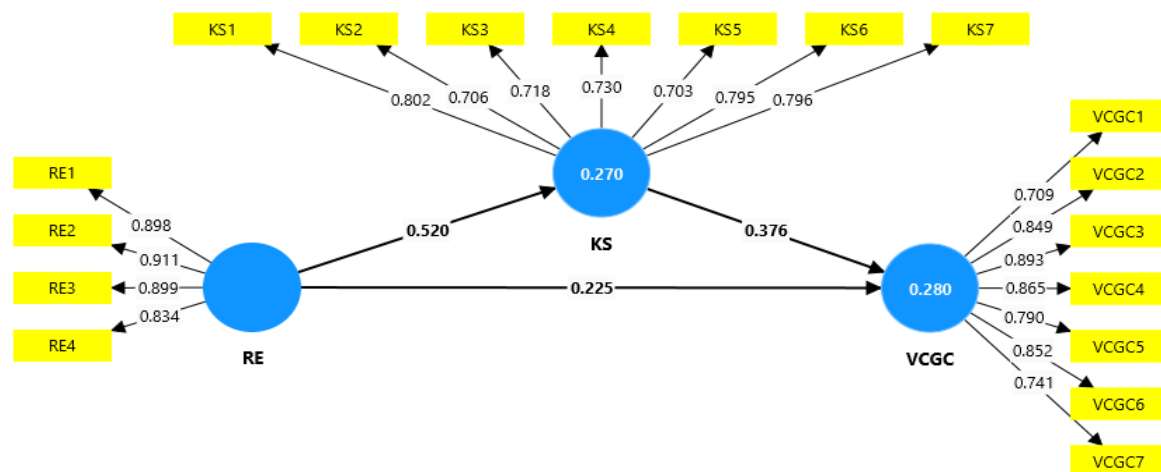


Figure 3: Measurement Model

Table 2. Measurement Result

Constructs	Items	Loadings	Ca	CR	AVE
Responsible Entrepreneurship	RE1	0.898	0.980	0.981	0.629
	RE2	0.911			
	RE3	0.899			
	RE4	0.834			
Knowledge Sharing	KS1	0.802	0.974	0.978	0.816
	KS2	0.706			
	KS3	0.718			
	KS4	0.730			
	KS5	0.703			
	KS6	0.795			
	KS7	0.796			
Value Creation For Grand Challenges	VCGC1	0.709	0.968	0.972	0.796
	VCGC2	0.849			
	VCGC3	0.893			
	VCGC4	0.865			
	VCGC5	0.790			
	VCGC6	0.852			
	VCGC7	0.741			

In order to establish discriminant validity, the Fornell–Larker criterion was used and the results are shown in Table 3. This approach compares the square root of the Average Variance Extracted (AVE) of each construct with its correlations with other constructs in the model. Constructs have adequate discriminant validity if the square root of the AVE is larger than the correlations between them and any other latent variable. The construct has a greater percentage variance with its own indicators, than with any other construct used in the study. The results are shown that all the constructs meet the Fornell–Larcker criterion. The square root of the AVE for the construct Responsible Entrepreneurship is 0.886, which is higher than the correlations for Knowledge Sharing (0.520) and Value Creation for Grand Challenges (0.420). Similarly, the square root value of the AVE of Knowledge Sharing is 0.751, which is higher than the values of its correlations with Responsible Entrepreneurship (0.520) and Value Creation for Grand Challenges (0.493). Likewise, the square root of AVE for Value Creation for Grand Challenges is 0.817 which is higher than its correlation with Responsible Entrepreneurship (AVE=0.420) and Knowledge Sharing (AVE=0.493). The results clearly show that the constructs are conceptually and statistically different from each other. The latent variables represent different aspects of the proposed research model and are not highly correlated between each construct. In conjunction with the acceptable indicator loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted values as reported in the previous section, the Fornell–Larcker results are further evidence of the strength of the measurement model. Thus, the measurement

model shows good discriminant validity, and allows for the structural relationships between the studied variables to be tested.

Table 3: Discriminant Validity-Fornell-Larcker Criterion

	KS	RE	VCGC
KS	0.751		
RE	0.520	0.886	
VCGC	0.493	0.420	0.817

The ability to explain the structural model was evaluated based on the coefficient of determination (R^2) and effect size (f^2) as shown in table 4. Effect size values describe the magnitude of the impact that each exogenous construct has on the endogenous constructs. A small effect was found for Responsible Entrepreneurship on Value Creation for Grand Challenges ($f^2 = 0.051$) and responsible Entrepreneurship had a moderate effect for Knowledge Sharing ($f^2 = 0.370$). Additionally, the effect of Knowledge Sharing was found to be small to moderate for the purpose of Value Creation for Grand Challenges ($f^2 = 0.143$). The model's predictive accuracy was checked by using a coefficient of determination (R^2). The R^2 value of the Knowledge Sharing was found to be 0.270 (adjusted $R^2 = 0.268$), which means that about 27.0 % of the variance in Knowledge Sharing was explained by Responsible Entrepreneurship. Likewise, Value Creation for Grand Challenges had an R^2 value of 0.280 (adjusted $R^2 = 0.275$) such that 28.0% of its variance is explained by the variables in the model. These values represent a value of moderate level of explanatory power of the proposed model according to the conventional guidelines. Overall, the results indicate that the structural conceptualization accounts for a substantial amount of the variance in the endogenous constructs. Further evidence of the model's explanatory power and usefulness in exploring the relationships proposed between the variables was provided by the effect sizes and R^2 values observed in this study.

Table 4: Explanatory Power of Model

	Effect Size F^2		Coefficient of Determination R^2		
	Knowledge Sharing	Creation for Grand Challenges		R-square	R-square adjusted
Responsible Entrepreneurship	0.370	0.051	Knowledge Sharing	0.270	0.268
Knowledge Sharing		0.143	Value Creation for Grand Challenges	0.280	0.275

Table 5: Hypothesis results

Hypothesis	Statistical path	Path coefficient	STDE V	T statistics	P values	Conclusion
<i>Direct effects</i>						
H 1	RE ---> KS	0.520	0.045	11.467	0.000	Supported
H 2	KS---> VCGC	0.376	0.059	6.417	0.000	Supported

H 3	RE---> VCGC	0.225	0.058	3.857	0.000	Supported
<i>Mediating effects</i>						
H 4	Indirect effect					Partial mediation
	RE --> KS --> VCGV	0.195	0.037	5.269	0.000	Supported

Structural Model Assessment

Partial Least Square Structural Equation Modeling (PLS-SEM) was used to evaluate the structural model. A bootstrapping procedure with 5000 resamples was used to assess the significance of the proposed relations. The analysis investigated direct and indirect relationships among the study constructs and the results of the analysis support all of the hypothesized relationships.

Direct Effects

In relation to Hypothesis 1, the findings show that the β value (0.520) and t value (11.467) of Responsible Entrepreneurship (RE) on Knowledge Sharing (KS) show that it has a positive and significant effect on KS ($p < 0.001$). The finding indicates that people with more responsible entrepreneurship are more likely to engage in knowledge-sharing activities. A positive and statistically significant correlation was also observed between Knowledge Sharing (KS) and Value Creation for Grand Challenges (VCGC) ($\beta = 0.376$, $t = 6.417$, $p < 0.001$) as it supports Hypothesis 2. The result suggests that higher level of KSB results in higher value creation to tackle grand societal issues. Moreover, the variable of Responsible Entrepreneurship (RE) had a significant direct effect on the variable of Value Creation for Grand Challenges (VCGC) ($\beta = 0.225$, $t = 3.857$, $p < 0.001$). This supports Hypothesis 3 – responsible entrepreneurship stimulates knowledge sharing as well as directly contributes to value creation for grand challenges.

Mediating Effect

Bootstrapping was used to assess the mediating role of Knowledge Sharing (KS) between Responsible Entrepreneurship (RE) and Value Creation for Grand Challenges (VCGC). The indirect effect was positive and statistically significant ($\beta = 0.195$, $t = 5.269$, $p < 0.001$) supporting Hypothesis 4. Both direct and indirect effects were important, suggesting partial mediation. It implies that there are two factors that show the influence of responsible entrepreneurship on value creation, namely directly and indirectly via knowledge sharing, where the latter factor corresponds to grand challenges. Specifically, those with greater responsible entrepreneurship attributes should be more likely to share knowledge which, in turn, facilitates their capacity to generate value in solving complex societal issues. This finding emphasizes the significance of the knowledge sharing as a key mechanism underlying value creation as a consequence of responsible entrepreneurship.

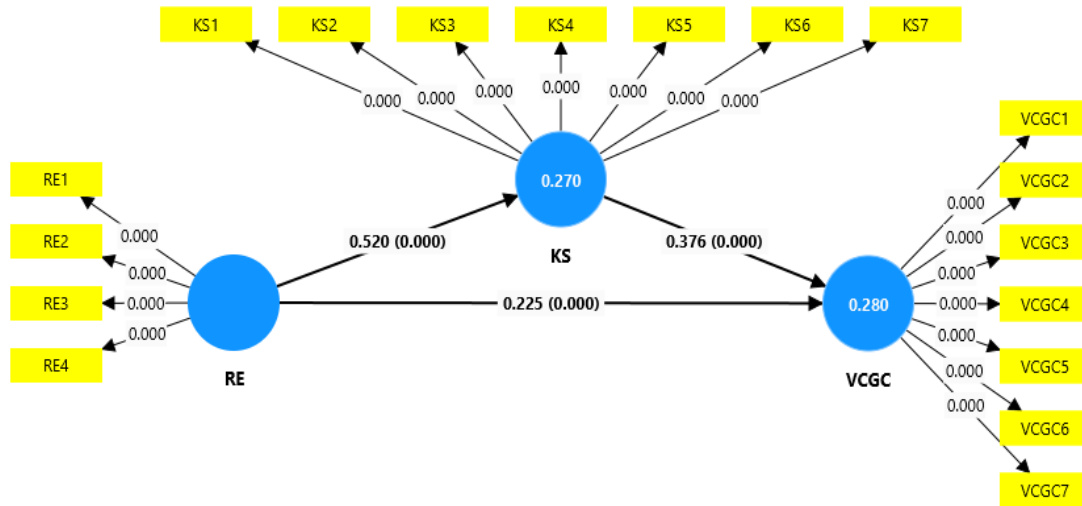


Figure 4: Structural Model

Discussions

This study aimed to explore the contribution of responsible entrepreneurship to value creation for grand challenges and analyze the knowledge sharing as a mediator variable between role of responsible entrepreneurship and the value creation in the context of Pakistani SMEs. In line with the first research question, the results show that responsible entrepreneurship is a key factor contributing to grand challenges value creation. With respect to the second research question, the results confirm that the implementation of responsible entrepreneurship fosters cooperation in companies and improves stakeholder relationships, thereby inducing value creation. Companies that are responsible for their own actions, with a focus on the stakeholders and sustainable development, are better equipped to pay attention to the needs of the society, and to create economic and social value at the same time. Responsible entrepreneurs engage in various ways with stakeholders and link the business goals with societal needs to make the organization more legitimate, build trust with the stakeholders, and increase the organization's ability to find sustainable solutions to grand challenges. The results corroborate the core argument of Stakeholder Theory (Freeman, 1984), which argues that value creation for more than just shareholders is crucial for long-term organizational success. In the context of the second research question, the results of the study indicate that knowledge sharing is the main organizational mechanism that drives value creation for grand challenges with the involvement of entrepreneurship. Good business conduct helps to create an atmosphere of trust, openness, and collaboration where employees and external parties share their knowledge with each other. This ongoing cycle of knowledge can allow organisations to bring together different viewpoints, enhance their learning and create new solutions to a complex social issue. Knowledge Sharing thus creates a form of stakeholder relationship that turns it into a strategic capability of the firm that creates value for the society in the long run. The results also confirm that just good intentions are not enough for addressing grand challenges. Instead, society-value is added by the responsible entrepreneurial practices, along with effective and meaningful knowledge sharing processes that promote collective learning and problem-solving together. This highlights the importance of the knowledge of stakeholders as a strategic asset that when shared and utilized

properly, can help organizations better understand the needs of society and develop answers that are tailored to their needs and benefit society.

In general it is a contribution of the Stakeholder Theory which proved that there is a value created in stakeholder liaison, not only in the form of cooperation and exchange of resources but also in the form of ongoing sharing and integration of knowledge. Responsible entrepreneurship with respect to Pakistani SMEs enhances stakeholder engagement and knowledge sharing transforms these relationships into formulation of organizational capabilities which further help in enhancing value creation for grand challenges. The findings on this new research and studies in responsible entrepreneurship extend the literature on responsible entrepreneurship by clarifying the nature of how organizations can be both successful and responsible in a society context that promotes sustainable development (Rendtorff, 2024).

Theoretical Implications

This study has several theoretical contributions to the literature of responsible entrepreneurship and the stakeholder literature. First, it expands Stakeholder Theory by clearly showing how responsible entrepreneurship can contribute to value creation for grand challenges and how it can leverage stakeholder-driven knowledge sharing to support this process, thus adding understanding to organizational processes that create value in society. Second, the study fills an important gap in the literature on responsible entrepreneurship because it identifies a mechanism that connects responsible entrepreneurial practices to value creation for grand challenges, namely knowledge sharing. This work not only focuses on outcomes, including social innovation and Sustainability performance as these factors were mostly emphasised in previous research, but also demonstrates the pivotal role of the organization's knowledge processes in shaping the translation of responsible entrepreneurial intentions towards tangible societal results. Last, the study offers empirical data on SMEs from an emerging economy, thus increasing the extent to which the Stakeholder Theory can be applied in the context of other emerging economies and strengthening the volume of literature focused on responsible entrepreneurship in developing countries.

Practical Implications

The results have important implications for business, entrepreneurs and policymakers who wish to use responsible business as a means of tackling large scale societal challenges. There is a need to promote responsible entrepreneurship amongst the SMEs owners and managers by focusing on ethical decision-making, relationships with stakeholders, and sustainability. Organizations should also institute some formal and informal knowledge-sharing channels to promote collaboration among employees and external partners, including customers, suppliers, government bodies, academic institutions and the local community. These shared exchanges of knowledge boost the organization's learning, problem-solving skills and ability to build meaningful solutions to societal problems. Additionally, fostering entrepreneurial ecosystems that are responsible and effective, with opportunities for knowledge sharing networks, innovation partnerships, and capacity building opportunities, can help enable SMEs to play a more effective role in sustainable development and value creation for grand challenges.

Research Limitations and Future Research

The study has its directions for future research are outlined below. Firstly, the cross-sectional research design is not suitable for establishing causal relationships between study variables. The application of longitudinal or mixed-method studies in future research would enable to better describe the dynamic aspects of responsible entrepreneurship and knowledge sharing over time. Secondly, the research performed in Pakistan with only SMEs in context might not be easily replicable in other countries or sectors. An external extension of the proposed model is to replicate it in large organisations, or in other cultural or institutional environments, to add to external validity. Third, this study considered knowledge sharing as the only mediating mechanism between responsible entrepreneurship and value creation for the grand challenges. Future research and studies could include further mediators, such as organizational learning, innovation capability, the engagement of stakeholders or absorptive capacity, and moderators such as digital transformation, uncertainty in the environment or institutional support. These types of investigations would give a more holistic picture of the contribution of responsible entrepreneurship to sustainable value creation to solve the grand societal challenges.

Authors' contribution: **QK:** Writing – review & editing, Resources, and Supervision. **ZR:** Data curation, Mathematical Modeling, Formal analysis, Software. **MA:** Writing – review & editing.

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