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# The influence of corporate social responsibility in shaping corporate reputation: examining the mediating effects of corporate image and knowledge creation in the construction industry

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**Abstract**
Corporate Social Responsibility (CSR) has become a strategic imperative in the construction industry, shaping corporate reputation and fostering sustainable growth. This study investigates the influence of CSR on corporate reputation in the Pakistani construction industry, emphasizing the mediating roles of corporate image and knowledge creation. Grounded in stakeholder theory, the study employs a quantitative research design and collects data from 302 respondents using a structured questionnaire. The data were analyzed using Structural Equation Modelling (SEM) via Smart-PLS to examine the direct and indirect effects of CSR on corporate reputation. The results reveal that CSR significantly enhances corporate reputation, with this relationship strongly mediated by corporate image and knowledge creation, highlighting the importance of strategic CSR practices for knowledge development and stakeholder engagement. The study is significant because it provides both theoretical and practical contributions: theoretically, it extends stakeholder theory by integrating CSR, corporate image, and knowledge creation in the construction sector; practically, it guides industry leaders on leveraging CSR initiatives to strengthen corporate image, foster knowledge creation, and enhance stakeholder trust. Additionally, policymakers can use these insights to design incentives and frameworks that promote CSR adoption, supporting a socially responsible, knowledge-driven, and competitive construction industry.

## Introduction

The construction sector is vital to global economic progress, contributing significantly to job creation and economic expansion (Keles et al., 2025). Over the past few decades, the industry has experienced substantial growth (Wells, 2026). It is also instrumental in advancing the 2030 Sustainable Development Goals (SDGs), particularly in sustainable urban development, responsible resource consumption, clean water access, and infrastructure innovation (Alawneh et al., 2024). However, despite its rapid expansion, the sector continues to grapple with challenges, including weak regulatory oversight, insufficient infrastructure, and limited investment in research and development. The importance of CSR in the construction industry has gained increasing global recognition (Xuetong et al., 2023). Many companies have begun integrating CSR into their operations, recognizing its benefits (Islam et al., 2025). In

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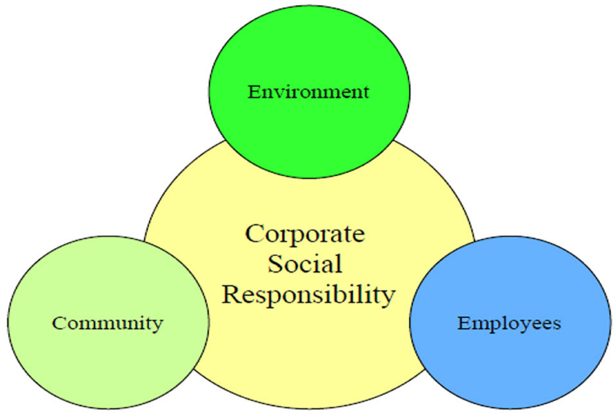


**Fig. 1** CSR dimensions.

recent years, there has been growing awareness of the role of CSR in the sector, with several firms taking proactive steps to implement initiatives focused on environmental sustainability, community engagement, and local business support. These efforts enhance corporate reputation and strengthen competitive advantage in the industry (Qing et al., 2023).

CSR has emerged as a strategic imperative for organizations, particularly in environmentally sensitive industries such as construction (Nagriwum & Wiredu, 2026). Recent global reports indicate that over 70% of stakeholders consider CSR initiatives when evaluating corporate reputation, while nearly 65% of investors prioritize firms demonstrating strong environmental and social governance (ESG) practices (World Economic Forum, 2025). The construction industry, which contributes approximately 38% of global carbon emissions, faces increasing pressure to adopt responsible and sustainable practices (Moshood et al., 2025). Despite these pressures, many construction firms in developing economies struggle to effectively integrate CSR into their strategic frameworks, leading to gaps in reputation building and stakeholder trust. Additionally, corporate identity (CI) and knowledge creation are essential mediators in enhancing the effectiveness of CSR in building a company's reputation within the construction sector (Le, 2023). Corporate image represents how stakeholders perceive a company's values, ethics, and identity, which directly influences trust and reputation (Brahmi et al., 2025). When CSR initiatives are communicated effectively, they strengthen corporate image, which in turn elevates reputation. Knowledge creation, on the other hand, refers to a firm's ability to generate, share, and apply new knowledge, a capability that can be stimulated by CSR practices through collaboration, stakeholder engagement, and innovation (Al Sakkaf et al., 2023). The integration of these variables is crucial to understanding how CSR drives strategic outcomes beyond compliance.

In this industry, CSR initiatives focused on environmental sustainability, community development, and employee welfare can have a profound impact, as illustrated in Fig. 1. The construction industry significantly contributes to environmental degradation, particularly regarding resource consumption and greenhouse gas emissions (Hong & Xiao, 2024). To mitigate their impact, construction companies can implement sustainable practices such as using eco-friendly materials, recycling waste materials, and reducing energy consumption. Construction projects often have a significant effect on local communities. To promote community well-being, companies can prioritize hiring local workers, supporting community development initiatives, and collaborating with local organizations to address social and environmental issues (Wang & Zhang, 2023). Construction workers face various occupational health and safety risks. To ensure worker safety, companies can implement strict safety policies and procedures, provide appropriate training, and offer benefits such as health insurance and paid time off. Overall, CSR practices in the construction industry are essential to minimize negative impacts and promote positive outcomes for the environment, local communities, and workers. By adopting sustainable and socially responsible practices, construction firms can create long-term stakeholder value and strengthen their legitimacy (Yasin et al., 2023).

Globally, CSR has evolved from a voluntary philanthropic activity to a strategic business imperative that enhances competitiveness and builds trust among stakeholders. However, the translation of these global CSR dynamics into

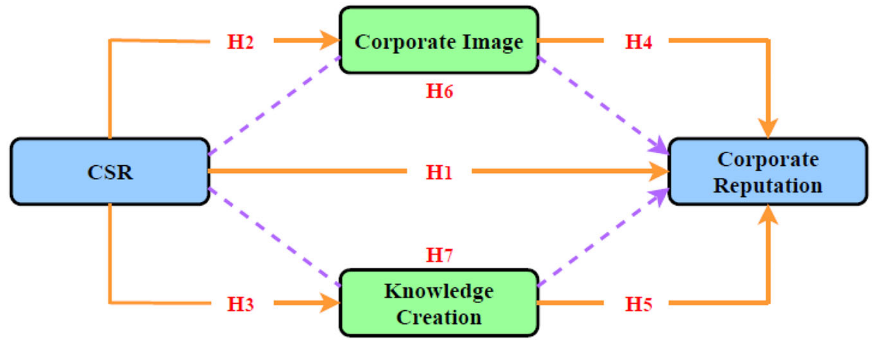


**Fig. 2** Conceptual framework.

emerging markets like Pakistan remains underexplored (Hussain et al., 2024). In Pakistan's construction industry, CSR adoption is still nascent and fragmented, despite its potential to address social, environmental, and governance challenges (Khan et al., 2025). A clearer understanding of how CSR influences corporate reputation, particularly through mediating factors like corporate image and knowledge creation, is therefore essential to inform policy and practice in this vital sector. Existing research primarily focuses on aspects such as customer loyalty, corporate image, and corporate reputation related to CSR initiatives. For instance, Le (2023) demonstrated that CSR has a significant positive effect on SME performance, while Monfort et al. (2025) highlighted that factors such as perceived value, customer service, and brand image are critical in building trust. Similarly, Alketbi & Ahmad (2023) examined how green innovation mediates the relationship between CSR and sustainability practices, highlighting the role of organizational processes in creating actionable knowledge. Despite this, there is a notable gap in understanding how CSR-driven knowledge creation interacts with organizational agility to enhance dynamic capabilities (Waseel et al., 2024).

Recent studies (Asad et al., 2025; Asif & Bakar, 2025) emphasize the growing importance of strategic orientation, knowledge management, and innovation in enhancing firm performance and reputation. However, limited empirical evidence exists on how CSR influences corporate reputation through mediating mechanisms such as corporate image and knowledge creation, particularly in the construction sector (Adusei, 2026). More recently, scholars have stressed the strategic role of green strategic orientation and knowledge management in organizational performance (Asif & Bakar, 2025), yet their intersection with CSR and corporate reputation in the construction sector remains largely neglected. Stakeholder Theory serves as the primary theoretical underpinning of this study, suggesting that organizations must address the expectations of multiple stakeholders to achieve long-term success and legitimacy. While prior studies have extensively linked CSR with corporate reputation, most adopt a direct relationship perspective, thereby overlooking the complex internal mechanisms through which CSR translates into reputational gains. Existing research largely focuses on isolated constructs such as CSR–performance (Asif & Bakar, 2025) or knowledge management–innovation–performance linkages (Asad et al., 2024), with limited integration of corporate image and knowledge creation as simultaneous mediators.

Additionally, previous studies have primarily focused on CSR's direct effects, often neglecting mediating mechanisms and contextual differences. The lack of focus on corporate image and knowledge creation as intervening variables represents a critical gap, particularly given their potential to explain how and why CSR impacts reputation. This study responds to these gaps by examining CSR's impact on corporate reputation through corporate image and knowledge creation in Pakistan's construction sector. To the best of our knowledge, no research has specifically examined the impact of CSR on corporate reputation in Pakistan's construction sector. However, limited research has examined how CSR-driven knowledge creation influences corporate reputation and performance in the construction industry (Boamah et al., 2022). The potential mediating roles of corporate image and knowledge creation in the relationship between CSR and corporate reputation remain unexplored. A notable research gap exists regarding how CSR impacts Pakistan's construction industry's reputation. The conceptual framework in Fig. 2 illustrates this study's approach to understanding the mediating roles of corporate image and knowledge creation in the construction industry. Therefore, this study, grounded in stakeholder theory, addresses this gap by investigating how CSR influences corporate reputation through corporate image and knowledge creation in an emerging economy context. To address this research gap, a quantitative approach is used to explore the following research questions:

RQ-1: How does corporate social responsibility impact corporate reputation within Pakistan's construction industry?

RQ-2: How do corporate image and knowledge creation mediate the relationship between CSR and corporate reputation in the construction industry?

Consequently, this paper contributes several insights to the existing literature: First, it responds to recent calls for more context-specific CSR research by examining an underexplored sector in a developing economy (Huang et al., 2024). By focusing on the construction industry, this study reveals how corporate reputation sets a foundational context for CSR practices. Second, it deepens the understanding of reputation-building by demonstrating how CSR impacts corporate reputation directly and through the mediating roles of corporate image and knowledge creation, thereby contributing to a more nuanced view of how CSR translates into reputation gains. Third, by integrating stakeholder theory and contemporary perspectives on knowledge management and green strategic orientation, the study enriches the theoretical discourse on CSR and corporate reputation. Finally, the study enriches the theoretical discourse on CSR and corporate reputation by adopting a pluralistic approach that provides fresh insights into the complexities of these relationships within a developing economic context.

The rest of the paper is organized as follows: Section 2 discusses the theoretical framework and hypothesis development. Section 3 outlines the research methodology. In Section 4, we conduct empirical testing of the hypotheses and analyze the results. Section 5 provides a discussion of the key findings. Finally, Section 6 presents the study's conclusions and directions for future research.

## Theoretical foundation and hypothesis development

Scholars have conventionally connected CSR with corporate reputation and knowledge creation using various theoretical perspectives.

### Stakeholder theory

While stakeholder theory provides a strong foundation for understanding CSR's influence on corporate reputation, other theoretical perspectives, such as the resource-based view (RBV) and legitimacy theory, also offer valuable insights. RBV emphasizes CSR as a strategic capability that enhances intangible resources like reputation, while legitimacy theory explains how CSR builds social acceptance and organizational legitimacy. Although these perspectives are relevant, stakeholder theory was chosen for this study due to its comprehensive focus on diverse stakeholder relationships, which aligns closely with the dynamics of Pakistan's construction industry.

The influence of CSR on corporate reputation (CR) in the construction sector can be understood through the lens of Stakeholder Theory. This theory asserts that businesses have ethical and social obligations to address the interests of all stakeholders, including customers, employees, shareholders, and the broader community. Rather than prioritizing shareholders alone, companies must consider the well-being of all involved parties (Samet et al., 2022). Engaging in CSR initiatives allows firms to foster strong stakeholder relationships by demonstrating a commitment to ethical conduct and sustainability (Unni, 2022). As a result, corporate reputation, defined as stakeholders' overall perception and evaluation of a company's values and integrity, can be significantly enhanced. Grounded in this theory, it can be proposed that CSR efforts within the construction industry positively influence corporate reputation, with corporate image and knowledge creation acting as mediators. Specifically, CSR initiatives help strengthen a company's image by signaling its dedication to responsible and sustainable business practices (Pfajfar et al., 2022). This, in turn, cultivates stakeholder trust and loyalty, ultimately reinforcing the company's reputation.

Furthermore, CSR activities can contribute to knowledge creation by promoting innovative problem-solving and learning. As a result, new products, services, and processes may be developed, improving the company's reputation and gaining a competitive edge (Pérez et al., 2017). CSR activities demonstrate stakeholder commitment, improve corporate image, and enhance knowledge creation, leading to a stronger reputation and competitive advantage.

## Hypothesis development

### CSR and corporate reputation

Corporate Social Responsibility encompasses a company's initiatives to contribute to societal and environmental well-being (Dahlsrud, 2008). Businesses that actively participate in CSR are often perceived as more reliable and ethical, as they demonstrate a commitment to positively impacting society and the environment. It can increase customer loyalty and improve stakeholder relationships (Khamis et al., 2021). Parris and Guzmán (2023) mention that CSR can help improve a company's brand image by showcasing its values and priorities to the public. This can make a company more appealing to consumers looking to support companies that align with their values (Pajuelo-Moreno et al., 2024). According to stakeholder theory, CSR is essential for developing strong relationships and gaining social legitimacy, which can foster a positive perception among stakeholders and differentiate the company in a competitive market (Li et al., 2021; Ao et al., 2023).

However, prior studies show mixed evidence regarding this relationship. For example, while Agyabeng-Mensah et al. (2023) and Lee & Hur (2024) found that CSR significantly enhances reputation, other studies (e.g., Chen, 2022) suggest that without transparent reporting or stakeholder engagement, CSR efforts may not translate into reputational gains. This discrepancy indicates that contextual factors, such as industry characteristics or cultural expectations, moderate the CSR-reputation link, warranting further empirical examination in specific sectors like construction.

Since stakeholders increasingly value CSR initiatives for their ethical and social contributions, they will likely enhance brand image and trust, as CSR actions showcase the company's commitment to societal well-being. CSR practices profoundly influence a company's reputation. Doing well and with sincerity can lead to increased trust, improved brand image, and differentiation from competitors (Lee & Hur, 2024). CSR has the potential to impact a company's reputation positively. Companies can improve their reputation by engaging in responsible and ethical business practices (Agyabeng-Mensah et al., 2023), increasing trust and loyalty, and differentiating themselves from their competitors (Ha et al., 2022). This study postulates that the implementation of CSR practices can positively augment a company's reputation, thereby formulating the following hypothesis;

**$H_1$:** There is a significant positive relationship between CSR and corporate reputation.

### CSR and corporate image

Stakeholder theory highlights a company's responsibility to a wide range of stakeholders, including customers, employees, communities, and the environment, rather than focusing solely on its shareholders (Stieb, 2009). CSR refers to a corporation's actions and policies addressing its operations' positive social, economic, and environmental impact while concurrently fostering long-term success (Contini et al., 2020). CSR initiatives include minimizing a company's carbon footprint, supporting local communities, promoting diversity and equality, and adopting sustainable business practices (Anlesinya & Abugre, 2022). Corporate Image refers to stakeholders' perception or impression of a company based on its reputation, branding, and reputation management (Yeh, 2021). A company's corporate image can be shaped by the behavior of its employees and the transparency and accountability of its operations. Both CSR and corporate image are closely related and can impact one another. A company implementing strong CSR initiatives can boost its reputation and image (Yasin, 2020). By adopting responsible and sustainable practices, companies can positively impact society and the environment, which strengthens their brand, improves their reputation, and contributes to long-term success (Kankam-Kwarteng et al., 2023).

Prior studies suggest a strong CSR-corporate image link but also reveal nuances. For instance, Sarfraz et al. (2020) and Pham et al. (2023) found that CSR significantly enhances corporate image, whereas Luo & Qu (2023) warn that poorly communicated CSR initiatives or “greenwashing” can damage image and erode stakeholder trust. These mixed results suggest that effective stakeholder communication and authentic CSR practices are crucial in converting CSR into a positive image.

A strong CSR agenda can lead stakeholders to perceive the company as transparent, accountable, and aligned with societal values (Sarfraz et al., 2020). CSR can significantly enhance a company’s corporate image by creating a positive and notable effect. When a company demonstrates its commitment to society and the environment, it can create a positive perception among stakeholders, especially the general public. This can increase trust and loyalty and help differentiate the company from its competitors (Pham et al., 2023). CSR can play a crucial role in shaping a company’s corporate image and reputation and can positively impact the company’s long-term success. Hence, prior research has indicated that corporate social responsibility can lead to positive responses and favorable stakeholder perceptions (Luo & Qu, 2023). The mentioned points formulate the hypothesis as follows:

**$H_2$:** There is a positive association between CSR and corporate image.

### CSR and knowledge creation

A company’s responsibility extends beyond shareholders to encompass all parties impacted by its operations, as emphasized by stakeholder theory (Mattera & Baena, 2015). CSR activities promote knowledge creation within organizations by encouraging involvement in strategic planning, problem-solving, and decision-making. These processes often lead to the development of new insights and innovations. Companies may collaborate with community organizations to identify and address social and environmental issues, resulting in new knowledge about them and their impact on society. Additionally, CSR activities can lead to greater collaboration between employees and other stakeholders, fostering knowledge sharing and creating new knowledge and solutions (Singh & Rahman, 2022). Companies may engage in community service projects that unite employees from different departments to work on a common goal. This can lead to sharing knowledge and ideas, resulting in new solutions to complex problems (Anlesinya & Abugre, 2022).

Furthermore, CSR also leads to greater employee engagement and motivation, which can positively impact knowledge creation among stakeholder groups (Abbas, 2020). Drawing on the resource- and knowledge-based views, Asad et al. (2024) demonstrated that knowledge management and innovation mediate strategic orientations and firm performance, supporting the argument that CSR-driven collaboration can similarly stimulate knowledge creation and enhance corporate reputation. However, prior findings are not entirely consistent. While some scholars (e.g., Singh & Rahman, 2022) highlight CSR’s positive influence on knowledge-sharing and innovation, others (e.g., Chung et al., 2019) caution that CSR may not always translate into effective knowledge creation without a supportive organizational culture. These contradictions indicate that contextual and internal factors, such as organizational learning climate or industry characteristics, play a moderating role. In a project-based industry like construction, where knowledge is often tacit and context-specific, this relationship remains underexamined.

As employees and stakeholders are motivated by the shared purpose of CSR, they are likely to be more engaged and willing to contribute to knowledge-sharing activities, ultimately leading to knowledge creation (Shah & Prakash, 2018). CSR activities positively and significantly impact knowledge creation within organizations by fostering collaboration, encouraging problem-solving, and increasing employee engagement and motivation. Companies prioritizing CSR can tap into their employees’ and other stakeholders’ knowledge and creativity, resulting in innovative solutions (Yoon et al., 2020). Therefore, in the context of corporate social responsibility, when stakeholders share knowledge that is perceived as socially responsible. Hence, as a result, we put forward the following hypothesis:

**$H_3$:** CSR positively and significantly influences knowledge creation.

### Corporate image and corporate reputation

A well-crafted corporate image, through logos, branding, and clear identity, serves as the company's public face and reflects its values, making it a powerful tool to shape stakeholders' initial perceptions (Virvilaite & Daubaraite, 2011). Corporate image refers to a company's visual and tangible representation, including its logo, products, advertising, and packaging. It is how a company presents itself to the public and represents its brand identity (Pahrudin et al., 2023). While numerous studies (e.g., Fosu et al., 2024; Grover et al., 2019) confirm that corporate image shapes reputation, some (e.g., Akbolat et al., 2021) argue that image alone may not sustain a positive reputation without consistent performance and ethical conduct. These findings suggest that image is a necessary but not sufficient condition for reputation, and the nature of this relationship may vary by industry context.

A compelling corporate image enables a company to distinguish itself from competitors and leave a lasting impression on customers. Conversely, CR encompasses the general perception of a company, shaped by its actions, behavior, and performance (Fatmawati & Fauzan, 2021). This includes customer satisfaction, employee relations, ethical behavior, and financial performance. A company with a strong reputation is perceived as trustworthy, reliable, and responsible, which can significantly affect its success.

According to stakeholder theory, stakeholders are more likely to form favorable judgments about a company with a positive corporate image, seeing it as committed to ethical, responsible behavior (Fosu et al., 2024). The interconnection between CI and CR is that the former can shape the latter (Grover et al., 2019). Similarly, a company with a weak or negative corporate image may struggle to establish a positive reputation, as it will have a more challenging time overcoming any negative associations (Akbolat et al., 2021). Corporate image and reputation are interrelated, with the former having the ability to influence the latter. Companies should, therefore, strive to create and maintain a strong corporate image that aligns with their desired reputation and supports their business goals (Ha et al., 2022). Corporate image in the construction industry is believed to be vital as it strongly connects with corporate reputation. Hence, this study suggested the following hypothesis;

**$H_4$:** Corporate image has a positive and significant impact on corporate reputation.

### Knowledge creation and corporate reputation

An organization's corporate reputation refers to the overall impression or perception it creates among its stakeholders, such as customers, employees, shareholders, and the general public (Ahmad et al., 2023). Investing in knowledge creation aligns with stakeholder theory, as it enables organizations to innovate, respond to evolving market demands, and address social and environmental issues that matter to stakeholders (Popadiuk & Choo, 2006). Yet, prior evidence shows some divergence: while Singh & Rahman (2022) and Al Sakkaf et al. (2023) report a strong positive link between knowledge creation and reputation, other scholars (e.g., Tung & Dorasamy, 2022) argue that knowledge creation alone does not guarantee reputational gains unless it translates into visible stakeholder value. This disagreement suggests a need to examine this relationship in industry-specific contexts like construction, where knowledge is a critical strategic asset. This process can be driven by various factors, including research and development, collaboration with external partners, and the exchange of ideas within the organization (Tung & Dorasamy, 2022).

By fostering knowledge creation, industries enhance their product and service offerings and signal a commitment to continuous improvement and innovation, which stakeholders view favorably (Singh & Rahman, 2022). Additionally, promoting a culture of knowledge sharing within the organization supports transparency and accountability, which stakeholders often associate with trustworthiness and credibility. Furthermore, knowledge creation allows organizations to develop solutions that reflect social and environmental responsibility, thus resonating with stakeholders who prioritize sustainability and ethical practices (Agyabeng-Mensah et al., 2023).

Thus, by investing in knowledge creation, organizations can demonstrate their commitment to innovation, transparency, accountability, and social and environmental responsibility, which boosts the overall reputation and creates trust with their stakeholders (Al Sakkaf et al., 2023). From this perspective, we can argue that knowledge creation and corporate reputation are interrelated. Thus, we hypothesize that;

**$H_5$:** Knowledge creation has a significant positive effect on corporate reputation.

### The mediating effect of corporate image

The role of corporate image as an intermediary in the relationship between a company's CSR efforts and reputation highlights how corporate image functions as a "mediator" in shaping stakeholder perceptions (Huang & Lien, 2012). Essentially, the impact of a company's actions on its reputation is influenced or mediated by its CSR activities. These initiatives showcase a company's commitment to social and environmental responsibility, ethics, and core values. If the company sis seen as responsible and engages in environmentally friendly practices, it is likely to be viewed more positively and is expected to improve (Cater et al., 2023). Yet, prior research is not fully aligned. While Kankam-Kwarteng et al. (2023) support a strong mediating role, Smaiziene & Jucevicius (2009) argue that poor alignment between CSR messages and actual practices can weaken this mediation. This highlights the importance of strategic alignment and authenticity in CSR communication.

When a company participates in CSR initiatives, it aligns with the values and expectations of its stakeholders, showing a dedication to social and environmental responsibility that they highly value. According to Kankam-Kwarteng et al. (2023), CI as a mediator in the connection between a company's CSR and CR suggests that a company's image can be critical in shaping how stakeholders perceive it. By engaging in responsible and ethical business practices, a company can improve its reputation and enhance its relationship with stakeholders (Aledo-Ruiz et al., 2022). Thus, based on the above discussion, it is proposed that corporate image acts as a mediating factor between CSR and the corporate reputation of the construction industry. It is, therefore, hypothesized that;

**$H_6$:** Corporate image positively and significantly mediates the relationship between CSR and corporate reputation.

### The mediating role of knowledge creation

Stakeholder theory encourages industries to adopt a more holistic approach to decision-making, weighing the potential impact of their actions on all affected parties (Loosemore & Lim, 2016). Knowledge creation is crucial in mediating the relationship between a company's CSR efforts and corporate reputation by sharing information about these initiatives with stakeholders such as employees, customers, and investors (Cepeda-Carrion et al., 2022). By creating a continuous improvement and innovation culture, firms can leverage knowledge creation to enhance their CSR initiatives and communicate their efforts more effectively to stakeholders (Mehralian et al., 2018). Nevertheless, evidence is mixed. While Barua et al. (2020) and Naseer et al. (2022) find strong mediation effects, Batool et al. (2023) caution that knowledge creation may not enhance reputation if firms lack systems to translate new knowledge into actionable outcomes. This inconsistency underscores the importance of contextualizing knowledge creation within industry-specific dynamics.

Knowledge creation can improve a company's CSR efforts by allowing it to identify and address social and environmental issues related to its stakeholders (Kwarteng et al., 2022). By engaging in knowledge-creation activities, such as research and development, data analysis, and stakeholder engagement, a company better understands the needs and expectations of its stakeholders. It proposes more effective CSR initiatives. A company can build credibility and trust by generating and sharing knowledge about its CSR initiatives and their impact (Barua et al., 2020). Finally, knowledge creation can also facilitate learning and continuous improvement in a company's CSR efforts by disseminating knowledge about best practices to improve its performance and reputation (Naseer et al., 2022).

Knowledge creation enables organizations to engage with these stakeholders actively. Furthermore, it supports the communication of CSR achievements to stakeholders, helping the organization demonstrate its commitment to responsible practices and fostering a reputation for integrity and ethical behavior (Batool et al., 2023). The mediating effect of KC is enhancing transparency and creating a culture of continuous improvement and innovation. Firms can leverage knowledge creation to build a positive reputation and achieve long-term success (William & Chen, 2019). Therefore, it is suggested that knowledge creation is a mediating mechanism in the relationship between CSR and corporate reputation. This proposed mediating effect can be hypothesized as follows;

**$H_7$:** Knowledge creation positively and significantly mediates the relationship between CSR and corporate reputation.

## Research methods

### Research approach

This research was carried out within Pakistan's construction sector, employing a quantitative research approach that relies on a questionnaire as the primary data collection tool. The construction industry in Pakistan covers a wide array of activities, such as professional services, manufacturing, building contracting, and quarrying, making it the second-largest industrial sector in the country (Asghar et al., 2024). This study explores the intricate relationships between CSR, corporate reputation, corporate image, and knowledge creation within the construction industry. Therefore, when using this research approach, it is essential to design the research instrument carefully, ensure its validity and reliability, and consider potential biases in the data. It is also crucial to supplement quantitative research with qualitative methods to comprehensively understand the research question. This study's methodological choices align with prior research in emerging economies, e.g., (Asad et al., 2023; Imtiaz et al., 2025), which similarly relied on survey-based approaches and convenience sampling due to contextual constraints.

The decision to use structural equation modelling (SEM) via SMART PLS, rather than traditional regression techniques, is supported by its superior capability to handle complex models with multiple mediators and latent constructs. While regression is useful for examining direct relationships, it does not adequately capture indirect paths or account for measurement error in latent variables. PLS-SEM is particularly relevant when the primary goal is theory development and prediction, conditions that align with the objectives of this study. This approach has been successfully used in similar research on CSR, innovation, and sustainability in emerging economies (Hussain et al., 2023), making it a method of choice in this domain.

In addition, this study recognizes the limitations of PLS-SEM, such as its focus on prediction over strict model fit and its sensitivity to sample size. To mitigate these limitations, this study reports key model quality indicators (e.g., SRMR, $R^2$, $F^2$) and follows recommended practices for assessing reliability and validity. These steps ensure robust interpretation of results and align the methodology with best practices established in recent literature.

The use of PLS-SEM in this study is further supported by recent empirical research in similar domains. For example, Rasool et al. (2026) and Asif & Bakar (2025) employed SEM techniques to examine complex relationships involving knowledge management, strategic orientation, and performance outcomes. Similarly, Asad et al. (2023) demonstrated the effectiveness of SEM in capturing mediating mechanisms in organizational research. Following these established methodological approaches strengthens the robustness and comparability of the present study.

### Sampling and data collection

This study utilized a non-probability convenience sampling method to determine the sample size and employed a cross-sectional design to test the proposed hypotheses. A non-probability convenience sampling method was employed due to the absence of a comprehensive sampling frame of construction firms in Pakistan and the practical challenges of accessing industry-wide data. In emerging economies like Pakistan, where accurate and up-to-date industry databases are limited, convenience sampling is often the most practical choice for gathering primary data. This approach has been widely used in previous CSR studies (Hussain et al., 2024) because it enables researchers to obtain data from firms actively engaged in CSR initiatives within a reasonable timeframe and resource constraints.

Although convenience sampling limits generalizability, this study took several steps to strengthen representativeness and reduce bias. The sampling strategy was carefully designed to enhance representativeness and ensure the correct selection of participants. Random selection from the Constructors Association of Pakistan (CAP) membership list and inclusion of respondents from various managerial levels enhanced representativeness. In particular, targeting managers from lower, middle, and upper levels ensures that the data captures different strategic and operational perspectives on CSR and corporate reputation, as recommended by previous studies (Li & Zhang, 2024). Moreover, response bias was mitigated through anonymity, voluntary participation, and follow-up reminders to increase response rates.

Data were gathered through self-administered survey questionnaires targeting 100 construction companies registered with the Constructors Association of Pakistan (CAP) under the Securities and Exchange Commission of Pakistan (SECP). The companies were randomly selected to ensure a broad representation across various construction firms. After excluding companies with inactive operations or incorrect contact details, the final sample comprised 80 construction companies. To gain a well-rounded view of decision-making processes, the study selected managers from different hierarchical levels, including lower, middle, and upper management.

To ensure that the sample accurately represents firms relevant to the research questions, this study used a set of precise selection criteria rather than a generic convenience pool. Companies were eligible if they (1) were registered with the constructors association of Pakistan (CAP) and the securities and exchange commission of Pakistan (SECP), (2) had active operations during the data collection period (August–December 2024), (3) operated in building/infrastructure or project-based contracting (to capture the project-driven nature of knowledge in construction), (4) employed at least 20 staff (to exclude micro units with very different CSR practices), and (5) had at least one documented CSR or sustainability activity or policy (e.g., community program, waste management, safety initiative). Firms not meeting these criteria (e.g., inactive companies, sole proprietor micro-entities, or firms without any CSR-related activity) were excluded.

Data collection took place from August 2024 to December 2024, during which the relevant companies secured the required permissions. The data were gathered using a self-administered survey questionnaire. A total of 330 questionnaires were distributed, with 312 returned, although 10 were incomplete. Ultimately, 302 completed questionnaires were used for analysis. SmartPLS software was used to analyze the data, examining the impact of CSR on corporate reputation and ensuring the robustness of the findings.

Before distributing the main survey, a pilot test was conducted to evaluate the questionnaire items' clarity, reliability, and comprehensibility. The feedback from this pilot study played a crucial role in refining the survey instrument, resulting in more precise questions and an enhanced overall questionnaire design. This preliminary step ensured that the primary survey would generate more accurate and precise responses, improving the overall quality of the collected data.

Finally, by clearly linking the methodological choices to prior studies, justifying the use of PLS-SEM over regression, and implementing a systematic sampling strategy, this study provides a strong rationale for its design choices. Although convenience sampling presents limitations in generalizability, the careful selection of participants and alignment with established methods in similar studies ensure that the findings offer valuable and reliable insights into CSR-reputation dynamics in Pakistan's construction industry.

## Variable measurement

The questionnaire for this study comprehensively covers variables related to corporate social responsibility (CSR), corporate image, knowledge creation, and corporate reputation. A 5-point Likert scale was used to allow respondents to express their views with moderate differentiation. Prior to the main data collection, a preliminary investigation was conducted to ensure the questionnaire's validity and reliability. Based on this assessment, the instrument was refined to improve clarity and accuracy, ensuring strong content validity. The CSR items were adapted from Fatma et al. (2012) and Salam & Jahed (2023); corporate image items were adapted from Kankam-Kwarteng et al. (2023) and Hafez (2018); knowledge creation items were adapted from William & Chen, (2019); Kwarteng et al., (2022); and corporate reputation items were adapted from Santos et al., (2023) and Fatma et al., (2012).

The questionnaire demonstrated strong reliability and internal consistency (Taber, 2018), with all constructs meeting the generally accepted threshold for social science research ($\alpha \geq 0.70$). The complete set of questionnaire items for each variable is provided in Appendix A.

**Table 1** Demographic analysis.

| Demographics | Classifications | Sample size | Proportion (%) |
|---|---|---|---|
| Gender | Male | 222 | 73.50% |
| | Female | 80 | 26.49% |
| Age | 20–30 | 99 | 32.78% |
| | 31–40 | 145 | 48.01% |
| | 41 & above | 58 | 19.20% |
| Education | Intermediate | 91 | 30.13% |
| | BS | 127 | 42.05% |
| | Masters | 62 | 20.52% |
| | MS/MPhil | 22 | 7.28% |
| Position | Lower management | 141 | 46.68% |
| | Middle management | 119 | 39.40% |
| | Upper management | 42 | 13.90% |
| Experience | 1–2 Years | 123 | 40.72% |
| | 3–5 Years | 105 | 34.76% |
| | More than 6 Years | 74 | 24.50% |
| Total | | 302 | 100% |

### Common Method Bias

In this study, a cross-sectional design was used, and data were collected from a single source, which introduces the potential risk of common method bias (CMB). To address this risk, we applied two widely recognized statistical techniques: Harman's single-factor test (Harman, 1976) and the full collinearity assessment test (Kock, 2015). The results from Harman's test showed that the first factor explained 45.30% of the total variance, which is below the commonly accepted threshold of 50%. Additionally, we performed a full collinearity assessment by calculating the Variance Inflation Factor (VIF) for each construct. VIF values above 5 would indicate multicollinearity and suggest the presence of CMB. However, all VIF values in our analysis were below the 5 threshold, indicating that CMB is not a significant concern in our dataset.

### Demographics

Table 1 illustrates the demographic profile of respondents from Pakistani construction companies. The majority of respondents are male, accounting for 73.50%, while females represent 26.49%. Regarding age, the largest group of respondents is between the ages of 31 and 40, followed by those aged 20 to 30 and those aged 41 and above. In terms of education, most respondents have a BA/BS degree, followed by intermediate-level education, with fewer respondents holding a master's or MS/MPhil degree. The data was collected from management personnel, with lower management contributing 46.68%, middle management at 39.40%, and upper management at 13.90%. Additionally, the study examined respondents' job tenure within the organization: 40.72% had 1–2 years of experience, 34.76% had 3–5 years, and 24.50% had more than 6 years of experience. These demographic details offer valuable insights for researchers and practitioners interested in the Pakistani construction industry.

## Data analysis

This study utilized structural equation modelling (SEM), incorporating factor analysis, direct path analysis, and specific indirect path analysis. The authors employed a two-step approach to assess both the measurement and structural models, which is a standard method in partial least squares (PLS) modelling (Henseler et al., 2009). PLS is a distinct technique for multivariate analysis, particularly useful for theory development and complex modelling (Hair

**Table 2** Construct reliability and validity.

| Construct | Items | Loadings | VIF | alpha | rho_a | CR | AVE |
|---|---|---|---|---|---|---|---|
| Corporate Social Responsibility | CSR1 | 0.773 | 1.745 | 0.852 | 0.855 | 0.890 | 0.576 |
| | CSR2 | 0.743 | 1.625 | | | | |
| | CSR3 | 0.742 | 1.641 | | | | |
| | CSR4 | 0.792 | 1.867 | | | | |
| | CSR5 | 0.719 | 1.590 | | | | |
| | CSR6 | 0.780 | 1.868 | | | | |
| Corporate Image | CI1 | 0.826 | 1.982 | 0.833 | 0.845 | 0.883 | 0.603 |
| | CI2 | 0.799 | 1.982 | | | | |
| | CI3 | 0.822 | 2.012 | | | | |
| | CI4 | 0.771 | 1.903 | | | | |
| | CI5 | 0.651 | 1.390 | | | | |
| Knowledge Creation | KC1 | 0.770 | 1.662 | 0.837 | 0.838 | 0.885 | 0.606 |
| | KC2 | 0.751 | 1.592 | | | | |
| | KC3 | 0.807 | 1.864 | | | | |
| | KC4 | 0.771 | 1.666 | | | | |
| | KC5 | 0.792 | 1.742 | | | | |
| Corporate Reputation | CR1 | 0.746 | 1.687 | 0.863 | 0.865 | 0.898 | 0.595 |
| | CR2 | 0.819 | 2.076 | | | | |
| | CR3 | 0.756 | 1.748 | | | | |
| | CR4 | 0.760 | 1.732 | | | | |
| | CR5 | 0.748 | 1.670 | | | | |
| | CR6 | 0.796 | 1.964 | | | | |

*CI* Corporate image, *CR* Corporate reputation, *CSR* Corporate social responsibility, *KC* Knowledge creation, *CR* Composite reliability, *AVE* Average variance extracted.

et al., 2014; Anderson & Gerbing, 1988). Notably, PLS offers several advantages over other SEM methods, such as its ability to handle small sample sizes, non-normal and non-linear data, and latent variables with limited indicators. However, it is important to acknowledge the method's limitations and assumptions when interpreting the results.

## Evaluation of Measurement Model

PLS-SEM analysis is a statistical technique used to assess both direct and indirect relationships between variables. To ensure the reliability and validity of the measurement model, several statistical indicators are employed, including Cronbach's alpha, rho_A, composite reliability, factor loadings, and average variance extracted (AVE). Cronbach's alpha evaluates the internal consistency of a scale, with values ranging from 0 to 1, where higher values indicate greater reliability (Ab Hamid et al., 2017).

Table 2 presents the measurement results for constructs such as CSR, CR, and KC, with various statistical techniques employed to assess their reliability and validity. Firstly, all indicator factor loadings exceeded 0.60 (see Fig. 3), confirming that the indicators effectively represent their respective constructs (Hair et al., 2013). This finding supports the validity and reliability of the measurement model, indicating that the selected items accurately reflect the underlying constructs. Additionally, Cronbach's alpha values for all constructs were above 0.70, demonstrating strong internal consistency among the indicators (Hair et al., 2017). Moreover, rho_A, an alternative measure of reliability, also exceeded 0.70 for all constructs (Vinzi, 2013), suggesting that the constructs maintain stability over time and across different samples.

Furthermore, the composite reliability values for all constructs exceeded 0.70, confirming the reliability of the measures and their suitability for drawing accurate inferences about the constructs they represent. To further evaluate the validity of the measures, the study examined convergent validity by calculating the average variance extracted

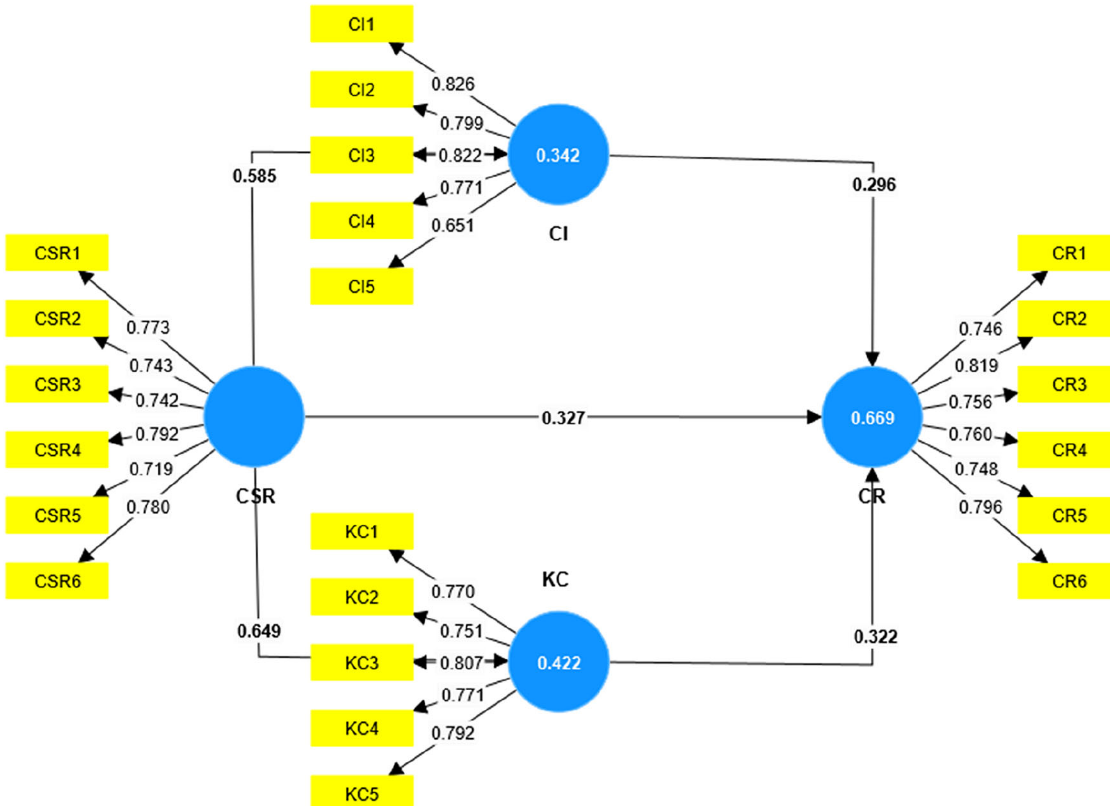


**Fig. 3** Measurement model.

**Table 3** Discriminant validity (HTMT & Fornell-Larcker Criterion).

| Variables | CI | CR | CSR | KC |
|---|---|---|---|---|
| **CI** | | | | |
| **CR** | 0.809 | | | |
| **CSR** | 0.690 | 0.823 | | |
| **KC** | 0.755 | 0.848 | 0.767 | |
| **Fornell-Larcker Criterion** | | | | |
| **CI** | **0.776** | | | |
| **CR** | 0.691 | **0.771** | | |
| **CSR** | 0.585 | 0.710 | **0.759** | |
| **KC** | 0.632 | 0.722 | 0.649 | **0.778** |

*CI* Corporate image, *CR* Corporate reputation, *CSR* Corporate social responsibility, *KC* Knowledge creation.

(AVE) for all indicators. The AVE values were above 0.60, indicating that the indicators effectively capture the same construct and align with a common underlying factor.

## Discriminant validity

The study evaluated the discriminant validity of its constructs using the heterotrait-monotrait (HTMT) ratio of correlations, as presented in Table 3. The study found that all constructs had HTMT values below 0.9, consistent with Edeh et al. (2023) that the HTMT value should be less than 0.9 for satisfactory discriminant validity. The findings suggest that the study's constructs are sufficiently distinct from each other, which is essential for ensuring that the study's measures accurately capture the constructs of interest and are valid for data collection.

**Table 4** Effect size ($f^2$), Predictive relevance ($Q^2$) and R square ($R^2$).

| Relationship | f-square | Constructs | $Q^2$_predict | R- Square |
|---|---|---|---|---|
| **CI - > CR** | 0.145 | **CI** | 0.328 | 0.342 |
| **CSR - > CI** | 0.521 | **CR** | 0.491 | 0.669 |
| **CSR - > CR** | 0.171 | **KC** | 0.41 | 0.422 |
| **CSR - > KC** | 0.729 | **SRMR** $= 0.05 \leq 0.08$ | | |
| **KC - > CR** | 0.151 | | | |

*CI* Corporate image, *CR* Corporate reputation, *CSR* Corporate social responsibility, *KC* Knowledge creation.

Table 3 presents the findings of the Fornell-Larcker criterion analysis, which is used to confirm discriminant validity. This table offers a detailed comparison of the square root of AVE values for each latent variable against the correlation values between latent variables (Fornell & Larcker, 2012). If the square root of AVE exceeds the correlation values, it indicates that the constructs are distinct from one another, ensuring that the measures effectively differentiate the variables under study.

## Evaluation of Structural Equation Model

Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed to assess various key indicators that establish the model's validity and strength, including the coefficient of determination ($R^2$), effect size ($f^2$), predictive relevance ($Q^2$), and overall model fit.

The coefficient of determination ($R^2$) evaluates the proportion of variance in endogenous variables explained by exogenous variables. As per Chicco et al., (2021), $R^2$ values of 0.25, 0.50, and 0.75 are generally categorized as low, moderate, and substantial, respectively. Table 4 shows that the $R^2$ values for CSR fall within the moderate range, suggesting that the model effectively accounts for a significant portion of the variance in corporate reputation.

Effect size ($f^2$) measures the contribution of each exogenous variable to an endogenous variable by evaluating the extent of variance reduction if a specific exogenous variable were excluded from the model (Johnston et al., 2018). Based on the classification by Sarstedt et al. (2022), $f^2$ values greater than 0.02, 0.15, and 0.35 are interpreted as low, moderate, and high, respectively. Table 4 indicates that CSR had a moderate effect on corporate reputation ($f^2 = 0.171$). Similarly, corporate image and knowledge creation also exhibited moderate effects on corporate reputation, with $f^2$ values of 0.145 and 0.151, respectively. Additionally, CSR demonstrated a strong influence on knowledge creation and corporate image, with $f^2$ values of 0.697 and 0.521, respectively.

The study also evaluated the model's predictive relevance ($Q^2$), which should ideally be greater than zero, according to Henseler et al. (2015). $Q^2$ values above 0, 0.25, and 0.50 indicate small, medium, and large predictive relevance, respectively. As shown in Table 4, all $Q^2$ values were positive, confirming that the model possesses predictive relevance within the small to medium range.

Additionally, the standardized root mean squared residual (SRMR) was computed to assess model fit. An SRMR value below 0.08 is considered indicative of a well-fitting model (Pavlov et al., 2021). The SRMR value for this model was 0.05, which is well within the acceptable range, further supporting the model's overall fit and validity.

## Hypothesis testing

To examine the hypotheses related to both direct and indirect effects, path analysis was conducted using Smart PLS, a widely recognized tool for structural equation modelling (SEM). Bootstrapping techniques were applied to assess the coefficients, $p$-values, $t$-values, and confidence intervals, ensuring the robustness and reliability of the findings. The SEM model, illustrated in Fig. 4, highlights the relationships among the core constructs within the research framework, now including $R^2$ values on each endogenous construct to aid interpretation of explained variance, now including $R^2$ values on each endogenous construct to aid interpretation of explained variance.

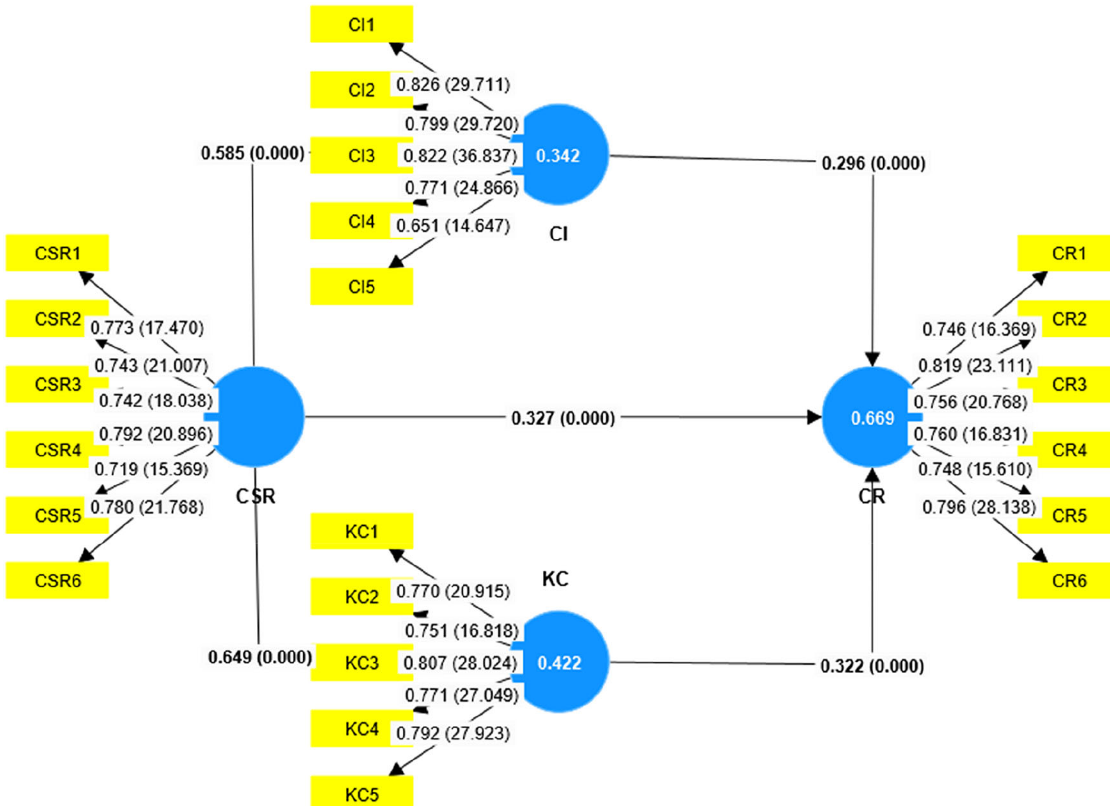


**Fig. 4** Path analysis.

Table 5 presents the direct effects of the model's constructs. The findings reveal that CSR has a significant impact on corporate reputation ($\beta = 0.327$, $p < 0.05$), supporting Hypothesis H1. Additionally, CSR demonstrates a positive and significant relationship with corporate image ($\beta = 0.585$, $p < 0.05$), confirming Hypothesis H2. The results further indicate that CSR positively influences knowledge creation ($\beta = 0.649$, $p < 0.05$), providing support for Hypothesis H3. Moreover, corporate image is positively associated with corporate reputation ($\beta = 0.296$, $p < 0.05$), validating Hypothesis H4. Lastly, knowledge creation also exhibits a positive and significant relationship with corporate reputation ($\beta = 0.322$, $p < 0.05$), confirming Hypothesis H5.

Table 6 presents the indirect effects of the constructs, highlighting the mediating roles of corporate image and knowledge creation. The findings indicate that corporate image significantly mediates the relationship between CSR and corporate reputation ($\beta = 0.173$, $p < 0.05$), supporting Hypothesis H6. Additionally, knowledge creation also serves as a mediator between CSR and corporate reputation ($\beta = 0.209$, $p < 0.05$), leading to the acceptance of Hypothesis H7.

The confidence intervals further confirm the significance of these mediation effects, reinforcing the conclusion that both corporate image and knowledge creation play crucial roles in strengthening the relationship between CSR and corporate reputation within Pakistan's construction industry. These mediating variables validate that CSR initiatives contribute more effectively to reputation-building when filtered through a strong corporate image and active knowledge creation. The findings underscore the importance of fostering a positive image and continuous knowledge-sharing processes to fully leverage CSR's impact on corporate reputation, which could be a strategic advantage for the construction industry.

The confidence intervals further confirm the significance of these mediation effects, reinforcing the conclusion that both corporate image and knowledge creation play crucial roles in strengthening the relationship between CSR and corporate reputation within Pakistan's construction industry. The inclusion of $R^2$ values (0.669, 0.342, and 0.422) in Fig. 4 demonstrates the proportion of variance explained in corporate image, knowledge creation, and corporate

**Table 5** Direct paths.

| Hypotheses | β | ST.DEV | T Statistics | P Values | BCI | | Results |
|---|---|---|---|---|---|---|---|
| | | | | | 2.50% | 97.50% | |
| CI - > CR | 0.296 | 0.068 | 4.371 | 0.000 | 0.172 | 0.438 | Accepted |
| CSR - > CI | 0.585 | 0.056 | 10.501 | 0.000 | 0.454 | 0.676 | Accepted |
| CSR - > CR | 0.327 | 0.072 | 4.548 | 0.000 | 0.196 | 0.478 | Accepted |
| CSR - > KC | 0.649 | 0.044 | 14.917 | 0.000 | 0.550 | 0.726 | Accepted |
| KC - > CR | 0.322 | 0.067 | 4.844 | 0.000 | 0.206 | 0.462 | Accepted |

*CI* Corporate image, *CR* Corporate reputation, *CSR* Corporate social responsibility, *KC* Knowledge creation.

reputation, emphasizing the robustness of the model. These mediating variables validate that CSR initiatives contribute more effectively to reputation-building.

## Discussion

CSR has become an essential aspect of corporate strategy, as it benefits society, the environment, and its stakeholders beyond its legal obligations and builds a positive image and reputation (Chen, 2022). From a stakeholder theory perspective, CSR is a vital aspect of corporate strategy because it acknowledges that companies hold responsibilities extending beyond profit-making to consider the interests of all stakeholders, including society, the environment, and employees (Awa et al., 2024). The construction industry is one of the most significant sectors globally, significantly impacting the environment, society, and the economy. Therefore, adopting CSR practices is critical to improving the industry's reputation, building stakeholder trust, and promoting long-term success.

The findings are also consistent with recent studies emphasizing the strategic role of knowledge and innovation in organizational performance. For instance, Asad et al. (2024) found that knowledge management significantly mediates the relationship between entrepreneurial orientation and firm performance, which aligns with our finding that knowledge creation acts as a critical mechanism linking CSR to corporate reputation. Similarly, Asif and Bakar (2025) highlighted the importance of strategic orientation in achieving sustainable performance, reinforcing the argument that CSR must be embedded within broader organizational capabilities to generate reputational benefits.

This study builds upon and extends prior research by incorporating two critical mediating variables, corporate image and knowledge creation, into the CSR-reputation linkage, which has been underexamined in the context of emerging economies and the construction industry. Whereas much of the earlier research (e.g., Khamis et al., 2021; Zhang et al., 2022) focused on direct relationships, our findings reveal that CSR's impact is more complex and operates through strategic organizational capabilities. This advances stakeholder theory by demonstrating that stakeholder perceptions and firm reputation are shaped not only by CSR initiatives themselves but also by how firms transform these initiatives into image-building and knowledge-generating practices.

Firstly, this research study found a direct and positive relationship between CSR and corporate reputation. The conclusion supports hypothesis $H_1$, which suggests that CSR positively affects corporate reputation. This study is supported by the previous research of Khamis et al. (2021), which also supports the notion that CSR enhances corporate reputation. Therefore, hypothesis $H_1$ is accepted. Companies committed to CSR practices, including sustainable development, innovation, and ethical business practices, can build a positive image and reputation, increase stakeholder trust and loyalty, and improve financial performance. Stakeholder theory emphasizes that by addressing stakeholders' concerns through responsible practices, companies can build a reputable and trustworthy image, thus enhancing stakeholder loyalty and support (Cheng, 2024). Our findings extend this understanding by empirically validating the CSR-reputation link in the context of Pakistan's construction sector, which remains underrepresented in global CSR scholarship. This contextual evidence fills a notable gap highlighted in recent studies (Asad et al., 2024; Asif & Abu Bakar, 2025), which call for more research in developing economies and industry-specific settings.

**Table 6** Mediation analysis.

| Hypotheses | β | SD | T Statistics | *P* Values | BCI | | Results |
|---|---|---|---|---|---|---|---|
| | | | | | 2.50% | 97.50% | |
| CSR - > CI - > CR | 0.173 | 0.048 | 3.632 | 0.000 | 0.092 | 0.275 | Accepted |
| CSR - > KC - > CR | 0.209 | 0.050 | 4.223 | 0.000 | 0.125 | 0.318 | Accepted |

*CI* Corporate image, *CR* Corporate reputation, *CSR* Corporate social responsibility, *KC* Knowledge creation.

Secondly, this research confirms that CSR practices positively impact a company's corporate image. The results align with the research by Fatmawati and Fauzan (2021), which also demonstrated a positive link between CSR and corporate image. Consequently, Hypothesis H2 is supported, confirming that CSR has a favorable impact on corporate image. This underscores the crucial role of CSR in shaping a company's public perception, which can contribute to attracting customers, strengthening its reputation, and ultimately enhancing overall business performance. In the context of stakeholder theory, the company's efforts to improve its image through CSR practices directly address stakeholder expectations, enhancing trust and loyalty (Lu et al., 2023). The results strengthen these findings by providing evidence from a rapidly growing construction industry, showing that corporate image acts as a strategic interface between CSR initiatives and reputational outcomes. This goes beyond earlier studies, which have primarily focused on consumer goods or service industries.

Thirdly, the study results show a significant positive relationship between CSR and knowledge creation, strongly aligned with stakeholder theory, and support hypothesis $H_3$. This finding proposes that companies that engage in CSR activities are more likely to create knowledge and develop new ideas. This is consistent with the idea that CSR can help promote sustainable development by encouraging knowledge-sharing initiatives to improve operational efficiency and reduce costs (Pinzón et al., 2021). Salam & Jahed (2023) state that companies should incorporate CSR into their business strategy to promote knowledge creation and drive innovation. The CSR activities encourage the sharing of knowledge and ideas among various stakeholders, resulting in innovation that benefits the organization and society. This study extends this line of inquiry by providing empirical evidence that CSR-driven knowledge creation is not just a byproduct but a strategic mediator that explains how CSR translates into enhanced reputation — a relationship that has been underexplored in prior studies.

Fourthly, we examine the relationship between corporate image and corporate reputation. This study's results show a significant positive relationship between corporate image and reputation, supporting $H_4$. Stakeholder theory suggests that a positive corporate image signals to stakeholders a company's ethical standards, reliability, and commitment to social responsibility, thereby enhancing its reputation (Zhang et al., 2022). According to the research of Maden et al. (2012), companies need to understand the impact of their image and reputation on stakeholder trust and financial performance. By maintaining a positive image, companies can improve their reputation and gain the trust and loyalty of their stakeholders, which can ultimately lead to better financial performance. Our findings add to this body of work by demonstrating that this relationship holds in a developing country context and within a project-based industry, which previous studies have often neglected.

Fifthly, we examine the connection between knowledge creation and corporate reputation. The findings indicate a strong and significant positive relationship between these two variables, supporting Hypothesis H5. This suggests that knowledge creation plays a crucial role in shaping corporate reputation. From the perspective of stakeholder theory, fostering knowledge creation enables organizations to fulfill stakeholder expectations regarding innovation, transparency, and ethical business practices (Langrafe et al., 2020). These results align with prior research by Al Sakkaf et al. (2023), which highlights that knowledge creation fosters new insights and competencies, contributing to industry growth. Furthermore, the positive link between CSR and knowledge creation underscores the significance of socially responsible practices in driving sustainable development and enhancing business performance. This study's contribution is to position knowledge creation not only as an outcome of CSR but also as a strategic capability that shapes reputational outcomes. This novel insight enhances the theoretical understanding of how CSR practices contribute to sustainable competitive advantage.

Sixthly, based on the study's results, corporate image significantly mediates the relationship between CSR and corporate reputation. This means a company's CSR practices can positively influence its corporate image, enhancing its reputation. This supported $H_6$. The mediating impact of corporate image is consistent with the previous research by Khan et al. (2022). This suggests that companies prioritizing CSR initiatives and communicating them effectively to their stakeholders can enhance their corporate image and strengthen their reputation. This is also supported by the perceptions of stakeholders' theory of the company's corporate image, which, in turn, affects its reputation (Šontaitė-Petkevičienė, 2015). This reinforces the notion within stakeholder theory that corporate image, shaped by its actions and engagement with stakeholders, is integral to building a strong and lasting reputation (Lee et al., 2017). In addition to validating these relationships, our study contributes new evidence that mediation effects hold even when controlling for sector-specific factors in an emerging economy, which has not been previously confirmed.

Lastly, this research suggests that there is evidence to support the idea that knowledge creation mediates between CSR and corporate reputation, which supports $H_7$. This means that when a company engages in CSR activities, it can lead to the creation of knowledge, which can, in turn, positively affect the company's reputation. Hence, the hypothesis is verified. This supports the theoretical framework of stakeholder theory, which emphasizes the strategic importance of stakeholder engagement and knowledge dissemination in building a company's reputation (Saenz., 2023). This study is also supported by a previous study by Al Sakkaf et al. (2022), which shows that the knowledge-creation process is an essential aspect of CSR that mediates the impact of CSR on corporate reputation. Knowledge-sharing initiatives can improve operational efficiency, reduce costs, and promote sustainable development while enhancing the reputation of the construction companies. These findings extend this literature by demonstrating that knowledge creation acts as a bridge between CSR initiatives and reputational gains in a highly competitive and project-driven industry. This advances current understanding by showing how firms in emerging economies can leverage internal capabilities to translate CSR into tangible strategic outcomes.

By comparing the results with recent studies, this study distinguishes itself by addressing several gaps in the literature: (1) it examines the CSR-reputation link with dual mediators, which few prior studies have explored; (2) it contextualizes these relationships within the construction industry of an emerging economy, where CSR practices are still evolving; and (3) it demonstrates how knowledge creation and corporate image function as strategic capabilities that enable firms to translate CSR into sustainable competitive advantage. These contributions not only enhance stakeholder theory but also provide practical insights for industry leaders and policymakers seeking to harness CSR for long-term value creation.

## Conclusion and policy implications

In summary, this research underscores the vital influence of corporate social responsibility on corporate reputation in the construction sector, with corporate image and knowledge creation serving as key mediating factors. The findings demonstrate strong connections between CSR, corporate image, knowledge creation, and corporate reputation, reinforcing the idea that CSR is not only a means to address social and environmental concerns but also a strategic approach to fostering organizational growth and long-term sustainability. In addition, the study confirms that both corporate image and knowledge creation act as vital mediators in the CSR-reputation relationship. A strong corporate image, shaped by ethical and responsible business practices, enhances reputation, while knowledge creation, driven by CSR initiatives, fosters innovation and strengthens the company's position in the market.

This study contributes novel insights that go beyond previous research by examining these mediating mechanisms in the context of a project-based industry within an emerging economy. While prior studies have mostly focused on direct CSR-reputation links or have been conducted in developed economies and different industrial contexts, this study fills a critical gap by showing how CSR translates into reputational gains through image-building and knowledge-creation capabilities in Pakistan's construction sector. At the same time, caution should be exercised when generalizing these findings to other industries or countries with different institutional, economic, and cultural environments. This not only expands the applicability of stakeholder theory but also advances understanding of how organizational capabilities mediate CSR outcomes.

This study extends Stakeholder Theory by incorporating mediating mechanisms that explain how CSR influences corporate reputation through both perceptual (corporate image) and capability-based (knowledge creation) pathways. This multi-dimensional approach provides a deeper understanding of CSR's strategic role.

The implications of this study are significant for both practitioners and scholars in the construction industry. For companies, the findings emphasize the importance of integrating CSR into their core strategies, as it contributes to societal and environmental well-being and enhances corporate reputation through improved corporate image and knowledge creation. Construction firms can leverage CSR initiatives to foster stakeholder trust and loyalty, which is essential for long-term success. Additionally, the study highlights the value of transparent communication and knowledge-sharing practices in reinforcing the benefits of CSR. For researchers, this study adds depth to the understanding of CSR's mediating effects, particularly in the construction industry, and encourages further exploration of how corporate image and knowledge creation contribute to sustainable competitive advantages.

By employing PLS-SEM and a multi-mediation framework, this study contributes methodologically by demonstrating how complex relationships can be empirically tested, consistent with recent advances in organizational research (Asad et al., 2024).

Beyond its immediate implications for Pakistan's construction industry, this study provides broader insights into how CSR can shape corporate reputation in emerging economies. By demonstrating the mediating roles of corporate image and knowledge creation, the study highlights how firms can leverage CSR not only to meet societal expectations but also to develop strategic capabilities that enhance competitiveness. Policymakers should consider these findings when designing frameworks and incentives to promote CSR adoption, while practitioners can use them to align CSR initiatives with reputation-building strategies.

The findings suggest that managers in the construction industry should not only invest in CSR initiatives but also focus on strengthening corporate image and fostering knowledge creation processes to maximize reputational benefits. At the same time, managers should recognize that the effectiveness of CSR initiatives may vary depending on organizational capabilities, stakeholder expectations, and external environmental conditions.

## Limitations and future research directions

Although this study offers meaningful insights into the influence of CSR on corporate reputation within the construction sector, certain limitations should be considered.

First, the research employs a cross-sectional design, collecting data at a single point in time, which restricts the ability to determine causal relationships or assess the long-term effects of CSR on corporate reputation. Future studies could benefit from longitudinal or panel research designs to better examine how CSR initiatives influence corporate reputation over time and to provide stronger evidence regarding causal relationships. Also, comparative studies across industries and geographic contexts would enhance the generalizability of the findings. Second, the study is specifically focused on Pakistan's construction industry, which may limit the applicability of the findings to other sectors or regions with distinct cultural, economic, and regulatory environments. Future studies could explore the CSR-reputation relationship in different industries or areas to test these findings' applicability across diverse settings. Third, the study relied on self-reported questionnaire data collected from managers within construction firms. Future research may improve robustness by incorporating multiple data sources, such as external stakeholder evaluations, sustainability reports, or objective organizational performance indicators. Finally, while the mediating roles of corporate image and knowledge creation have been explored, other potential mediators, such as organizational culture or stakeholder engagement practices, have not been considered. Future research should explore additional mediating and moderating variables, such as digital transformation, organizational culture, and environmental uncertainty, to further enrich the CSR–reputation relationship.

**Supplementary information** The online version contains supplementary material available at https://doi.org/10.1057/s41599-026-09097-5.

**Author contributions** Muttahir Hussain: Conceptualization, Writing - Original draft, Formal analysis, Software; Xiong Qian: Project administration, Supervision, Validation; Funding acquisition; Resources; Shahid Iqbal: Writing - Editing & reviewing, Investigation, Data curation.

**Declarations**

**Competing interests** The authors declare no competing interests.

**Ethics approval and consent to participate** This study was reviewed by the Research Ethics & Institutional Review Committee of the School of Management, Guangzhou University, and was granted exemption from full ethical review on July 12, 2024 (Reference no.: GZHU-IRB-EX-2024-0156). The study involved an anonymous, voluntary questionnaire survey with minimal risk to participants. No personally identifiable or sensitive information was collected, and all data were analyzed and reported in aggregate. The data collection was conducted from August to December 2024.

**Informed Consent** Informed consent was obtained from all participants involved in the study.



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