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Critical Barriers to Social Responsibility Implementation within Mega-Construction Projects: The Case of the Kingdom of Saudi Arabia

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Abstract: Even though social responsibility (SR) has been widely discussed as a business concept, it is still not being effectively implemented within mega-construction projects due to a range of barriers. Overcoming these barriers requires detailed information, however, there is a lack of research on the barriers to SR implementation within mega-construction projects, particularly in developing countries like the Kingdom of Saudi Arabia (KSA). This study thus aims to investigate the critical barriers to SR implementation with reference to mega-construction projects in the KSA. Eleven barriers were identified from a comprehensive literature review and interviews with experts. These barriers were examined in more detail using a questionnaire survey on two current mega-construction projects in the KSA. There were no differences in the ranking of barriers between the two projects with the 136 respondents identifying the top seven SR barriers as being: (i) additional costs; (ii) lack of awareness and knowledge; (iii) lack of guidelines and coherent strategy; (iv) lack of stakeholder communication; (v) lack of law enforcement; (vi) lack of training; and (vii) unclear project requirements. The findings of this study not only contribute to deeper understanding of the critical SR implementation barriers, but could also encourage industry practitioners and stakeholders to improve SR activities for more effective SR implementation. Moreover, identification and ranking of the critical barriers allows decision-makers to prioritize and develop effective strategies to tackle them at both project and sector scale. Future studies should investigate the interrelationship between the critical barriers and their impact on SR implementation.

Keywords: social responsibility; corporate social responsibility; barriers; construction industry; developing countries; Saudi Arabia

1. Introduction

The construction industry is often publicly viewed as being irresponsible because of its adverse social and environmental impacts which suggests that the industry is lagging behind other industries with regards to social responsibility (SR) implementation [1,2] mainly due to the fragmented and diverse nature of the industry [3]. Construction organizations and their projects face the critical challenge of understanding the strategic importance of SR and benefits associated with its implementation at both organizational and project levels. This is argued by Murray and Dainty [4], who stated that the construction industry has many reasons to implement SR practices as it is being watched and monitored by governments, environmentalists and the media. Even though mega-construction projects have been initiated, designed, constructed and operated worldwide over the last century, the “performance paradox” never disappears from the social, environmental and economic indicators associated with mega-construction projects [5,6]. Due to the major impact of

construction activities on the economy, environment and society, SR in the construction industry is currently receiving increasing academic and industrial attention [7]. Furthermore, since SR is concerned with consistent long-term sustainability and harmonization between organizations and the environment, it is a topic of special interest for management scholars. However, the field of SR within mega-construction projects remains undeveloped compared with its prevalence in other sectors and academia [8,9]. This can be attributed to the levels of complexity and dynamism of mega-construction projects [10,11] and the various levels of SR itself [12,13]. In addition, high-risk activities, such as construction, justifies detailed investigation as to how SR knowledge and awareness influence SR practices [4,14].

Social responsibility is one of the best strategies for simultaneously meeting the challenge of reducing negative environmental impacts, improving social progress and enhancing economic growth [15,16]. This is aligned with studies which state that the main aim of SR within the context of construction projects is to maintain an adequate balance between economic, social and environmental impacts [17]. Even though many studies have examined SR practices, implementation, performance and benefits, few have been dedicated to understanding the barriers to SR implementation within construction projects, especially mega-construction projects [18,19]. The construction industry is an important sector in the Kingdom of Saudi Arabia (KSA), but to date there has been no research available that assesses the barriers to SR in the context of mega-construction projects in the country. This knowledge gap is critical to a developing country like KSA where SR is still in its infancy [20]. As such, the KSA government needs an evidence-based framework to encourage and regulate construction companies and guide the implementation of SR to meet its wider development goals. Previous research indicates that there are many barriers to SR implementation [19,21]. However, there has been no empirical study identifying and ranking SR barriers within the context of construction projects, based on literature reviews. Therefore, this research aims to investigate, identify and rank the barriers to successful implementation of SR within mega-construction projects in the KSA. Effectively, the identification and prioritization of these barriers may help decision-makers formulate the strategies required to mitigate them.

This paper is organized as follows: Section 1 introduces the research; Section 2 presents more detail on SR concepts and illustrates SR practice in the KSA while discussing SR within the context of mega-construction projects. It also includes detailed discussion of the barriers that hinder SR implementation. Section 3 outlines the methodology used in the study. Section 4 reports on the main results of the survey and the statistical analysis. This leads on to Section 5 which explores and discusses the results in the context of the current SR literature. Section 6 presents the main conclusions on the barriers to SR implementation along with recommendations for possible future studies on this subject.

2. Literature Review

This section comprises four themes, namely SR concept and evolution, SR within the context of the KSA, SR within the context of construction projects, and SR barriers within the context of construction projects.

2.1. Social Responsibility Concept and Evolution

Social responsibility has been widely adopted as businesses are increasingly expected to respond to emerging social and environmental issues [22]. It has become a dominant topic, drawing increasing attention from academics and business leaders from all sectors [23,24]. However, there is no agreed universal definition of SR [25,26]. Clearly, the lack of agreement is not new, and Votaw [27] stated that SR is an intelligent term that means something different to everyone. In a business context, SR can be defined as the responsibility of an organization to maximize the positive impacts on stakeholders, while minimizing negative impacts [28]. As a result, companies should aim to minimize the negative impacts of their decisions and business activities, while maximizing their positive effects by improving a wide range of societal and environmental problems as they contribute to the local community and

society at large [29,30]. Moreover, SR involves actions that can help organizations maintain their business value and improve their relationships with stakeholders [31].

Heslin and Ochoa [32] highlighted that one theme that many SR definitions share is to be involved in economically sustainable business activities that surpass legal requirements to protect the well-being of employees, communities and the environment. One of the most widely cited and accepted definitions is Carroll's [33] which states that the expectations that a society holds of businesses, ethical, legal, economic factors are central with other discretionary demands. Although Carroll's pyramid is one of the most well-known models, it has been criticized for having the economic responsibility at the base of the model which can lead companies to focus on the economic dimension [34]. Moreover, it was largely designed based on the western style of business which is not suitable for less developed countries where SR activities mainly capture charitable activities and are less formalized and institutionalized [35,36]. In addition, the nature of construction is project-based, so although this model is useful, it is still limited by its static and general nature, alongside its failure to reflect how companies operate within the context of the construction sector [37]. On the other hand, Friedman [38] argued that the only responsibility of business is to increase the shareholder values and that issues within society cannot be put upon businesses. This view has been criticized in the Corporate Watch Report 2006 which accuses organizations of having selective approaches to stakeholders and engagement focusing primarily on financial benefits. In other words, such organizations only focus on the economic dimension, thus often consciously avoiding social responsibility and neglecting the holistic picture of SR. In contrast, Carroll [39] stated that in order for a business to remain in a competitive market, profit is required. Business goals should be based on producing materials and services that meet society's needs while also making a profit [39]. According to Jamali and Mirshak [40], achieving economic responsibility requires businesses to create jobs that satisfy the needs of employees, discover new resources and develop new technologies. Gray [41] asserted that although SR literature has been available for over 40 years, the interpretation of SR varies with time and from organization to organization even in the same sector. Having evaluated several definitions, there is an indication that researchers focus on certain themes. These include: the link between financial and non-financial performance; various qualitative and quantitative measurements; and the importance of SR going beyond the interests of key (project) shareholders and satisfying the needs of wider societal stakeholders [42,43].

Research within the context of SR is essential for two crucial purposes. Firstly, SR has strategic management implications and has the ability to influence how all stakeholders and organizations interact [15]. A corporation's SR perception and performance can considerably affect its reputation and relationship with important stakeholders, such as governments, customers/clients, investors, suppliers, employees and the community at large [44]. Secondly, it also has the potential to enhance an organization's overall performance through a number of direct and indirect benefits [45,46]. During the last decade, the evolution of SR literature and the increased requirement for SR has moved the main research discussion from "whether or not" to "how" SR can be implemented. This is mainly due to the negative impacts social-media has brought to bear upon companies whose activities impact negatively on the biophysical environment and societies.

2.2. Social Responsibility within the Kingdom of Saudi Arabia (KSA)

The concept of SR within the KSA is still in its infancy compared with the evolution of SR across the world [47]. Currently, there is a lack of a clear understanding of SR as a concept within the KSA [20,47]. In the absence of this clear understanding, SR in the KSA has been viewed as a charitable activity, which is a far cry from societies increasing expectations of responsible businesses [48]. The focus by companies on ad hoc measures is due to limited knowledge and a lack of effort to satisfy the general public, rather than SR becoming an integrated part of corporate strategy [20]. This is in part due to the lack of SR studies in the context of developing countries including the KSA. However, the KSA government has developed the Saudi Vision 2030 which encourages active participation of the private sector in the country's development [49]. There is growing recognition of the importance of SR within

the KSA government, society, public and private organizations [48,50]. SR practices within the KSA are mainly voluntary and there is no compulsory regulation from any governmental bodies to enforce it. Indeed, according to Zhu and Zhang [51], SR activities are generally voluntary. Frequently SR activities do not go beyond legal requirements, and in some cases may even fail to meet these legal requirements, especially within developing countries due to lack of legal intervention and a lag between socially undesirable practices and regulation requirements. The study by Maqbool [48] is fundamental in placing SR within the KSA in an international theoretical discourse as the author compares SR activities of selected public and private sector companies across the KSA. A key difference between the KSA and the international concept of SR, as highlighted by Maqbool [48], lies in the joint efforts of incorporating SR. Maqbool [48] highlighted that while global SR efforts are focused on issues such as human rights, the environment, labour rights and anti-corruption, within the KSA, the key focus appears to be on developing human and social capital in the country. This is also a reflection of the political challenges and cultural context of the KSA society [52].

Ronnegard [53] highlighted that business organizations within the Middle East generally lag far behind in terms of understanding the concept of SR and how to implement it. It is argued that SR is still perceived as a tool to achieve competitive advantage over other organizations through brand loyalty [54–56]. Rather than embedding SR as a core business strategy, focus is placed on small activities such as charitable events and philanthropic donations [20]. This often results in the external perception of SR implementation within the Middle East as archaic and not aligned with best global practice. Without a central strategy, SR activities are often localized and based on religious individuals or philanthropic initiatives which also occur in many other developing countries [57,58]. Additionally, cultural elements play a vital role in the development of SR in the KSA [59,60]. This meets the view of SR in developing countries such as Lebanon, Syria and Jordan with small clusters of modern/strategic orientation in each country [58]. Most SR activities in the Middle East region are performed mainly by western multi-national companies such as Intel, DHL and Shell [61]. Therefore, it is important for local organizations to consider this issue seriously as the World Bank has pointed out that good governance and accountability are the main factors for achieving economic growth and sustainability in the Middle East [49]. There is a pressing need for a holistic national consideration of SR that promotes and supports companies making a move in this direction [47,54].

According to Al-Sedairy [62], since oil was discovered within the KSA region in the 1970s, the construction industry has undergone huge development. It plays a crucial role in the development of the country's economy and national plans, facilitated through the National Industrial Cluster Development Program, as well as through the completion of six economic cities [63]. The governmental sector represents the largest client for public construction projects. In recent years, the KSA has experienced considerable economic growth due to increasing oil prices and ongoing reforms across the country. The construction industry is the second largest in the KSA and one of the fastest growing in the Gulf region [64,65], with a current expenditure of more than US \$120 billion annually [66]. There is a significant number of mega-construction projects being implemented across public and private sectors; however, they experience poor performance, low productivity, low quality and economic volatility among other prominent issues [67]. This is in line with the accumulated evidence that points towards the underperformance of the industry in the KSA, alongside a prominent attitude of complacency, as indicated by the number of accidents, waste and inefficient consumption of large amounts of resources [68,69].

There is a prominent lack of awareness and knowledge amongst key decision-makers in the KSA public sector regarding sustainable development [70]. Subsequently, many SR issues are yet to be incorporated in purchasing decisions by organizations [65,70]. Within the construction industry in the KSA, Almahmoud and Doloi [71] indicated the early stage of KSA private sector development [48,54]. Greater consideration needs to be given to SR by the KSA construction industry, whilst congruently supporting the immediate economic, social and environmental needs of the country.

In the past, researchers have attempted to measure SR practice, implementation, performance and benefits, but few have tried to understand the barriers of SR in the in-depth context of construction projects [18,19]. It is interesting to note that there has been no previous research within the context of the KSA construction projects and the barriers of SR. This produces a knowledge gap which is critical to a developing country like the KSA where SR is still in its infancy [48,59,60]. Consequently, there is room for improvement along with the potential for further investigation and development.

Recent research (in scientific databases such as Web of Science, Scopus and Engineering Village) with the key words “barriers”, “Corporate Social Responsibility”, “CSR”, “Social Responsibility”, “Corporate Sustainability”, “Construction Projects” and the “KSA” reveals that this domain is insufficiently explored within the construction industry in the KSA [18,19]. Therefore, this study aims to understand, identify and rank the critical barriers to successful SR implementation within the context of mega-construction projects within the KSA.

2.3. Social Responsibility within the Construction Industry

Previous studies regarding SR within mega-construction projects are fragmented with most of the existing SR knowledge coming from studies that have reviewed online SR reports of large organizations (e.g., Jones et al., [72]) to the detriment of small organizations [73]. Murray and Dainty [4] argued that the landscape of SR research has been established by topics such as corruption, community involvement, sustainable development, health and safety practice and the role of construction companies to alleviate poverty. Furthermore, Petrovic-Lazarevic [74] indicated that many Australian construction organizations implement SR to maintain their corporate image and highlighted that for corporations to be socially responsible they should improve corporate governance. A study of the level of SR implementation within small and medium enterprises (SMEs) within the context of the Australian construction industry, found that most of the firms apply ethical and economic responsibilities but limited attention was paid to the environmental and social dimensions as none of the investigated firms had a formal SR policy to refer to [75]. This is aligned with the study of Glass [76] who stated that SR within the construction industry is largely informal and in its early stage of development. Within the context of Malaysian property developers, an investigation into SR implementation found that most of the developers reported that their own initiatives differed from each other. This is supported by a study by Watts et al. [55] who indicated that within the context of construction, SR can vary from company to company and is mostly integrated to sustain focus. This is due to the absence of SR reporting frameworks and a lack of a coherent strategy for the construction industry worldwide [7,73]. A comparative study was conducted by Loosemore et al. [77] to evaluate the implementation of SR within the construction industry in Australia, New Zealand and Singapore. The results indicated that the main focus was on environmental activities. This is aligned with the study which revealed that SR activities within the construction stage are still unclear [78]. Therefore, it is imperative to investigate factors that hinder SR implementation within mega-construction projects so that better engagement can be achieved.

Furthermore, most SR studies are conducted within developed countries. Due to differences in the environment in terms of levels of development, developing countries must base their development of SR on studies and experiences of developed countries as a starting point [79,80]. The knowledge of SR is promoted by western business concepts although the institutional system of a country determines SR practices [79,81]. Social responsibility can involve different procedures within developed and developing countries according to Quazi and O'Brien [82], and are determined by the economic development stage of a country [83]. Wang et al. [84] highlighted that the perception of SR is determined by the knowledge and expertise in the construction industry. Knowledgeable and experienced construction professionals in SR have a higher perception of SR than end users who have limited knowledge of the concept. Lin et al. [17] emphasized that SR research within the context of the construction industry needs to be modernized in order to be abreast of SR research; the low level of SR commitment reported in research; and cases of inadequate social performance by the construction industry.

The literature indicates that there are several barriers affecting the implementation of SR [85]. In order to create relevant strategies to overcome the barriers efficiently, it is important that these barriers are acknowledged and understood by the decision-makers. These barriers can also be interdependent; therefore, the decision-makers would need to understand this interdependence to design effective policies to overcome them. The main barriers that effect the implementation of SR are: (i) a lack of SR awareness and knowledge; and (ii) a lack of consensus on how SR is defined and the principles that might be contained in SR [86,87]. The construction industry lags behind the service and manufacturing industries, especially in terms of the awareness and implementation of SR [88]. Additional important barriers include a lack of time, funding, human resources, delayed benefits of implementing SR and poor support from top management [75].

Loosemore and Phua [89] found that for one of the world's mega consulting and construction companies, most of their clients did not bother with the comprehensive SR strategies of companies in their supply chain as they did not see any connection with the results of the construction project. Moreover, the users of buildings also cared little, as they had little or no knowledge about which company designed or built the buildings they used or of their SR record. Loosemore and Lim [7] further supported this point and stated that SR is integrative in nature within the construction industry and is narrowly focused mostly on environmental activities. It is thus seen as immature, non-strategic and compliance based. The position of Loosemore and Lim [7] appears to suggest that the lack of SR implementation is not limited to developing economies. This makes any solution from developing countries potentially viable for establishing alternative practices worldwide. Therefore, establishing such a link and providing guidance for an SR strategy would be invaluable to the implementation of SR practices in construction globally. Loosemore et al. [37] focused on construction organizations within the context of Australia and New Zealand, and identified a failure to capture the different strategies for implementing SR in the construction industry [16]. One of the most common strategies is for construction organizations to embed SR as a part of organizational vision, mission or policy [90]. This makes SR an essential part of the companies' operations [91].

As the sustainability agenda, which is mainly attached to the environmental and economic dimensions, will not be enough to meet SR theory on its own, the industry has to develop a social conscience in its business strategy [73,92]. Additionally, the key challenge for business is to address the social construction of SR strategy development [93] via engagement, which translates into better corporate performance [94] and long-term competitive advantage [94,95], through company transparency. The voluntary nature, lack of guidelines together with the absences of coherent strategies for SR is what allows companies the freedom to select what, when and how to be involved in social and environmental issues. In addition, the absence of regulatory intervention may possibly lead organizations to simply copy other organizations to mitigate their ambiguity and alleviate their dilemmas when it comes to selecting SR activities. There is also likely to be an unwillingness to carry out SR issues in the long-term. Furthermore, within developing countries, some SR activities do not exceed what is required by the law, due to the low levels of regulation enforcement and social requirements in relation to regulatory requirements [96,97]. Within the context of mega-construction projects, studies are limited to common SR issues and levels of implementation [94]; they do not analyze the specific barriers that serve as the primary threats to SR implementation.

The review of the literature has indicated that barriers to SR implementation exist in both developed and developing countries. Only a few empirical studies have focused on the identification and analysis of barriers to SR implementation within construction projects. Furthermore, this literature review also revealed that no study has identified and ranked SR barriers using a relative importance (RI) index and testing the correlation between them. The eleven most common barriers are presented in Table 1. Therefore, this current study attempts to build on the literature review and investigate the barriers that hinder the successful implementation of SR in KSA mega-construction projects. There is an emerging need to prioritize the relative importance of these SR barriers within mega-construction projects, so decision-makers can understand them, and proper care may be taken to mitigate them. SR is

still an unclear strategy within the KSA context because the implementation gap is high. Hence, to fill this research gap, this research study evaluates the critical barriers to successful SR implementation.

Table 1. Common barriers to social responsibility (SR) in the construction industry.

| Code | Barriers |
|------|--|
| B1 | Lack of awareness and knowledge |
| B2 | Lack of guidelines and coherent strategies |
| B3 | Lack of law enforcement |
| B4 | Unclear project requirements |
| B5 | Additional cost |
| B6 | Time consuming for exercises |
| B7 | Lack of top management support |
| B8 | Lack of leadership skills |
| B9 | Lack of training |
| B10 | Workforce complacency |
| B11 | Lack of communication between stakeholders |

These eleven barriers can serve as a good starting point for different stakeholders within the context of mega-construction projects or any business planning to implement SR practices. Table 2 represents the barriers mapped against their key references. Regardless of the attempts by organizations to engage in SR, their efforts are met with numerous barriers. The following sections present the common challenges to SR engagement.

Table 2. Common barriers to (SR) implementation mapped against key references.

[illegible]

2.3.1. Lack of Knowledge and Awareness (B1)

Although the term SR has received much attention since its introduction in the 1950s, the construct is still debated, and its definition is still argued over due to the subjective nature of the term [57,115]. Currently, there is no systematic framework for understanding SR within the construction industry nor in emerging economies [116,117]. The construction industry has been slow in realizing its obligations to SR [94], in part due to a lack of knowledge and awareness of the concept of SR and its peripheral aspects. This can be considered the most critical barrier in the implementation of SR activities in construction projects worldwide, particularly within the KSA. Similarly, there is a lack of knowledge and awareness of the supply chain's significant impact on environmental and social responsibility within the construction sector [112].

2.3.2. Lack of Guidelines and Coherent Strategies (B2)

Social responsibility has not been rapidly incorporated into the business activities of the construction industry [75]. The lack of accessibility to SR tools is one reason, since most of these tools were initially designed for specific sectors which did not include the construction sector [94,100]. On the part of the construction industry, there was the inertia; it is presumed that SR is naturally embedded in the activities of the construction industry given the regulatory environment in which it operates [7]. However, and in the experiences of other industries that operate within a regulatory environment and given increased knowledge about the burden placed on the natural environment from human activities, appropriate planning for SR implementation will result in better performance. Jones et al. [72] Best practice requires the adoption of substantial guidelines based on theoretical study of the issue. Thus, for mega-construction projects, there is an urgent need to develop SR indicators that holistically combine economic, environmental and social indicators [118].

2.3.3. Lack of Law Enforcement (B3)

Social responsibility is generally implemented by organizations on a voluntary basis. However, even in developed countries, such as the UK, governments are able to set standards for SR using a list of measures and formats, as well as frequencies of reports [51,119]. Within developing countries, some SR activities do not extend beyond legal requirements as there is minimal enforcement of regulations [96,97]. Regulations are, therefore, an important factor in urging organizations to implement SR in their business practices [120]. The construction industry is a compliance-driven industry. Without a clear commercial justification, SR is unlikely to be implemented. An informal voluntary approach to SR is therefore unlikely to work with construction companies, who will not extend beyond the minimum SR requirements mandated [100]. Government regulation often compels organizations to act in a socially responsible manner in order to enhance their reputation and protect their branding by gaining a competitive advantage [94,121]. The role of government policies in improving sustainability perception and company performance is well-established [122]. Moreover, pressure from the media and the public is stronger for larger companies [99].

2.3.4. Unclear Project Requirements (B4)

The lack of effective strategic planning for SR can create barriers to its implementation [123]. A study examining case studies of world-renowned consulting and construction companies concluded that most clients do not care much about the comprehensive SR strategies of firms in their construction supply chain [89]. These strategies are not viewed as being linked with the outcomes of the projects that these companies pursue. The concept of SR in the construction industry varies between different firms. It is often misunderstood by some organizations who believe that it is linked to local needs instead of a more holistic, integrated focus on sustainability [55,124].

2.3.5. Additional Costs (B5)

Perceived cost is a significant barrier to SR implementation and lack of SR initiatives can be attributed to the misconception that it requires more time and money [100]. There is a lack of evidence clearly linking SR implementation to increased profits or demonstrating the effectiveness of SR [125,126]. The connection between SR practices and business performance needs further clarification [89]. Unsurprisingly, there is still significant scepticism within the construction industry regarding the relationship between SR and business performance [7].

2.3.6. Additional Time Requirements (B6)

Social responsibility implementation does not happen overnight: it is a time-consuming process that requires changes to be communicated at all levels of management [127,128]. The role of top management is to communicate SR activities across both organizational and project level [129,130]. Additional funds may be required in the short term, as shareholders may need time to better understand SR long-term benefits [131,132]. This is because, as mentioned previously, the construction industry is compliance-based, and the benefits to SR are viewed with much scepticism [7].

2.3.7. Lack of Support from Top Management (B7)

Social responsibility is an important organizational strategy. To ensure successful implementation, SR should be introduced by top management into the organization's mission, vision and objectives [85,133]. The commitment by top management to SR is essential to changing perceptions by internal and external stakeholders. Conversely, lack of top management support will inevitably result in poor SR implementation within any organization's activities [104,134]. Other barriers to SR implementation include lack of dedicated time, funding and human resources [75].

2.3.8. Lack of Leadership Skills (B8)

Social responsibility implementation is complex, requiring specific skills to ensure its effective implementation within an organization [135]. An important factor to successful implementation is the availability of an appropriately skilled workforce [136] and organizations may need to establish a separate department with experts who can develop and implement effective SR policies, implementation and cultures [137].

2.3.9. Lack of Training (B9)

The absence of an appropriate training program can hamper the effective implementation of SR within the organization's business practices [104,128]. It is essential to develop appropriate training for all levels of workers in order to develop their skills and knowledge in order to accomplish SR goals [138]. This training should aim to improve awareness of SR and its impact on the organization, its staff, and their surrounding environment [138]. Organizations need to recognize that SR training has been shown to promote awareness of employees as well as enhancing harmony through mentoring in ethical behaviour and dispute resolution [139]. In this regard, the mainstreaming of SR into ISO 26000 could ensure that employees trained to ISO-26000 standards will be fully aware of the importance and essence of striving for SR in all construction activities.

2.3.10. Lack of Communication between Stakeholders (B11)

Stakeholders are crucial to successful SR implementation and it is important to include key stakeholders (e.g., government, contractors, consultants and suppliers [140]) within SR training programmes [104,141]. The inclusion of these stakeholders in SR implementation is useful. However, incomplete information and a lack of communication between stakeholders often results in ineffective implementation [142]. A SR stakeholder engagement strategy is thus needed to facilitate coordination and collaboration between stakeholders, especially in the construction industry. Poor SR

implementation in construction projects can result in conflicts between different stakeholders with different goals. The complex and unique multi-stakeholder environment of the construction industry means that responsibilities for specific SR impacts are unclear [17,98] and if undesired consequences occur, it would be easy for certain stakeholders to avoid responsibility, thus resulting in conflict. Many SR activities focus on the environment (e.g., waste management, energy and use of green materials), some stakeholders may be reluctant to fully collaborate due to their focus on other issues. Thus, effective management of stakeholder relationships lead to successful SR implementation [105].

3. Materials and Methods

There are different barriers that influence and shape the implementation of SR practices within mega-construction projects. After a thorough review of existing studies, eleven main barriers were identified and mapped against their corresponding literature source in Table 2. These barriers have been well documented and are applicable to the context of this study. The literature review was conducted based on two criteria: the journal is indexed in popular databases such as the Science Citation Index and Engineering Index Compendex database; and the publication topic is strongly related to SR areas. As SR has several synonyms, key phrases such as CSR, social accountability, corporate sustainability and sustainable development were used in the literature survey.

The relative importance index (RI) is a method that is used extensively within construction research to measure attitude, level of importance and degree of implementation [143,144]. To determine the relative ranking of each SR barrier, Equation (1) was derived:

$$RI = \sum(ax) \times 100/7 \quad (1)$$

where: a = constant (weight) 1–7, $x = n/N$, n = Frequency of responses, N = Total responses.

Data Collection

The questionnaire is a systematic technique of data collection based on a sample. It has been extensively used to obtain professional opinions. A questionnaire survey (informed by the literature review) was used to investigate barriers to SR implementation in the KSA construction industry. Prior to distribution of the questionnaire, a two-step procedure was followed to assess its appropriateness and rationality. The questionnaire was assessed by 10 experts who had several years' experience in mega-construction projects and SR, ensuring that ambiguous expressions were not present and that appropriate technical terms were used. Experts were asked to assess whether the questionnaire covered all potential barriers, considered the background of SR implementation in the KSA context, and whether any barriers should be added to, or removed from the survey. The final version of the questionnaire was based on this expert feedback and sent to respondents who were asked to identify and rank the frequency (i.e., 1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Sometimes, 5 = Frequently, 6 = Usually and 7 = Always) of the eleven barriers on two mega-construction projects (near completion or completed) within the KSA (i.e., Riyadh Metro (RM) - and Haramain High Speed Rail (HHSR)). The RM is one of the largest light rail projects in the world, with six rail tracks extending for 173 km, 83 railway stations and an estimated budget of US\$23 billion. The HHSR project links Madinah and Makkah and is a two-track rail line which extends for 450 km and three railway stations with an estimated budget US \$8 billion. These two schemes were the largest infrastructure projects in the KSA at the time of the study and were selected because of their potential to incorporate SR activities which was also required by the KSA government. Research access negotiations were needed to determine the possibility of data access from individuals within each project and how many could be obtained (the sample size).

To determine the required sample size the following formulas from Bartlett et al. [145] and Cochran [146] were applied to calculate the estimate for reliability of the study. The formula provides the required returned sample to be established by the formula in Equation (2):

$$ns = \frac{[t^2 \times s^2]}{e^2} \quad (2)$$

where: ns = required returned sample, t = alpha level value ($0.05 = 1.96$ for sample size of 120 or more), s = estimated standard deviation in population for 7-point scale (1.167) and e = acceptable level of error from the mean being estimated (0.03×7 scale).

Therefore, the required sample size number is 118 respondents. In practice, the questionnaire survey was distributed in two projects. To maximize the reach of the responses the distribution was conducted in different locations such as construction sites, human resources (HR) departments and overarching management department of each project. A convenience sampling approach was adopted to select participants from each project. Depending on the technological circumstances of the respondent, they were either served with a hard copy version of the instrument or directed tool to complete the instrument through a Bristol Online Survey. This way the distribution of the questionnaire catered to the requirements of the people who worked on the selected projects whether they were site or office based. In total 200 questionnaires were administered using the adopted approach of these 150 were returned, of which 136 were valid responses, representing a response rate of 68%. Table 3 indicates the breakdown of the number of questionnaires distributed received and invalid. The achieved response rate compares favorably with studies of a similar nature. In particular, this response rate is exceptional compared to previous studies related to construction in the KSA which typically reflect a 35% response rate [62,69]. Similarly, when compared to other studies on a global scale within the context of SR in construction, the achieved response rate presents a much superior performance as shown in reported research on Chinese investigations that typically achieved a rate of about 40% [144]. Other studies on the subject conducted in Australia and New Zealand reflect a much lower response rate of 12% [37].

Table 3. Responses to questionnaire survey.

| No | Main Information | Number | Percent (%) | Comments |
|----|----------------------------|--------|-------------|--|
| 1 | Distributed questionnaires | 200 | 100 | - |
| 2 | Received questionnaires | 150 | 75 | - |
| 3 | Accepted questionnaire | 136 | 68 | - |
| 4 | Excluded | 14 | 9.3 | Not fully answered and some not from the two selected projects |

4. Data Analysis

A barrier is defined as being a reason why participants in the selected projects decided not to implement SR. Therefore, results were reported in terms of descriptive and inferential statistics using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel. The statistical tools were the Mann–Whitney U test, Spearman correlation test and RI. Figure 1 provides an outline of the barrier analysis process.

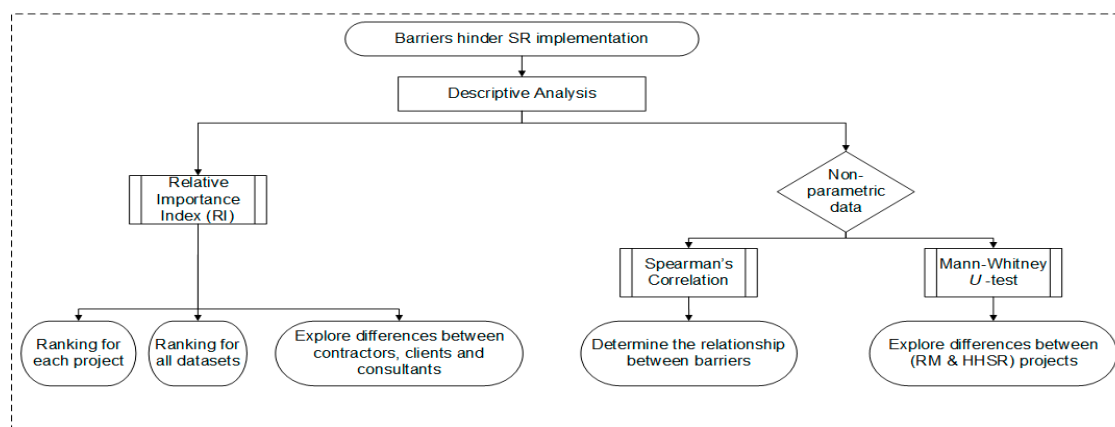


Figure 1. Barrier section analysis process.

A total of 94 participants were from RM and 42 participants were from HHSR. Most of the respondents were senior managers, site managers or senior engineers (Figure 2). The respondents who were not in senior positions also performed crucial roles in the delivery of the projects. The distribution of the respondents was as follows: 57 contractors; 14 clients; and 65 consultant organizations.

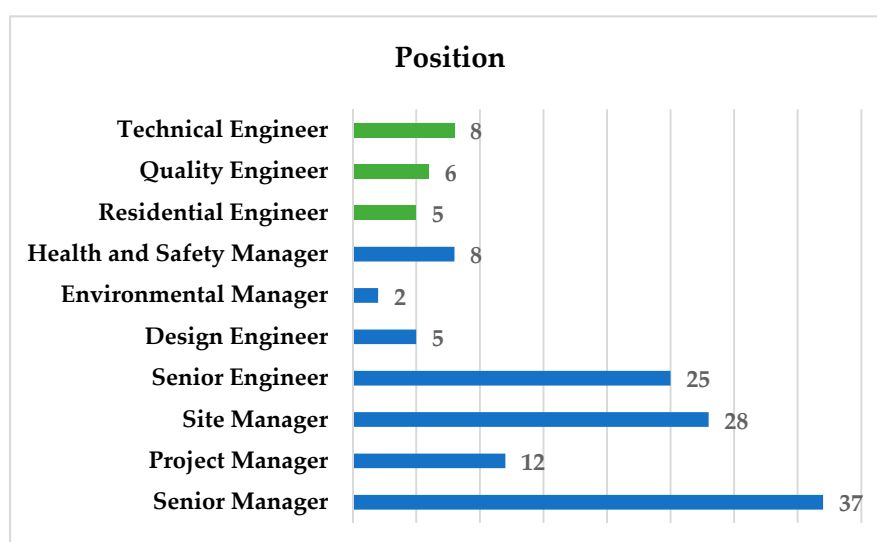


Figure 2. Job positions of the respondents.

4.1. Data Reliability

The data were first tested statistically for credibility and reliability. This was calculated using Cronbach's alpha coefficient (α). Cronbach's alpha coefficient (α) value ranges from 0 to +1. The higher the value, the stronger the internal consistency and, hence, reliability of the data. In general, a Cronbach's alpha coefficient (α) value ≥ 0.7 is acceptable [147,148]. The Cronbach's alpha coefficient value for the eleven barriers to implementation of SR is 0.85, revealing a good reliability of the data for further analyses.

4.2. Mann–Whitney Test for Comparing the Barriers in the Two Projects

Differences in barriers that hinder the implementation of SR were analyzed between RM and HHSR. It was reasonable to assume that these two groups of participants may have different opinions as to what hinders SR implementation due to: the type of the project—light rail (RM) and heavy rail (HHSR); different stakeholder requirements; and different contexts. This analysis was conducted for the eleven barriers.

Prior to analysis, data were examined for normality using histograms, skewness, kurtosis and Kolmogorov–Smirnov (K-S) tests. The results show that the data were not normally distributed (RM skewness = -0.719 , kurtosis = 2.901 ; HHSR skewness = -0.979 , kurtosis = 1.880). In addition, the K-S test results were statistically significant ($p < 0.001$) for both projects. Therefore, this research used the non-parametric Mann–Whitney test, a good alternative to the t-test, to analyse the differences in mean ranks between the two groups. The Mann–Whitney U test converts the scores given by the respondents on each continuous measure to ranks, across any two groups and then assesses whether the ranks for the two projects significantly differ or not. The typical level to decide whether the null hypothesis should be rejected or not is $p < 0.05$ [149,150], therefore $p < 0.05$ was used as the significance level in this analysis.

4.3. Comparison of SR Barriers between Riyadh Metro (RM) and Haramain High Speed Rail (HHSR) Projects

The rankings and the Mann–Whitney U test results comparing the barriers to SR implementation in the two projects are summarized in Table 4. There is considerable similarity between respondents in terms of the barriers to SR in both projects (Table 4). The only difference between the two groups was the perception of the lack of senior management support and commitment which was viewed as higher in the HHSR project. From the data analysis, it is observed that respondents from the two projects share common perceptions on SR implementation barriers.

Table 4. Ranking and Mann–Whitney U results for SR barriers in the Riyadh Metro (RM) and Haramain High Speed Rail (HHSR) projects.

| Code | Project Name | N | Mean Rank | Sum of Ranks | Asymp. p (2-Tailed) |
|------|---|------|-----------|--------------|-----------------------|
| B1 | Lack of Awareness and Knowledge | RM | 94 | 68.89 | 6475.50 |
| | | HHSR | 42 | 67.63 | 2840.50 |
| B2 | Lack of Guidelines and Coherent Strategies | RM | 94 | 67.82 | 6375.00 |
| | | HHSR | 42 | 70.02 | 2941.00 |
| B3 | Lack of Law Enforcement | RM | 94 | 68.82 | 6469.00 |
| | | HHSR | 42 | 67.79 | 2847.00 |
| B4 | Unclear Project Requirement | RM | 94 | 68.95 | 6481.50 |
| | | HHSR | 42 | 67.49 | 2834.50 |
| B5 | Additional Cost | RM | 94 | 70.52 | 6628.50 |
| | | HHSR | 42 | 63.99 | 2687.50 |
| B6 | Time Consuming for the Exercise | RM | 94 | 67.55 | 6349.50 |
| | | HHSR | 42 | 70.63 | 2966.50 |
| B7 | Lack of Top Management Support and Commitment | RM | 94 | 63.11 | 5932.00 |
| | | HHSR | 42 | 80.57 | 3384.00 |
| B8 | Lack of Leadership Skills | RM | 94 | 65.49 | 6156.50 |
| | | HHSR | 42 | 75.23 | 3159.50 |
| B9 | Lack of Training | RM | 94 | 67.19 | 6315.50 |
| | | HHSR | 42 | 71.44 | 3000.50 |
| B10 | Workforce Complacency | RM | 94 | 64.88 | 6099.00 |
| | | HHSR | 42 | 76.60 | 3217.00 |
| B11 | Lack of Communication between Stakeholders | RM | 94 | 66.29 | 6231.50 |
| | | HHSR | 42 | 73.44 | 3084.50 |

Figure 3 illustrates the results of the respondents' perceptions of SR barriers ranked according to the RI. It also indicates that the respondents' perceptions of SR implementation barriers in RM and HHSR are quite similar. The respondents in both projects agreed that perceived "additional cost" (B5) is an undeniable barrier that needs to be highlighted (75% and 79% for HHSR and RM, respectively). This was followed by: "lack of awareness and knowledge" (B1) (71% for HSSR, 74% for RM); and "lack of guidelines and coherent strategies" (B2) (71% for both projects). In both projects, the issues of "workforce complacency" (B10) (58% for HHSR, 52% for RM) and "lack of leadership skills" (B9) (60% for HHSR, 55% for RM) were also significant but seen by fewer respondents as the barriers to SR implementation.

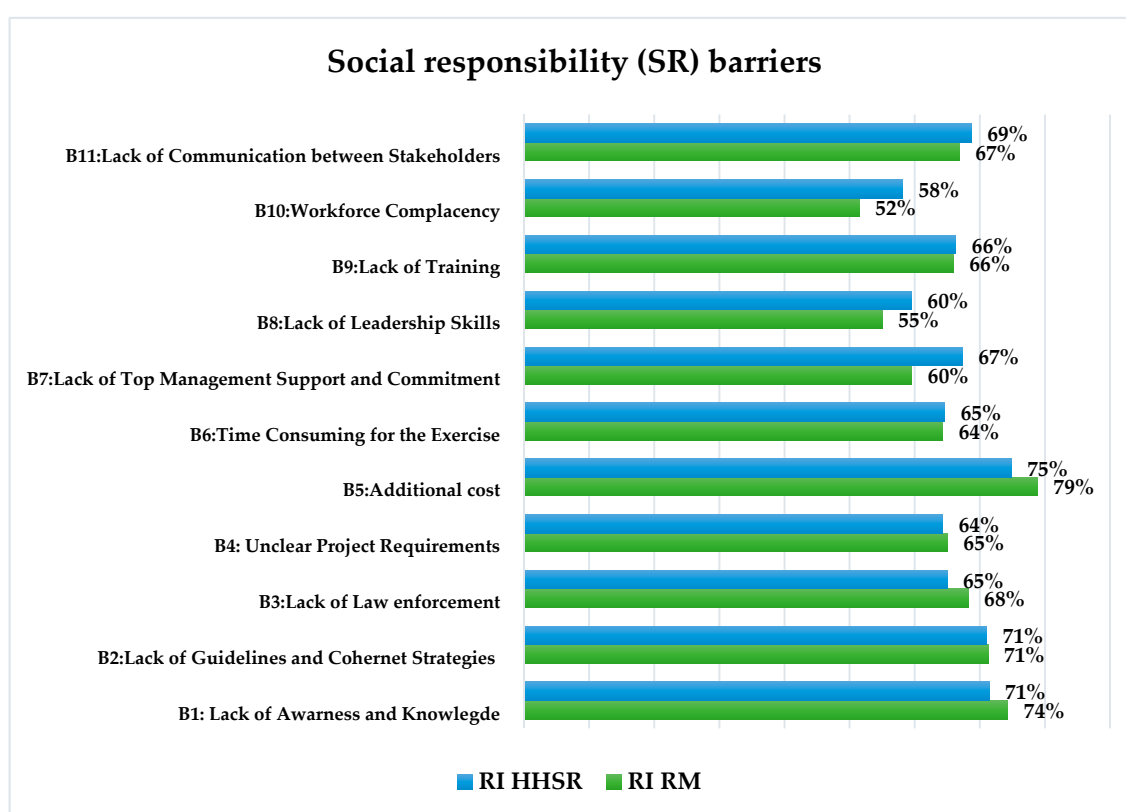


Figure 3. Perceived barriers to SR implementation in the RM and HHSR projects, ranked according to the Relative Importance Index (RI).

Data from the questionnaire were extracted to derive weightings of the barriers (Table 5). The magnitude of RI was calculated for all listed barriers and the factors were ranked in order, based on RI, for the two projects separately. From Table 5 it becomes clear that perceived “additional cost” (B5) is the main barrier to the implementation of SR in both projects (RM RI = 0.7888, HHSR RI = 0.7483). “Lack of awareness and knowledge” (B1) and “lack of guidelines and coherent strategies” (B2) were ranked second and third for both projects. The fourth barrier was “lack of law enforcement” (B3) for the RM project and “lack of communication between stakeholders” (B11) for the HHSR project. Figure 4 summarises the differences and similarities between the two projects in terms of SR barriers.

Table 5. Relative Importance Index (RI) for both projects with ranking.

| Code | Barriers | RM | | HHSR | |
|------|---|--------|---------|--------|---------|
| | | RI | Ranking | RI | Ranking |
| B1 | Lack of Awareness and Knowledge | 0.7432 | 2 | 0.7143 | 2 |
| B2 | Lack of Guidelines and Coherent Strategies | 0.7128 | 3 | 0.7109 | 3 |
| B3 | Lack of Law Enforcement | 0.6824 | 4 | 0.6497 | 7 |
| B4 | Unclear Project Requirements | 0.6505 | 7 | 0.6429 | 9 |
| B5 | Additional Cost | 0.7888 | 1 | 0.7483 | 1 |
| B6 | Time Consuming for the Exercise | 0.6429 | 8 | 0.6463 | 8 |
| B7 | Lack of Top Management Support and Commitment | 0.5957 | 9 | 0.6735 | 5 |
| B8 | Lack of Leadership Skills | 0.5502 | 10 | 0.5952 | 10 |
| B9 | Lack of Training | 0.6596 | 6 | 0.6633 | 6 |
| B10 | Workforce Complacency | 0.5152 | 11 | 0.5816 | 11 |
| B11 | Lack of Communication between Stakeholders | 0.6687 | 5 | 0.6871 | 4 |

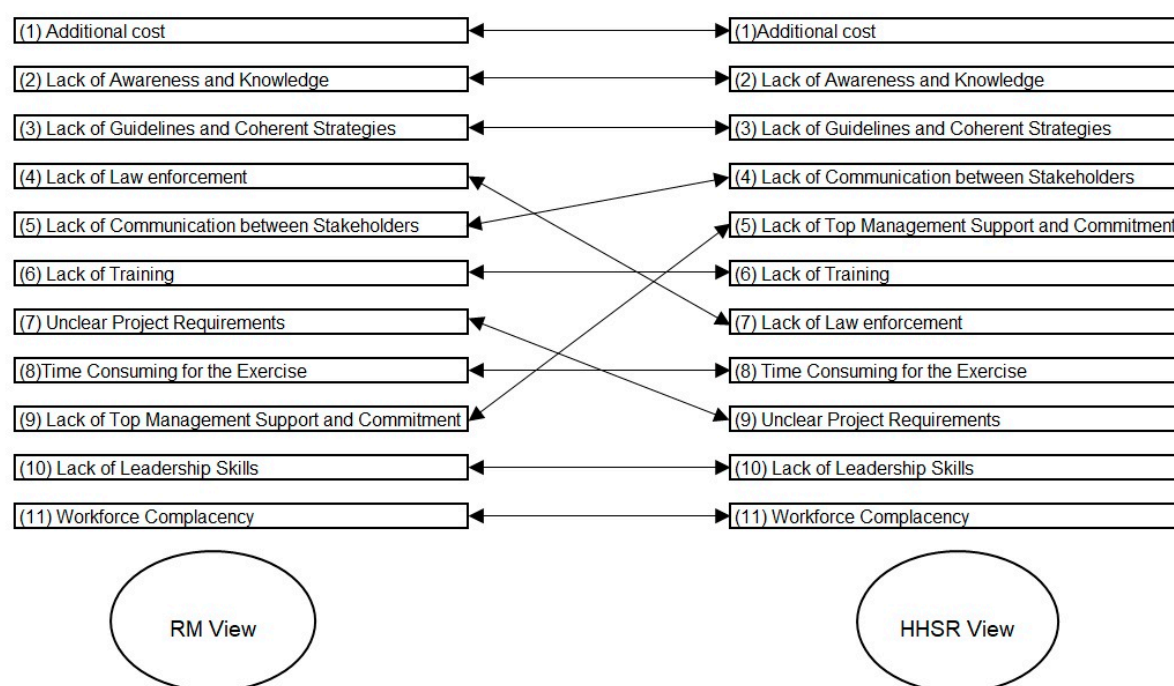


Figure 4. RI ranking of SR barriers in the RM and HHSR projects.

Table 6 shows the barriers ranked by the RI for both projects combined. “Additional cost” (B5) and “lack of awareness and knowledge” (B1) (RI = 0.7763 and 0.7342, respectively) were considered the main barriers to SR implementation. Therefore, it can be argued that these barriers can be alleviated in the long-term when SR performance and cost saving can be improved as well as benefits realized. Results also indicate that SR within mega-construction projects is non-strategic, ad hoc and unfocused with “Lack of clear guidance and strategies” (B2) (RI = 0.7122) ranked third while “Lack of communication between stakeholders” (B11) is ranked fourth (RI = 0.6744).

Table 6. Relative importance (RI) index for SR barriers in the RM and HHSR projects combined.

| Code | Barriers | Both Projects | |
|------|---|---------------------------|---------|
| | | Relative Importance Index | Ranking |
| B5 | Additional cost | 0.7763 | 1 |
| B1 | Lack of Awareness and Knowledge | 0.7342 | 2 |
| B2 | Lack of Guidelines and Coherent Strategies | 0.7122 | 3 |
| B11 | Lack of Communication between Stakeholders | 0.6744 | 4 |
| B3 | Lack of Law Enforcement | 0.6723 | 5 |
| B9 | Lack of Training | 0.6607 | 6 |
| B4 | Unclear Project Requirements | 0.6481 | 7 |
| B6 | Time Consuming for the Exercise | 0.6439 | 8 |
| B7 | Lack of Top Management Support and Commitment | 0.6197 | 9 |
| B8 | Lack of Leadership Skills | 0.5641 | 10 |
| B10 | Workforce Complacency | 0.5357 | 11 |

Mega-construction project stakeholders are reluctant to implement SR practices when the investment cost is high. Therefore, law enforcement and improvement in SR awareness are the first steps to practicing SR effectively. In addition, inclusion of SR requirements in tendering requirements is an effective measure for encouraging the implementation of SR. The remaining barriers are arranged as follows as per their RI and overall priority: (B3) > (B9) > (B6) > (B4) > (B6) > (B7) > (B10). Government and policymaking institutions can use the identification and ranking of barriers for the development

and implementation of better policy to mitigate these issues. To some extent, these barriers could be influenced, managed and controlled by organizations via change in management and leadership.

Different stakeholders may have different priorities and reasons why they decide not to implement SR effectively within their operations. In mega-construction projects, many confounding issues influence decision-making on the implementation of certain practices. Therefore, the average RI values presented in Table 7 are for three different groups—contractors, clients and consultants—on both projects. When the barriers are investigated separately, both the scores and ranks for different barriers change according to the type of the project and the role of organizations. Average RI values for the three groups presented in Table 7 reveal that there were minor differences between respondents (contractors, clients and consultants) suggesting that the parties involved in mega-construction projects face the same issues. While most of the top SR barriers for each group are the same, there are some significant differences between categories. For example, HHSR and RM contractors considered perceived “additional cost” (B5) and “lack of awareness and knowledge” (B1) as the top two issues; whereas consultants from both projects ranked them as third (B5) and second (B1). Whilst “lack of awareness and knowledge” (B1) is viewed by all parties as a major barrier, they assume that SR implementation is the responsibility of the government. Another example is “unclear project requirements” (B4) ranked third by HHSR contractors, and ranked fifth, seventh and seventh by RM contractors, clients and consultants, respectively.

Table 7. Ranking of barriers to SR implementation in RM and HSSR by stakeholder (company) type.

| Barriers | HHSR | | | | | | RM | | | | | |
|----------------|---------------|------|---------------|------|--------------|------|---------------|------|--------------|------|---------------|------|
| | Contractor | | Client s | | Consultants | | Contractor | | Client | | Consultants | |
| | RI | Rank | RI | Rank | RI | Rank | RI | Rank | RI | Rank | RI | Rank |
| B1 | 0.7143 | 2 | 0.7013 | 3 | 0.7227 | 4 | 0.7276 | 2 | 0.8095 | 3 | 0.753 | 3 |
| B2 | 0.6327 | 6 | 0.7403 | 2 | 0.7563 | 2 | 0.6412 | 7 | 0.9048 | 1 | 0.7649 | 1 |
| B3 | 0.602 | 8 | 0.6623 | 6 | 0.6807 | 7 | 0.6047 | 8 | 0.8571 | 2 | 0.7411 | 4 |
| B4 | 0.6633 | 3 | 0.6104 | 9 | 0.6471 | 10 | 0.6645 | 5 | 0.619 | 7 | 0.6399 | 7 |
| B5 | 0.7347 | 1 | 0.7662 | 1 | 0.7479 | 3 | 0.8206 | 1 | 0.7619 | 4 | 0.7619 | 2 |
| B6 | 0.6122 | 7 | 0.5974 | 10 | 0.7059 | 6 | 0.6611 | 6 | 0.5714 | 9 | 0.628 | 8 |
| B7 | 0.6531 | 4 | 0.6364 | 8 | 0.7143 | 5 | 0.6013 | 9 | 0.5238 | 10 | 0.5952 | 9 |
| B8 | 0.5306 | 10 | 0.6494 | 7 | 0.6134 | 11 | 0.5548 | 10 | 0.6667 | 6 | 0.5387 | 10 |
| B9 | 0.6429 | 5 | 0.6753 | 5 | 0.6723 | 8 | 0.6711 | 4 | 0.7143 | 5 | 0.6458 | 6 |
| B10 | 0.4796 | 11 | 0.5844 | 11 | 0.6639 | 9 | 0.5515 | 11 | 0.4762 | 11 | 0.4851 | 11 |
| B11 | 0.5918 | 9 | 0.6883 | 4 | 0.7647 | 1 | 0.6777 | 3 | 0.619 | 8 | 0.6637 | 5 |
| Average | 0.6234 | | 0.6647 | | 0.699 | | 0.6524 | | 0.684 | | 0.6561 | |

4.4. Correlation Analysis for Barriers

The barriers to successful SR implementation within mega-construction projects were further analyzed through Spearman’s correlation analysis. The main aim of this analysis was to determine the existence and strength of relationships between barriers to SR implementation within the selected projects. Table 8 summarizes the Spearman’s correlation test results. All eleven barriers are positively associated with one another. The value of the Spearman’s correlation ranged 0.0171–0.9359 with the strongest relation ($r = 0.9359$, $n = 136$, $p < 0.001$) between (B3) “Lack of Law Enforcement” and (B10) “Workforce Complacency”. This is followed by the relationship between (B4) “Unclear Project Requirement” and (B3) “Lack of Law Enforcement” ($r = 0.7433$, $p < 0.01$). The lowest and not significant relationship was between (B3) “Lack of Law Enforcement” and (B6) “Time Consuming for the Exercise” ($r = 0.01743$).

Table 8. Spearman's correlation (Corr) test between SR implementation barriers.

| | | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|--|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| B1—Lack of Awareness and Knowledge | Corr | | 0.360 ** | 0.183 * | 0.266 ** | 0.191 * | 0.224 ** | 0.146 | 0.148 | 0.433 ** | 0.128 | 0.340 ** |
| | p-value | | <0.001 | 0.033 | 0.002 | 0.026 | 0.009 | 0.091 | 0.085 | <0.001 | 0.139 | <0.001 |
| | N | | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 |
| B2—Lack of Guidelines and Coherent Strategies | Corr | 0.360 ** | | 0.443 ** | 0.204 * | 0.235 ** | 0.257 ** | 0.246 ** | 0.279 ** | 0.286 ** | 0.130 | 0.279 ** |
| | p-value | <0.001 | | <0.001 | 0.017 | 0.006 | 0.003 | 0.004 | 0.001 | <0.001 | 0.131 | <0.001 |
| | N | 136 | | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 |
| B3—Lack of Law Enforcement | Corr | 0.183 * | 0.443 ** | | 0.028 | 0.113 | 0.204 * | 0.287 ** | 0.198 * | 0.107 | −0.007 | 0.136 |
| | p-value | 0.033 | <0.001 | | 0.743 | 0.189 | 0.017 | <0.001 | 0.021 | 0.215 | 0.936 | 0.114 |
| | N | 136 | 136 | | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 |
| B4—Unclear Project Requirement | Corr | 0.266 ** | 0.204 * | 0.028 | | 0.339 ** | 0.330 ** | 0.069 | 0.216 * | 0.265 ** | 0.299 ** | 0.088 |
| | p-value | 0.002 | 0.017 | 0.743 | | <0.001 | <0.001 | 0.427 | 0.012 | 0.002 | <0.001 | 0.308 |
| | N | 136 | 136 | 136 | | 136 | 136 | 136 | 136 | 136 | 136 | 136 |
| B5—Additional Cost | Corr | 0.191 * | 0.235 ** | 0.113 | 0.339 ** | | 0.279 ** | 0.067 | 0.064 | 0.228 ** | 0.098 | 0.238 ** |
| | p-value | 0.026 | 0.006 | 0.189 | <0.001 | | 0.001 | 0.440 | 0.462 | 0.008 | 0.254 | 0.005 |
| | N | 136 | 136 | 136 | 136 | | 136 | 136 | 136 | 136 | 136 | 136 |
| B6—Time Consuming for the Exercise | Corr | 0.224 ** | 0.257 ** | 0.204 * | 0.330 ** | 0.279 ** | | 0.251 ** | 0.324 ** | 0.417 ** | 0.394 ** | 0.477 ** |
| | p-value | 0.009 | 0.003 | 0.017 | <0.001 | 0.001 | | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 |
| | N | 136 | 136 | 136 | 136 | 136 | | 136 | 136 | 136 | 136 | 136 |
| B7—Lack of Top Management Support and Commitment | Corr | 0.146 | 0.246 ** | 0.287 ** | 0.069 | 0.067 | 0.251 ** | | 0.313 ** | 0.263 ** | 0.338 ** | 0.406 ** |
| | p-value | 0.091 | 0.004 | <0.001 | 0.427 | 0.440 | 0.003 | | <0.001 | 0.002 | <0.001 | <0.001 |
| | N | 136 | 136 | 136 | 136 | 136 | 136 | | 136 | 136 | 136 | 136 |
| B8—Lack of Leadership Support | Corr | 0.148 | 0.279 ** | 0.198 * | 0.216 * | 0.064 | 0.324 ** | 0.313 ** | | 0.367 ** | 0.447 ** | 0.434 ** |
| | p-value | 0.085 | 0.001 | 0.021 | 0.012 | 0.462 | <0.001 | <0.001 | | <0.001 | <0.001 | <0.001 |
| | N | 136 | 136 | 136 | 136 | 136 | 136 | 136 | | 136 | 136 | 136 |
| B9—Lack of Training | Corr | 0.433 ** | 0.286 ** | 0.107 | 0.265 ** | 0.228 ** | 0.417 ** | 0.263 ** | 0.367 ** | | 0.432 ** | 0.555 ** |
| | p-value | <0.001 | <0.001 | 0.215 | 0.002 | 0.008 | <0.001 | 0.002 | <0.001 | | <0.001 | <0.001 |
| | N | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | | 136 | 136 |
| B10—Workforce Complacency | Corr | 0.128 | 0.130 | −0.007 | 0.299 ** | 0.098 | 0.394 ** | 0.338 ** | 0.447 ** | 0.432 ** | | 0.434 ** |
| | p-value | 0.139 | 0.131 | 0.936 | <0.001 | 0.254 | <0.001 | <0.001 | <0.001 | <0.001 | | <0.001 |
| | N | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | | 136 |
| B11—Lack of Communication between Stakeholders | Corr | 0.340 ** | 0.279 ** | 0.136 | 0.088 | 0.238 ** | 0.477 ** | 0.406 ** | 0.434 ** | 0.555 ** | 0.434 ** | |
| | p-value | <0.001 | <0.001 | 0.114 | 0.308 | 0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | |
| | N | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | |

* Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed).

5. Discussion

The implementation of SR has been identified as an important strategy globally, as organizations endeavoring to be good citizens should apply SR through enacting social roles and tackling societal problems [108,151]. As it is a versatile concept, SR can be applied to a variety of industries globally, including construction, textile, manufacturing, supply chain and pharmaceuticals [152]. This confirms the increasing popularity and importance of SR. However, despite the growing importance of SR, there are still critical barriers preventing it from becoming the norm [19], particularly within construction industry. Research and implementation of SR within mega-construction projects worldwide is lacking [8,9], particularly within developing countries like the KSA [153,154]. Barriers, such as the lack of awareness, may impact on business operations [85], ultimately influencing their decision to overlook implementing SR, particularly due to its association with high costs. Therefore, clear understanding of these barriers can assist decision-makers to implement SR in an efficient manner. Arguably, these barriers could be influenced, managed and controlled by the organization via change in management, establishment of regulations, development of workforce skills and better knowledge of SR benefits.

Of the eleven SR barriers examined, respondents from the two projects shared the same perceptions of barriers to SR, potentially due to the current low level of SR implementation and maturity in the industry [47,48]. It is interesting to observe that there is only one difference between the two projects, the perception of poor top management support and commitment, which was reported more commonly in the HHSR project. This demonstrates that SR is still not embedded as a central corporate strategy and that there is a narrow understanding of the role of SR in achieving long-term corporate objectives. Without a central strategy, SR activities are often localized and based on religious individuals or philanthropic initiatives which occur in developing countries [57,58]. Furthermore, how SR is understood and perceived is mostly dependent on the business context and decision-makers of each organization [155]. In addition, some authors have speculated that within the context of the KSA, managers are less enthusiastic about the perceptions of the top management regarding SR [49]. This can be mobilized and improved by establishing a common SR definition and guidelines as well as raising awareness through the workforce and education at school. This allows SR to become a natural behaviour in the working environment. Furthermore, the KSA government needs an appropriate framework to encourage and regulate companies to implement SR practices to meet their 2030 Vision. The current lack of systematic framework linking investment with social responsibilities and social and business outcomes, has inhibited the development of SR [156].

Ranking of the eleven SR barriers demonstrates that perceived “Additional cost” (B5) was considered the most important barrier to SR implementation. This could be due to the short-term focus of the construction companies. This can be reflected back to the view relating to stakeholder theory whereby most of the barriers that hamper the development of SR within any organization are related to property rights and the maximization of shareholder value [157,158]. This barrier can be mitigated by shifting from a reactive attitude to a proactive attitude as well as an understanding of SR benefits such as cost savings. This is followed by “lack of awareness and knowledge” (B1). This result is consistent with the literature which revealed that there is a lack of clear understanding of SR as a concept within the KSA [20,47]. The lack of understanding of SR within the KSA is due to SR being viewed as a charitable activity [48]. This aligns with studies on the construction industry from countries such as Australia, China, Malaysia and Hong Kong which all concur that there is a lack of SR awareness and knowledge among construction companies [73,86]. This is supported by the position of Loosemore and Lim [7] which suggest that the lack of SR implementation is not limited to developing economies. Therefore, there is a critical need for construction companies and their projects to realize the strategic importance of SR and implement it at organizational level and project level.

The third ranked barrier is a “Lack of clear guidance and strategies” (B2). This indicates that SR within mega-construction projects is non-strategic, ad hoc and unfocused. It seems possible that these results are could be ameliorated by the KSA government ensuring that mega-construction projects are properly monitored in addition to ensuring that SR strategies accompany development plan

applications for mega-construction projects. This could lead many construction companies to seriously consider the government requirements when it comes to their commitment and attitude towards SR. Social responsibility is still not embedded as a central corporate strategy and there is a narrow understanding of the role of SR in achieving long-term corporate objectives. This is consistent with previous literature which indicates that SR in the construction sector is poorly implemented because it is integrative, narrowly focused (mainly on environmental activities), immature, non-strategic and compliance-based [7]. This is due to the lack of accessibility of SR tools along with no specific framework developed to target the construction industry [94,100]. Therefore, there is a critical need for the KSA government to establish a platform for SR implementation by developing guidelines and benchmarks. Effectively, a lack of guiding principles for SR has left organizations to decide what, when and how to incorporate SR activities.

“Lack of communication between stakeholders” (B11) was ranked fourth. This is consistent with the statement that incomplete information and a lack of communication between stakeholders can result in unsuccessful implementation [142]. Therefore, the government, organizations and individuals have a role in establishing effective communication tools to overcome this barrier. In order to apply SR, the roles, responsibilities and authority of key personnel employees whose activities have an impact (direct or indirect) on the implementation of SR need to be defined, documented and effectively communicated to all stakeholders. Managing the relationships between key stakeholders can result in more effective SR implementation [105]. From the stakeholder’s perspective, insufficient and inefficient communication, cooperation and collaboration among construction companies’ stakeholders could hinder achievement of the desired sustainability outcomes of construction projects [19,114].

“Lack of law enforcement” (B3) was ranked fifth. The lack of regulatory intervention can lead to companies simply copying other companies to decrease their ambiguity and mitigate their dilemma in terms of choosing SR activities. The lack of suitable law enforcement could lead to an increase in corrupt behaviour which has been the case for Spanish construction companies where progress and quality are affected, and delays caused [159]. As a result, SR initiatives have been abandoned, ignored and declared a failure. Therefore, legislation and improvement in SR awareness are the first steps in practicing SR effectively as stakeholders are less likely to implement SR practices when the investment cost is high and there is no legal obligation for them to do so.

The barrier “lack of training” (B9), is also important. This could be attributed to contract bids and tenders within the KSA that are awarded based on the economic rationalist model with the lowest bid winning [160]. However, this is usually at the expense of social considerations, such as the use of child labour and compromised health and working conditions, lack of training and environmental sustainability issues. As a result, the national skills base has weakened which has left limited job opportunities and pathways for the younger generation who have witnessed the apprenticeship system failing; this has ultimately caused widespread inequality within society [71]. Therefore, it is essential to develop appropriate training for all levels of workers in order to develop their skills and knowledge to accomplish SR goals [138]. This training could improve awareness of SR and its impact on the organization, its staff and the environment around them. The absence of an appropriate training program could have a negative effect on SR within the organization’s business practices [138].

There are several observations from this study, including the need to better understand the monetary value of the social and environment impacts facing many countries. Secondly, that social and environmental value are dynamic and change with time, and from one stakeholder to another—the implication being that SR measures must recognize this fact. Thirdly, there is a legal requirement in countries that are firmly committed to sustainability such as the UK and other European countries, to take into account the social value of projects and policies. Fourthly, the lack of real-world examples of documented impacts on reputation for failure, as in the case of deep-water horizon; others such as corruption, poor accounting, bribery, slave labour, falsifying accounts or car emissions are clear indications that more work needs to be done to mainstream SR policies into corporate values and

systems. Finally, the power of social media and potential damage to organization's reputations will cause many organizations to focus more on SR

6. Conclusions

This study established the relative importance of eleven barriers to SR implementation on two mega-construction projects. This research is significant in several ways. Firstly, it contributes to the limited field of antecedent studies on SR implementation in the context of mega-construction projects. This research also contributes to the theory that implementing SR in the construction projects should be viewed as a contingency strategy requiring collaboration between stakeholders. Secondly, by identifying the different barriers to SR implementation, managers of construction projects can avoid or overcome them by taking appropriate action. Policy-makers can use the information to formulate policies and help construction companies' implement SR. Social responsibility within the context of the KSA is still at the development stage and mega-construction projects have no clear definition, frameworks and common scope. Future research should focus on proposing solutions to overcome the barriers to SR implementation. Additional in-depth research on identifying the determinants of SR implementation in the construction context is also recommended.

Future studies should conduct research to identify and model significant barriers to SR implementation within the KSA context and worldwide by using the interpretive structural modelling (ISM) tool. This is a multi-criteria decision-making approach which is usually applied to establish the interrelationship among the identified barriers and to determine the key barriers that have high driving power. Moreover, as this study is conducted in the context of the KSA mega-construction projects, it would be beneficial if a comparative study could be completed between different countries or sectors. Social responsibility is a subjective notion and, therefore, it is important to assess SR within a much broader perspective. It is also recommended that a qualitative research approach be conducted to capture the complete picture of SR barriers in the KSA and provide more in-depth information on the issue.

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