

# A MODEL OF STAKEHOLDER MANAGEMENT STRATEGIES FOR SUSTAINABLE CONSTRUCTION

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Meeting sustainability related targets is increasingly becoming a key performance driver for organisations involved in construction projects. This paper sets out a conceptual model showing how stakeholder management strategies linked to value and risk management processes can enhance sustainability. In developing the model a holistic view of sustainability is taken encompassing environmental, social and economic elements of the Triple Bottom Line (TBL). Stakeholders are classified in terms of their interest in seeing sustainable solutions delivered, their power to influence the outcomes of a project in meeting sustainability related targets, which includes the possession of knowledge of appropriate sustainability solutions and their level of legitimacy to have their views recognised and to be involved in the process. Given the fragmented nature of the construction industry and the often complex temporary coalitions of organisations formed to undertake construction projects, effective stakeholder management is fundamental to success. This paper argues that the management of salient stakeholders is particularly crucial in respect of delivering sustainability, as different stakeholders will have different priorities in meeting the various element of the TBL. Further, a stakeholder's capability to contribute to achieving sustainability will be dependent upon the stakeholder's knowledge, experience and position in the temporary coalition of organisations that form a project. The paper posits that value management and risk management processes are an effective way of engaging the stakeholders and ought to be integrated with formal stakeholder management activities.

Keywords: risk management, sustainability, stakeholder management, value management.

## INTRODUCTION

The theory that underpins this paper is that by integrating processes for the management of projects performance will be enhanced. For example, integration means completeness and closure. The integration of an organization's individual business units has been recognized as a significant opportunity to improve firm performance, through delivering greater efficiency and effectiveness (Kirchoff *et al.*, 2011). Processes are integrated for the purposes of better understanding, building and managing a wider system to create high levels of performance (Barkley, 2006). According to Dainty *et al.* (2001), a general tenet of construction supply chain research is greater integration that will solve the problems caused by fragmentation and this integrated process lead to improve project delivery and put forward a framework for mitigating the obstacles. Research has been carried out on construction supply chains and on the individual topic of stakeholder, risk and value management and sustainability, yet there has been little research that has focused on how these areas integrate together in a construction. The theory will be applied to the

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construction industry, which is one of the most dynamic, risky and challenging business sectors. It is defined as one which embraces the construction materials and products; stakeholders such as suppliers and producers; building services manufacturers, providers and installers; contractors, sub-contractors, professionals, advisors and construction clients and those organisations that are relevant to the design, build, operation and refurbishment of buildings (BIS, 2010). Construction supply chains are known to be filled with non-value added activities and are continuously faced with problems caused by myopic control (Vrijhoef and Koskela, 1999). According to Persson *et al.* (2009), construction supply chain's risks and disruptions consist of supplier failure, supply interruption, communication problems, transportation and uncertain lead times.

Addressing these risks and disruptions in construction supply chains, one can make the construction industry more sustainable through positive changes. The practice of sustainability in construction not only helps the environment but can also improve the economic profitability and help to get good relations with stakeholder groups. Lim and Yang (2008) mentioned that an infrastructure is sustainable if it responds to the conventional environmental challenges of depletion of resources, addresses social and cultural needs and practices, with generating economic empowerment. Foley (2005) stated that an organisation can deliver sustainability if it acts to maximise the quality products to customers, subject to meeting the demands and expectations of non-customer stakeholders.

In order to reduce the risks and disruptions in construction supply chains, stakeholder management has the potential of identifying, prioritising, analysing and engaging the stakeholders (Articlesbase, 2008). Integrating the concepts of stakeholder management and sustainability could help to lead construction to build a sustainable society. Risk management on the other hand assists in creating immediate value from the identification and reduction of risks. Effective management of the risks adds value by ensuring the quality, reliability, performance and other crucial factors, to meet or go beyond the customer's expectations. It also contributes towards the value management by ensuring the delivery of best solution that maximises value for the business and drives out unnecessary cost. Male *et al.* (1998a) and Dell'Isola (1997) described how value management in construction is increasingly being seen as the term to explain the overall process of enhancing a project value, from concept to operation, to improve the value and optimise the life cycle cost of a facility. Therefore, proactive and constructive engagement of stakeholders, as part of an integrated approach to project management including risk and value management, has the potential to deliver sustainability in construction sector.

The purpose of this research is to provide a conceptual model of integrating stakeholders, risk and value management with the goal of achieving sustainability in construction sector. Future work will look into how the proposed model can be implemented by engaging (through interviews, questionnaires etc.) stakeholders like owners, contractors, sub contractors, construction clients, project managers and architects in construction sector.

## **SUSTAINABILITY IN CONSTRUCTION**

Wyatt *et al.* (2000) found that, construction sector is suffering from the problem of poor location, expensive maintenance, a terminal failure circumstance or else under-utilisation of a building. They recommended that the construction sector must shift to one that is proactive and promotes sustainable practices and draws in their supply of

service life products to fit within society's altering environmental agenda and responses to waste management directions. Sustainability in construction sector works as a process to lower the demand for energy conservation throughout the building's life cycle and consider reuse of materials at the end of the building's life. The fundamental concept of sustainable construction is to deliver buildings and structure that emphasize long term affordability, quality and efficiency, value to customers and users, while decreasing negative environmental impacts and increasing the economic sustainability. In one early study, Blauert and Zadeq (1998) represented sustainability as an agenda that extends beyond economic viability and environmental regeneration, reaching deeply into the structure of social organisation by insisting on social equity and justice. In fact, the insight of sustainable construction is the reforms of housing and planning - a new approach to how it can be built, to bring the development that meets the economic, social and environmental needs of future generations. Sustainable Supply Chain Construction (2009), outlined that sustainable construction supply chain delivers tangible benefits to the triple bottom line (TBL) that is 1) Economic Growth 2) Environmental Sustainability and 3) Ethical/Social Performance. Likewise, considering the size and importance of the construction industry with the environmental damage caused by humankind, Murray and Cotgrave (2007) reported on the growing impetus for the industry to use the emerging "sustainability" agenda as a lens through which construction performance can be measured.

## MANAGING THE STAKEHOLDERS IN CONSTRUCTION

The term Stakeholder has become increasingly important as an integral part of a project. In general, stakeholders are groups of people whose interests are considered to be most important for the overall success of a construction project. According to Freeman (1984), "Stakeholder is any group or individual who can affect or is affected by the achievement of the firm's objectives". They have the capability to influence the project and receive both gain or lose from the success or failure of a system. According to Romenti (2010), stakeholders are considered social subjects who influence each others' perceptions, rather than isolated individuals who process information. Successful completion of construction projects is therefore dependent on meeting the expectation of stakeholders (Cleland, 1995). Figure 1 presents the steps of managing the stakeholder.

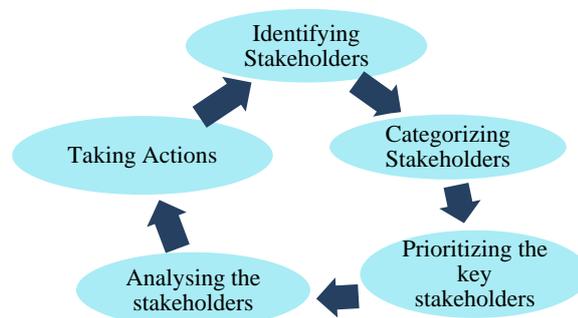


Figure 1: Steps to manage the stakeholders

Effective stakeholder management is crucial to project's success and it's really impossible to manage stakeholders if it's not known that who they are and what the motive of their involvement. Stakeholder can be classified according to their interest and power. In reality, no stakeholders are identical according to their interests and

power. Identifying stakeholders relative to their level of interest and power, provides an opportunity to bring those stakeholders within the judgment process who might have interest and authority to bring sustainability related performance and who might have interest in different sustainability related issues as well. It is necessary for organisations to identify and address the needs and interests of their various stakeholders to receive their continued concern and support to the organisation. As most of the stakeholder's demands and interests sometimes conflict with each other, organisation must set appropriate strategic goals and priorities to bring sustainability to meet these demands and interests. The necessities of stakeholder group signify the group's interests that need to be managed by organisations. Accordingly, the extent to which management recognise their responsibility to meet and satisfy the needs and demands of their stakeholders' interests have direct effects on their overall corporate sustainability (Greenwood, 2001). Relating stakeholder's interest and their influence to the target of achieving sustainability, influence the project and its outcomes is extremely useful in identifying the significant stakeholders with their issues and also help to prepare strategies to address these issues.

In order to manage the construction stakeholder's such as owner, contractor, sub contractor, construction clients, project manager and architects; stakeholder analysis can be used to identify the key people who have to be won over, according to their interest and power. However, Newcombe (2003) pointed out that different stakeholders have different levels and types of investment and interest and can be seen as multiple clients or customers for the project in which they are involved. If their interest could not be met up finally it will jeopardise the project objectives and its smooth implementation. As well as, different stakeholders show their positive or negative views and sometimes differ with one another through challenging to settle their varied viewpoints. As a stakeholder management approach assist to make partner and maintaining good communication, it helps the project participants to work together. Therefore most improvement actions were focused on increasing customer satisfaction. According to Foley (2005), the aim of organisational sustainability will be accomplished if the organisation can continue to meet the wants and expectations of the stakeholders. Lots of construction disputes and conflicts could be kept away from the organisation if a communal stakeholder management approach is adopted by the parties. Stakeholder management is a proactive approach that stops things going wrong in the first time.

## **RISK MANAGEMENT SUPPORT IN ACHIEVING SUSTAINABILITY IN CONSTRUCTION**

Investigating and managing risk in construction is important to manage the project successfully. It also helps to avoid or limit risks. Achieving sustainability through risk management via risk identification and analysis, gives risk managers the information they need to make better, more informed decisions on an array of risks, including environmental, social, economic, operational and strategic issues (AON, 2007). Risk management provides some of the philosophy and techniques that helps to juggle the conflicts around the construction supply chain.

It is clear that risk in economic sector cannot be overlooked by the construction company as it is a very important factor, upon which the success of the organisation depends. Most common causes of economic risks are sudden rise of the initial price of the raw materials, inflation, and fluctuation in foreign exchange, increases of local taxes. Construction sector must trace out the resources that create threat to the long-

term stability of the environment and also impact the life of the project. Christopher *et al.* (2010), pointed out that ineffective reverse logistics practices, under-utilised transportation, waste generation, long distances between suppliers and manufacturers are a few of the reasons which increase the negative impacts of sourcing activities on the environment and can lead to pollution and emissions of greenhouse gases; particularly CO<sub>2</sub>. Consequently, most frequent social risk in construction sector is the working conditions, safety issues, unemployment and health-related issues such as injury, sickness, epidemic illness, disability, old age and death. According to Holzmann and Jørgensen (2000), social risk is defined as challenges by stakeholders to company's business practices, due to real or perceived business impacts on broad range of issues related to human welfare. They also added that proper application of social risk management (SRM) helps to effectively and efficiently controls risk. It enhance individual and social welfare in a static setting, contribute to economic development and growth from a dynamic perspective and serves as crucial ingredients for effective and lasting poverty reduction.

Systematic risk management also helps in the decision making process. At the outset it clarifies the objectives and helps refine the project brief. It identifies the existence of any constraints that could make interruption on the project and to take appropriate decision on it. A systematic risk management approach works as a useful tool to encourages the stakeholders through identifying and quantifying the risks and also provide knowledge to control and reduce risks. Jaafari and Anderson (1995) defined risk management in three stages: risk identification, risk analysis and risk response.

Risk management provides a frame that helps out the construction industry to boost their competitiveness through minimising their business risks. It provided practical implications to the management that can be used to aware and control the emerging risky areas in construction industry. According to Yilmaz and Flouris (2010), risk management protects, creates and enhances business value through measurement and management of sustainability threats and opportunities and also added that this can help businesses effectively respond to the growing expectations of the corporate stakeholders. In order to be succeeded and to offer stakeholders value through sustained environmental, social and economic performance, an organisation must be capable of recognising and responding to risks.

## **VALUE MANAGEMENT AS A MODE OF ACHIEVING SUSTAINABILITY IN CONSTRUCTION**

Value management (VM) has the capability to assist the absorption of sustainability at the conceptual and design stage of a project. For an organisation, a sustainability agenda or model of social, environmental and economic performance creates a powerful opportunity to create enduring value for multiple stakeholders (Epstein, 2009). Committing to sustainability during VM could lead to the vision of generating good economic return whilst delivering accountability and excellence in our social and environmental performance (Abidin, 2003). VM creates the opportunities to minimise environmental, social and economic damage by recommending suitable and productive approach via choosing sustainable materials, determining excellent elements and design for construction. Phillips (1999) stated that VM process can be adapted and applied to align stakeholder views and to develop jointly acceptable strategies for moving towards agreed, long term, sustainable solutions. Thus, if the stakeholders of the construction industry take account of sustainability as the aim of their objectives the whole Value Management would also be moved towards it.

Schneider (1999) recommended the incorporation of sustainability into VM as an effort to move into more resource-efficient construction.

The outstanding characteristics of VM provide the stakeholders an excellent trade decision, increased effectiveness, better services and quality, better competitiveness, better communication and collaboration inside the organisation. Providing sustainability through value management will increase the reputation of construction by enhancing value and enable it to remain competitive in delivering its services, especially in terms of the quality of advice given and proposals produced. If the decision of the VM could be taken at early stage of the project it can create the chance to make sure that construction projects create minimal amount of environmental, economic and social damages. VM process can be adapted to align stakeholder views and to develop jointly acceptable strategies for moving towards agreed, long term, sustainable solutions (Phillips, 1999). Altogether, taking a pro-active role and creating a practical influence against the different issues related to the stakeholders, value management can make sustainable built environment and produce a balanced solution for all stakeholders.

### **INTEGRATING STAKEHOLDER, RISK AND VALUE MANAGEMENT TO GET SUSTAINABILITY**

To achieve a sustainable construction project and meeting the sustainability objectives it is really imperative to determine the stakeholder's belief, concern and interest to better deliverance of the project and also it will assist to satisfy the needs of those stakeholders. If the concepts of stakeholder management and sustainability are integrated, this could help to guide organisations towards promoting a sustainable society (Johansson, 2008). Moreover, if the stakeholder's needs and apprehensions on sustainability issues could be considered and recognised and also integrated them into the design and delivery of a project it will promote a sustainable development in construction sector. As outlined by Jenkins, (2005), it is extremely important to involve stakeholders in all phases of the project, because their previous experience and their involvement in the project significantly increase the chances of success, by building in a self-correcting feedback loop. Involving stakeholders in project bring confidence in product and will greatly relieve its approval in target audience. Sustainable supply chain management helps the stakeholders related to supply chain to work together to increase comfort and quality of life, while decreasing negative environmental impacts and increasing the economic sustainability of the project.

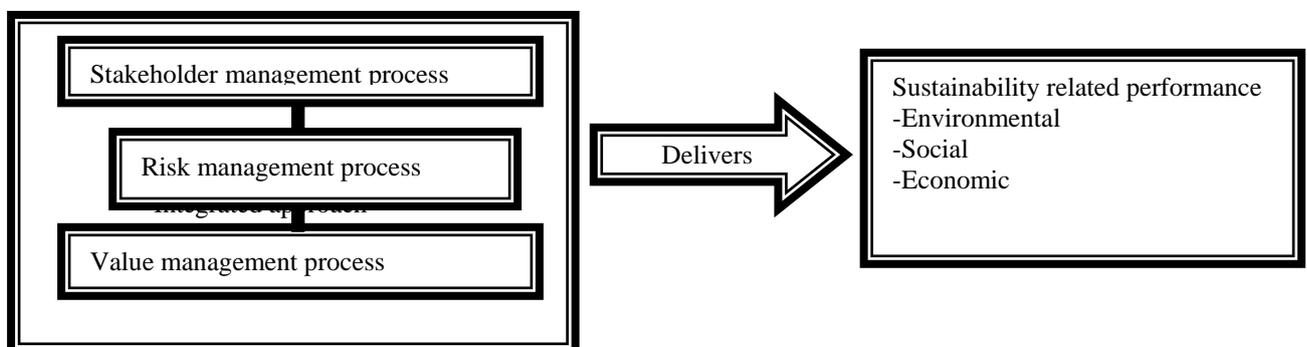


Figure 2: Relationship between integrated project management and sustainability-related performance

Taking sustainability as a way of improving construction supply chain would help the stakeholders to identify specific and cost-effective way of improving the quality &

environmental performance of buildings, in both the short and long terms. Stakeholders are the integral part of the project and most of the risks in construction arise from the different stakeholders. It is also imperative to consider their interests to achieve sustainability. So, the more stakeholders could be managed, the more likely it will help to manage its stakeholders. As the stakeholders are a major source of uncertainty, a generic project risk management process framework provides a structure for a review of approaches to analysing stakeholders and risk management issues (Ward and Chapman, 2008). As each stakeholder usually has their own interest in the project that causes different priorities, conflicts and dramatically increase the complexity of the situation (Karlsen *et al.*, 2008). So it is imperative to manage risk to manage stakeholders in construction. Risk mitigation and risk prevention are the top stakeholder risk management priorities (Orfano, 2009). The more one knows about the stakeholders and their levels of importance, the more effective and purposeful the risk management strategy will be. Figure 2 shows how the project management integrated approach and sustainability related performance are linked. With it being posited that a project management integrated approach to stakeholder management process, value management process and risk management process is a predictor of sustainability related performance. The steps below can be taken to assess stakeholder risk and value management to support sustainability in construction sector.

1. At the start of the project stakeholders has to be identified. Initially it is important to find out who do care for the project.
2. After identifying a list of problems has to be prepared that actually occurred with them in previous, facing now and could be occurred afterwards.
3. Prioritising stakeholders according to their interest, legitimacy and power.
4. After prioritising the key stakeholders have to be determined according to their significant impact on the overall project.
5. Evaluating the risk that has the most probability to occur in the future.
6. Finding out the most risky stakeholders that will make biggest impact and high probability problems on the overall project.
7. Taking proper steps to mitigate and prevent risks as stakeholders risk management approach.
8. A systematic and disciplined risk management strategy has to be proposed to the project manager.
9. Managing value choosing sustainable design and materials.
10. Achieving value by reducing the constraint of time, cost and quality.
11. Achieving the goal of sustainability.

Stakeholder management can make vital contributions to generate value all the way along the supply chain through its impact on the activities of construction supply chain (Bryson, 2003). Risk management not only helps the project itself, also brings benefits and opportunities to the affected stakeholders. Hence, a combined approach of systematic risk and stakeholder management confirm to enhance the overall value by addressing and eliminating different social, economic and environmental issues linked to the stakeholders. It identifies the opportunities to remove unnecessary costs, managing risks and project duration reduction while ensuring that quality, reliability, performance and other critical factors will be met or customer's expectations will be exceeded. VM aids to develop the construction efficiency through examination of building design and material requirements for sustainable structure. Figure 3 signifies a structural model of integrating of stakeholder, risk and value management to get sustainability. It depicts a systematic stepwise process and closed loop path from

relating sustainability objective with the organisation to attain sustainability. After taking the sustainability as an organisation target the stepwise process helps to follow a structured way of going towards the sustainability. In closed loop path some of the steps are internally related. These internal relationships between the steps indicate that taking a step as a target of the organisation assist to influence the other to achieve.

Risk management protects and permits to produce instant value from the recognition and diminution of risks to the organisation and different stakeholders that reduce the efficiency of the project. Schneider (1999) recommended the incorporation of sustainability into value methodology as an effort to move into a more resource-efficient construction. VM in construction is increasingly being used as a total practice of enhancing a project value from concept to operation (Male *et al.*, 1998a). A systematic and structured risk management aims to manage project value by removing the risks and uncertainties ensuring quality, reliability, performance and the aspects to meet or exceed the customer's expectations. If the stakeholders needs and expectation could not be properly identified and understood, it will finally create a poor value all way through the project and will be wasted of time and afford. VM offers opportunity to remove the issues at the beginning in the project where its impact will be most.

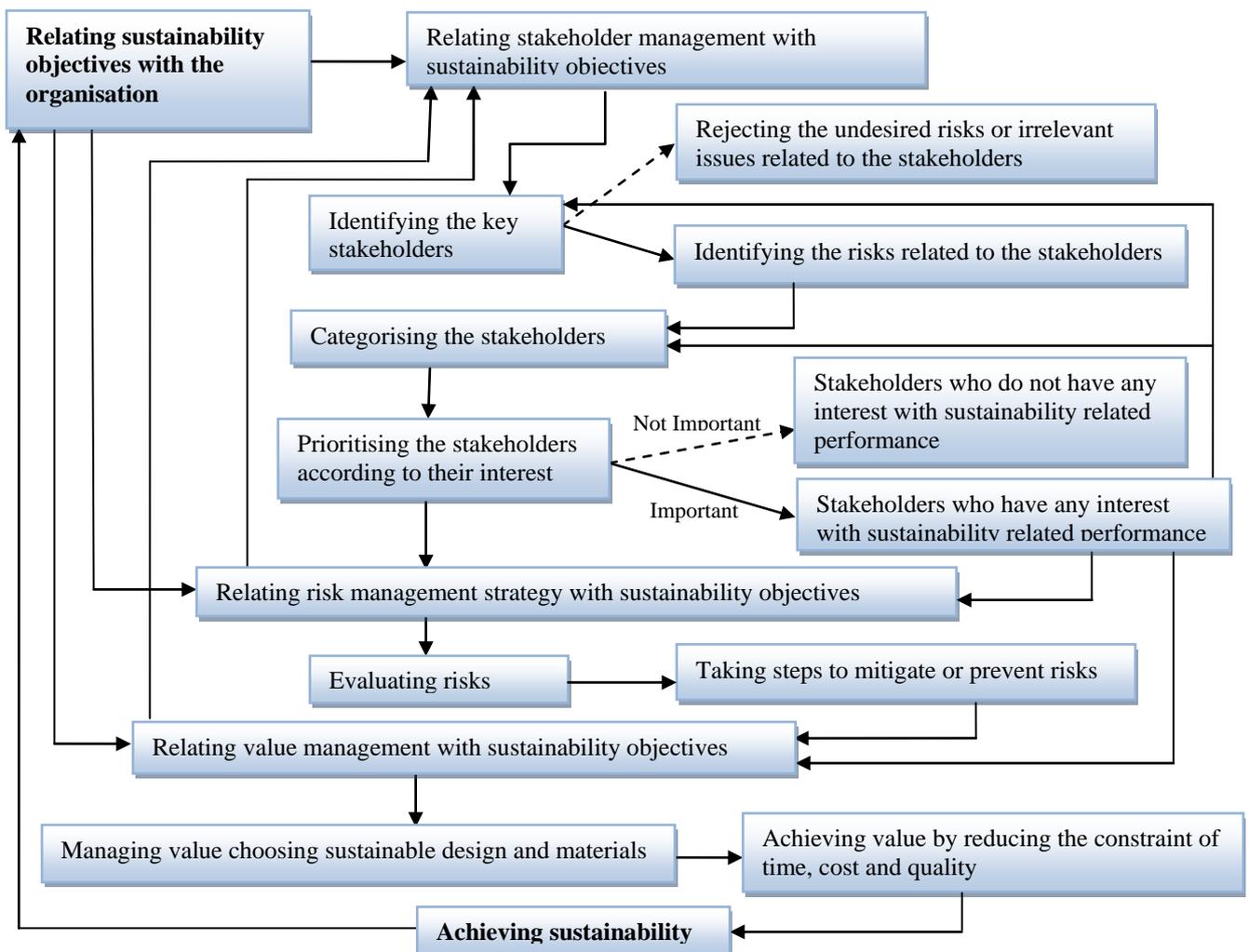


Figure 3: The structural model for integrating stakeholder, risk and value management to achieve sustainability

## CONCLUSIONS

An integrated conceptual model is presented in this paper. Sustainable supply chain management brings the stakeholders together to increase comfort and quality of life, while decreasing negative environmental impacts and increasing the economic sustainability. The integration of stakeholder, risk and value management makes the construction industry more creative and energetic to satisfy the customer requirements. To make the integrating process more effective this research could be expanded in future by focusing on validation of the framework through case studies. Particular construction projects would be selected as a case study. The outcome of such case studies will be disseminated through research publications. Moreover, conducting with the stakeholders physically will highlight the impact of their mutual interactions, reveal their common risks and uncertainties among their interactions and find out the way to erase those which have a negative impact to add value.

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