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A systematic literature review on stakeholder dynamics and their impact on creation of value
for projects

Mufaro Masarira

The University of Manchester

Amir Rahbarimanesh

Kassandra Papadopoulou

The University of Manchester

Jyoti Sinha

The University of Manchester

Literature Review on Stakeholder Dynamics and their Impact on Creation of Value for Industrial Maintenance Projects

Mufaro Masarira, Amir Rahbarimanesh, Kassandra A. Papadopoulou and Jyoti K. Sinha

The University of Manchester M13 9PL, UK, School of Engineering, Department of Mechanical, Aerospace and Civil Engineering (MACE),

Mufaro.masarira@postgrad.manchester.ac.uk ; Kassandra.papadopoulou@manchester.ac.uk ;
Amir.rahbarimanesh@manchester.ac.uk ; Jyoti.Sinha@manchester.ac.uk

Abstract

Purpose –This paper analyses the research developments in the dynamics of stakeholders, and their impact mechanisms on creation of value through the literature review. Although there is a recognition of the importance of managing stakeholder dynamics, the factors that affect stakeholder dynamics and their impact on creation of value in the context of industrial maintenance projects are still unclear. This study aims to address this gap by conducting a systematic literature review of the published works in this area.

Design/methodology/approach- Three databases, Scopus, Science Direct and Google Scholar are selected for searching articles published from 2013 to 2023. This study employs a quantitative descriptive analysis and qualitative thematic analysis to provide perspective of the data.

Findings – The findings of the review reveal that prior studies on stakeholder dynamics within project environments have discussed the dynamic nature of the stakeholder landscape and their salience attributes. In addition to the characterizations of stakeholder dynamism, the drivers of it have also been discussed, in particular, shared meaning in stakeholder engagement, the intensity and importance of relationships, risk and uncertainty, and focal stakeholder

management approaches and its effect on potential synergistic benefits. Dynamism has also been considered to be related to project contextual factors and effective engagement of stakeholders considering their concerns, needs and interests. From the characterisation and the drivers of stakeholder dynamism discussed in literature, the project risk dynamics perspective has been understudied, with focus mainly on risk posed by stakeholders, and not so much the risk posed by project events that occurs and changes over time, and how stakeholder interact in relation to potential losses or gains from such project activities.

Research implications-It is expected that the outcome of the literature review can assist in providing the foundation for the authors own empirical work of developing a novel conceptual framework for analysing stakeholder dynamics and their impact on maximising value in the context of industrial maintenance projects.

Keywords Stakeholder dynamics, Project value, Project performance

Comments on how this paper can be developed.

This developmental paper presents initial findings from a literature review of stakeholder dynamics in a project environment. It is expected that the paper can be further developed further by exploring trends in stakeholder dynamics research, including research methods, industry sectors, and emerging themes. Furthermore, refining the analysis can be possible through thematic analysis, developing propositions, and creating a novel conceptual framework with a focus on analysing stakeholder dynamics and their impact on value creation in industrial projects.

1.1 Introduction

Project management literature recognises that project stakeholders are important for project success (Eskerod, Huemann, and Savage, 2015). Previous research has provided insights into the complexity of understanding and managing stakeholders in project environments. For example, Van Thi La (2021) highlighting the dynamic nature of stakeholder thinking and behaviour, points to stakeholder interactions with events and information constantly shaping their understanding, experiences, and actions. Stakeholder position and level of importance within the project often changes, as noted by ElWakeel and Andersen (2020) and their behaviour and attitude towards a project can shift due to changing priorities, as highlighted by Postema, Groen, and Krabbendam (2012). This is further complicated by the fact that stakeholders have different interests and expectations, as per Bannerman (2008), and that the “dramatically different characteristics” (Turner, 2009) of the different project phases create a dynamic context for managing stakeholders and their behaviour as the project moves through the different phases of its lifecycle (Aaltonen and Kujala, 2010). A project manager must be skilled in managing these competing interests, maximizing the potential positive impact while minimizing any detrimental impact stakeholders can have on the project's outcome (Sutterfield et al., 2006).

Industrial maintenance projects are unique in the following characteristics, location, environmental conditions, community, and the different set of stakeholders add to every project's unique contextual conditions. While major industrial operations typically involve

complex capital equipment and maintenance projects are prime contributors towards the overall reliability and effectiveness of the plant (Wenchi et al., 2015) that underpins creation of value for organisations and its stakeholders, key project performance issues are often less related to technology and more related to uncertainty introduced by the existence of multiple parties, including their level of performance and the objectives and motivation of each party (Atkinson et al., 2006). Unlike stakeholder relationships within many finite projects limited in scope and duration, the relationships between stakeholders in industrial projects are characterized by long term interdependence over multiple projects. As a result, the parties involved have a vested interest not only in the success of a single project but also in future opportunities over the economic life of an organisation. While the mutual dependence creates a strong incentive for the parties to work together towards the successful completion of a project, the dynamic nature of the relationships, and the diverse interests and perspectives of the involved stakeholders, can pose challenges for effective management and maximizing project value creation, when considering potential risks and uncertainty that arises from the changing project environment.

Although there is a recognition of the importance of managing stakeholder dynamics (Sutterfield et al., 2006), the factors that affect stakeholder dynamics and their impact on value creation for industrial maintenance projects are still unclear. To the best of the authors knowledge, studies in stakeholder dynamics in industrial maintenance projects have received limited attention, if any, and this study aims to address this gap in the literature by conducting a systematic review to highlight the present theoretical and empirical developments in the domain of stakeholder dynamics within project environments. The PRISMA guidelines is used to examine reporting and other biases in a systematic way. It is expected that the outcome of the literature review can assist in providing the foundation for the authors own empirical work of developing a novel conceptual framework for analysing stakeholder dynamics and its impact on creation of value in industrial maintenance projects.

1.2 Literature Review Methodology

The quality of a literature review depends on several factors, including the selection of literature and the methodology used to select it. (Tranfield et al., 2003; Wong et al., 2013). and choosing the right strategy is crucial; (Snyder, 2019). Two broad types of literature review methods have been considered for this study: systematic review and traditional review. A

comparison of the two methods is presented in the Table 1. While the systematic literature review is more structured and replicable, using a strict methodology and the evaluation process is more objective, it is also designed to answer a specific research question which this study is not aiming to do. It is expected that the outcome of this literature review can assist in providing the foundation for the authors own empirical work of developing a conceptual framework for analysing stakeholder dynamics and their impact on maximising value in the context of industrial maintenance projects. The traditional literature review approach is selected as suitable for the background research for the empirical studies. However, certain elements of systematic literature review are adapted into this study to reduce bias and increase confidence that all relevant literature As pointed out by Snyder (2019), “elements from different approaches are often combined. As these approaches are quite wide, it should be noted that they might require further adaptation for a particular research project and while a research protocol is not necessarily required for traditional literature review. it is developed and adopted for guiding this search. The entire process of selection and examination of documents is conducted to minimize any potential bias in the analysis throughout the review.

Table 1: Approaches to literature reviews

Approach	Systematic	Traditional Narrative
Need	Answer a specific research question	Part of empirical studies or papers
Research protocol	Required	Not required
Search strategy	Uses a set search strategy	Uses no set search strategy
Data bases	Several predefined data bases are researched in a systematic manner	Often not a systematic review of several data bases
Research selection process	Can be replicated by another independent researcher	Can not be replicated
Bias	Minimises bias	Contains bias
Researchers	Often involves a team of researchers	Involves one researcher
Data extraction process	Data extraction processes uses a protocol. Conclusions based on a series of a set and predefined outcome measurers	Data extraction process uses researchers’ choice. Conclusions based on findings of the studies found in the search
Reason	Finding an answer	Background research for empirical studies

The literature search focused on peer-reviewed journal papers for publications in the last 10 years from 2013-2013 to date. This review included articles from Scopus, Science Direct and Google Scholar. The search was carried out between December 2022 and February 2023 using the key word search terms Stakeholder Dynamics” AND (“Project Value OR Project Performance”) The keywords were selected on their relevance of the topic of stakeholder dynamics in the context of projects. The research started out with the objective of structuring three types of lists: lists A, B and C. The initial search returned 304 articles (List A), 158 in Science Direct, 27 papers in Scopus and 119 articles in Google Scholar. The initial list was carefully reviewed and considered to contain an overly broad category of papers of which the majority did not focus on stakeholder dynamics or within the context of projects, and the search was then limited to papers that had stakeholder dynamics in their title, abstract or keywords. These were articles that would clearly address, contribute to, and discuss project stakeholder dynamics management. In this process, all papers that were duplicates were also excluded and this search returned 93 articles (List B), with 24 articles in Science Direct, 10 articles in Scopus and 59 articles in Google Scholar. The 93 articles were downloaded in PDF format and then reviewed by a single reviewer concentrating on the title, abstract and relevant parts of the full text to determine the content of the paper in terms of stakeholder dynamics and whether the paper would be included in the final list. In this process, all papers that were out of the scope of project stakeholder dynamics were excluded. The literature directly addressing the topic of stakeholder dynamics in projects proved to be scarce and rare and the number of papers was reduced significantly. A total of 25 articles (List C) were found with 7 articles in Science Direct, 9 articles in Scopus and 9 articles in Google Scholar that were considered to provide the required insight on stakeholder dynamics and its dimensions and to be relevant for analysis. This final list with 25 articles was then further examined using both descriptive and thematic analyses. The PRISMA flow diagram shown in Figure 1.1 depicts the search strategy applied.

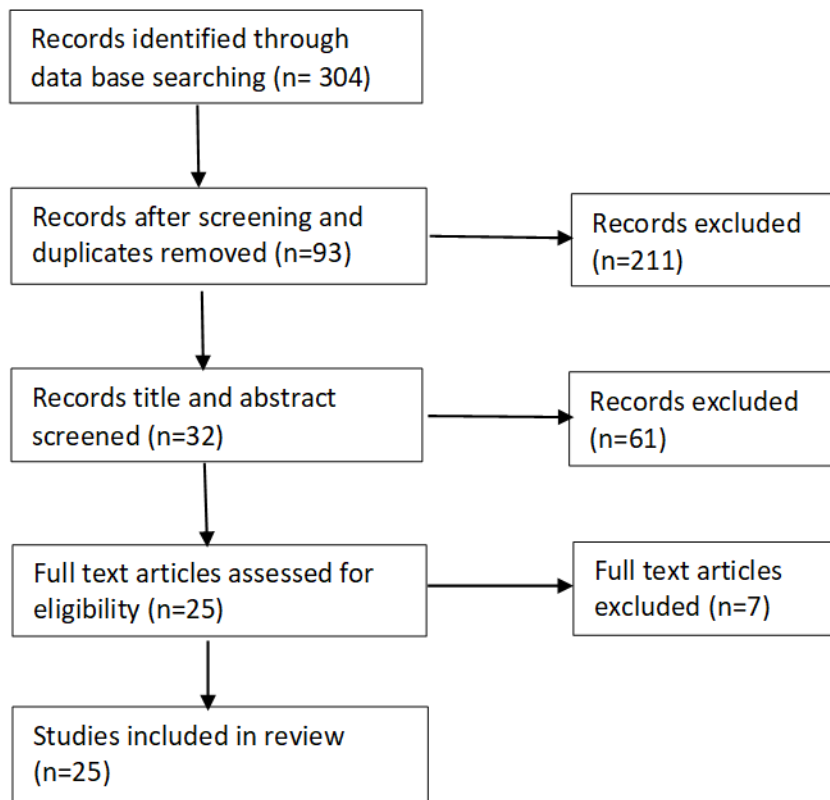


Figure 1.1 PRISMA flow diagram for search strategy

1.3 Results of descriptive analysis

For the descriptive analyses, categories that defined the articles were selected by, year of publication, methodology and industry sector. Figure 1.2 shows the distribution of articles by years of publication and although the concept of stakeholder dynamics has been around for some time, the review has shown that the number of published articles is still very limited.

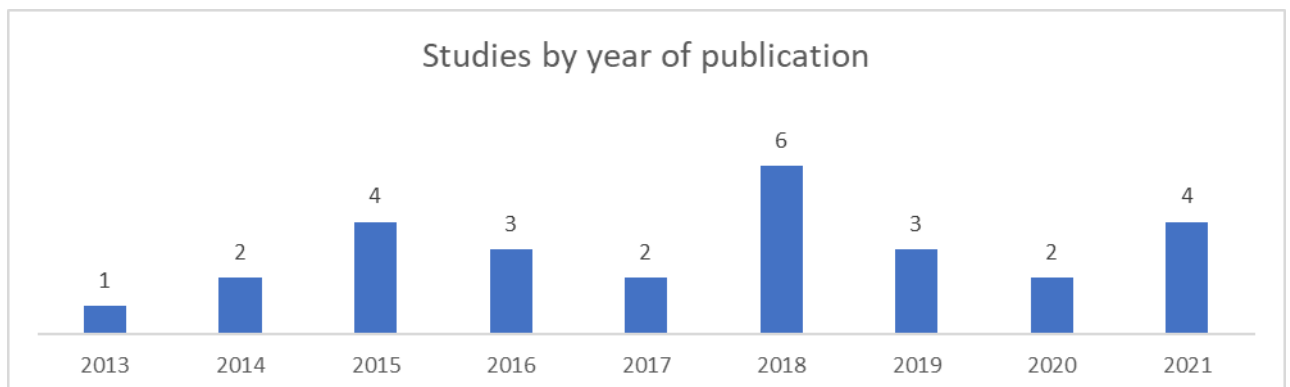


Figure 1.2. Number of studies by year of publication.

Figure 1.3 shows the industry sectors used in the studies. Among the different sectors used, 12 were construction and infrastructure sector, followed by 3 being information and communications technology, 2 nuclear and pulp industries and then 7 other (education sector and security sector.). It is noted that none of the studies were on industrial maintenance projects.

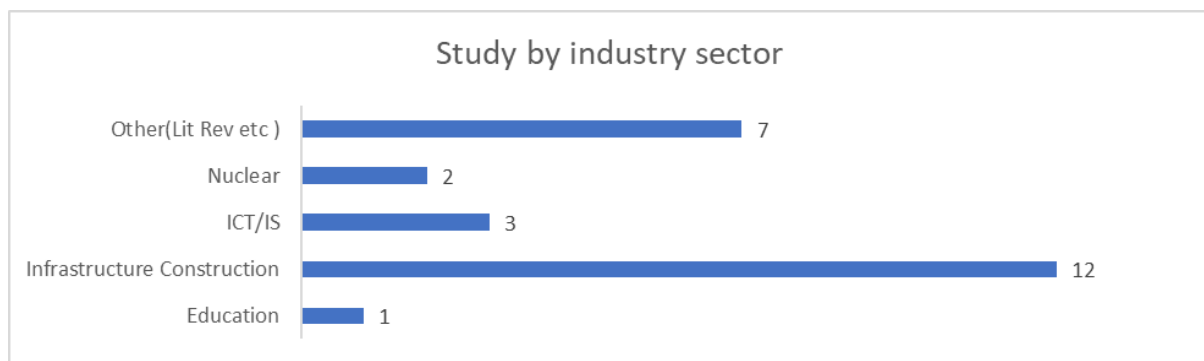


Figure 1.3 Number of studies by industry sector.

1.4 Results of thematic analysis

The content of the papers was analysed to identify how the essential elements and dimensions of stakeholder dynamics in a project environment were described. Based on this work it was possible to classify the studies into seven categories. Figure 1.5 shows the classification by theme of which 2 related to stakeholder roles and responsibilities, followed by 3 on stakeholder needs and interests, 8 on stakeholder risks, 4 on stakeholder attributes, 5 on stakeholder interactions and relationships, 3 on stakeholder engagement .

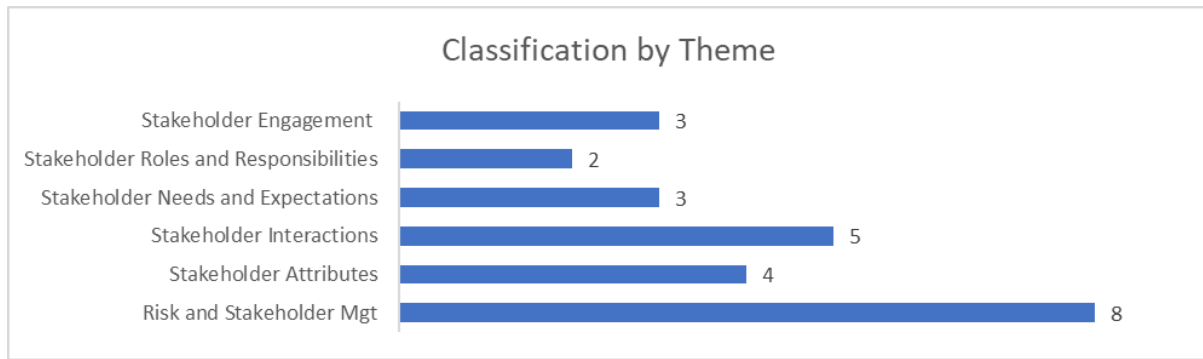


Figure 1.4 Number of studies classified by stakeholder theme.

The findings of the study point to dynamic nature of the stakeholder landscape, stakeholder roles and responsibilities, needs and interests, risks and uncertainties, and relationships that can enable understanding of the context and structures that underlie different patterns of stakeholder behaviour and project events. Table 2.1 summarizes the findings of the studies by stakeholder theme.

1.5 Discussion of preliminary findings

The findings of systematic review reveal that prior studies on stakeholder dynamics within project environments have tended to focus on the dynamic nature of the stakeholder landscape, stakeholder roles and responsibilities, needs and interests, attributes, risks and uncertainties, and interactions and relationships. Aaltonen *et al.*, (2015) conceptualized stakeholder dynamism as the changes in stakeholders' attributes or position towards the project. Missonier and Loufrani-Fedida (2014) show, through empirical case studies, how coalitions can be unstable during a project due to changing roles and responsibility and how stakeholder relationship dynamics affect project execution, while Al-ghaith, Brown and Worthington (2013) apply the appreciative systems concepts in showing that stakeholder interaction with changing project events can lead to the gain or loss of saliency and their influence on the project's outcome. Delaine, Cardoso, and Walther (2019) caution firm centered and program focused initiatives as limiting the role of other stakeholders as well as potential synergistic benefits for all stakeholders. and De Schepper *et al.*, (2014) provide an in-depth account of

how a Private -Public Partnership (PPP) setup significantly reinforces stakeholder dynamics, proposing a dual stakeholder management approach to ensure a clear and transparent allocation of responsibilities as projects move between major phases. However, for industrial maintenance projects, stakeholder roles and responsibilities are typically clearly defined from inception of the industrial operation, based on industry regulatory requirements, long term service agreements or social compacts between parties and what might change as projects move between phases is the stakeholder's risk exposure. While South, Levitt, and Dewulf (2015) highlight complicated governance arrangements of PPPs as being at the heart of unpredictable project outcomes, and propose adaptive governance structures that can address uncertainties and risks for different stakeholders enabling supportive actions that lead to more predictable project outcomes, it is the potential losses or gains due the project activities present that can influence stakeholder responses depending on their risk appetite and the benefits and costs involved.

The project lifecycle stage also has a significant influence on the dynamism of the stakeholder landscape as stakeholders perceptions of status , salience , position , definition of success and framing of performance varies over time (Mulholland *et al.*, 2020).The influence of engagement on the dynamism of stakeholder landscape and its impact on project success has also been discussed , particularly regular stakeholder engagement based on key project issues, stakeholder satisfaction and linking it to project success (Erkul, Yitman and Celik (2019) , better anticipation of stakeholder challenges and opportunities Seki,Sutrisna, and Olanipekun (2020) and by considering their diverse interests, perspectives power and influence positions (Eden and Ackermann, 2021).In addition to these characterizations of stakeholder dynamism, the drivers of it have also been discussed, in particular, shared meaning in stakeholder engagement (Lehtimaki and Kujala 2015), the intensity and importance of relationships (Blanco-Mesa,Gil-Lafuente and Merigo 2015), focal projects' stakeholder management strategies (Aaltonen ,2016) and approaches (Delaine-Cardoso and Walker, 2019). and their effect on potential synergistic benefits. Projects' contextual factors have also been identified as salient drivers of stakeholder dynamism. El Wakeel and Andersen (2020) point out that stakeholder dynamics are contextual and vary across different stakeholder groups, industries, and even projects within the same industry. Missonier and Loufrani-Fedida (2014) show through a case study how stakeholder's influence strategies may change from more passive strategies to intense influence strategies as new stakeholder coalitions are born. Dynamism has also be considered to be related to effective engagement of stakeholders considering their

concerns, needs and interests and strategies (Seki, Sutrisna and Olanipekum 2021). The project lifecycle stage also has a significant influence on the dynamism of the stakeholder landscape as stakeholders' perceptions of status, salience, position, definition of success and framing of performance varies over time (Mulholland et al., 2020). Aaltonen and Kujala (2016) describe the unpredictable interactions between stakeholders, the uncertainty related to stakeholders' requirements and the lack of information that managers face with regard to stakeholders' attributes, behaviours and interactions as some of the key challenges with regard to project stakeholder management. Furthermore, South, Levitt, and Dewulf (2015) propose an adaptive governance structure that can address uncertainties and risks for different stakeholders enabling supportive actions that lead to more predictable project outcomes.

In the case of industrial maintenance projects, complex capital equipment design and operation, are at the centre of creation of value for the owner and its stakeholders and high consequence risk can be introduced by multiple parties' levels of performance, objectives and motivations (Atkinson *et al.*, 2006) which can lead to dysfunctional responses from other stakeholders depending on their risk appetite and on the benefits and costs involved. From the characterisation and the drivers of stakeholder dynamism discussed in literature, the risk perspective has been understudied. Phase two of literature review attempts to analyse the research developments in the dynamic connection between risk, stakeholder management and project performance.

The findings of the study further reveal that prior studies on stakeholder dynamics within project environments have focused on stakeholder related risks with Aladag and Isik (2018) in the case of Public Private Partnerships (PPPs) mega-engineering projects, identifying three prominent risks as, improper partner selection, inadequate relationships with employer, and incompetent contractor selection as well as other risks of incompetent supplier selection, lack of cooperation and communication between stakeholders, project objective differences between stakeholders, improper risk-allocation decisions, lack of commitment between stakeholders, knowledge differences between stakeholders, inadequate relationships with partners and end users. Xia *et al.*, (2018), identify risks posed by stakeholders and project network risks resulting from interface work among diverse stakeholders as well as management of differences among stakeholders in terms of risk perception and risk-based decisions. They further argue that, adopting a broad view of stakeholders by including both threats and opportunities into stakeholder analysis, and a holistic negative and positive view on risk may also be potentially beneficial for integrated management of risks and stakeholders.

Furthermore, Xia, Guo and Lin (2020), focusing on stakeholder attributes for risk mitigation in construction project contractors, show that higher contractor-perceived contractor salience and a more supportive contractor project position are both related to lower criticality of contractor-related risks. Applying the reciprocity principle, they argue that when a client perceives that a contractor is supportive of a project, the client is likely to engage in reciprocal positive behaviour towards the contractor, and in turn, the contractor is likely to pay back the client by mitigating risks to the client's project objectives.

Khallaf, Naderpajouh, and Hastak (2018) model the organizational dynamics in PPPs, associated with the interactional risks using game theory to observe a range of potential outcomes. while Valentin, Naderpajouh, and Abraham (2018) propose integration of a wide range of stakeholders in infrastructure risk assessment planning using social network analysis.

Willumsen *et al.*, (2019) point out that project risk management activities such as risk identification might create value, yet their ability to do so depends on the perceptions of the stakeholders and the project context and that what a stakeholder perceives to be important, such as the prospective outcomes of a project, influences the perceived value of a given project risk management practice and that the actions that stakeholder takes will be determined by what they are trying to protect.

1.6 Concluding remarks.

Although the concept of stakeholder dynamics has been around for some time, the review has shown that the number of published articles is still very limited and while the previous works have focused on various projects, industrial maintenance projects have scarcely been considered. The findings of the synthesis of study point to dynamic nature of stakeholder landscape, roles and responsibilities, needs, interests and relationships, allowing understanding of the context and structures that underlie dynamic stakeholder interactions. In addition to these characterizations of stakeholder dynamism, the drivers of it have also been discussed, in particular, shared meaning in stakeholder engagement, the intensity and importance of relationships, risk and uncertainty, focal stakeholder management approaches and their effects on potential synergistic benefits.

From the characterisation and the drivers of stakeholder dynamism discussed in literature, the project risk perspective has been understudied, focusing mainly on risk posed by stakeholders, and not so much on risk posed by project events that occurs and changes over time, and how stakeholder interacts in relation to the potential losses or gains from the project activities. Based on insight gained through active involvement in numerous industrial maintenance projects over an extended period, the dynamic nature of stakeholder relationships and the diverse interests and perspectives of involved stakeholders can pose challenges for effective management and maximizing project value creation, especially when considering high-consequence risk and uncertainty that may arise from the changing project environment.

This literature review points out three main implications and necessities. The first implication is that stakeholder-related risk occurs and changes over time, thereby presenting dynamic risk. Therefore, integrating stakeholder management and dynamic risk management perspective allows for better understanding of stakeholder dynamics. The second implication is that the connection between stakeholder management and risk management considers not only risk posed by stakeholders, but also risk posed by project events and which stakeholders can respond to. The third implication is that of risk and its impact on project performance. As risk arises from uncertainty and the potential effects of uncertainty can be both negative and positive, adopting a holistic negative and positive view on risk by including both threats and opportunities into stakeholder dynamic analysis, can be potentially beneficial to integrated management of risks and stakeholders.

It is expected that continuing with literature review will assist guiding the research and that the outcome of the literature review will assist in providing the foundation for the authors empirical work of developing propositions and novel conceptual framework for analysing stakeholder dynamics and its impact on creation of value for projects.

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