



Can project sustainability management impact project success? An empirical study applying a contingent approach

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Received 29 February 2016; received in revised form 22 February 2017; accepted 23 February 2017
Available online xxxx

Abstract

This study aims to propose and to validate a research model on project sustainability management. Moreover, it investigates the relation between project sustainability management and project success. The methodological approach is a survey-based research, using structural equation modelling to validate the research model. The hypotheses were tested based on a field study involving 222 projects distributed among eight industries and two countries. The results show a low degree of commitment to social and environment aspects of the surveyed projects. The structural model proposed shows a significant and positive relation between project sustainability management and project success and in reducing the social and environmental negative impact.

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Keywords: Sustainability; Project management; Project sustainability management; Project success; Project performance; Project complexity; Contingent approach; Triple bottom line

1. Executive summary

Despite the importance of sustainability, surprisingly little explicit guidance exists on including this subject in project management literature, which motivated this special issue.

This paper help to bridge this knowledge gap by proposing and validating a new research model for project sustainability management. This model refers to product and project perspectives. The product perspective is deployed in two building blocks: design for environment, and environmental technologies. The project perspective encompasses three building blocks: the project management process & knowledge areas focusing on sustainability, the green procurement and partnership, and social responsibility in the project. To develop and validate the model, we surveyed 222 projects throughout a wide range of industrial sectors, applying structural equation modelling.

Beyond that, the research results show that the sustainable perspective on PM can help to improve project success and reduce negative social and environmental impact and so companies should pay more attention in introducing sustainability in project management practices.

Our findings also show that most studied companies are facing substantial challenges to integrating sustainability into project management.

2. Introduction

The bridge between project management and sustainability is still being built. This subject has been receiving more attention from professionals and scholars (Silvius et al., 2013); however, it is still a challenge in the project management (PM) field (Martens and Carvalho, 2016a, in press).

Brones et al. (2014) go further and suggest that intersection between Ecodesign and project management is a “missing link for the integration of sustainability”. Taking into consideration the triple bottom line (TBL) – economic, environmental and social – perspectives of sustainability (Elkington, 1998) the lack

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of academic literature is still stronger in the PM field. Some authors point out this gap in the literature and in practice (Carvalho and Rabechini, 2011; Marcelino-Sádaba et al., 2015; Singh et al., 2012; Thomson et al., 2011). It can be incorporated into organizations by developing new projects, driven by sustainability principles (Labuschagne et al., 2005).

To construct the bridge between sustainability and project management it is necessary to go beyond an axiological mind set on sustainability (Bolis et al., 2014), demanding also processes, tools and techniques related to the TBL in a project perspective that can be applied and, positively impact project success (Carvalho and Rabechini, 2011).

In the project management field, some initiatives have been underway, such as Fernandez-Sanchez and Rodriguez-Lopez, 2010; Carvalho and Rabechini, 2011; Martens and Carvalho, 2016a, in press; Marcelino-Sádaba et al., 2015. However, in the widespread Bodies of Knowledge (BoK) as the Project Management Body of Knowledge (PMBOK) (PMI, 2013), sustainability is poorly addressed (Brones et al., 2014). Lastly, a major gap remains regarding the social dimension of sustainability (Morioka and Carvalho, 2015), considering issues related to labour practices for employees and contractors, and to the engagement of all external and internal stakeholders (Labuschagne et al., 2005; Singh et al., 2012).

According to Marcelino-Sádaba et al. (2015), there are many pending questions concerning sustainability and project management. Particularly the relation between project sustainability management (PSM) and success still lack empirical evaluation. The attitude towards sustainability can range from defensive to proactive, aligned with the stakeholders' perspective (Schaltegger et al., 2012). However, we intend to analyse the sustainability not only as a requirement but also as a source of competitive advantage, i.e., contributing to project success (Carvalho and Rabechini, 2011).

Therefore, this study aims to contribute to bridging this research gap by proposing and validating a research model for project sustainability management (PSM). It also aims to relate PSM and project success.

In this context, given this ongoing discussion in the literature and the lack of in-depth quantitative studies, we formulate the following research questions: RQ1 — How could the concepts of sustainability be integrated into project management? and RQ2 — what is the relation between project sustainability management and project success?

The methodological approach is a survey-based research, using structural equation modelling to validate the research model.

This article is organized in six sections, as follows. Section 2 provides the background on project sustainability management, and Section 3 also presents the research model and hypotheses. The research design is presented in Section 4, followed by the results, in Section 5. Section 6 presents the research conclusions.

3. Literature review and research model

Recent literature reviews on sustainability in the project management field (Marcelino-Sádaba et al., 2015; Martens and

Carvalho, 2017; Morioka and Carvalho, 2015; Silvius and Schipper, 2014) pointed out the lack of literature bridging sustainability and PM literature. Brones et al. (2014) argue that the main project management frameworks, such as PMBoK, ICB, ISO 21500:2012 and Prince2, poorly considered environmental sustainability. Silvius and Schipper (2014) corroborate by concluding that PM standards fail to address sustainability.

Integrating sustainability and project management can stretch the system boundaries of PM (Silvius and Schipper, 2014), but there are many pending questions and the integration is difficult (Marcelino-Sádaba et al., 2015).

Sustainability in the PM area can be viewed through different lenses. Carvalho and Rabechini (2011) suggest that there is both an internal perspective and an external perspective of sustainability in PM. The internal perspective is related to the PM process and PM areas, along the project life cycle. The external perspective is related to the sustainable development in a broad perspective, concerning the project social and environmental impacts.

Some researchers have been particularly interested in the link between PM and Ecodesign or, the environmental perspective of sustainability (Johansson and Magnusson, 2006; Knight and Jenkins, 2009; Ny et al., 2008; Tingström and Karlsson, 2006; Tingström et al., 2006; Vezzoli and Sciamia, 2006; Brones et al., 2014, 2017). Others, particularly in the public sector and, in the construction industry, are concerning with the social dimension of sustainability (Campbell et al., 2008; Fellows and Liu, 2008; Leurs et al., 2008; Almansi and Tammarazio, 2008; Kuper et al., 2009; Barry et al., 2009; Raven et al., 2009; Madden and Morawski, 2011). However, in the context of Triple Bottom Line (TBL), considering environmental, social and economic aspects, less study has been developed (Pulaski and Horman, 2005; Fernandez-Sanchez and Rodriguez-Lopez, 2010; Korkmaz et al., 2010; Corder et al., 2010; Carvalho and Rabechini, 2011; Thomson et al., 2011; Laws and Loeber, 2011; Martens and Carvalho, 2016a, in press; Morioka and Carvalho, 2015; Marcelino-Sádaba et al., 2015).

Marcelino-Sádaba et al. (2015) propose a four-dimensional framework including sustainability in the triple bottom line perspective (economic, social, and environmental) in project management. For Martens and Carvalho (2016a, in press), the key issues involve the strategic but also tactic perspectives in four factors: sustainable innovation business model, stakeholder management, economic and competitive advantage, and environmental policies and resources saving.

Integrating sustainable product and project lifecycle management is a starting point for aligning project management and sustainable development principles (Labuschagne and Brent, 2005, 2008). In the PM context, the term sustainability can refer to product and/or project, as in other PM knowledge areas, such as scope and quality (Carvalho and Rabechini, 2011). The project scope management, for instance, can refer to “Product scope. The features and functions that characterize a product, service, or result; and/or Project scope. The work performed to deliver a product, service, or result with the specified features and functions. The term project scope is sometimes viewed as including product scope.” (PMI, 2013, p.103). In analogy in

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