Digitalization as a Game Changer in Project Stakeholder Management

Final Report
Thesis Grant

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Executive Summary

As project management comprises more than just managing scope, time, and budget, appropriately identifying, managing, and involving stakeholders has played an increasingly important role in projects over the last several years. Stakeholders, as those affecting or being affected by a project, can influence project outcomes and have a major impact on defining project success. New technological trends, such as virtual and augmented reality and digital gamification stemming from digitalization, are means to facilitate stakeholder engagement, enabling value creation for all involved parties. Representing project deliverables in the digital world not only enables higher acceptance due to involvement and functions as a medium to discuss ideas and expectations, but also uncaps the multiple dimensions of complexity.

This research work aims to discuss contemporary project stakeholder engagement and examines how digitalization shapes and affects the field. Therefore, the main research question stated in the thesis proposal is:

- How does digitalization affect project stakeholder management in infrastructure projects?

In this thesis comprising three articles, a qualitative research approach was adopted. The first article conceptualizes the phenomenon of digitalization of project stakeholder engagement, exemplifying digital gamification in a large infrastructure project. The second article discusses project stakeholder discourse in the *International Journal of Project Management* with a systematic literature review (SLR), starting with the roots of this rather mature research topic, alongside the evolution of the discourse and future research streams. The third article examines how boundary work can enhance value creation regarding project stakeholder engagement based on an in-depth case study of the renewal of a Finnish hospital.

Introduction and Research Question

Although digitalization has become more relevant in infrastructure projects for many years now (Succar, 2009), forcing cooperation between project partners (Jaradat et al., 2013; Lobo & Whyte, 2017; Whyte & Hartmann, 2017) and determining how digitalization influences project stakeholder management are understood to only a limited degree.

In practice, we find that digitalization can become a game changer in project stakeholder management, as emerging digital technologies allow for new ways of stakeholder engagement. Digital technologies, such as augmented reality (Gheisari & Irizarry, 2016; Meža et al., 2015) and digital gamification (Goulding et al., 2014; Rüppel & Schatz, 2011; Yan et al., 2011), are bringing potential to project stakeholder engagement (Wang et al., 2014).

Since influential work in Freeman's stakeholder theory (1984), the concept has found its way into project stakeholder theory (Cleland, 1986) and has been cultivated into a mature research topic. Recent approaches differentiate between managing *for* stakeholders and managing *of* stakeholders (Freeman, 2010; Freeman et al., 2007), representing a continuum with different perceptions, underlying values, and ranges of stakeholders to be considered (Huemann et al., 2016). Managing for stakeholders reflects the stakeholder as a source of value creation, taking a more long-term and sustainable view, coming with the challenge of including varying stakeholders and adding complexity as such.

Nevertheless, how digital infrastructure influences and interplays with project stakeholder engagement remains partially explored, and a theoretical understanding, theoretical linking of stakeholder theory to digitalization, and digital boundary work regarding infrastructure projects are all missing.

Therefore, the main research question stated in the thesis proposal is:

- **How does digitalization affect project stakeholder management in infrastructure projects?**

In this thesis, a qualitative research approach was adopted. The methodology included a systematic literature review (SLR) and an in-depth case study with qualitative interviews and data collection. The research question stated in the proposal therefore addressed this gap to identify technologies, such as augmented reality and gamification, which can be applied in practice to manage and engage stakeholders and identify and analyze practical cases that use digital infrastructure for project stakeholder engagement. This thesis discusses the evolvement of project stakeholder discourse, explains the emerging themes in project stakeholder research, indicates the potentials of integrating different stakeholder groups into these projects, contributes to the further development of project stakeholder theory, and reveals the potentials and challenges of digitalization for project stakeholder engagement.

Within the thesis, the three main contributions address the research question subsequently, as compiled below:

- **Article 1**—Kier and Huemann: "Digitalization as a Game Changer in Project Stakeholder Management"
    - The research question addressed in this article is: How does digital infrastructure change project stakeholder management?

- **Article 2**—Kier, Aaltonen, and Huemann: "The Evolution, Status, and Research Agenda for the Future of Research in Project Stakeholder Management"
    - The research questions addressed in this article:
        - What themes have emerged in project stakeholder research published in the *International Journal of Project Management* (IJPM)?
        - How has project stakeholder engagement evolved in IJPM?
        - What future themes can we identify?

- **Article 3**—Kier, Aaltonen, and Huemann: "Project Stakeholder Engagement From the Perspective of Boundary Spanning: The Case of Reinventing a Finnish Hospital"
    - Research question addressed in this article: How do actors organize stakeholder engagement through digital and analog objects and practices?

Methodology

The methodology in the thesis and within the three articles was based on a qualitative research approach (Creswell, 2017; Yin, 2011), including a systematic literature review (vom Brocke & Lippe, 2015) and qualitative, in-depth interviews in a single case study design (Yin, 2009). The following chapter will overview the general process and methodology.

Systematic Literature Review

For the SLR, a step-by-step approach was followed (Denyer & Tranfield, 2009; Harden & Thomas, 2010), comprising the following:

1. Defining the literature review scope and developing the review protocol, including deciding the objectives and scope of the research and defining keywords, databases, publication dates, and selection criteria based on the research questions. This was done between the researchers of this contribution.
2. Searching the database(s).
3. Screening, documenting, and selecting articles.
4. Assessing, reviewing, and coding by all researchers based on the title and abstracts.
5. Analyzing, reviewing, full article reading, snowballing, and synthesis.
6. Documenting and reporting.

Case Study

For the case study, we analyzed the stakeholder engagement of future end users regarding a renewal project of a Finnish hospital. The in-depth case study enables a rich analysis of stakeholder engagement in a case with digital and analog boundary objects and boundary spanners, therefore facilitating the understanding of complex organizational relationships. Case studies are also considered suitable for theory elaboration purposes (Ketokivi & Choi, 2014) as they are particularly useful for providing an understanding of the interaction of a phenomenon and its context (Meredith, 1998). The case was selected via theoretical sampling logic (Eisenhardt & Graebner, 2007).

We conducted interviews with several project team members. The interviews were recorded, transcribed, and imported into NVivo, which facilitated the analysis.

Figure 1: Example of a virtual session. (Source: https://ukiark.fi/en/valo-method-supports -hospital-design/)

We also observed two virtual sessions and discussions afterward, along with collecting additional and secondary data from the project, such as project documentation and documents on workshop sessions, project presentation slides, and project news articles and releases. The data analysis started by familiarizing with the data, which included reading the transcripts, observation notes, and other documentation used various times by the researchers. The interview data, observation notes, and documents were coded using NVivo in several rounds and were analyzed by the researchers individually and collectively in several workshop sessions that were conducted to interpret the data.

Outcomes and Deliverables

Conference Papers and Presentations

There are several contributions, as listed in Table 1.

Table 1. Conference Papers and Presentations

MODE OF DISSEMINATION	DATE	INFORMATION
IRNOP Conference Presentation	December 2018	Christof Kier gave a presentation on digitalization as a game changer in project stakeholder management at the International Research Network on Organizing by Projects in Melbourne, Australia.
EURAM Conference Presentation	June 2020	Christof Kier gave a presentation called "Project Stakeholder Engagement From the Perspective of Boundary Spanning: The Case of Reinventing a Finnish Hospital" at the 20th Annual Conference of the European Academy of Management.
PMI South Africa Chapter Virtual Event Presentation	July 2020	Christof Kier and Martina Huemann gave a presentation on virtual practices as a game changer in project stakeholder engagement, as a special virtual presentation to the PMI South Africa Chapter.
EURAM Conference Presentation	June 2021	Christof Kier gave a presentation called "Project Stakeholder Discourse in the *International Journal of Project Management*: Towards Engagement" at the 21st annual conference of the European Academy of Management.
PMI Virtual Event Presentation	November 2021	A webinar was held for PMI on 4 November, with the title: "Virtual Practices as a Game Changer in Project Stakeholder Management."

Main Outcomes

The aim of the research question (*How does digitalization affect project stakeholder management in infrastructure projects?*) was within the main contributions, which are summarized in the main outcome section as three main articles, as listed in Table 2.

Table 2. Main Outcomes

MAIN OUTCOMES
Article 1—Kier and Huemann: "Digitalization as a Game Changer in Project Stakeholder Management"   ▪ Accepted paper at International Research Network on Organizing by Projects [IRNOP] 2018   ***Summary***: This article aimed to conceptualize the phenomenon of digitalization in project management, discussing augmented reality, virtual reality, and gamification with digital infrastructure in construction projects by discussing the concepts exploring project stakeholder discourse. We illustrated the case of a Belgian infrastructure project, where the digital models of the design of a complex ring road were combined with a game engine to present the future road to multiple stakeholders online.   **Contribution:** The first article examines digital infrastructure in construction projects and shows examples of sharing virtual project artifacts in an early design stage with stakeholders, therefore enhancing stakeholder engagement in a complex infrastructure project. We see that when digital infrastructure and integrated forms of procurement, such as alliancing, integrated project delivery, or public-private partnerships, are combined, the chances of successful project delivery rises. The integration of stakeholders via the managing for stakeholders strategy moves the external stakeholder closer to becoming an internal stakeholder, as the stakeholder becomes a formal member of the project organization. The more integration, the more the external stakeholder becomes an internal stakeholder and the more collaborative, less mechanistic, or managerial the relationship gets.
Article 2—Kier, Aaltonen, and Huemann: "The Evolution, Status, and Research Agenda for the Future of Research in Project Stakeholder Management"   ▪ Accepted paper at the European Academy of Management (EURAM) 2021   ▪ Ready for submission journal, in final review   ***Summary***: Within this article, we trace and discuss the evolution of project stakeholder discourse with an SLR in a leading project management publication, the *International Journal of Project Management* (IJPM), and discuss future avenues for research in project stakeholder engagement. We therefore contribute to a theoretical foundation of project stakeholder engagement.   ***Contribution***: By analyzing the most important works within IJPM, the evolution of project stakeholder discourse is described using the analogy of a tree, stemming from the roots in management literature to identify stakeholder discourse streams as branches like project success, project governance, stakeholder analysis, stakeholder behavior, and stakeholder engagement such as benefits management and value cocreation in recent history. Surprisingly, we identified early papers that addressed the latter concept of stakeholder engagement and value orientation, therefore showing an early branch of stakeholder engagement, while recent articles also discuss value cocreation at the infrastructure front end. Project stakeholder engagement resembles a shift in project management from a more control-based paradigm to a value focus, and this shift is supported by claims that projects need to be more sustainable and contribute to society in general. Recent discussions in the project stakeholder discourse go into project leadership or link the project stakeholder discourse to other research streams like project marketing. The article, therefore, contributes to setting the ground and establishing future avenues of project stakeholder discourse.

(continued)

Table 2. Main Outcomes *(continued)*

MAIN OUTCOMES

Article 3—Kier, Aaltonen, and Huemann: "Project Stakeholder Engagement From the Perspective of Boundary Spanning: The Case of Reinventing a Finnish Hospital"

- Accepted paper and presentation at European Academy of Management (EURAM) 2020
- Planned submission to journal by Q1 2022

Summary: This article focuses on showing how actors organize stakeholder engagement through digital and analog objects and practices. The article is based on an in-depth single case study of a renewal of a Finnish hospital, taking the research lens of boundary work and identifying digital and analog boundary objects, such as virtual and analog representations of the future hospital; boundary spanners (actors) like service designers, nurses, and doctors; and boundary-spanning practices, such as iterative and cocreational processes. The article therefore combines actors, objects, and practices into an integrated model, adding one more dimension—the underlying mindset.

Contribution: The third article contributes by engaging in the interplay of digital and analog objects, actors, and practices with the underlying mindset to create value in a project stakeholder engagement setting. The value orientation was a high means in the case and showed a novel perspective in that context. Another contribution is bridging boundary literature and project stakeholder engagement, which have been, to date, also relatively separate entities. Understanding how project stakeholder engagement can be facilitated by multiple boundary spanners, the mechanism of knowledge transfer using digital and analog boundary objects, and combining this into an integrated model for project stakeholder engagement—comprising objects, actors, practices, and the underlying mindset—is the major contribution of this article.

Conclusion

This thesis discusses contemporary project stakeholder engagement, including boundary discourse and digitalization.

The first article conceptualizes digitalization in a project stakeholder engagement context, thereby contributing to stakeholder theory and digital infrastructure. The phenomenon of digitalization is not yet strongly researched and linked to project stakeholder engagement. The use of digital infrastructure for stakeholder engagement highly resembles the managing *for* stakeholders approach, seeing the stakeholder as a contributor to the project outcome, cocreating the value together with the project, and still adding some complexity to the project as well.

The second article contributes to setting the ground and identifying future research streams of project stakeholder discourse. We found early papers that already address value orientation and engagement, but have not yet phrased this as stakeholder engagement. Since 2007, the term stakeholder engagement has been increasingly used in IJPM, while the underlying value orientation of *engaging* is not always explicitly reflected in these articles. In general, with stakeholder engagement we can see a shift in project management from a control-based paradigm to a value focus, bringing more sustainable approaches to this discourse. Future streams also link project stakeholder discourse to other discourses, such as project marketing and leadership.

The third article contributes to the boundary-spanning discourse by integrating boundary objects, boundary spanners, and boundary spanning with the underlying mindset, while also enriching the project stakeholder engagement literature and stakeholder theory with this holistic view. As this case takes place virtually and nonvirtually, the project outcome is not yet visible, but can be made visible with digital representation. We studied the combination of the actors (boundary spanners) and the digital representation (boundary object) engaging in a value-cocreation setting (boundary spanning) in the context of project stakeholder engagement. Taking the lens of boundary theory, we saw that the technology supports the research, while offering a neutral and unbiased platform and arena. What we additionally identified was the importance of the underlying mindset and value orientation in this context, therefore contributing with a potentially novel perspective on the role of boundary spanning as well as the role that underlying values and the focus on value creation may play in the boundary activities. The contribution here is the element of mindset, bringing different research streams of boundary theory and stakeholder theory together in the context of projects for the case of project stakeholder engagement. What was also visible was the role of service designers, steering in the exchange of knowledge and positioning themselves as actors of support, while working as enablers among various professional identities. This role could also be further explored.

There are potentially several more articles coming out of this research. This will yet be explored, for example, to learn about and access digital platforms for stakeholder groups that are not accessible with analog methods. For future research, it would also be sensible to go into other cases as well as different contexts.

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