

Stakeholder analysis and landscape in a hospital project – elements and implications for value creation

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Abstract

Purpose – This study primarily aims to analyse stakeholder management challenges and how these emerge in the stakeholder landscape in a large hospital project. From this analysis, the authors aim to identify the implications that stakeholder management has on value creation in a hospital project.

Design/methodology/approach – The research method is qualitative. Empirical data were collected in three cycles: project internal documentation, thematic interviews and survey. The literature related to hospital projects, stakeholder analysis and management, stakeholder salience and landscape is summarised, informing the qualitative design of the study.

Findings – The authors noted the importance of project-specific stakeholder identification, salience analysis and landscape description. The regulatory, formal and contractual stakeholders give an over-simplistic picture on stakeholder map. The operative stakeholder map and landscape describe the complexity, uncertainty, dynamism and institutional context inducing the challenges for the stakeholder management. There is an evident potential of utilising the stakeholder landscape and its elements in the resulting collaborative value creation in hospital projects. Multiple and changing stakeholders with differing expectations are an important opportunity to improve the value creation process.

Originality/value – Stakeholder management has recently attracted much attention in the industrial project setting. This research attempts to identify the operative stakeholder landscape in a large hospital project, not to mention its impact on value creation. This study offers a framework that can help academics and project management practitioners tackle the challenges amongst project stakeholders.

Keywords Governance, Project, Stakeholder analysis, Stakeholder management, Stakeholder salience, Stakeholder landscape

Paper type Research paper

1. Introduction

Healthcare processes, alongside hospital construction projects, are typically complex and involve multifunctional and multidisciplinary collaboration with many stakeholders (Lockhard-Wood, 2000; Dunlop and Holosko, 2004; Petri, 2010). The size and complexity of hospital projects induce three major challenges to project management: (1) the involvement of numerous stakeholders induces complex stakeholder interactions and conflicts of interest; (2) dynamics and increasing capacity induce high uncertainty; and (3) their administration of a strict multi-role governance structure induces high levels of publicity and controversy (Yeo,



1995). Van Marrewijk *et al.* (2008, p. 591) defined these megaprojects to be exorbitant and typically purchased by governments and implemented by private companies, having uncertain, complex, politically sensitive and involving many partners. This definition highlights the organisational complexity arising from several private companies regarding political stakeholders (government and municipalities). The complexity and unprecedented nature of megaprojects make management difficult (Hu *et al.*, 2014, 2015; Liu *et al.*, 2016). Hospital projects creating significant long-term social and economic impacts and value, extensive work and close links to other developments like social and health care reform (SHCR) are also required.

In an extensive project, such as a hospital construction project, it is important to understand and describe the stakeholder environment by identifying all relevant stakeholders, not just the client. Client's goals, expectations, needs, requirements, and aspirations are extremely important to define and communicate thoroughly to succeed in handing over a project to a client. However, stakeholders in hospital projects have different interests and expectations; some to support projects and others intended to interfere with progress. Therefore, they can greatly influence the success of projects. Stakeholders who use their power and intentions influence the results of the project according to their interests and expectations (Olander and Landin, 2005; Aapaoja and Haapasalo, 2014).

The final value of a project is created together with all participants, and such value is not limited only to monetary value, but also to long-term societal actors who do not actively participate in the megaproject (Laurson, 2018). However, participants in a project, including all stakeholders (directly or indirectly) as described above, have their own goals, expectations, interests, design horizons and motives that may be aligned or inconsistent and, thus, may contribute to value creation (Artto *et al.*, 2008). Thus, projects should be managed as multi-player and multi-technology constellations, emphasising value creation (Zhai *et al.*, 2009). Therefore, it is essential to formulate a process for stakeholder management and stakeholder analysis and engagement in achieving project objectives and contributing to value creation (Yang *et al.*, 2018).

Towards the presented background of this study, it is evident that stakeholder management, complexity and decision-making need more research regarding hospital projects. Therefore, this study mainly aims to analyse one extensive hospital project, focussing on stakeholder analysis and stakeholder management to describe the stakeholder landscape and implication on value creation. We have condensed the former into the following research questions:

- RQ1. What are the stakeholder management challenges and how do these emerge in the stakeholder landscape in hospital projects?
- RQ2. What kind of implications does stakeholder management have on value creation in a hospital project?

Our approach is qualitative. We first outlined the literature of stakeholder management and analysis and an analysis framework for describing the stakeholder landscape for a hospital construction project. We selected one large hospital planning, design and construction project as our unit of analysis. Our empirical data collection comprised three cycles (project documentation, thematic stakeholder management interviews and salience survey), providing the stakeholder map, challenges in stakeholder management and the stakeholder landscape in our hospital project (RQ1). Finally, we depicted the implications of project stakeholder management (RQ2) for value creation to outline the importance of stakeholder management in complex projects.

2. Literature review on stakeholder management and landscape

The concept of stakeholder management, pioneering the landmarks of [Freeman \(1984\)](#) and [Cleland \(1986\)](#), is an accepted theory that has evolved from business management and is designed to describe, understand, analyse and manage stakeholders. Stakeholder management was developed as a principle of “corporate social responsibility” and is based on ethical, social and economic considerations. Socially responsible organisations strive to use ethical behaviour in their behaviour ([Moloney, 2006](#)), which informs their management of various contributions. Stakeholder management aims to create the most positive environment possible for project development. It involves managing relationships to motivate stakeholders to behave in a way that supports the company’s goals. According to this theory, companies, causes, interests, and pressure groups must manage their relations with those external entities that can influence the achievement of their goals ([Moloney, 2006](#)).

The project management literature acknowledges that project stakeholders are important to project success for at least four reasons: (1) the project requires the involvement of stakeholders; (2) stakeholders often define criteria for assessing the success of a project; (3) stakeholder resistance can pose different risks and negatively affect the success of the project; and (4) the project can affect stakeholders both negatively and positively ([McLeod et al., 2012](#); [Sallinen et al., 2011](#); [Turner and Zollin, 2012](#)).

2.1 Stakeholder management

The central purpose of the stakeholder approach is to enable managers to understand and manage stakeholders strategically to minimise their negative impacts and ensure that they do not hinder the achievement of goals by individuals and organisations. Stakeholder management requires that an organisation liaise with and engage with various stakeholders by considering and balancing their essential interests ([Goodpaster, 1991](#); [Freeman, 1984](#); [Logsdon and Wood, 2000](#)). Stakeholder is thus a form of social inclusion, so they reduce barriers for organisations and groups to flow in and out of expertise ([Moloney, 2006](#)). [Wicks et al. \(1994\)](#) supported a collaborative approach to acting with stakeholders, where organisations have relationships with different groups and that organisations create and maintain support for these groups by considering and balancing their respective interests ([Freeman, 1984](#); [Jones and Wicks, 1999](#)). Stakeholder management increases engagement and shared values, provides more information and improves decision making. [Rowley \(1997\)](#) proposed a networking model for stakeholder leadership in which stakeholders can have relationships with organisations and with each other through formal communication.

2.2 Stakeholder analysis

Stakeholder analysis aims to assess and understand stakeholders about how an organisation is made or to determine their relevance to a project, leading to an analysis of how stakeholder characteristics affect the decision-making process and how to treat different types of stakeholders ([Brugha and Varvasovsk, 2000](#)). Stakeholder analysis comprises five different steps: (1) identify key stakeholders, (2) describe stakeholder interests and resources, (3) analyse and classify stakeholder characteristics, (4) review stakeholder dynamics, (5) and develop stakeholder management strategies ([Freeman, 1984](#); [Cadle et al., 2010](#); [Ackermann and Eden, 2011](#); [Bunn et al., 2002](#); [Cova and Salle, 2005](#)). Some studies ([Savage et al., 1991](#); [Freeman and Liedtka, 1997](#)) have suggested separating the potential for cooperation and the competitive or even hostile threat from certain stakeholders. The key to success in development work and achieving goals is to identify and involve stakeholders in planning and decision-making ([Fassin, 2009](#)). The co-operation, interaction and interrelationships between the main participants in a construction project – traditionally the client, the chief architect and the main contractor – largely determine the overall performance of the

construction project and have a crucial responsibility for its successful implementation. However, at the beginning and end of the life cycle of a construction project, there are several characteristics that contribute to the success of the project and are influenced by the different decisions made by individuals, bodies and organisations (Love *et al.*, 1998; Smith *et al.*, 2001).

It is evident that the initiation phase of a project is critical for the project's success. Therefore, it is also clear that the key stakeholders need to be able, attracted, and integrated to participate in the development of the project concept (Aapaoja and Haapasalo, 2014). The project's initiation phase has a number of features, including a high level of uncertainty, a low level of information, recognition of stakeholders, and knowledge of their interests and preferences (Williams *et al.*, 2019). It is imperative that numerous and diverse stakeholders, as well as their goals and interests, should be identified at the beginning of the project, and their roles defined along with the project duration (Belout and Gauvreau, 2004; Brugha and Varvasovsk, 2000; Fassin, 2009; Cadle *et al.*, 2010; Ackermann and Eden, 2011; Bunn *et al.*, 2002; Cova and Salle, 2005). Depending on the dynamics and the position of the stakeholders, stakeholder management strategies are also important ways for project managers to address the stakeholders, in the early phase of the project (Aaltonen *et al.*, 2015), and in general (Olander and Landin, 2005; Savage *et al.*, 1991). The importance of the early phase is acknowledged also in hospital projects. Insufficient exploration of opportunities by focussing on structural issues instead of exploring future concepts, integrated into user needs, can lead to a poor outcome (Elf *et al.*, 2012; Elf and Malmqvist, 2009). Several studies have shown the importance of early user involvement in the health care design process so that designers understand how service activities are performed (Damodaran, 1996). The involvement of end-users in the design process is crucial to properly identify their ever-evolving needs, expectations, preferences, and requirements, and to ensure their high-quality performance in the future building (Sfandyarifard and Tzortzopoulos, 2011; Steen *et al.*, 2007; Stern *et al.*, 2003).

Winch (2002) classified stakeholders in the construction industry: internal and external stakeholders, whilst Fottler *et al.* (1989) also described interface stakeholders as the third category. Due to the significant variation in stakeholder definitions, it is difficult to ensure that all their needs and expectations are properly addressed and managed. Meeting the needs and expectations of the customer, users and other stakeholders is one of the most important criteria for the success of a project, and failure to manage their needs and expectations can contribute to the failure of a project (Turner, 1999). Because of the highly uncertain, unstable and complex nature of large-scale projects, the stakeholder environment is also very complex, requiring a set of systematic methods and procedures for managing stakeholder relations and issues. Stakeholder analysis is essential in the stakeholder management process because it enables project teams to understand the stakeholder environment and develop appropriate engagement strategies (Mok and Shen, 2016).

2.3 Stakeholder salience

Mitchell *et al.* (1997) and Agle *et al.* (1999) are amongst the main contributors of stakeholder salience. The salience approach replies to the question – *to whom and on what managers should pay attention and how much?* The more significant the stakeholder, the more attention management should have (Aapaoja and Haapasalo, 2014), and the higher the degree of salience support affects the extent to which top management prioritises competing stakeholders (Agle *et al.*, 1999). Mitchell *et al.* (1997) identified the stakeholder salience attributes: *power*, *legitimacy* and *urgency*.

Power defines the probability that one of the stakeholders within a social relationship factor can perform his will despite opposition. The power of stakeholders may be due to their ability to mobilise social and political forces and their ability to pull resources from the

organisation (Post *et al.*, 2002). The basis of power can be coercive, utilitarian or normative, meaning the power of stakeholders to influence the process. Also, a stakeholder has power when it can impose its will on the firm.

Legitimacy is the perception or assumption that the actions of the whole are desirable, proper or appropriate within a socially constructed system of norms, values, beliefs and definitions (Mitchell *et al.*, 1997). Managers are generally more willing to consider stakeholders whose claims are perceived as legitimate (Aaltonen and Kujala, 2010). Legitimacy can be considered by individuals, organisations, and society. Alternatively, *power* is given to those who control the resources a company needs (Pfeffer, 1981), and *legitimacy* is achieved if organisational practices follow the wider social system (Scott and Meyer, 1983; Scott, 1987; Powell and DiMaggio, 1991). However, *power* and *legitimacy* can occur together, giving authority to those who are both, but they can also occur separately.

Finally, *urgency* is a concept based on two main features: (1) the role of stakeholders according to their own requirements (Aaltonen *et al.*, 2008; Mitchell *et al.*, 1997) and (2) time sensitivity to how long it takes – and the degree of management delay that cannot be accepted by stakeholders – managers to handle their demands (Gago and Antolin, 2004). According to Mitchell *et al.* (1997, p. 869), urgency is “the degree to which a stakeholder claims call for immediate attention”. These salient variables, according to Mitchell *et al.* (1997), will determine how managers respond to stakeholders.

Another important approach to stakeholder management is that managers must assess the interest of each stakeholder in expressing their expectations of project decisions and whether there is the power to follow it (Johnson and Scholes, 1999), and to identify the stakeholders who can influence processes decisions and their outcomes (Olander and Landin, 2005; Walker *et al.*, 2008; Parent and Deephouse, 2007). Johnson and Scholes (1999) proposed a stakeholder mapping technique, the power/interest matrix, for this evaluation, where project stakeholders can be categorised depending on their power towards the project and their level of interest (Olander and Landin, 2005; Winch and Bonke, 2002; Newcombe, 2003). Also, Olander (2007) created an impact/probability matrix in which project stakeholders are classified according to their level of impact and probability. Aapaaja and Haapasalo (2014) further combined salience evaluation both from Mitchell *et al.*'s (1997) and Olanders's (2007) matrix to form both perspectives.

2.4 Stakeholder landscape

There has been an increase in the flow of research that defines, conceptualises, synthesises and makes sense of project complexity and its implications for project management (Bosch-Rekvelde *et al.*, 2011; Geraldi and Adlbrecht, 2007; Geraldi *et al.*, 2011; Maylor *et al.*, 2008; Shenhar, 2001; Shenhar and Dvir, 1996; Vidal and Marle, 2008; Mikkelsen, 2021). Geraldi *et al.* (2011) described project complexity with five dimensions comprising structural, uncertainty, dynamics, pace and sociopolitical complexity. Respectively, Bosch-Rekvelde *et al.* (2011) described it with three dimensions: technical, organisational and environmental complexity. Also, Ramasesh and Browning (2014) explained project complexity with two key components, element and relationship complexity, having various sub-factors. Aaltonen and Kujala (2016) developed a more comprehensive conceptual framework, which increases the growing research flow, to describe the actors in the process and to explain the possibilities for stakeholders to describe and classify the stakeholder landscapes of projects. Their framework synthesises four key dimensions of project stakeholder landscapes and their various sub-factors:

- (1) Complexity (element and relationship complexity);
- (2) Uncertainty;

- (3) Dynamism and
- (4) Institutional context.

2.5 Literature synthesis

In complex and multi-layered operations, stakeholder environments create different challenges for both strategic and operative processes. To reduce such challenges, a stakeholder analysis can be conducted to build up interpretations and a picture of the stakeholder environment to ensure informed and careful decision making for the best of the project. Stakeholder analysis provides at first the classes for internal, interface and external stakeholders, followed by a more in-depth evaluation of their respective salience (power, legitimacy and urgency) and their ability to contribute providers tools for management. Finally, by understanding the complexity, uncertainty, dynamism and institutional context of specific hospital construction projects, we can expand the analysis on the stakeholder landscape level.

3. Research methodology

The research on stakeholder management in hospital construction projects has not been very active recently (Fottler *et al.*, 1989; Blair *et al.*, 1990). Parallel to ongoing numerous new hospital projects and national SHCR reforms, more in-depth research is imperative (Reijula *et al.*, 2016). Therefore, we conducted our study using a qualitative approach (Bryman and Bell, 2011), adapting the role of the researcher from action design research (ADR) (Sein *et al.*, 2011). The first author of this study belongs to the key team members of the Northern Ostrobothnia Hospital District (NOHD) project management office (PMO). The rationale in qualitative ADR emerges from the first author being a PMO member, having been inevitably encountering different groups of stakeholders. Having first-hand knowledge enables us to focus the research on the right questions for the right stakeholders, enabling the opportunity for researchers to deeply access the content and details of the project. Qualitative methods also enabled us the iterative nature of research, reflecting the progress, decision making and documentation of the project. In addition, the other authors acted as the “outside researcher”, being able to balance the research to ensure the objectivity of the analysis and results (see, e.g. Walsham, 2006). The selection of qualitative method that is holistic by nature, enabled us to focus on depicting and solving real-life problems (Sein *et al.*, 2011). The unit of analysis in our study was the entire hospital project (Manning, 2017), comprising two contractually separated subprojects. Our case study is a project of a new university hospital in Finland in the NOHD – as a client in this case study. The expression of “client” is notified by Denicola *et al.* (2021), who diversified roles in the project, like owner, user, customer or sponsor. In our study, the client best describes the role of NOHD regarding a hospital project.

In the first phase of this study (Figure 1), a literature review was performed to establish the foundation for the empirical analysis. Based on the literature synthesis, we created an outline for the stakeholders and the stakeholder landscape analysis.

The empirical data were conducted in three sequential cycles, enabling data and methodological triangulation (Oyegoke, 2011) to improve validity and reliability. At the first cycle, we analysed project internal documentation to form formal understanding from the project establish and contractual organisation. The three main documents for this were:

- (1) Future hospital OYS 2030 – renewal programme,
- (2) Minutes of meetings of the NOHD council and board of trustees and
- (3) Alliance contracts of the development and implementation phases of the project.

The second cycle for data was collected through thematic interviews (Appendix 1) in which respondents were given some open questions (formed from the literature foundation) to answer in much detail by reporting the incidents (Denzin and Lincoln, 2005). The informants (Table 1) were selected based on their expertise and position in the formal contract of collaborative agreement. The importance of the availability and willingness to participate was secured before the interviews and survey. In addition, the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner was noted as advised in Palinkas *et al.* (2015). The interviews were conducted in the Teams meeting application and were recorded for more in-depth analysis. The main aim of this cycle was to form a real-life understanding of our case project, what kind of stakeholder map can be drawn from the operative process, what stakeholder management challenges this set up poses and finally describe the stakeholder landscape for a more clarified understanding of the complexity in the case project.

The third data collection was done using a Webropol survey platform. We aimed to clarify the more in-depth analysis of Mitchell *et al.* (1997) salience attributes and Olanders' (2007) possibility of impacting the hospital project. The survey was targeted and replied to by the same stakeholders as in the interview (Table 1) with the same justification.

In action research, the danger of bias is always present (Sein *et al.*, 2011). However, with careful planning and implementation, it can be avoided. For the data collection, we used material triangulation to avoid bias in the method. In the material collection, especially in interviews, we utilised open-ended questions with elaborated discussion to avoid too dominant initial setting. Interviews were recorded to enable more detailed analysis later also for those interviewees who did not participate in a specific interview. All informants were very willing to participate in the interviews and as a basic nature of the collaborative contract; participants were very positively oriented towards improvements. The content of the interviews and the survey were not aiming at any specific evaluation, but more like a description of the entire stakeholder landscape, therefore avoiding any possible bias.

In our analysis, our case description of the planning, design and construction project of a new hospital was mainly done from the project documentation to describe the set up for the project. After more detailed data collection, we performed the qualitative content analysis through coding. The codes were generated for the purpose of pattern detection (Duriu *et al.*, 2007; Saldana, 2013). The pattern detection was driven by the four key dimensions (complexity, uncertainty, dynamism, institutional context) of project stakeholder landscape, proposed by Aaltonen and Kujala (2016) based on which we assigned simultaneous codes to the relevant units of interview transcripts (Saldana, 2013), and categorised them under these key dimensions.

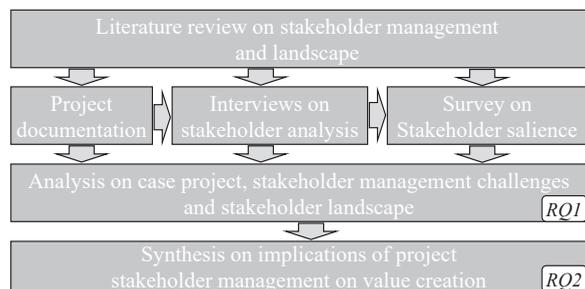


Figure 1.
Our research processes

Position in the permanent organisation	Type of permanent organisation	Position/the role of the informant in the project
Medical Doctor/Head of Division	NOHD/Oulu University Hospital/Chair of end-user group	Profit Unit Manager/Define and accept requirements and accept solutions/Interface stakeholder
Medical Doctor/Head of Division	NOHD/Oulu University Hospital/Chair of end-user group	Profit Unit Manager/Define and accept requirements and accept solutions/Interface stakeholder
Medical Doctor/Head of Division	NOHD/Oulu University Hospital/Chair of end-user group	Profit Unit Manager/Define and accept requirements and accept solutions/Interface stakeholder
Acting Chief Nursing Officer	NOHD/Oulu University Hospital	A member of end-user groups executives/ Nursing representative, Interface stakeholder
Area Manager	Main Contractor	Construction works/a member of alliance steering group
Business Unit Manager	Main Contractor	Construction works/a member of alliance steering group
Business Unit Manager	HVAC – Contractor	HVAC – works/a member of alliance steering group
CEO	Architect planning	Main architect/a member of alliance steering group
CEO	Architect planning	Architect planning/a member of alliance steering group
CEO	Architect planning	Architect planning/a member of alliance steering group
Business Unit Manager	Construction Management	Engineering management/a member of alliance steering group
Construction Manager	Construction Management	Engineering manager
Development Manager	Main Contractor	Alliance Project Manager
Project Manager	Main Contractor	Alliance Project Manager

Table 1. Informants in the interviews in the second and third cycles of the study

For the analysis of the stakeholder management challenges, stakeholder classification was applied: internal – interface – external (Blair *et al.*, 1990) and stakeholder salience (Mitchel *et al.*, 1997) attributes: legitimacy – power – urgency from the survey. We defined the attributes and salience based on how informants themselves have experienced their “stake” in the healthcare process. That is, power, legitimacy, and urgency were analysed from the perceptions of the stakeholders. For the stakeholder landscape analysis, we applied the framework from Aaltonen and Kujala (2016) to describe the managerial challenge over stakeholders. As a synthesis of our research, we depicted the implications of project stakeholder management on value creation to outline the importance of stakeholder management in complex projects.

4. Challenges and stakeholder landscape in a hospital project

4.1 Case context – design and construction project of a new hospital

The NOHD – as a client in this case study – is a consortium owned by 29 municipalities. In 2012, the NOHD launched an extensive and long-term OYS 2030 hospital renovation programme, mainly to improve the hospital's cost efficiency, productivity and the quality of healthcare by replacing older properties with a new hospital, adding to constructing and reforming the operating models and organisational structures of the new hospital. The programme describes and identifies four major formal stakeholders that require consideration in value creation: patients, operations management, staff and owners. Two

construction subprojects, with a total duration of five years, were launched in 2018, and construction works began in the mid-2019. Capital expenditures for both projects will account for more than 600 million Euros. The new hospital will spread over 115,000 square metres and meet very high-quality standards (Figure 2).

The hospital project is very complex regarding multiple stakeholders with different objectives and requirements, the interdependence of the tasks, the novelty of the tasks and the heterogeneity of the actors involved. During the development phase, more than 200 people (medical and nonmedical staff), along with several architects and engineers, participated in the collaboration to define the requirements and needs of the new operation. In the implementation phase, more than 600 people worked simultaneously on both the site and the project office.

During the development phase, the plans for the implementation phase of the project are prepared together with the client and project parties, and the target cost of the project and the most significant risks and opportunities are assessed. During the development phase, it is also ensured that the requirements set by the users (both medical and non-medical staff) for the facilities, equipment and systems were considered, and the parties were committed themselves to achieving them, alongside the goals set by the client for the project.

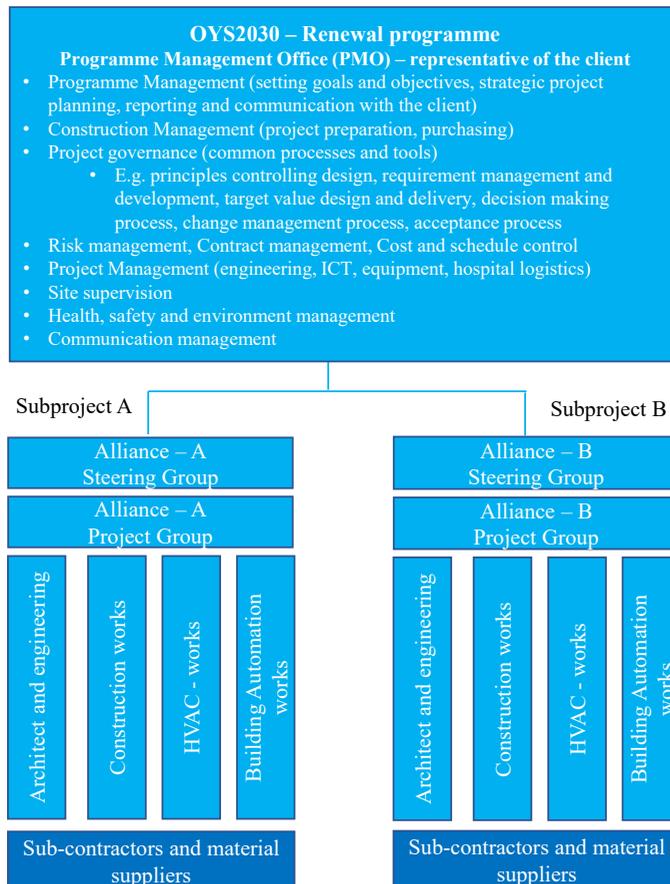


Figure 2.
Formal and contractual stakeholders of the project

4.2 Data analysis – stakeholder analysis of a hospital project

There are several identified stakeholders, and most of the interviewees identified the client – NOHD – containing 29 different municipals and their various decision-making entities, including the entities that make the decisions in the NOHD and in the Oulu University Hospital, supervisory authorities, neighbours, end users such as medical and non-medical staff and maintenance, media, patients, both the projects' operational management teams and project management office (PMO), architects, consultants and contractors with separate sub-contractors and the key material suppliers as the most important stakeholders at the project level.

Based on our analysis (Figure 3 and more detailed analysis in Table A1), there are several distinct stakeholders and organisations that have interests, expectations and some influence in their area. Understanding different actors as stakeholders involves considering the key characteristics of the actors (e.g. regulators, authorities, owners, politics and political decision making, hospital management, project and programme management, several service providers as collaboration organisations and suppliers, labour unions and medical staff), and characterising stakeholders based on these characteristics was classified into different

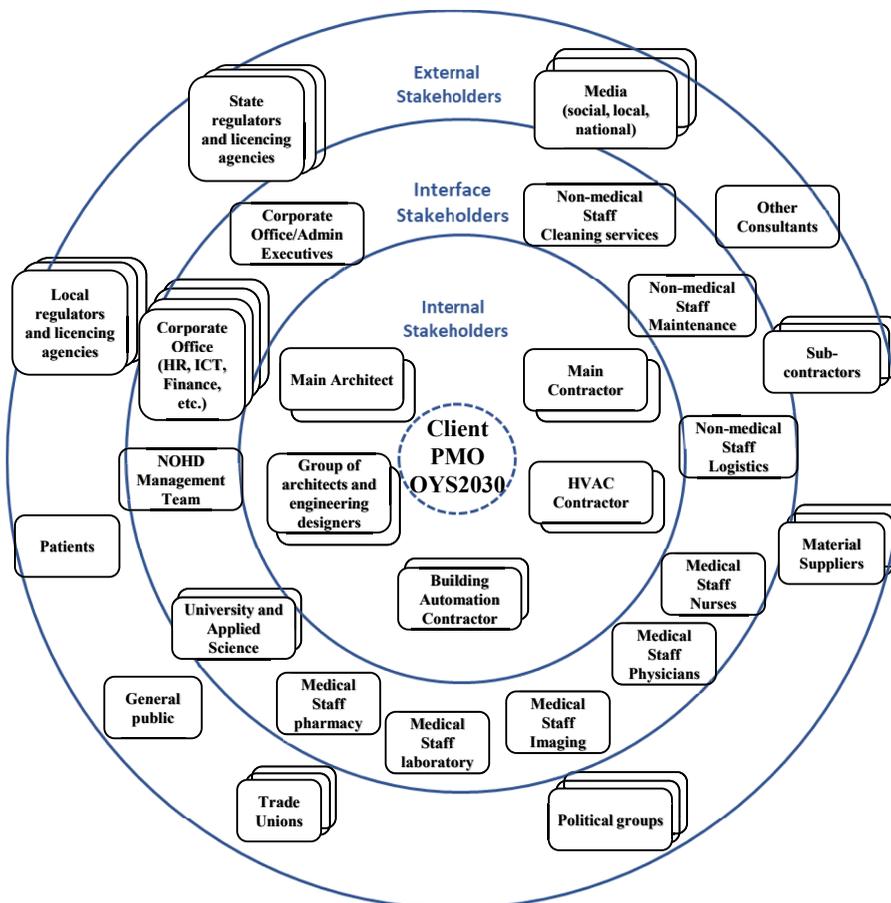


Figure 3. Operative stakeholder environment and map of the project

categories, such as internal, interface, and external. Earlier in [Figure 2](#), we presented the formal key stakeholders of the project; however, the number of operative stakeholders in the project is significantly higher. This emphasises the importance of stakeholder analysis to reveal the stakeholders and their real interests and contributions to the project.

Internal stakeholders are those entities (peoples or groups) that have formal, official and contractual contact with the project and the client, and have the power to give or withhold resources, and those clustered around the client on the demand side (those who operate almost entirely in the generally accepted interfaces of the project, including both professional – nurses and physicians – and nonprofessional staff – the owners, the board of trustees and board of executives) and on the supply side (architects, engineers, contractors, trade contractors and material suppliers). In this study, the medical and non-medical staff around the client on the demand side were classified into interface category. Management attempts to manage these internal stakeholders by providing sufficient inducements to gain their continued contributions.

Interface stakeholders are those who operate both internal and external to the organisation, that is, those who are on the interface between the project and organisation and its environment. Interface stakeholders tend to be amongst the most powerful stakeholders in healthcare organisations but are easily misunderstood because they are thought of as “us” or “them” when they are both or neither. From the hospital planning and construction viewpoint, the end users – medical and non-medical staff who use (work for the patients) and maintain the building – are the most important and powerful stakeholders in the hospital project. The importance comes from their knowledge of present and future needs and requirements for their operational environment to create a supportive environment in the new hospital. Although the end users have the chance to express their opinions, they lack “official” decision-making power. Under most circumstances, they have the highest potential for both threat and cooperation, and they can become a hostage, where their opinions do not really matter, because things that are discussed do not fall within their area of knowledge.

Successful collaboration amongst end users, their group leaders (including the operational management group), architects and project management is crucial in understanding the needs and requirements of the operations and the main objectives of the hospital project. Succeeding in those induces more satisfied and less critical end users and clients.

External stakeholders lacking formal connections with major organisations within the project but indirectly influence the project, in this study, are discussed under three major groups: governmental authorities (agencies, commissions, juridical, legislative and executive branches), the public (represented through consumer, environmental, social, political and “intervenor” groups) and the affected local communities, following [Cleland \(1986\)](#). These stakeholders have different interests and expectations, some in support of projects and others meant to distract progress. Eight external stakeholder groups could be identified in the hospital project: the national government (the last instance of appeals in the formal planning process), politicians in the project (strongly supported the project), politicians in the municipality (had the power to grant the permit to build), general planning and permit officials in the municipality (grants local building permits in the formal planning process), the media, the public, suppliers (both in construction and medical devices) and patients. External stakeholder relationships, considerably, have been considered a task for public officials via the rules and legislation that concern facility development.

4.3 Results – stakeholder landscape in a hospital construction project

The stakeholder landscape ([Aaltonen and Kujala, 2016](#)) provides guidance to start evaluating what kind of managerial implications different types of landscapes can have to manage both stakeholders and projects, which are typically complex and contain multifunctional and

multidisciplinary collaboration (Table 2). The impact of all stakeholders is not equal in the hospital projects, even though some stakeholders were depicted in the same size and shape. Main differences in needs, requirements, goals and degree of influence come from the position where the stakeholders belong: regulator – supervisor (authorities) – owner (municipalities, council and board of trustees) – financing – service providers (architects, engineers, contractors) – end users (admin, medical and non-medical staff) – patients (public).

Complexity: Based on the interviews, the number and multiplicity of internal, interfaces and external stakeholders involved in the project is very wide, and the perspectives of the stakeholders greatly vary. The project is largely supported by internal stakeholders mainly due to their contractual relationship with the client, and the interface and the external stakeholders may be for, against or indifferent depending on how their needs and requirements are considered.

This degree of variation is quite significant, and therefore, it is complex and difficult to ensure that the objectives, requirements, needs and expectations of all project stakeholders are considered and properly addressed. Notably, there were some changes between and within stakeholders during the project period due to major changes at both the healthcare sector and project level.

There are also some identified structural elements, such as different project management methods and tools due to the number of alliance partners and ways to use different management methods, not to mention the processes and tools provided by the PMO. The number of different disciplines (architects, engineers, consultants, contractors, suppliers, and end users: medical and non-medical staff) and organisations (public and private: large and small), alongside the authorities with power and legitimacy towards other stakeholders, induces organisational differences that influence decision-making at the project level.

Stakeholders who were classified as an interface or an external stakeholder were also identified as a group that could synergised under duress to access the requirements and needs requiring consideration. Difficulties emerge when the goals and interests are not fully similar, and if all stakeholders are not kept equal.

Overall, there are inconsistencies between the objectives and requirements both in the client's subgroups (owners, hospital executives, PMO and end users) and between the project partners (main service providers: architects, engineers and contractors) at the project level in the hospital project.

Uncertainty: The goals set by the client for the project and the requirements and needs set by the end users can be very conflicting between and within stakeholders, not to mention the goals and needs of the service providers. In the interviews, it became transparent that all partner companies had their own goals and needs in the project. Although the main objectives of the project (improving productivity and care efficiency) were set and announced at an early stage of the project, there was still uncertainty as to whether the objectives of the project were sufficiently well defined and whether the methods to achieve these objectives were met.

It is difficult to obtain information on the objectives and requirements of different stakeholders, and information is usually unavailable and is not precise or concrete. The SHCR has had and will have widespread uncertainty about the healthcare process (e.g. the permitting process and financing) and will certainly increase uncertainty in the project. The lack of a systematic approach to stakeholder management itself has generated uncertainty for stakeholders to picture the entity.

As the project has progressed from the development phase to the implementation phase, there have also been some changes to existing stakeholder relationships and the influence of individual stakeholders. Project design and construction takes so long that it is reflected in the inter-stakeholder activities of the project, project organisation has been reformed, new partners and new stakeholders have been formed, some of them have not yet even been

Table 2.
Findings in the project
stakeholder landscape

Complexity	Uncertainty	Dynamism	Institutional context
<i>Stakeholder element complexity</i>			
Several stakeholders in the project	Difficult to get information from identified stakeholders	New stakeholders have emerged and joined the project, and new stakeholders will emerge as the organisational change is implemented	The operating environment has different institutional organisations, values, norms and routines in the implementation of projects
Collaboration between the stakeholders is multifunctional and multidisciplinary	Difficult to receive information on stakeholders' goals and requirements	The importance of stakeholders will increase, and their positions will change during the project	Collaboration contains multifunctional and multidisciplinary actors in the public, private and third sectors, including media without any legitimacy position but using their urgency
Due to the number of alliance partners, there are different project management procedures and tools	Clear differences and contradictions in the goals of the stakeholders	The SHCR will change the stakeholder landscape when the ownership and the responsibilities amongst the stakeholder's change	Stakeholders have fundamentally different and contradictory goals and different kinds of picture of the situation
Stakeholders are on different levels and positions to use their legitimacy	Objectives and requirements are not at the same level	Significant changes in stakeholders and their interrelationships are anticipated as both the project and the legislation (SHCR) progress	Stakeholders have significant, direct and personal relationships with "local actors", such as licensing and municipal decision-makers and senior officials
Regulators	No systematic approach to stakeholder management	During a long period of the programme, the legislation has changed and affected the investment programme a lot (e.g. the Master Plan has changed dramatically)	Stakeholders are on different levels and positions based on their institutional position
Authorities (Ministry of Social Affairs and Health, Finance, Local building authorities)	There are very conflicting perceptions of end user's requirements and needs within stakeholders and amongst end users	When the new University Hospital starts with new operational processes, management also needs to change	There might appear coalitions amongst groups of trustees and medical staff, and amongst alliance partners
The Client (Owner with 29 municipalities and their decision-making entities)	Due to changes in end user groups, an ongoing change request process has been and will be ongoing		
End users and their supervisory management and ability to influence decision-making	Policy environment, context of issues, stakeholder interests, positions, coalitions and influence are subject to change, and stakeholder perceptions of the past also change		
Alliance partners	The political context of policymaking is frequently nonstable and can be subject to sudden, unexpected transformations		
Trade partners/Suppliers	Due to ongoing organisational change in the hospital, uncertainty increases as representatives in the end user groups change		
<i>Stakeholder relationship complexity</i>			
Interrelationships within and between stakeholders when the same people belong to different stakeholders	Due to changes in end user groups, an ongoing change request process has been and will be ongoing		
The goals and requirements of stakeholders may conflict, which may induce conflicts	Policy environment, context of issues, stakeholder interests, positions, coalitions and influence are subject to change, and stakeholder perceptions of the past also change		
New coalitions emerge regularly	The political context of policymaking is frequently nonstable and can be subject to sudden, unexpected transformations		
Stakeholders are not seen as equal in all respects due to their status in the Alliance Agreement	Due to ongoing organisational change in the hospital, uncertainty increases as representatives in the end user groups change		
Significant external stakeholders should have been considered in the past (educational institutions, associations)			

identified and there is no information, and the goals or requirements of these stakeholders for the new hospital and its operations remain unknown.

There are also unbalanced incentives between stakeholders. Key performance targets set for key partners (internal stakeholders) may provide some cash bonuses for companies, but key end users (interface stakeholders) at the design stage are not covered by this bonus system. It can cause conflicts of interest when the other party (service providers) receives bonuses by finding savings in construction costs, and end users want to use those savings in the work environment even if it was not in the scope, and the PMO (client) wants to get the maximum value for money invested by the client.

Dynamism: There have been several changes during the project. The scale of the project itself has grown step-by-step from 50,000 square metres to 115,000 square metres in the last four to five years. The scope of the operational context and the range of stakeholders changed dramatically during the project. The biggest change was in June 2018, when the programme's master plan was approved by the NOHD council. It also launched a very complex and lengthy permitting process, which took about six months, and concurrently, there was no possibility of carrying out construction work. At this point, there was only one alliance, and major changes in the scope of the work necessitated the purchase of a new alliance. Due to a public tender, it took about seven to eight months to acquire a new alliance partner, sign the contract and start the development phase.

Due to the SHCR, changes in legislation have changed and will continue to significantly change both the healthcare operating environment and the project's stakeholder landscape. New actors have entered and will join the project along the way, new stakeholders will be formed and the role of stakeholders will change during the projects, which will clearly affect stakeholder relations as well. At the same time as the construction phase, the largest organisational change in decades is underway at Oulu University Hospital. The new hospital will be introduced with new operating processes under the new organisational model and the operating environment of the hospital. Concurrently, there are continuous and accelerating developments in the fields of medicine, nursing and health technology that can influence decisions already made (selected equipment, clinic layouts, etc.).

Institutional context: In the project, participants and various stakeholders are shaped by institutional factors such as the experience of previous projects, policies, different governance (public and private), authorities and all their institutional norms, values and routines.

The Finnish healthcare system and its operating environment in hospitals and the hospital construction environment are based on laws and regulations in which each stakeholder has its own clear roles and responsibilities. Legislation regulates; authorities oversee; municipalities issue permits and building permits; hospital and nursing staff handle medical care – with responsibilities and obligations. The client who has started a hospital project has clearly defined responsibilities and obligations, such as the main contractor. There are also some individuals who work and operate on the project with personal responsibilities as defined by laws and regulations.

Project stakeholders are widely networked and can have significant, direct and personal relationships within the project at both national and local levels. This could cause some conflict when there are some individuals who might belong to several other stakeholder groups, which might have different and contradictory goals and different kinds of picture of the situation. It is particularly challenging when deciding to use project budget funds that are not included in the original scope of the project, even if the purpose is well justified and could benefit end users and patients. The horizontal cup must keep the project within budget, deliver the project to the client upon its establishment and provide a hospital environment where staff can improve productivity and care efficiency. There may also be a possibility that groups will form coalitions with each other to gain more power behind them to advance their positions.

4.4 Discussion – the implications of landscape elements in stakeholder management

In our case study, it became evident how a hospital project operates in a strong institutional, complex and turbulent environment (Table 2). The hospital itself is fundamentally a vague and complex social system (Begun *et al.*, 2003; Plesk and Greenhalgh, 2001; Plesk and Wilson, 2001; Wilson and Holt, 2001; Zimmerman, 2010). The differences between different stakeholders, inside and outside the formal organisation, and their goals, requirements, needs and expectations differ due to their background, responsibilities and influence on the hospital construction project (see, e.g. Arto *et al.*, 2008; Lockhard-Wood, 2000; D'Amour *et al.*, 2005; Moran *et al.*, 2007; Dunlop and Holosko, 2004; Hudelson *et al.*, 2008; Muntlin *et al.*, 2006). The requirements from the government's viewpoint due to the ongoing SHCR reform and expectations from the owner and end users, alongside project partners with their own goals and interests, are different and may change during the project. We further derived implications for value creation from the analysis of the stakeholder landscape (Table 3). These features need to be carefully understood in every large project.

The features of a hospital project partially noted in earlier research (Doulabi and Asnaashari, 2016; Olsson and Hansen, 2010; Pauget and Wald, 2013; Lockhard-Wood, 2000; Dunlop and Holosko, 2004; Petri, 2010; Herzlinger, 2006; Langabeer, 2008) were also depicted in our study. However, it also became evident that the emphasis and importance of these features need to be analysed carefully, especially for project management purposes in every project. These features have a clear impact on the design of the hospital and, thus, on how the project is managed, both in the development phase, where objectives and requirements are defined, and in the implementation phase, where objectives and requirements need to be met. The diversity of these characteristics and the range of different stakeholders increase the need to understand the unique aspects of a hospital project, which in this context is recognised as a complex system. The multidimensionality due to the complexity of the project strongly impacts the entire hospital project. Mamedio and Meyer (2020) suggested that the main components of project complexity can be grouped into technical, human and political dimensions that may affect project implementation.

Evidently, diverse stakeholders and their goals and interests should be identified at the beginning of the project and their roles defined (Belout and Gauvreau, 2004; Fowler and Walsh, 1999; Brugha and Varvasovsk, 2000; Fassin, 2009; Freeman, 1984; Cadle *et al.*, 2010; Ackermann and Eden, 2011; Bunn *et al.*, 2002; Cova and Salle, 2005). Project planning also needs to be improved by defining the project's focus, objectives and initial requirements before embarking on any approach to project implementation by providing very detailed information to project participants – not just internal stakeholders. To manage a project, it is important to consider adaptation, unpredictability and uncertainties by involving all project participants in assessing risks and opportunities together and defining the process and tools to be used in the project (Thamhain, 2013; Donato *et al.*, 2015; Rahman and Kumaraswamy, 2002, 2004; Rahman *et al.*, 2002). Different types of stakeholders may need different strategies (Nguyen *et al.*, 2020).

It is critical for the success of the project to bring stakeholders' goals and expectations closer than to use energy to reject suggestions or requests for change made by project participants (Li *et al.*, 2013; Olander, 2007; Olander and Landin, 2008; Olander and Atkin, 2010; Manowong and Ogunlana, 2010). Project management in a complex environment, such as a hospital, seems to assume that results and requirements can be determined early enough in the project and then delivered as planned, which is completely wrong. To avoid this imbalance and benefit everyone, all professionals and stakeholders should be involved at an early stage in expressing their knowledge, talents, abilities, human energy and contributions to their efforts. The experience gained through this type of teamwork reinforces ideas, thinking and actions integrated in realising a modern and innovative reference hospital.

Implication	Description
<i>Preparation phase</i>	
Main objectives and constraints set by the client for the project	The main objectives and project constraints must be defined at the early phase of the project. They must be further developed with the client's project management team as concrete and precise so that they can be measured in terms of value
Strategy of acquisition for the project	Complexity, uncertainty, dynamism and institutional context have clear effects on suitable project implementation model. Intentional decision for choosing the right project delivery model depends on the project's characteristics, unforeseen factors, and the client's needs, preferences and capabilities
Identification of the most important stakeholders and their ability to contribute	The complexity of the project should be analysed regarding the number of stakeholders, their expectations and interests alongside their source of power to influence in the project
The client's role in a project and governance model	The client clarifies their own role and defines their own organisation for the project – as experts or in management. The job descriptions to each project management members, responsibilities and ability to make decisions should be defined to avoid ambiguities during the project life cycle
<i>Development and planning phase</i>	
Setting objectives at the strategy level (<i>intended impact and client value proposition</i>), setting requirements at the end-user level (<i>expected use-value</i>) and at the project level (<i>time, cost and quality</i>)	Communicate and develop the intended strategic outcome with the supplier's delivery team. This should be done through a supplier value proposition at the procurement stage. The response expressed in the supplier's offer should be a description of how the output of the project is targeted and how it is believed to be achieved following the client's priorities (client value proposition) and end-user (expected value in use) requirements as it has been set in preparation phase
Value identification – identifying value creating elements (<i>value for money criteria</i>) for all design concepts	The business case (Project Implementation Plan) to be aligned with the client's strategy, the goals to be clarified and communicated clearly with all the most important stakeholders and the project governance to be established To effectively create value (to be defined: <i>what is valuable to each party?</i>). This is necessary for creating ideas for how to fulfil the needs and strategies. The nature of the intended value needs to be clear and transparent for the parties involved
Functional description for how to secure value creation in the project	Design a value management process to synergise the project team, the client and end users. This participation is especially a requirement for life-cycle thinking in project development
Stakeholder identification and engagement. Involving all major stakeholders	Project internal procedures to design and deliver the planned values with the client's vision and goals, alongside the end user requirements. The project's business model is developed following the client's defined needs and intended user effect
Define and commit on processes, tools, and measurement with main stakeholders for the project	Internal procedures to ensure that the delivered project will follow the client's vision and goals, alongside the end-user requirements, notifying all stakeholders – internal, interface and external stakeholders
Communication plan	Combine the project implementation plan with the business strategy and establish internal procedures for the project. For example, involvement and innovation processes, requirement management, target value design, choosing by advantages, decision-making procedure (stage-gate approval process) and validation, change management, key performance areas and targets, risk management
Construction/implementation phase	Establish communication plan for dissemination, visibility and transparency
<i>Construction/implementation phase</i>	
Project Governance	Clear decision-making and problem-solving processes during the project
Condition of Satisfaction	Identify and monitor critical success factors (CSF) for achieving common goals amongst different stakeholders; these factors include cost, time and quality. Compare the target level against the performance level for the success of the project
Communication plan	Clear decision-making and problem-solving processes during the project with a stakeholder power/interest matrix
Monitoring, controlling and evaluation of the project	Schedule control – jointly agree on intermediate milestones. Costs control – focus on tracking the money spent – value analysis system. Quality control – ensuring the project reach the designed level of quality. A systematic evaluation of the value creation and achievement of the objectives

Table 3. Implications on value creation

Evidently, the project has only 100% salience and decision-making power to be divided for the stakeholders. Therefore, clearly, stakeholder management becomes critical for the project success. Project management should reconsider their strategies and operations as they face increasing and potentially conflictful demands and needs from their stakeholders – individuals and groups. The idea (Blair *et al.*, 1990) of analysing internal, interface and external stakeholders or the Mitchell *et al.* (1997) salience (legitimacy – power – urgency) for a hospital construction project is also challenging but enables again finding more sophisticated tools to organise the project and to manage it. The stakeholder landscape from Aaltonen and Kujala (2016) provides a good holistic picture of the project and describes the overall nature of the hospital construction project. To successfully manage a hospital project, the descriptive landscape obviously allows for more effective stakeholder management.

Our findings offer tools to clearly organise the stakeholder management process. This should be a method when planning a hospital project – how to identify, analyse and balance different stakeholder needs for the best of the project.

As a managerial implication for a hospital design and construction project, a prior knowledge supports that project managers should start evaluating the implications different types of landscapes have for managing both stakeholders and projects before they start thorough stakeholder analysis, which is a time consuming activity. Therefore, project managers can easily be torn in a dilemma between spending time doing a thorough analysis of stakeholders and the need to execute the project and/or get the existing strategy in motion. In the early stages of the project/programme, when the objectives, processes, execution plans and resources—time, budget and organisation—need to be defined, the framework developed for the stakeholder landscape could be useful.

In this research, the main aim has been in stakeholder analysis and the landscape in a hospital project. Our approach involves a method and material triangulation to avoid any bias. However, certain context-specific issues are naturally present but the analysis is focussing on the applicability of stakeholder analysis and the landscape being in a hospital project. The focus is not on the specific stakeholder maps or salience, which would be more project-specific. In other words, the content of the stakeholder map is not an important contribution of this research, but the method is. Healthcare systems differ nationally, also private, public, occupational systems may cause differences in stakeholder maps or landscape. Nevertheless, the main utility of clearer understanding remains clarified. Therefore, we argue that our findings can be generalised into a theory concerning stakeholder management, landscape, and value creation, at least in hospital projects.

5. Conclusion

This study primarily considered stakeholder analysis and landscape description on a large and complex hospital design and construction project to describe the impacts on value creation. Earlier research has shown early involvement and integration of main stakeholders. It also offered some methods to analyse these stakeholders. However, the complexity and multilateral levels of our case study offered new findings.

At first, the stakeholder mapping, salience and management challenges and their emergence in the stakeholder landscape were depicted. It was easy to outline the complexity and other features of landscape. However, only the project-specific analysis and description of these in every project revealed the level of complexity (element and relationship complexity), uncertainty, dynamism and institutional context, not to mention their typology of salience (power, legitimacy and urgency), alongside the willingness to contribute. With this type of project, specific analysis revealed tentative problems amongst and between stakeholders. Therefore, it is somewhat surprising that there is little evidence of applying this kind of analysis as a managerial method or tool.

Second, to benefit from the collaborative setting for the project, we listed the implications from the stakeholder management challenges (Table 3) specifically into the value creation. One of the greatest opportunities for exploiting the landscape and its components in large-scale hospital projects, where the number of discrete and multiple-changing stakeholders with their differing expectations can be seen as an important opportunity to use the landscape as a tool to improve the value creation process. A project like hospital has extensive long-term and socio-economically significant impacts; therefore, it is even more critical that these, sometimes even contractionary needs and requirements, are analysed in profound sense through stakeholder landscape. Longitudinal view of the stakeholder landscape analysis offered, through dynamisms, a possibility to analyse these changes.

Our analysis covered one hospital project, but the type of landscape may be considered similar also in other hospital construction projects, at least the process of it. The landscape will, of course, change depending on the terrain, that is, the healthcare system and implementation models to implement hospital construction project changes), and the content analysis will change accordingly. We also argue that the analysis process could be extended to any large-scale megaproject, providing a comprehensive picture, and revealing different contextual factors. Our studies will continue at a more detailed level within the case project, and specifically on how stakeholder interactions operate in this environment. Future research should include more details on what and how to utilise stakeholder analysis and landscape in practical level decision making. Moreover, further research could operationalise the concepts of stakeholder analysis and landscape research for quantitative examinations.

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Appendix 1
Thematic interview questions for the main stakeholders

- (1) What is your and your organisations role and responsibility in the project?
- (2) Are you aware of the objectives and requirements of the program and the project? Are those clearly communicated to all?
- (3) What are the key stakeholders and what are their goals?
- (4) Are there differences or contradictions in the goals or even conflicts?
- (5) What kind of interrelationships do stakeholders have?
- (6) Are there significant external stakeholders in the project?
- (7) Are stakeholders and their requirements/objectives available for others?
- (8) Do you recognise any systematic approach to stakeholder management?
- (9) Is there conflicting information about stakeholders and their goals, or is the information consistent?
- (10) Is there any dynamism amongst the stakeholders? Are those anticipated?
- (11) Have stakeholder leadership and engagement strategies changed during the projects/do you see a need for change?
- (12) Have there been/are any significant changes in stakeholder relations?
- (13) Have stakeholder leadership and engagement strategies changed during the projects?
- (14) Have new stakeholders entered the project/new significant stakeholders are coming?
- (15) Do stakeholders have significant relationships with other actors that are contextually relevant?
- (16) Are there many different institutional operating environments (logics) in the project that are contradictory and what kind of effects are they seen to have?

Appendix 2

Stakeholder and salience attributes	Source of impact/salience	Source of influence	Willingness/possibility to impact
<i>Internal stakeholders</i>			
– The Client (NOHD owned by 29 municipalities (P, L, U))	The Client has the highest decision-making position and mandate to approve (go/no-go) the project definition and scope, budget, and schedule, and to provide funding, set goals, and appoint a project client representative. The Client is a public actor with obligations and responsibilities under laws and regulations	– Possesses formal authority and control (veto right) – Exert political influence – Financing/cost containment – Control funding	High/Neutral Neutral/Very low – Low
– OHD council and board of trustees (P, L)	Partners are equally involved in the project decision-making process and are committed to objectives and risk-sharing in accordance with the alliance agreement		
<i>Alliance partners (described below)</i>			
– PMO (P, L, U)	Is responsible for planning, organising, managing, and overseeing the implementation of the project based on the approved action plan. Project management manage all stakeholders PMO represents the Client to manage and implement projects and to make decisions on behalf of the Client. PMO has the authority to organise and manage the entire program and sub-projects, as well as to select and reject project partners and to approve or reject proposed changes to projects	– PMO has authority to purchase and control use of resources – Influences and control budget and provide inducements – Influences according the laws and regulations	Very high/Very high
– Architect (Chief designer) (P, L)	Chief designer, engineers, and other consultants have both personal and organisational responsibilities and rights based on the laws and regulations, and with accordance in the alliance agreement	– Influences according the laws and regulations	Very high/High
– Engineers (civil, structural, building technology) (P, L, U)		– Influences and control use of resources	Very high/High High/Neutral
– Other Consultants (L, U)		– Influences and control use of resources	

(continued)

Table A1. Stakeholders, their salience attributes, and willingness/possibility to impact in the project

Table A1.

Stakeholder and salience attributes	Source of impact/salience	Source of influence	Willingness/possibility to impact
<ul style="list-style-type: none"> - The General Contractor (P, L, U) 	<p>The General Contractor and other contractors of the alliance partners have certain responsibilities under laws and regulations and in accordance with the alliance agreement</p>	<ul style="list-style-type: none"> - Influences and control use of budget and resources (sub-contractors and suppliers) 	<p>Very high/Very high</p>
<ul style="list-style-type: none"> - Other Contractors (as HVAC – and Automation) in the alliance (P, L, U) 	<p>Other contractors of the alliance partners have certain responsibilities under laws and regulations and in accordance with the alliance agreement</p>	<ul style="list-style-type: none"> - Influences and control use of budget and resources (sub-contractors and suppliers) 	<p>Very high/High</p>
<p><i>Interface stakeholders</i> Corporate admin (P, L, U) (Board of Executives)</p>	<p>Management is responsible for the hospital's operations and finances, and is the highest decision-making body authorised by the council. Has power to control the use of resources, operations and budget, and whether staff is available for project planning. Manages interface stakeholders by providing sufficient inducements</p>	<ul style="list-style-type: none"> - Mandate to manage and control the use of resources, approve/reject proposals for new premises, and/or requests for changes to the scope 	<p>High/Neutral</p>

(continued)

Stakeholder and salience attributes	Source of impact/salience	Source of influence	Willingness/possibility to impact
Medical and non-medical staff (P, U)	Each of the medical and non-medical departments has their own organisations with responsibilities and rights under the administration rules and laws. Head of the departments approves the requirements set by the end-users, the proposed layouts/facilities, and the selected equipment and systems. Departments has the power to decide whether staff are available for project planning	<ul style="list-style-type: none"> - Control use of resources in project - Provide necessary knowledge 	<ul style="list-style-type: none"> High/Neutral High/Neutral Neutral/Low Neutral/Neutral Neutral/Neutral
<ul style="list-style-type: none"> - Teams of profit units' managers - Teams of other operational units' managers - Physicians and nurses - Support services (laboratory, imaging, logistics, nutrition) - Maintenance and cleaning - Trade union representatives (P, U) 	Trade unions have a high degree of power and urgency to influence in case of any issue	<ul style="list-style-type: none"> - Exert political influence 	Neutral/Very low
<i>External stakeholders</i>			
Governmental authorities Regulators/licencing agencies (P, L, U)	The governmental authorities have strong decision-making power on the value constellation and determine incentives and policies aimed at promoting the good healthcare. The Ministries of Social Affairs, Health and Finance are the authorities that issue permits for hospital investments	<ul style="list-style-type: none"> - Consistency with regulations and healthcare policy - Cost containment - Approve/reject permit applications 	Low/Low
<ul style="list-style-type: none"> - Ministries (MSAH, MF) 			

(continued)

Table A1.

Stakeholder and salience attributes	Source of impact/salience	Source of influence	Willingness/possibility to impact
Local/municipal level authorities Regulators/licencing agencies (P, L, U)	Often the main decision-maker is the local authority, but the complexity of healthcare and large-scale construction project requires the involvement of different authorities. Authorities include <i>polymakers</i> , who carry out policy agendas on the sector, and <i>public decision-makers</i> , who deal with administrative issues and ensure continuity of action in the sector Exert political influence/pressure and control funding	– Approve/reject permit applications	Neutral/Very low
Various political groups (P, U)	Influential local community groups could use their power to halt progress through political and non-political action, but they are the least responsible for their actions	– Cost containment – Influence public perception	Low/Very low Neutral/Very low
The media (symbolic Power)	Both the social and official media hold a unique position in the project. They cannot really be defined as a stakeholder because they have no actual stake in the project. However, the media can have a big effect on the project's outcome – opponents/external stakeholders may use media to express their opinions.	– The media: positive/negative image and influence public perception	Neutral/Very low
Suppliers (P, U)	<i>Suppliers</i> (including, e.g. material and workforce) in represent a significant portion of their value to the hospital project. Subcontractors and suppliers generate 50 to 60% of project costs, and the project schedule depends on their ability to deliver. The contractors are dependent on suppliers and subcontractors for project delivery, as they do not have all the required expertise and resources to deliver the entire construction project on their own The source of power includes their ability to choose providers (physicians, hospitals) and the ability to influence public perceptions	– Collaboration and/or competition – Innovation – Contract with the General Contractor – Coalition with other external stakeholder entities	Neutral/Low
Patients (U)		– Influence public perception	Low/Very low

Note(s): Salience attribute; P = power, L = legitimacy, U = urgency, and willingness and possibility to impact: very low, low, neutral, high and very high