Stakeholder Evolution: A Study of Stakeholder Dynamics in Twelve Norwegian Projects

Abstract

Purpose This paper was written with the aim of exploring the concept of stakeholder dynamics and to show how stakeholders demonstrate their dynamic nature in the power/interest matrix. This in turn should assist project management and stakeholder management practitioners predict the behavior of different stakeholder groups in their projects, and strategize their stakeholder management approaches accordingly. **Design/methodology/approach** The findings in this paper are based on data collected from twelve diverse projects from five different business sectors executed in Norway by means of an online, closed-question questionnaire, which was analyzed using various statistical approaches.

Findings Stakeholder dynamics is a contextual phenomenon, which takes different forms and shapes from one stakeholder group to the other, from one industry or business sector to the other, and even from one project to the other within the same industry or business sector. The stakeholder group of user(s) was the most dynamic in Norwegian projects based on their continuous repositioning on the power/interest matrix from one project phase to the other. Environmental activists/organizations was the least dynamic stakeholder group in the full sample of projects.

Originality/value This paper presents the first more comprehensive empirically-based findings about stakeholder dynamics in projects we have been able to find. The study gives project management practitioners insights from various industries and business sectors into how stakeholders change position over time. It also shows that the two attributes of power and interest are strongly connected and affect one another, which might make it possible to control and design a safer and less complex stakeholder environment for future projects.

1. Introduction

Stakeholder management is one of the most difficult tasks a project management practitioner must deal with. This is partly due to the inherent complexity and unexpectedness of human nature, which makes it nearly impossible to predict the outcome of human actions. Stakeholder management is often seen as a task to be carried out in the beginning of a project, where stakeholders are identified and modelled, and implicitly assumed to maintain their power level and interests until project completion. Although not much empirical data and research have been published, there are some key references demonstrating that the stakeholder environment of projects can be quite dynamic (Aaltonen & Kujala, 2010; Aaltonen, Kujala, Havela, & Savage, 2015; De Schepper, Dooms, & Haezendonck, 2014; Eskerod & Vaagaasar, 2014; Huse, 1998; Jepsen, 2013; Jonker & Foster, 2002; Mitchell, Agle, & Wood, 1997; Olander & Landin, 2005; Papadopoulos & Merali, 2008; Windsor, 2010). This is also the real-life experience of many project managers. Thus, in this paper, we start from the assumption that stakeholders have a dynamic nature, not a static one. This means that whatever stakeholder management tool is being used, stakeholders continuously change their position in the "landscape" of that tool. This requires continuous attention, management strategies and a proactive approach based on the new positioning.

Our starting point has been extant literature about the evolution of the stakeholder context of projects, especially the fact that there is a dearth of studies pertaining to this phenomenon. The aim has been to study and discuss the dynamic or static natures of different stakeholder groups, based on data obtained from twelve case projects executed in different Norwegian industries and business sectors. On the basis of this data, we show which stakeholders are the most and least dynamic in each industry or business sector. We also offer suggestions for future research based on the research limitations faced in the process of developing this study.

There are three research questions being discussed in this article: (1) who are the most, and least, powerful, interested and dynamic stakeholders in projects from different sectors?; (2) are there patterns demonstrated by these stakeholders depending on the business sector to which a project belongs?; and (3) is there a correlation between the changes in the levels of power and interest during project development and execution?

2. Literature Review

First, it was necessary to start by uncovering existing literature about stakeholder management and more specifically stakeholder dynamics, including the different influence strategies that

stakeholders employ to impose their will and exercise their power in different projects. To achieve this, an online search into different databases such as ProQuest, Scopus, Web of Science and Google Scholar was carried out, using different combinations and synonyms for stakeholder evolution, stakeholder dynamics, stakeholder management, course of a project, project lifecycle, etc. Papers were selected from prestigious journals (Aaltonen & Kujala, 2010; Aaltonen et al., 2015; Achterkamp & Vos, 2008; Burga & Rezania, 2017; Davis, 2014; De Schepper et al., 2014; Eskerod & Vaagaasar, 2014; Floricel, Bonneau, Aubry, & Sergi, 2014; Jepsen, 2013; Khang & Moe, 2008; Mitchell et al., 1997; Olander & Landin, 2005; Papadopoulos & Merali, 2008; Windsor, 2010).

The literature review is divided into several parts. First, we demonstrate different ways of identifying stakeholders and how to position them on a stakeholder map or stakeholder management model using several different tools and techniques. Then, the concept of stakeholder dynamics is introduced, where the stakeholder dynamics can be studied by monitoring the position changes that stakeholders experience during a project. This provides us with a better understanding of which stakeholders are more dynamic and which are of a more static nature than others. Adding to that, we attempt to examine whether such stakeholder dynamics are dependant on the business sector to which a project belongs.

2.1. Stakeholder Management in Projects

A project can be seen as a temporary organization (Lundin & Söderholm, 1995), established to create benefits through transitions, and a project requires resources to accomplish these transitions (Pfeffer & Salancik, 1978). Individuals and groups, or entities, which may affect or be affected by the project – the so-called 'stakeholders' (Freeman, 1984) – possess various sorts of resources (e.g., expertise, decision-making power, money, goodwill, influential contacts, and so forth). An important part of project management is to interact with the stakeholders in order to make them contribute what the project needs (Eskerod & Vaagaasar, 2014).

Project stakeholder management literature relies to a great extent on stakeholder theory within strategic management (Eskerod & Huemann, 2013). The literature on stakeholder theory (Freeman, 1984; Jawahar & McLaughlin, 2001; Mitchell et al., 1997; Parmar et al., 2010; Savage, Nix, Whitehead, & Blair, 1991) suggests that the focal organization (i.e., the project) should apply certain stakeholder management strategies based on the assessment of the stakeholders at hand. The literature, however, has a number of limitations: It does not provide

a very detailed description of the contents of the stakeholder management strategies, nor does it touch upon the challenges and possibilities related to changing strategies during a time span in a detailed manner (Parmar et al., 2010). Furthermore, it does not specifically relate the strategies to temporary organizations like projects (Littau, Jujagiri, & Adlbrecht, 2010).

Since project stakeholders play a major role in the accomplishment of project tasks and objectives, and because the stakeholder management process has so far to a great extent proved to be dependant upon the project manager's skills, relationships and experience, it has been suggested that a formal and systematic stakeholder management process is needed (Karlsen, 2002).

For a better understanding of the stakeholder management process, we will review the most important steps of this process. We start with perhaps the most important activity, which lays the foundation for the entire ensuing process, namely stakeholder identification.

2.2. Stakeholder Identification

When it comes to identifying and defining stakeholders, authors have taken one of two different approaches; on the one hand, there are those who took after Freeman (1984) original definition, providing a broad definition of stakeholders, and suggesting that stakeholders are groups or individuals actively involved in a project or whose interests may be affected by project execution or project completion (Bourne & Walker, 2005; Kolltveit & Grønhaug, 2004). This has, however, been criticized for opening the door for virtually everyone to be considered a stakeholder (Aaltonen & Kujala, 2010). On the other hand, there are researchers and authors (Chinyio & Akintoye, 2008; Cleland, 1986, 1998; Olander, 2007) who have adapted narrower definitions of the notion "stakeholder" based on the stakes that a stakeholder actually holds. Cleland (1986), for example, defined stakeholders' claims through their objective or perceived legitimacy (Aaltonen & Kujala, 2010). Mitchell et al. (1997) have also based their stakeholder identification model on a stakeholder's salience to the organization at a certain point in time, suggesting that an element of dynamism exists in the stakeholder environment surrounding a project, where stakeholders can "win" or "lose" their salience and significance in the stakeholder network affecting a project.

Davis (2014) has presented a very comprehensive classification of stakeholders based on their perception of project success, as well as the common factors affecting more than one stakeholder's perspective of a successful project. We assume that project success can be believed to be a major driver behind a stakeholder's level of interest in a project. This success,

according to Davis (2014), can be defined in terms of e.g., time, the project manager competencies and focus, the project delivering the strategic benefits significant to the project sponsor, and communication and identifying and agreeing on objectives and mission.

According to the broad definition of the concept of stakeholders as any person or group of people who may affect or be affected (Freeman, 1984), everyone can be considered a stakeholder to an organization or a project (Aaltonen & Kujala, 2010). That is why, in order to make the stakeholder identification process easier and more accurate, authors have suggested narrower definitions of the term "stakeholder", which allow a finer categorization (Achterkamp & Vos, 2008). This has led to different categorizations of stakeholders as those who have "potential for collaboration" or "potential for threatening" (Blair & Whitehead, 1988), "fiduciary" and "non-fiduciary" stakeholders (Goodpaster, 1988), "primary" and "secondary" stakeholders (M. E. Clarkson, 1995), and "voluntary" and "involuntary" stakeholders (M. Clarkson, 1994).

After the stakeholders are identified, and in order to manage them in the most efficient and effective way possible, certain tools have been developed and used by researchers and practitioners in order to help model and track a stakeholder's attitudes towards a project or an organization. We suggest that these tools can be repurposed in order to represent stakeholder dynamics, and in the next section we demonstrate some such tools and techniques.

2.3. Stakeholder Mapping and Modelling

Many attempts at studying and mapping the stakeholder presence surrounding an organization or a project have been carried out. However, most of these have been of a static nature, placing the stakeholders in a stakeholder model based on different criteria or on the possession of certain attributes and their levels, assuming that such stakeholders maintain the same criteria or levels of attributes throughout the whole project. This is probably owing to the fact that dynamics remain difficult to model (Windsor, 2010). This is likely due to the complexity of the stakeholder environment and its interactions, the continuous replacement of personnel in such networks, and environmental changes including strategies and laws and regulations, etc.

There have been authors who suggest stakeholder models based on the levels of possession of three attributes or criteria, like Murray-Webster and Simon (2006), who classified stakeholders according to their levels of power, interest, and attitude, and Mitchell et al. (1997)'s model evaluating a stakeholder's salience or significance to a certain organization or project based on the possession of power, legitimacy and urgency.

In contrast, other authors have preferred to utilize models encompassing only two dimensions, where they have kept the power factor, adding factors such as interest (Johnson & Scholes, 1999), urgency (De Schepper et al., 2014), or predictability (Newcombe, 2003).

Some of these authors have also suggested stakeholder management strategies based on stakeholder positioning in their models. Johnson and Scholes (1999), for example, have divided their model into four quadrants, where the stakeholders with both high power and high interest are key players who require a high level of collaboration and engagement, while those who possess a high power level but a low interest level are to be informed to keep channeling their high power in the best interest of the project. Stakeholders with a low power level and a high interest level are to be kept informed in order to keep their high interest and limit their power over the decision-making process in the project. Finally, the stakeholders with low levels of both power and interest require minimal effort, as they do not usually pose a real threat to the project.

We are of the opinion that it is safe to assume that when a stakeholder or an organization appoints new representatives in a stakeholder environment or network, they arrive with their own background and expertise, as well as with interests, needs, and expectations they think are beneficial to the organization or stakeholder they are representing. Also, following major decisions and milestones, and in between different phases of a project, new collaborations and coalitions, as well as oppositions, are formed. This suggests that a stakeholder's position on the stakeholder map or model cannot be considered stable or static along the lifecycle of the project, but can be assumed to be ever changing, resulting in a change in the stakeholder's salience or significance to the organization or project from one point in time to another.

2.4. Stakeholder Dynamics

The literature directly addressing the topic of stakeholder evolution and dynamics proved to be scarce and rare. Furthermore, some of the research available was focused on the earlier phases of projects, ignoring or overlooking the rest of the project execution process, where stakeholders are likely to demonstrate higher levels of stakeholder dynamics to be observed and monitored.

There are authors who have introduced and discussed the concept of stakeholder dynamics. However, they have mostly discussed and demonstrated the concept in the early phases or the front-end phase of project execution (Aaltonen et al., 2015; Olander & Landin, 2005).

However, others have also covered the cases they studied in later phases (Aaltonen & Kujala, 2010; Papadopoulos & Merali, 2008).

Olander and Landin (2005), for example, have utilized the power/interest matrix in demonstrating the dynamic nature of key stakeholder groups in the early phases of two construction/infrastructure projects in Sweden, showing the different interactions, collaborations and opposition strategies implemented by different stakeholder groups during the conceptual design and planning phases of project execution, and briefing the consequences of the stakeholder dynamics they have observed on the duration and cost of the completion of the two projects.

De Schepper et al. (2014) discussed stakeholder dynamics in public private partnerships (PPPs) using data acquired from four infrastructure projects executed in Flanders in Northern Belgium. Aaltonen and Kujala (2010) presented the stakeholder relationship changes in a project implemented in Latin America by Botania, a Finnish company jointly owned by several Finnish companies, and the different influence strategies employed by the opposing stakeholders to the execution of the project. In their research, Aaltonen and Kujala (2010) used Mitchell et al. (1997)'s stakeholder salience model as reference for their analysis.

Floricel et al. (2014) and Burga and Rezania (2017) have discussed stakeholder dynamics on the basis of actor-network-theory (ANT), a theory integrating interests and power in the ongoing processes of negotiation and translation through an evolving assemblage of affinities between actors rather than via predetermined positions and individual interests. Based on these examples, we can see that the research on stakeholder dynamics has so far been primarily contextual and subject to the focus of the scholars carrying out the research. We can also see that the use of tools initially intended for the static analysis and management of stakeholders has been addressed before. In this paper, therefore, we have tried to unify the conditions in all projects by using a generic list of stakeholder groups assumed to be present in the stakeholder environment of projects, and by using the four-phase model of international projects (Khang & Moe, 2008). Introducing the concept of dynamics into the stakeholder management process suggests complexity (i.e., a system of relationships among multiple constants and variables), heterogeneity (i.e., cross-sectional variation at any point in time), and path-dependent change over time. Conversely, a static analysis, like a constant, has no time dimension (i.e., no dating). A constant does not change over time, which is irreversibly forward in direction (Windsor,

2010). The introduction of such a concept may suggest that the nature of the stakeholder environment keeps changing along with the altering attitudes of different stakeholder groups.

These attitudes can be either supportive to the organization or the project or opposing it, and stakeholders have been seen to form coalitions and pressure groups to influence the decision-making process during a project's execution. It has also been observed that stakeholders usually act in a negative manner when they are overlooked or when the information about the project and the purpose behind its implementation are miscommunicated to these stakeholders (Papadopoulos & Merali, 2008).

On the other hand, Papadopoulos and Merali (2008) showed the effect of good communication and the value that a project adds to stakeholders which almost completely changes the attitude of such stakeholders from opposition to support and cooperation. This demonstrates the effect of good communication and inclusion on the project-stakeholder relationship, based on mutual value addition, which is vital throughout the entire lifecycle of the project.

Furthermore, it has also been observed to what extent stakeholder dynamics may adversely impact project execution if not treated properly, leading to delays and cost overruns (Aaltonen et al., 2015; Olander & Landin, 2005), suggesting four points or precautions that need to be taken into account during the stakeholder management process of projects: (1) to investigate all possible alternatives and solutions to realize the objectives of the project, not only from the quantitative aspects of technology and economy, but also from the more qualitative aspects of potential influence from stakeholders; (2) to clearly define all the positive and negative arguments about the chosen alternative in relation to the other alternatives investigated, in order to be regarded as trustworthy by those stakeholders who are negatively affected by the project; (3) the stakeholders' base of influence is not static. The stakeholder analysis must be conducted and updated during the entire life cycle of the project, with the purpose of gaining knowledge about the potential influence various stakeholders have at different stages of the project; and (4) prior to any major decision to proceed into a new phase of the project, an analysis of how the decision affects the different stakeholders should be made in order to be proactive in the stakeholder management process (Olander & Landin, 2005).

In their research, Mitchell et al. (1997) classified stakeholders according to their salience to the organization based on the possession of three main criteria or attributes: (1) the stakeholder's power to influence the firm; (2) the legitimacy of the stakeholder's relationship with the firm; and (3) the urgency of the stakeholder's claim to the firm. They have adapted the definition of

power as the ability of those who possess power to bring about the outcomes they desire (Salancik & Pfeffer, 1974) and urgency being the degree to which stakeholder claims call for immediate attention. The authors have accepted the definition of Suchman (1995) stating that legitimacy can be defined as a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.

Mitchell et al. (1997) argued that it is the third stakeholder attribute or criterion, urgency, that leads to the stakeholder management model moving from being static to being dynamic. They quoted theMerriam-Webster dictionary, defining urgency as calling for immediate attention, and proposed that it exists only when two conditions are met: (1) when a relationship or claim is of a time-sensitive nature; (2) and when that relationship or claim is important or critical to the stakeholder. They also claimed that urgency itself is based on two attributes: (1) time sensitivity, defined as the degree to which managerial delay in attending to the claim or relationship is unacceptable to the stakeholder; and (2) criticality, meaning the importance of the claim or the relationship to the stakeholder.

Mitchell et al. (1997) argued that the importance of paying attention to a certain stakeholder depends on the number of attributes that this stakeholder possesses, with the most important or salient stakeholders possessing all three attributes, and the least important or salient possessing none. They also proposed that stakeholders acquire and lose these attributes, and therefore their levels of importance in the different phases of a project's lifecycle, making stakeholder salience, and in turn the stakeholder management process, a dynamic and evolving one.

Aaltonen et al. (2015), however, have criticized Mitchell et al. (1997)'s model, pointing out that while the salience framework has been applied in empirical research, serious attempts to operationalize and create robust measures of salience attributes have been quite limited (Neville, Bell, & Whitwell, 2011). Aaltonen et al. (2015) also mentioned the facts that many of the applications and empirical tests for the model consider only the simple absence or presence of the three attributes power, urgency and legitimacy (Neville et al., 2011), and that Mitchell et al. (1997) themselves have noted that even though their framework considers each attribute as "present" or "absent", stakeholder attributes function as variables operating upon a continuum, not as steady state/dichotomous, and that they can change for any particular group or stakeholder-manager relationship.

In this paper, consequently, we are attempting to fill a gap in the literature by discussing stakeholder dynamics and evolution in a variety of projects from various industries and business sectors. We try to provide cross-sectional results demonstrating which stakeholder groups are the most dynamic and which are the least dynamic based on acquiring or losing power and interest. We also try to examine the correlation between the rise and fall in the levels of these two attributes, allowing project management practitioners to take a proactive approach in managing the stakeholders involved in their projects.

In the next section, we take a look at the methodology utilized for collecting the data required for the purpose of this paper.

3. Methodology

3.1. Research Design

The overall research approach in this study is a cross-sectional study. Ideally, to answer the formulated research questions, a large data set of "objective" data about stakeholder characteristics throughout the life cycle of different types of projects should have been collected. However, this type of data is far from systematically and consistently recorded by projects, making such an approach practically infeasible. Thus, we opted for cross-sectional study as the main approach, solving the data availability problem by deliberately selecting case projects where we knew more detailed stakeholder data had been collected throughout the projects.

3.2. Data Collection and Analysis

For collection of data, the case projects were identified by soliciting relevant case projects from an extensive network of project practitioners employed by members of a project management interest center hosted by the Norwegian University of Science and Technology. These member organizations span different project roles (owner, consultants, contractors) and different business sectors (construction, infrastructure, ICT, energy, healthcare). In the end, twelve case projects were identified, subject to the criteria that longitudinal stakeholder data be available, that different business sectors were represented (the sample covered healthcare services, ICT, oil and gas, research and development, and construction/infrastructure), and that they be of varying scope/size. It should be acknowledged that the sample to some extent also represented a "sample of convenience" (Marshall, 1996) by encompassing the cases we would have access to. **Table 1** shows a summary of the business sectors or industries that have been included in the study, as well as the number of projects belonging to each one of them.

Table 1 Number of projects from each business sector

Business sector	Number of projects
Oil and gas	3
Research and development	2
ICT	2
Construction/infrastructure	3
Healthcare services	2

The data was collected by means of an online, closed-question form (Fink, 2003), using Google Forms. This proved the most suitable way of collecting the necessary data for several reasons: While not allowing the researchers to pose follow-up questions, the questionnaire ensured consistent collection of identical or near-identical data sets from all case projects, precise descriptions of the data points required could be provided to the respondents, and previous experience with Google servers indicated that they are stable and reliable, entailing a very small chance of data loss or delivery failure.

After testing the questionnaire by asking a project management expert to provide a test response, which was not taken into account while calculating the results, the link to the online form was sent to respondents who had been actively involved in the twelve case projects included in the study, along with an email including definitions of power and interest (Olander & Landin, 2005), in order to minimize the ambiguity and unify the interpretations of the main terms used. The purpose of this was to take into consideration the diverse backgrounds and experiences of the respondents, which could lead to various understandings and interpretations of the two terms.

The respondents were asked to provide scores between 1 and 7 for each of the two attributes power and interest, for a provided list of ten stakeholders (Davis, 2014) shown in **Figure 1** for each phase of the project: conceptualizing, planning, implementing, and closing/completing (Khang & Moe, 2008).

Figure 1 Network of suggested stakeholders

The scores provided by each respondent were then used to plot the power/interest relationship on the chart shown in **Figure 2** from all phases of the project and for each of the ten stakeholders. The purpose was to determine the level of dynamism for each of the stakeholders in each of the five business sectors included. This was accomplished by plotting the power/interest scores in the classical stakeholder matrix chart. We developed a stakeholder dynamics factor which was calculated by summing the power dynamics factor and the interest dynamics factor **(Equation 1).** The power dynamics factor was calculated by summing up the absolute differences between the power level in a certain project phase and the power level in the preceding project phase **(Equation 2)**. Similarly, the interest dynamics factor was calculated as the sum of the absolute differences between the interest score in one project phase and the interest score in the preceding phase **(Equation 3)**. **Table 2** summarizes the process of utilizing the power and interest scores collected from the cases studied to calculate the stakeholder dynamics factor for a given stakeholder group.
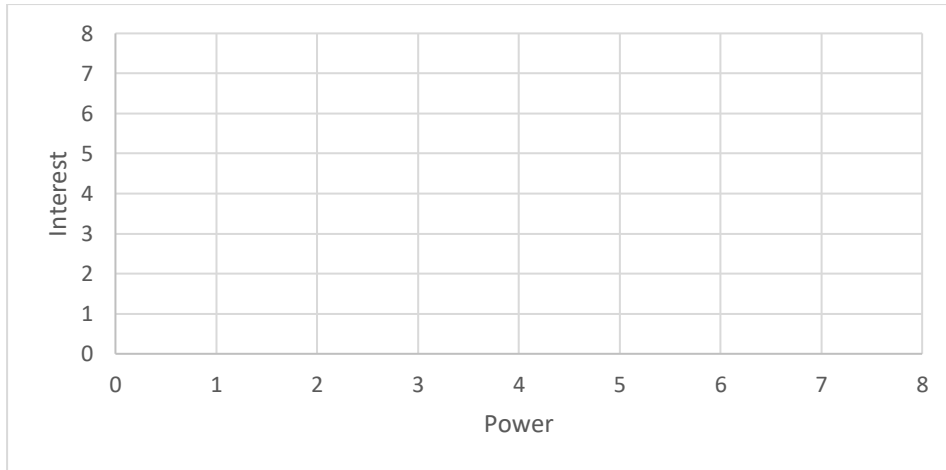
Figure 2 Power/interest matrix

Equation 1 Calculating the dynamics factor

$$\Delta D = \Delta P + \Delta I$$

Equation 2 Calculating the power dynamics factor

$$\Delta P = \left| P_{Planning} - P_{Conceptualizing} \right| + \left| P_{Implementing} - P_{Planning} \right|$$
$$+ \left| P_{Closing/Completing} - P_{Implementing} \right|$$

Equation 3 Calculating the interest dynamics factor

$$\Delta I = \left| I_{Planning} - I_{Conceptualizing} \right| + \left| I_{Implementing} - I_{Planning} \right|$$
$$+ \left| I_{Closing/Completing} - I_{Implementing} \right|$$

Table 2 The process of calculating stakeholder dynamics

Stakeholder group					
Phase	Power	Interest	ΔP	ΔI	ΔD
Conceptualizing	P_1	I_1	$\left| P_1 - P_2 \right|$	$\left| I_1 - I_2 \right|$	$\Delta P + \Delta I$
Planning	P_2	I_2	$+ \left| P_2 - P_3 \right|$	$+ \left| I_2 - I_3 \right|$	
Implementing	P_3	I_3	$+ \left| P_3 - P_4 \right|$	$+ \left| I_3 - I_4 \right|$	
Closing/completing	P_4	I_4			

In order to identify the most dynamic and the least dynamic stakeholder groups, the sum of the dynamics averages, ΔD, was divided by the number of cases included, n. For example, in the case of identifying the most and least dynamic stakeholder groups in all twelve projects, n was

equal to 12. **Equation 4** shows the formula used in calculating the average dynamics for a given stakeholder group.

Equation 4 Calculating the dynamics factor for a given stakeholder group

$$Dynamics\ Factor = \frac{\sum \Delta D}{n}$$

When conducting the analysis of the project data, the main approach was to study the sample of twelve case projects as a whole, with the purpose of understanding if there are common patterns of stakeholder dynamics across sectors and types of projects. However, since we had a broadly composed sample of case projects, albeit with a low number of case projects representing each sector, we also performed the analyses per project type. The purpose was to see if significant differences among the represented sectors stood out, even if the potential for generalizing such findings are limited.

In the next section we discuss some of the limitations encountered while collecting and processing the data, and how some of these were addressed.

3.3. Research Limitations

No open-ended questions were included in the online form in order to make it less time-consuming and as inviting as possible. This approach has resulted in limited insight into the reasoning and logic behind every choice that the respondents made, leading to us providing merely assumptions as to why a certain phenomenon had occurred or why a certain score was given. This could have been mitigated by follow-up interviews, which is something both we and other researchers ought to consider for follow-up work in order to better understand the causes of different stakeholders' dynamic behavior.

As indicated above, a serious limitation concerning the sector-specific analyses of stakeholder dynamics is the number of case projects per sector. Thus, we make no claim that those findings be universal; rather we simply consider them the first set of empirical data available allowing this type of analysis, which should be followed up by broader studies.

4. Findings and Discussion

We feel it is important, before beginning to communicate our findings, that we point out the fact that although the respondents to our questionnaire were asked, albeit not mandatory, to identify their role in the project to which they were providing data for, all of them refused to do so. That is why we cannot by any means claim that the results presented here represent the

point of view of certain stakeholder groups. They could be project managers, owners, users, senior managers, or all of these. We think that by doing so, they have done us an unintended favour, reducing or eliminating the bias in our results by such anonymity.

In this section we present the main findings from the twelve projects included in the study based on the dynamics factors that they demonstrated. First, looking at all twelve projects, the stakeholder group that showed the highest power average was the owner/sponsor stakeholder group. They have shown an average power of 5.8125/7. This seems reasonable due to this stakeholder group being in control of the most critical resource, the financial resource, without which no achievement can be reached or a project executed.

The second most powerful stakeholder group was the project managers. This also seems justifiable, as a project manager is usually in charge of making decisions related to the project, as well as in terms of the high awareness and full understanding of the conditions surrounding and affecting a project when it comes to resources, stakeholders, financial state, etc. The project manager stakeholder group had an average power of 5.104167, followed by senior management with 4.9375/7.

The value of the average power for each stakeholder group was calculated by summing up the power score that the stakeholder group had earned in all phases, and across all twelve projects, and by dividing that value by their number, as shown in **Equation 5.**

Equation 5 Calculating the average power for a given stakeholder group

$$P_{average} = \frac{\sum P}{n}$$

The stakeholder group with the lowest average score when it comes to power over the decision-making process in the course of a Norwegian project was the environmental activists/organizations. This could possibly be the case due to their lack of control over an actual stake or resource, at least in the sample of projects from which the data was obtained. This stakeholder group has scored a power average of 1.729167/7, which came as a surprise considering that Norway is assumed to be a country with high environmental awareness. Consequently, this stakeholder group had been expected to be more influential.

The environmental activists/organizations were preceded by the public stakeholder group, with an average power score of 1.979167/7, and the media, scoring an average of 2.20833/7. **Table**

3 summarizes the power averages from the entire sample of projects that each stakeholder group has obtained.

Table 3 Stakeholder power in projects

Stakeholder group	Average power
Project manager	5.104167
Project team	4.75
Media	2.02083
Senior management	4.9375
Municipality	2.354167
Client	4.708333
User(s)	3.791667
Owner/sponsor	5.8125
Public	1.979167
Environmental activists/organizations	1.729167

As to stakeholder interest in imposing their own will and expectations on the decision-making process across the different phases of a project, the stakeholder group that showed the highest value of interest was the project manager stakeholder group. This is probably attributable to their positions as decision-makers and the assumed fact that they constitute the stakeholder group with the highest motivation contributing to the project and the highest will to see it succeed. That is likely why the average interest score for this stakeholder group was 6.270833/7, followed by the project team stakeholder group at 5.6875. This might be ascribed to the project managers transferring their own interest and motivation to their team members, with the owner/sponsor stakeholder group closely behind, scoring 5.520833/7. Here, a probable explanation is their will to make sure that their financial resources are being well employed and will result in the highest revenue possible. A similar formula to the one used in calculating the average power was used in calculating the average interest (**Equation 6**).

Equation 6 Calculating the average interest for a given stakeholder group

$$I_{average} = \frac{\sum I}{n}$$

On the other hand, the stakeholder group with the least interest average was found to be the environmental activists/organizations, with an interest average of 1.916667/7, preceded by the

public, and the municipality stakeholder groups, with interest averages of 2.208333/7 and 2.479167/7, respectively. **Table 4** shows a summary of the stakeholder interest scores.

Table 4 Stakeholder interest in projects

Stakeholder group	Average interest
Project manager	6.270833
Project team	5.6875
Media	2.520833
Senior management	4.958333
Municipality	2.479167
Client	4.5625
User(s)	4.25
Owner/sponsor	5.520833
Public	2.208333
Environmental activists/organizations	1.916667

As for the stakeholder dynamics in Norwegian projects, it was the user(s) stakeholder group that showed the highest dynamic nature, with a dynamics average of 4.833333 (**Figure 3**). This was probably attributable to the immense influence on this stakeholder group from marketing strategies implemented by the producers or developers, as well as the limited knowledge they usually have about a project in its early phases, which might change dramatically during implementation or after project closure, when they start using it.
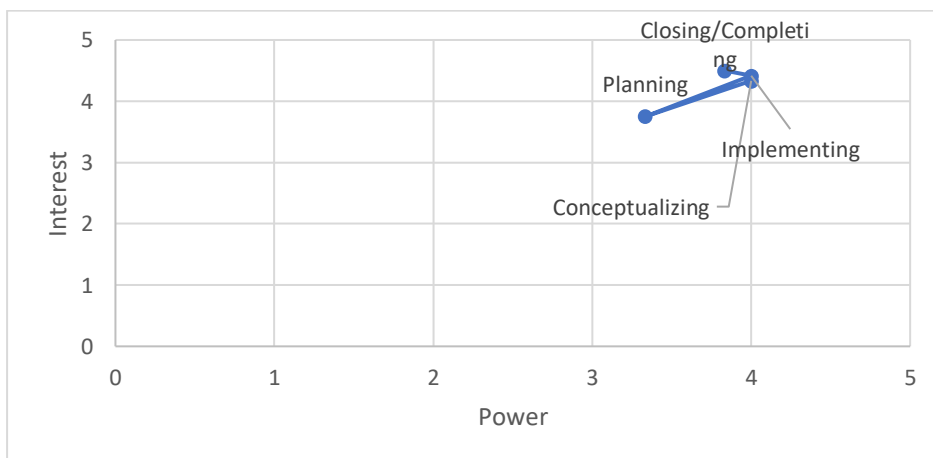

Figure 3 User(s) dynamics in projects

Following the user(s) stakeholder group, senior management constituted the second most dynamic stakeholder group in Norwegian projects, with a dynamics factor of 4.5, whereas the

project team stakeholder group came in the third place as the most dynamic, its dynamics factor being 4.

Conversely, it was the stakeholder group of environmental activists/organizations who had the lowest dynamics factor of 2.083333 **(Figure 4)**. This might be ascribed to the nature of the country itself and its strict laws and regulations pertaining to the environment, reducing the need for this specific stakeholder group and limiting their presence.
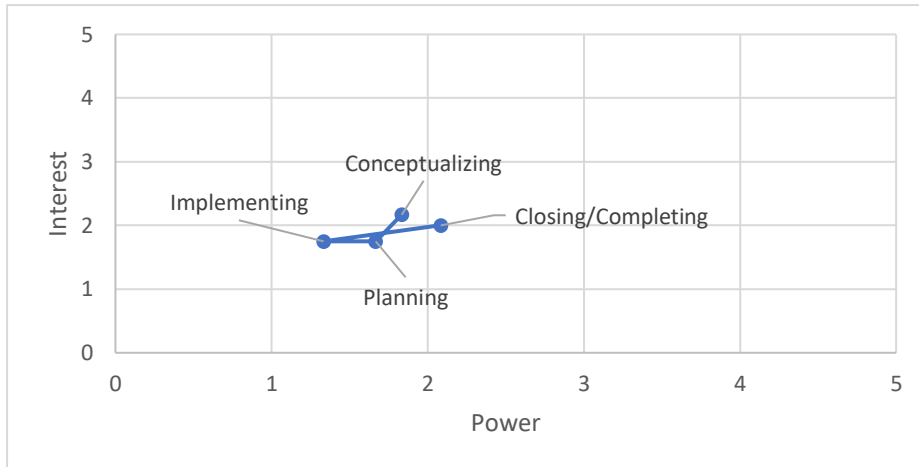

Figure 4 Environmental activists/organizations dynamics in projects

Preceding the environmental activists/organizations group was the owner/sponsor stakeholder group with a factor of 2.166667, and the media, whose dynamics factor was 3. This could be explained by what has been pointed out earlier: that the media usually take an opposing position against projects, promoting opinions against them, and mobilize the general opinion in that direction.

4.1. Oil and Gas

In oil and gas projects, the most powerful stakeholder group was the client, with an average power of 6.5/7, followed by the owner/sponsor stakeholder group, whose power average was 6.083333/7, and the project manager stakeholder group, with an average demonstrated power of 5.916667/7.

The stakeholder groups deemed the least powerful in oil and gas projects, however, proved to be the public and the environmental activists/organizations stakeholder groups, with an average power of 1.25/7. This came as a surprise, given the assumed influence of environmental organizations in Norway. These two stakeholder groups were preceded by the media and the municipality stakeholder groups, with power averages of 1.416667/7 and 1.5/7, respectively. **Table 5** shows the average power scores obtained by the different stakeholder groups in the course of oil and gas projects.

Table 5 Stakeholder power in oil and gas projects

Stakeholder group	Average power
Project Manager	5.916667
Project Team	5.5
Media	1.416667
Senior Management	5
Municipality	1.5
Client	6.5
User(s)	4.166667
Owner/Sponsor	6.083333
Public	1.25
Environmental Activists/Organizations	1.25

Identifying the stakeholder group with the highest interest within the oil and gas industry, it was found that, with an average interest of 6.583333/7, the project manager stakeholder group showed the highest interest among the ten stakeholder groups suggested to the respondents. This stakeholder group was followed by the project team and the owner/sponsor stakeholder groups, with an average interest of 6.083333/7, and the client stakeholder group, with an average of 6/7.

On the other hand, the stakeholder group with the lowest interest in oil and gas projects, and with an average interest of 1.666667, was the environmental activists/organizations. Considering the possible impacts that this type of projects could have on the environment in case certain measures are not implemented, it had been assumed that environmental activists/organizations would have shown a higher interest in keeping a close eye on these projects. However, as indicated by the findings, that was not exactly the case.

The second least interested stakeholder group was the municipality stakeholder group, with an average of 1.75, preceded by the public at 2. A summary of the stakeholder interest scores in oil and gas projects is shown in **Table *6***.

Table 6 Stakeholder interest in oil and gas projects

Stakeholder group	Average interest
Project manager	6.583333
Project team	6.083333
Media	2.416667
Senior management	5.25
Municipality	1.75
Client	6
User(s)	4.333333
Owner/sponsor	6.083333
Public	2
Environmental activists/organizations	1.666667

In the same category of projects, it was the senior management stakeholder group who had the highest dynamics factor of 4.333333 **(Figure 5)**, followed by the project manager, user(s), and public stakeholder groups in second place with a dynamics factor of 3. The media and the environmental activists/organizations emerged as the third most dynamic stakeholder groups, with a 2.666667 dynamics factor.
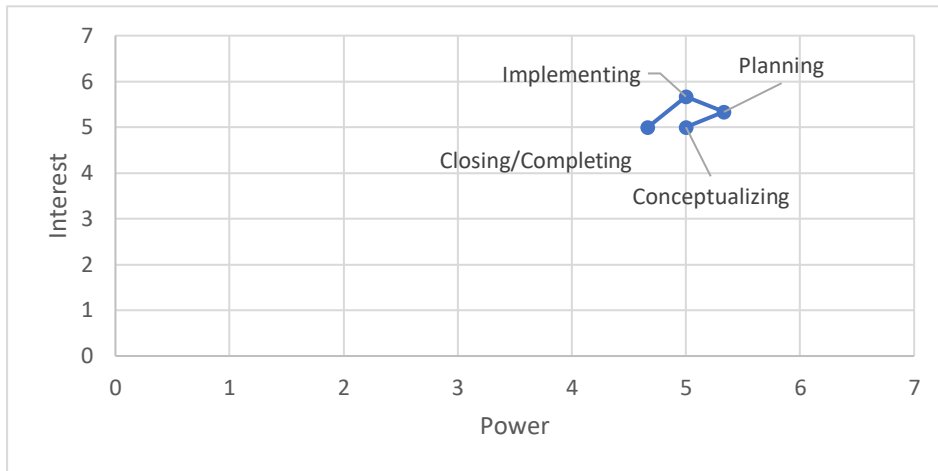
Figure 5 Senior management dynamics in oil and gas projects

The least dynamic stakeholder group in oil and gas projects was the owner/sponsor stakeholder group, the dynamics factor being 0.666667. This was probably due to their constantly high power and interest levels in projects from this critical, highly costly yet highly profitable type of projects, preceded by the client at 1.666667. Next came the project team and municipality stakeholder groups, whose dynamics factor was 2.333333.

4.2. Research and Development

In research and development projects, the stakeholder group showing the highest power average was the project manager stakeholder group, with an average power over the decision-making process at 6.5/7, followed by the owner/sponsor group, whose average was 5.875/7, and the project team, with 5.5/7.

Conversely, it was the the stakeholder groups of municipality, public, and environmental activists/organizations that were the least powerful in this segment of projects, with an average power score of 1.5/7, followed by the media at 1.75/7 and the user(s) at 3/7. The above results are summarized in **Table 7**.

Table 7 Stakeholder power in research and development projects

Stakeholder group	Average power
Project manager	6.5
Project team	5.5
Media	1.75
Senior management	4.375
Municipality	1.5

Client	5.25
User(s)	3
Owner/sponsor	5.875
Public	1.5
Environmental activists/organizations	1.5

The stakeholder group reporting the highest interest during research and development projects was shown to also be the project manager stakeholder group, with the same average as in the case of power, 6.5/7. Again, this group was followed by the owner/sponsor stakeholder group, maintaining the same average as in the case of power, 5.875/7, and finally the project teams, with 5.75/7.

Contrarily, it was the municipality, public, and environmental activists/organizations stakeholder groups that showed the lowest interest in research and development projects, with an average score of 1.5/7, preceded by the media, who scored 1.75/7, and the user(s), with 2.875/7. These results are shown and summarized in **Table 8**.

Table 8 Stakeholder interest in research and development projects

Stakeholder group	Average interest
Project manager	6.5
Project team	5.75
Media	1.75
Senior management	4.5
Municipality	1.5
Client	5.25
User(s)	2.875
Owner/sponsor	5.875
Public	1.5
Environmental activists/organizations	1.5

Senior management proved to be the most dynamic stakeholder group in research and development projects **(Figure 6)**, followed by the client and the owner/sponsor stakeholder groups. The project manager, municipality, public, and environmental activists/organizations stakeholder groups had been entirely stable throughout all project phases, displaying no dynamics at all over the power/interest matrix, and the project team stakeholder group showed a minimal dynamic activity, preceded by the media and user(s) stakeholder groups.
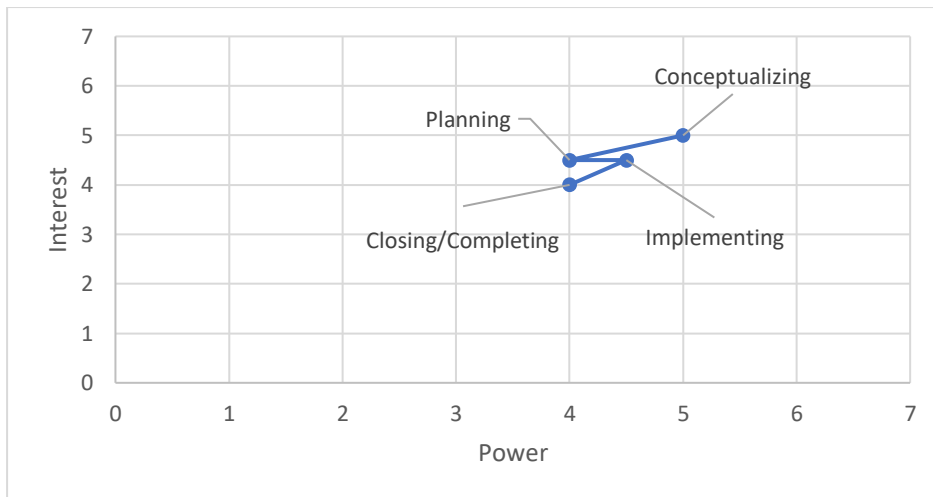
Figure 6 Senior management dynamics in research and development projects

4.3. Construction/infrastructure

The stakeholder group with the highest average power in the construction/infrastructure projects included in the study was identified as the owner/sponsor stakeholder group, with an average power of 5.666667/7. This group was followed by the senior management with an average power of 4.75/7, and then by the project team and the client stakeholder groups, with 4.5/7. Here, it might be important to note that the project team had a higher average power over the decision-making process than the project manager.

Conversely, it was the environmental activists/organizations stakeholder group that exercised the lowest power over the decisions made in construction/infrastructure projects, with an average of 2.166667/7, preceded by the public and the media stakeholder groups, with averages of 2.666667/7 and 2.75/7, respectively. The fact that these three stakeholder groups showed such low averages of power came as somewhat of a surprise, since they could be assumed to be the most relevant of stakeholders to this type of projects. However, it may be inferred that this could be due to the strict regulatory framework pertaining to construction works in Norway, leaving no need for other stakeholder groups to stand up and defend their own stakes. The power averages scored by the different stakeholder groups are shown in **Table 9**.

Table 9 Stakeholder power in construction/infrastructure projects

Stakeholder group	Average power
Project manager	4.416667
Project team	4.5
Media	2.75

Senior management	4.75
Municipality	4.416667
Client	4.5
User(s)	3.583333
Owner/sponsor	5.666667
Public	2.666667
Environmental activists/organizations	2.166667

Regarding the stakeholder groups with the highest interest, it was the project managers who had shown the highest averages across the three projects from the construction/infrastructure sector, with 6.333333/7, followed by the project team and the owner/sponsor stakeholder groups with an average of 5.75/7 and senior management, scoring an average of 5.5/7. It seems logical that these four stakeholder groups would show the highest interest in this category of projects, as they all play significant roles; a project manager typically being the final responsible for project success and the quality of the deliverables, along with the team s/he is leading, senior managers with their decision-making power and weight, and sponsors with their financial resources requiring careful investment approaches.

On the other hand, the environmental activists/organizations showed the lowest interest level in construction/infrastructure projects, scoring an average of only 2.333333/7, preceded by the public, with an average interest of 2.666667/7, and media with 3.25/7. **Table 10** summarizes the highest and lowest levels of interest in this business sector.

Table 10 Stakeholder interest in construction/infrastructure projects

Stakeholder group	**Average interest**
Project manager	6.333333
Project team	5.75
Media	3.25
Senior management	5.5
Municipality	4.333333
Client	4.666667
User(s)	4.666667
Owner/sponsor	5.75
Public	2.666667
Environmental activists/organizations	2.333333

In this category of projects, it was the municipality stakeholder group who displayed the highest dynamic nature, with a dynamics factor of 9.666667 **(Figure 7)**, followed by the project teams, whose factor was 9, and the project manager and public stakeholder groups with a factor of 7.
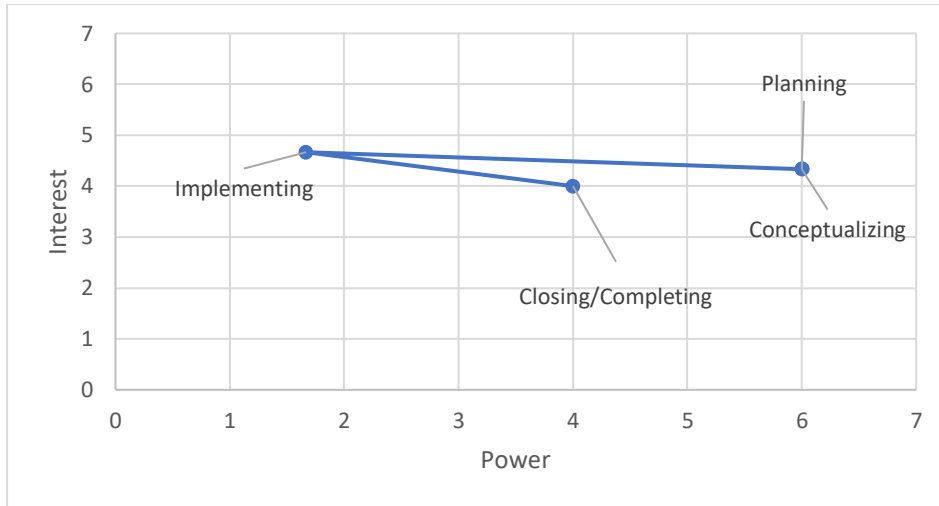

Figure 7 Municipality dynamics in construction/infrastructure projects

The owner/sponsor stakeholder group, on the other hand, showed the lowest dynamics, with a dynamics factor of only 2.333333 **(Figure 8)**. This might be due to their high and constant power being exerted over the decision-making process, as they control the most important resource for this type of projects, finance, and also to their constantly high interest in securing the revenues relating to these usually highly profitable projects. The owner/sponsor stakeholder group was preceded by the environmental activists/organizations group, whose dynamics factor was 3.666667, and the media, its factor being 4.333333, as the least dynamic stakeholder groups in construction/infrastructure projects.
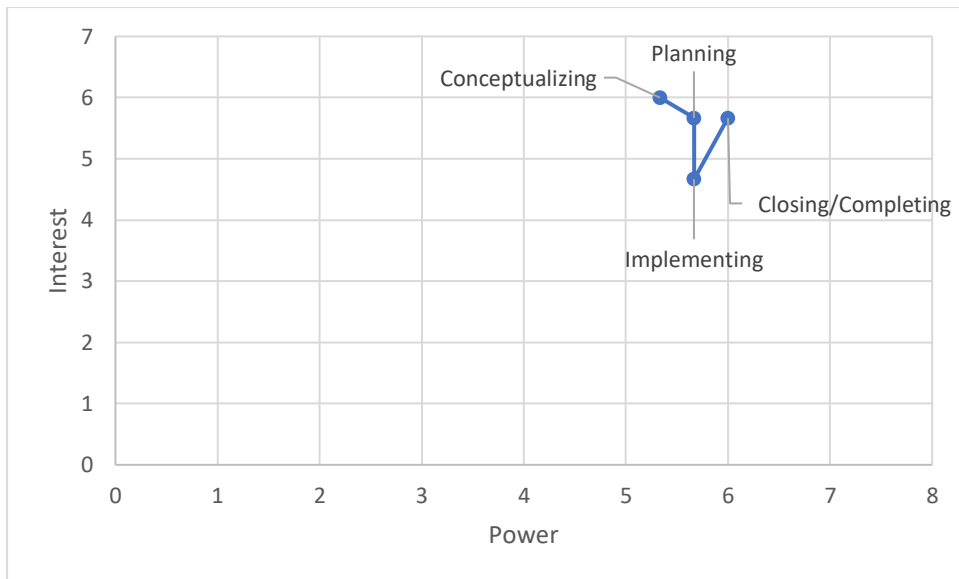
Figure 8 Owner/sponsor dynamics in construction/infrastructure projects

4.4. Information Technology

Moving to the information technology business sector, it was found that senior management showed the highest power average of all ten stakeholder groups, 6.125/7. This group was followed by the owner/sponsor stakeholder group, with a 5.875/7 average, and the user(s) stakeholder group, at 4.625.

At the other end of the scale, the stakeholder group with the lowest demonstrated power proved to be the environmental activists/organizations, arguably due to the limited significance this type of projects has with regard to the environment. This resulted in this stakeholder group having a relatively low average power of only 1.25/7, preceded by the municipality, with an average of 1.375/7, and the media, with 1.625. The power averages of the various stakeholder groups are summarized in **Table 11**.

Table 11 Stakeholder power in information technology projects

Stakeholder group	Average power
Project manager	4.375
Project team	4.125
Media	1.625
Senior management	6.125
Municipality	1.375
Client	2.125
User(s)	4.625

Owner/sponsor	5.875
Public	2
Environmental activists/organizations	1.25

The stakeholder group exhibiting the highest interest during information technology projects, however, was the project manager stakeholder group, also with an average interest of 6.125/7, followed by the project team and senior management groups with an average of 5.5, and subsequently the user(s) stakeholder group, scoring 5.25/7.

On the other hand, the stakeholder group with the lowest interest over the course of information technology projects was the environmental activists/organizations. This was probably due to the general irrelevance of most activities conducted during such projects to the environment, which in turn does not trigger the interest of such a group of stakeholders. This is in all likelihood why they displayed a relatively low interest average, only 1.5/7, preceded by the municipality stakeholder group, with 1.75/7, and the client stakeholder group, with a 2/7 average. The above results regarding stakeholder interest in information technology projects are shown in **Table 12**.

Table 12 Stakeholder Interest in Information Technology Projects

Stakeholder group	Average interest
Project manager	6.125
Project team	5.5
Media	2.25
Senior management	5.5
Municipality	1.75
Client	2
User(s)	5.25
Owner/sponsor	4.375
Public	2.125
Environmental activists/organizations	1.5

For this category of projects, the user(s) stakeholder group proved to be the most dynamic, and its average dynamics factor was as high as 14 **(Figure 9)**. This is potentially due to the increasing interest in and usage of the products of these projects, impacting everyone's daily lives both personally and on a professional level. The user(s) stakeholder group was followed

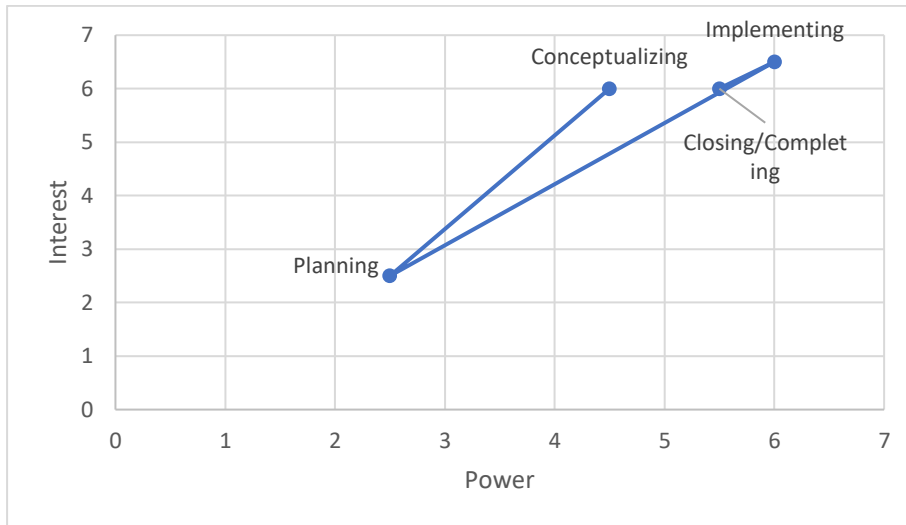by the project team and project manager stakeholder groups, with a factor of 6.5 and 5.5, respectively.

Figure 9 User(s) dynamics in information technology projects

The client stakeholder group was found to be the least dynamic in information technology projects, the dynamics factor in this case being 2, preceded by the municipality and the environmental activists/organizations with a dynamics factor of 3, and the senior management stakeholder group with 4.

4.5. Healthcare Services

The last category of projects included in the study is healthcare service projects, where the owner/sponsor stakeholder group showed the highest average power, at 5.5/7, followed by senior management at 4.5/7 and the client stakeholder group with 4.375/7.

The least powerful stakeholder group in this segment of projects, however, was the municipality stakeholder group, with an average power of 2.375/7. This group was preceded by the public and environmental activists/organizations at 2.5/7, and the user(s) stakeholder group with an average power of 3.5/7. **Table 13** summarizes the average power levels of the different stakeholders in healthcare services projects.

Table 13 Stakeholder Power in Healthcare Services Projects

Stakeholder group	Average power
Project manager	4.25
Project team	3.875
Media	3.875

Senior management	4.5
Municipality	2.375
Client	4.375
User(s)	3.5
Owner/sponsor	5.5
Public	2.5
Environmental activists/organizations	2.5

Regarding interest in healthcare services projects, it was found that the project managers stakeholder group showed the highest interest, with an average of 5.625/7, followed by the project team, media and owner/sponsor stakeholder groups, with an interest average of 5.125/7, and subsequently, scoring an average of 3.875/7, the user(s) stakeholder group.

The stakeholder groups with the lowest level of interest in healthcare services projects, on the other hand, were the municipality and the environmental activists/organizations stakeholder groups with an average interest of 2.5/7. They were preceded by the public at 2.625/7 and the senior management stakeholder group at 3.625/7. The levels of stakeholder interest in healthcare services projects are shown in **Table 14**.

Table 14 Stakeholder Interest in Healthcare Services Projects

Stakeholder group	Average interest
Project manager	5.625
Project team	5.125
Media	5.125
Senior management	3.625
Municipality	2.5
Client	4.125
User(s)	3.875
Owner/sponsor	5.125
Public	2.625
Environmental activists/organizations	2.5

In healthcare services projects, the stakeholder groups that showed the highest dynamic nature were the project manager, senior management, and client stakeholder groups, all with a dynamics factor of 2, followed by the project team stakeholder group at 1.5.

The environmental activists/organizations stakeholder group showed absolutely no stakeholder dynamics at all as relating to this type of projects, scoring a dynamics factor of 0, while the media, municipality, user(s), owner/sponsor, and public stakeholder groups showed minimal dynamic nature, standing at 0.5.

The above findings, along with the respective dynamics factors for each stakeholder group, are summarized in **(Table 15)**.

Table 15 Most dynamic and least dynamic stakeholders

All projects		Dynamics factor
Most dynamic stakeholder	User(s)	4.855555
Least dynamic stakeholder	Environmental activists/organizations	2.083333
Oil and gas		
Most dynamic stakeholder	Senior management	4.333333
Least dynamic stakeholder	Owner/sponsor	0.666667
Construction/infrastructure		
Most dynamic stakeholder	Municipality	9.666667
Least dynamic stakeholder	Owner/sponsor	2.333333
Research and development		
Most dynamic stakeholder	Senior management	7
Least dynamic stakeholder	Project manager, municipality, public, environmental activists/organizations	0
Information technology		
Most dynamic stakeholder	User(s)	14
Least dynamic stakeholder	Client	2
Healthcare services		
Most dynamic stakeholder	Project manager, senior management, client	2
Least dynamic stakeholder	Environmental activists/organizations	0

As for the correlation between the levels of power and interest **(Figure 10)**, the scores given by the respondents were analyzed using Microsoft Excel, and a very high correlation of about 81.7 percent was found to exist between the two dimensions.
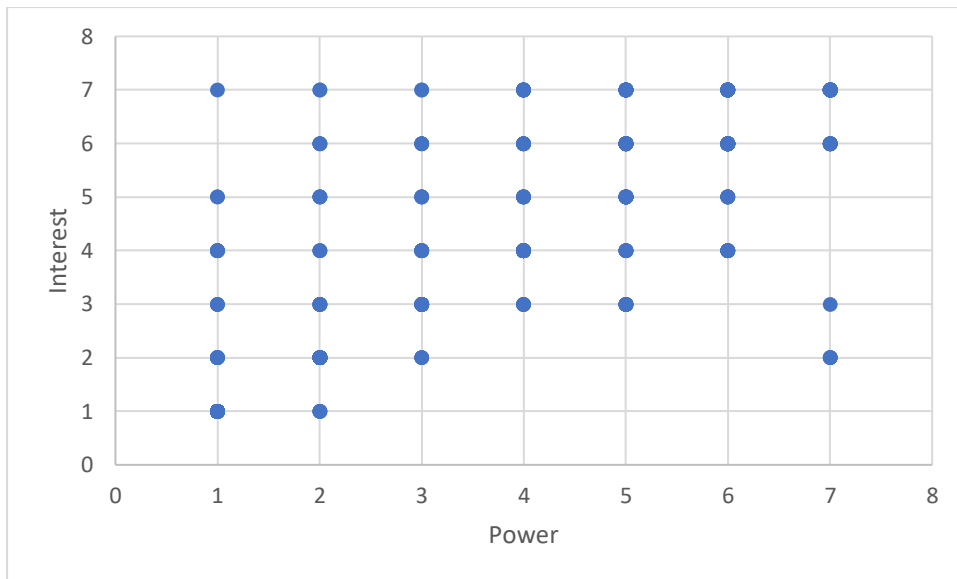
Figure 10 Correlation between power and interest

Whether high stakeholder power results in stakeholders expressing higher interest and vice versa, or the opposite is the case – where the level of interest can be an indication of the level of power – is debatable and can be dependent on several factors. However, our proposed suggestion is that granting a stakeholder group more power will usually trigger their interest in a project. Having the impression that their opinions, desires and expectations have a high impact on the decision-making process probably encourages groups to exercise their rights of imposing their expectations on the project. The opposite can also be true, where if they find that their expectations are being ignored, overlooked or overpowered, stakeholder groups can possibly lose interest and turn their attention to other projects where they can be more favorably considered and effective.

5. Conclusion

This paper was written with the purpose of answering three research questions: (1) who are the most, and least, powerful, interested and dynamic stakeholders in Norwegian projects from different sectors?; (2) are there patterns demonstrated by these stakeholders depending on the business sector to which a project belongs?; and (3) is there a correlation between the changes in the levels of power and interest during project development and execution? We have been able to provide at least partial answers to these, as discussed below.

By studying input from twelve case projects from five different business sectors, we have found that the user(s) stakeholder group was the most dynamic in Norwegian projects. This was based on their continuous repositioning on the power/interest matrix from one project phase to the

other. The same stakeholder group was also the most dynamic in information technology projects.

Environmental activists/organizations constituted the least dynamic stakeholder group in the full sample of projects, as well as in healthcare services projects, sharing this position with the project manager, municipality, and public stakeholder groups in research and development projects. Senior management was found to be the most dynamic in research and development, as well as in the oil and gas business sector, sharing this position with the project manager and client stakeholder groups in healthcare services projects. These findings did not fully agree with the literature, as in healthcare projects it was the user(s) stakeholder group that displayed a relatively high level of dynamics (Papadopoulos & Merali, 2008). On the other hand, the owner/sponsor stakeholder group was found to be the least dynamic in oil and gas projects.

As to the construction/infrastructure projects included in the study, it was the municipality stakeholder group that proved most dynamic. This might be due to this stakeholder group taking into consideration the effects of projects being developed; how these might impact historical and cultural images of the cities where they are being executed, causing them to change their attitudes with modifications and alternative solutions being presented by the owner/sponsor (Olander & Landin, 2005). However, in the projects encompassed by this business sector, as well as in those belonging to the oil and gas business sector, the owner/sponsor stakeholder group was the least dynamic.

From the results obtained, very few patterns could be identified. This might be due to the small number of case projects included from each business sector and to the absence of data explaining the changes in power or interest, or both, making it hard to use them as a basis on which to build solid, reliable findings. However, reflections have been provided when possible in order to explain the levels of power and interest, as well as the stakeholder dynamics, in answering this question.

For instance, it was found that a project manager's power during the planning phase of an oil and gas project is higher than his or her power during the conceptualizing phase, the media's power and interest deteriorate as an oil and gas project proceeds, and the same applies to municipalities and environmental activists/organizations. On the other hand, a project manager's power increases over time in information technology projects, where the user(s) stakeholder group's power and interest are lowest during the planning phase of this type of project.

From the above, we realize that the dynamic nature of stakeholders can be considered a fact, as there are changing levels of power over the decision-making process. The same applies to their will to impose their own expectations on the decision-making process from one project phase to the other. However, the identified stakeholders have shown a great deal of diversity from one business sector to another, which suggests that the complexity embedded in stakeholder behavior plays a great role in deciding how stakeholder dynamics work from one project type to the other, and from one project to another within the same business sector. The abovementioned results have been summarized in **Table 15**.

As a result, we believe that our research will be of aid to project management practitioners by providing them with possible stakeholder power and interest levels at each stage of the project. Eventually, this should help them plan proactive approaches to each stakeholder group at each of these stages, instead of being caught off guard by unexpected stakeholder actions or obstructions that could have been avoided, resulting in saving resources and efforts that would otherwise have been spent on resolving conflicts and problems.

At the end of this section, we would like to point out that the differences between our findings and those of previous researchers are possibly contextual. The studies were carried out in different geographical locations, within different governance systems, and using different research methodologies that produced data with different levels of detail and accuracy. This is probably why the behavior of different stakeholder groups in our findings did not fully agree with the findings of previous studies.

6. Suggestions for Further Research

The process of writing this paper and its data collection have taken part within a Norwegian context, which can be considered a politically and industrially stable one. This might suggest that comparative studies from other countries with a more complex reality could result in completely different findings. Thus, we strongly encourage other researchers to conduct similar studies in other countries/contexts. This would also help expand our rather limited sample of case projects, including enabling more detailed analyses of the differences across business sectors.

Since it is believed that the levels of power and interest have shown to be strongly correlated, more research can be conducted on the effects that a change in the level of one of these two attributes can have on the other, and on which attribute drives the other.

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