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Evaluation of stakeholder influence in the implementation of construction projects

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Abstract

A negative attitude to a construction project by stakeholders can severely obstruct its implementation. Such obstruction will cause cost overruns and exceeded time schedules due to conflicts and controversies concerning project design and implementation. A case study consisting of two projects has been undertaken to investigate how the problems of managing the concerns of stakeholders present themselves in an actual construction project. A method of stakeholder mapping, together with the power/interest matrix, has been used to identify stakeholders and their influence on the projects studied. Which problems arose, how were they resolved, and what were the consequences of the solution? The case study shows that an evaluation of stakeholder demands and influence should be considered as a necessary and important step in the planning, implementation, and completion of any construction project.

Keywords: Stakeholders; Management; Construction; Project; Power/interest matrix

1. Introduction

In any project, and especially in construction projects, many different and sometimes discrepant interests must be considered. Representatives of these interests are referred to as the project stakeholders. A project stakeholder is a person or group of people who have a vested interest in the success of a project and the environment within which the project operates [1]. The implication is that a stakeholder is any individual or group with the power to be a threat or a benefit [2].

The demands of the community exert pressure on organisations to develop new methods of working and communicating with stakeholders [3]. A negative perception by stakeholders can severely obstruct a construction project. Inadequate management of the concerns of stakeholders often leads to conflicts and controversies about the implementation of a construction project. To avoid this, project managers should try to acknowledge the concerns of all stakeholders and in a dialogue seek to reconcile conflicting interests [4–6].

A construction project affects stakeholders in both positive and negative ways. The positive affects can be, better communication, better housing or higher standards of living. The negative side of a construction project can be deterioration of the physical environment for the affected stakeholders [7]. The demands of different stakeholder groups are various. A construction project can, for instance, be of use to one stakeholder group and have a negative impact on another. Understanding each other's viewpoints helps to build relationships, thus avoiding preconceived ideas and assumptions [3]. Thus, project management must be able to analyse the various demands presented by stakeholders so that communication between them is facilitated.

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2. Methods

A case study [8] was conducted, for which two projects in Sweden, were chosen to investigate how the problem of "managing" stakeholders presents itself in a construction project. The projects are a housing project and a railroad project. The main reasons for selecting these is that they have both had difficulty in the management of demands and needs of external stakeholders, and that they are different in size and nature. This allows the identification of factors in the external stakeholder management that are independent of the size and nature of the project.

The main source of information in this case study was interviews with various stakeholders in the project, project managers, project owners, architects, local authorities, the affected residents, politicians, and representatives of various interest groups. The interviews were conducted as semi-open interviews. The structure of the interview and relevant issues were predefined. In addition to the interviews, official documents and investigations concerning the project were examined, in order to acquire the official view of the project, and to gain input to the structure of the interviews. Articles from local newspapers were also examined to gain a picture of the role of the media. The information obtained was then structured and analysed to accumulate input for the evaluation tools that are presented.

2.1. Stakeholder mapping and the power/interest matrix

Various stakeholder mapping techniques exists, see for instance [1,9,10]. Mendelow [9] has presented a model of environmental scanning in the context of the stakeholder concept, and includes the dynamism of the environment and the power of the stakeholder relative to the organisation or, as in this case, the project. According to Mendelow [9], the basis on which stakeholders possess power relative to an organisation is liable to change depending on the impact which the stakeholders' environment has on the stakeholders' basis of power. The model that is presented consists of a grid where power and dynamism are relevant factors. Power ranges from low to high, and dynamism ranges from static to dynamic. A static environment implies that there is little likelihood of the stakeholders to alter their power base, and a dynamic environment may lead to alterations in the bases from which stakeholders derive their power.

Johnson and Scholes [10], simplified and adapted Mendelow's [9] model and changed the axes of dynamism to instead measure interest, and thus formulated the power/interest matrix (see Fig. 1) which analyses the following questions:

- How interested is each stakeholder group to impress its expectations on the project decisions?

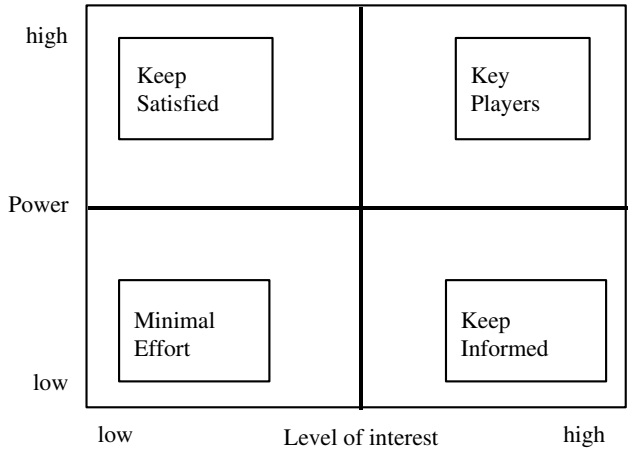


Fig. 1. Stakeholder mapping, the power/interest matrix [10].

- Do they mean to do so? Do they have the power to do so?

By grouping stakeholders in the power/interest matrix, project management can produce a better picture of how communication and relationships between stakeholders has affected the project and its implementation.

In combination with the power/interest matrix, Bonke and Winch [11] developed the stakeholder map, which also analyses the problems and the proposed solutions the different stakeholders have in the implementation of the project. The stakeholder map includes: stakeholders, divided into proponents and opponents, problems identified by the stakeholders, and their suggested solutions to the problems. If the stakeholder map, as Bonke and Winch [11] present it, is added to the actual outcome of project decisions and the consequences of the outcome, a tool for evaluating the stakeholder management process for a project, can be created.

From the information gained from the projects studied the stakeholders have been identified, and from this the most relevant stakeholders have been evaluated in the stakeholder map and the power/interest matrix, at different stages of the project, up to the point when construction work on site was given approval to start. The stages that will be used in the analysis are; the feasibility and conceptual design stage, the formal planning stage, and the stage of appeals. To place the stakeholders in the power/interest matrix both their relative power over the project, and their interest to impose their expectations on the project have been judged on a scale from 0 to 10. The grades of power and interest are shown and motivated in the analysis of the cases studied.

3. The case study

In this section, the influence stakeholders have had on project decisions is described by the stakeholder map

and analysed with the power/interest matrix for each of the cases studied.

3.1. Project 1: Lund, Sweden, a housing project consisting of 60 apartments

The developer purchased the property in the late 1980s. The property was previously an old residence situated in a large park, which had been inhabited for many years and was partly in disrepair. However, both the park and the old residential building had a cultural value for the community, and in addition, the park also had some recreational value.

The initial stakeholder analysis of the project identified six major stakeholder groups. *The real estate developer* and their project managers. *The Municipality*, which was interested of how this development would affect the community as a whole, and in addition was responsible for the formal planning process. *Interest groups for senior citizens*, since the project was targeted at senior citizens as the future tenants. The *residents in the vicinity* of the project, who were concerned about how the project would affect their living environment. *The National Government*, that acted as the last instance of appeal in the formal planning process. *Interest groups for the preservation of the cultural and historical image of the city*.

3.1.1. The feasibility and conceptual design stage (phase 1) – 1988–1990

Before 1988, the property had been inhabited for a long time and in 1988 plans to build a 12-storey hotel were rejected by the municipality. A real estate developer then purchased the property in the winter of 1989. The real estate developer then developed a project of two 9-storey apartment buildings for senior citizens. They informed the municipality, the interest groups for senior citizens and the residents in the vicinity of the project. The real estate developer met a positive attitude from the municipality and the interest groups for senior citizens, mainly because there was a need for new housing in the community. However, from the residents in the vicinity they met a strong opposition even at this early stage. The neighbouring residents had fought hard against the 12-storey hotel, because the height of the building would affect the immediate environment, which consisted largely of small, one family houses. When the developer, just one year later, presented a project of two 9-storey buildings many of the residents in the vicinity believed it to be even worse than the hotel plans. In spite of this the real estate developer pursued the project and together with the municipality began work on a local community plan for the project.

3.1.2. The formal planning stage (phase 1) – 1990–1992

When the work on the local community plans was started, the height of the buildings was the key issue. The residents in the vicinity acted forcefully in an attempt to stop the project. Their main arguments were that the buildings would greatly affect their immediate environment with regard to shadow, and that their future neighbours would be able to see into their homes and gardens. At this stage another influential, and opposing, group interested in preserving the cultural and historical image of the city came on to the scene. The city of Lund is approximately a thousand years old, which means that there are a strong interests to preserve the old image of the city. This project would block the view of the 12th century cathedral, and thus change the cultural image of the city. In spite of the growing concerns about the negative aspects of the project, the municipality still believed that the positive aspects outweighed the negative. The future tenants, represented by the interest groups for senior citizens argued for the need of the project, and supported the views of the real estate developer.

3.1.3. The stage of appeals (phase 1) – 1992–1993

After the local community plan had been approved by the municipality the residents in the vicinity appealed against the decision. The appeal was rejected in the first instance, and the residents appealed again to the second and last instance of appeal, the National Government. At this stage there were growing concerns about the project from the municipality and some politicians questioned the decision to approve the plan, mainly on the grounds of the effect of the project on the cultural and historical image of the city. The debate continued during the whole process of appeals, and the real estate developer, pressured by the opposition, presented alternative solutions for the project. In December 1993, the National Government presented its decision. The suitability of the project was strongly questioned and grounds were found to approve the appeal. The municipality had at a late stage of the planning process made changes to the plan, without displaying the change publicly, which for the National Government, was a sufficient reason to reject the local community plan, and thus the project. The real estate developer was thus forced to present a totally revised proposal.

3.1.4. The feasibility and conceptual design stage (phase 2) – 1994–1995

Since the decision of the National Governments to reject the local community plan was based on a formal error, and not on the design of the buildings, the real estate developer could have kept the initial design and seek its approval. However, due to the strong criticism against the project at the earlier stage, and because the real estate development company had made a change in their

management staff, they decided to start afresh. The new project manager hired an architect who earlier had been employed by the municipality, to present alternative solutions for the project. In addition to this, a nearby petrol station had been removed, which allowed for the possibility to build more buildings on the property. Thus, the new solution was five 5–6 storey buildings. This solution harmonised better with neighbouring buildings and the cultural and historical image of the city. After this new solution was presented the only remaining opponents was the residents in the vicinity. They were still of the opinion that the buildings were too high, and with the increase in the number of buildings, they also felt that the area would become too densely built up. These arguments, in addition to their distrust of the real estate developer, decided them to continue with their strong opposition to the project.

3.1.5. The formal planning stage (phase 2) – 1995–1998

As stated above, the only strong opposition that remained was the group of neighbouring residents. The community had at this stage no problem with approving the local community plan in accordance with the suggestion of the real estate developer. However, the municipality was now concerned with avoiding the kind of formal errors on which the earlier plan had been rejected. Thus, the municipality saw the importance of conducting a thorough analysis before approving the project. After considering the various views the municipality approved the plan in February 1998.

3.1.6. The stage of appeals (phase 2) – 1998

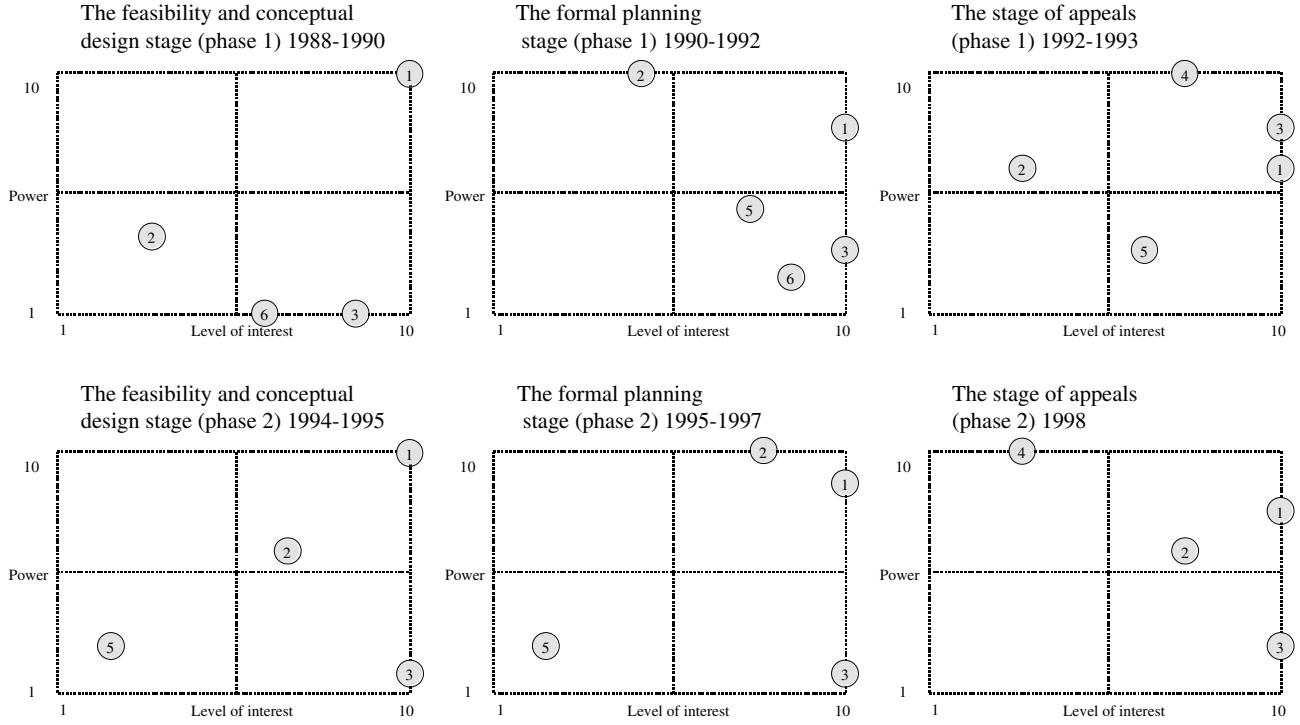
The neighbouring residents were still not in agreement with the decision to approve the project, and they again appealed to the highest instance, the National Government. However, none of the instances saw any problems with the plan and the project, and thus rejected the appeals.

3.1.7. Consequences

The main consequence for the project was the time delay; the project took 12 years from the first ideas to completion. The time delay and the extensive changes to the project also had the effect that a significant amount of already committed resources became obsolete, representing approximately 5–10% of the total project costs. However, the developer identifies at least one important positive effect, which is that, by taking the views of the majority of the stakeholders, with the exception of the neighbouring residents, into consideration the final solution is better than the original proposal.

3.1.8. The power/interest matrix

The power and interest (see Fig. 2) of the stakeholders were very different between phase (1) and phase (2).



1. The real estate developer, **2**. The Municipality, **3.** Residents in the vicinity, **4.** The national government, **5**. Interest groups for the preservation of the cultural and historical image of the city, **6**. Interest groups for senior citizens

Fig. 2. The power/interest matrix for project 1.

In phase (1), the proposed project was more controversial, which added to the number of interested stakeholders. This led to the effect that one stakeholder group could use another in order to extend their power base. This was evident in the relation between the residents in the vicinity and the National Government, where the residents put forward all arguments against the project using certain personal channels in order raise the interest of the National Government to reject the project proposal. This led to the effect that the project managers lost their power base. However, the project managers had learned their lesson. In phase (2), they tried to acknowledge as many concerns as possible when they outlined the revised project. This had the effect that all opposing stakeholders, except the neighbouring residents, were satisfied. The remaining process was to deal with one single stakeholder group, the neighbouring residents, whose power base had now dramatically decreased.

3.2. Project 2: Lund, Sweden, railroad project, the construction of a two way railroad track through the town centre

In the late 1980s, the Swedish government decided to transform the west coast railway (between Malmoe and Gothenburg) from a single to a double track railroad. The whole route passes through a number of communities, and one of these is the city of Lund.

The initial stakeholder analysis of the project identified seven major stakeholder groups. *The National Railroad Administration* the developer of the project. *The Municipality*, which was interested of how this development would affect the community as a whole, and in addition was responsible for the formal planning process. The *railroad companies*, which would be responsible for the traffic along the west coast railroad. The *residents in the vicinity* of the expanded railway, which were affected by the increase in railroad traffic. *The National Government*, which was both the initiator of the project, and the last instance of appeal for the formal planning process. *The National Board of Housing* and *the Swedish Rescue Services*, were two of the national authorities to which the project was referred for consideration.

3.2.1. The feasibility and conceptual design stage, 1990–1994

In 1990, the first investigations for the expansion of the west-coast railroad through the city of Lund, according to the requirements set out by the National Government. At this early stage the National Railroad Administration made the decision that the best alternative was to expand the railroad along the existing single-track route. However, this decision was made on the basis of insufficient analysis of other possible alternatives, and of how the proposed alternative affected the various stakeholders. The only stakeholders really being considered at this early stage were the railroad companies, which would manage the traffic on this railroad, and for them an expansion along the existing route was the most rational choice. The problem with this alternative was that it would affect a large number of residents along the railroad, who would experience a significant increase of railroad traffic in the vicinity of their homes. However, at this early stage they were not involved in the process. The first public consultations were held in November 1991, when a proposal. Essentially already decided on, was presented to the neighbouring residents. Due to the lack of public involvement an interest group consisting of concerned residents had been formed in 1990 to follow the process. At this early stage they had little or no influence on the process. In 1993, the municipality was involved because a community plan was required. By acting through the municipality the residents raised the question for the need of alternative solutions. As a base for the forthcoming local community plan, the municipality demanded additional investigations concerning alternative solutions from the project developer, the National Railroad Administration. An investigation of five alternatives was undertaken by an independent consultant, who showed that the proposed alternative was the best and most rational solution. One of the most compelling arguments for the expansion along the existing route was the developed infrastructure already in place with train stations, and that large areas of the city had been developed to coordinate with this existing infrastructure. The negative aspect was still that the proposed alternative would affect a large number of residents along the existing route.

3.2.2. The formal planning stage 1994–1997

Based on the investigation undertaken the municipality decided to produce a local community plan based on the proposed alternative along the existing route. At this stage the municipality had sole influence on how the project would develop, and the project developer's role in this stage was to provide the information required by the municipality to make their decisions. However, at this stage the number of interested residents increased dramatically. This was probably due to the lack of information at the early stages and that it was first at this stage that the public became aware of the proposed development. The interest group of concerned residents increased their member base and also changed their perspective to actively oppose the proposed alternative and to put forward an alternative solution. This solution had been investigated as one of the five solutions and had been rejected because it necessitated a whole new infrastructure and because of its technical and economic disadvantages. These

findings were questioned by the residents arguing that the alternatives had not been fairly investigated. In 1995, the municipality and the project managers decided to make an additional investigation to compare the alternative proposed by the project developer with that proposed by the residents. Again this investigation showed that it was more rational to expand along the existing route. However, at this stage of the project the relation between, on the one hand the project developer and the municipality, and on the other the residents along the existing route, deteriorated radically. The outcome of this was that every investigation made from this point on, which proposed the expansion along the existing route, was regarded as biased by the residents. In addition to this, two national authorities, the National Board of Housing and the Swedish Rescue Services had raised concerns about living conditions and safety issues along the proposed route. In spite of these concerns, the municipality approved the local community plan for the expansion along the existing route in the summer of 1997.

3.2.3. The stage of appeals 1997–2003

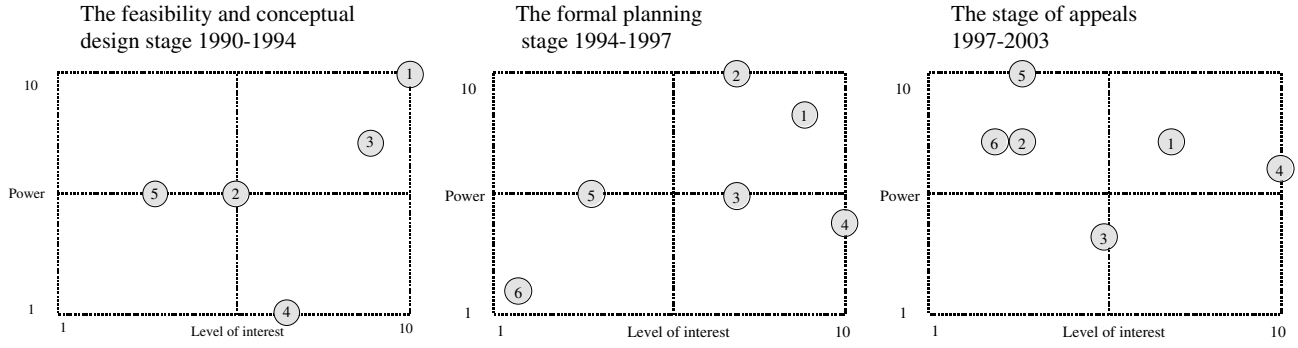
Directly after the municipality's approval of the project the residents in the vicinity of the proposed route appealed against this approval. The main arguments for the appeal were that all possible alternatives had not been objectively investigated and that a better solution existed. As a supplement to the appeal the residents had conducted their own investigation that showed the benefits of their alternative relative to that proposed by the developer and the municipality. In the autumn of 1997, the first instance of appeal decided to reject the appeals and approve the municipality's decision. However, the residents were not satisfied and appealed to the second and final instance of appeal, the National Government. This raised a dilemma for the National Government, as on the one hand it was supposed to process the appeal objectively, and on the other hand it was the initiator of the project. The dilemma grew worse when two national authorities, the National Board of Housing and the Swedish Rescue Services, stated that the appeal should be approved and that the local community plan should be revised. At this stage, the municipality considered their job as completed and did not engage in the process of appeals, while the project developer found themselves in a situation where they could only wait. The National Government was now in a situation where they could not approve the proposed development because of the concerns that were raised by the opposing stakeholders, but they could not reject it either because the expansion of the west-coast railroad was a prioritised national concern. This situation together with an active opposition from the residents, led to a process of appeal that lasted for six years. Six years that simply prolonged the project with out producing any added value.

3.2.4. Consequences

The main consequence for the project was a delay of approximately seven years, mainly because of an adverse public opinion, expressed by the residents in the vicinity, which led to a time-consuming juridical process. In addition to this, the media coverage was almost always from the viewpoint of the residents in the vicinity, which led to bad a press and a generally bad reputation for the project.

3.2.5. The power/interest matrix

The power and interest of the stakeholders changed during the course of the project (see Fig. 3). In the first stage the initiative lay largely with the developer. They had the interest and also the power, and the only other key were. However, the project managers did not acknowledge the concerns of other stakeholders, which basically raised both their interest and their power base. In the second stage, this development led to an increase of stakeholders with both an interest and the power to influence the project. The formal power lay by legislation with the municipality, but



1. The National Railroad Administration, **2**. The Municipality, **3.**The Railroad companies, **4.** Residents in the vicinity, **5**. The national government **6**. The National Board of Housing, and the Swedish Rescue Services Agency

Fig. 3. The power/interest matrix for project 2.

the project managers lost some of their power by acting reactively instead proactively. The residents in the vicinity of the proposed expansion dramatically increased their interest to influence, due to a their perception of having been disregarded by the project developer. They used this interest, in the stage of appeal, to increase their power base and became a relevant key stakeholder. In addition to this there were stakeholders with a relatively low interest to influence, but with a high power to do so. The project developer now found that they lacked control and had to depend on other stakeholders in order to be able to proceed with the project.

4. The role of the media

The media hold a unique position in the process. They cannot really be defined as a stakeholder, because they have no actual stake in the project. However, the media can have a tremendous effect on the project's outcome, both positive and negative. Thus, the media are an important factor that must be considered, which in practice gives them the status of an important stakeholder.

The media coverage of both projects studied has been extensive, and mainly of an oppositional nature. The opponents used the media effectively to express their opinions, and many prominent local spokespersons, architects, professors, politicians, etc., were eager to give their views on the project. The result was that the project management had to handle a negative press coverage, in addition to an already difficult process of managing the views of the various stakeholders, with the media having a strong influence on decision makers, politicians, and local and national authorities.

It is difficult to estimate the effect of the media coverage, but an open and trustworthy communication with the media and the affected stakeholders is essential. In both cases, the project management has found itself fighting a rearguard action against negative public opinion and a negative press coverage, mainly because the stakeholders had become dissatisfied with the information they had been given, and due to the lack of trust this created.

5. Conclusions

An important issue for a project management team is to identify those stakeholders who can affect the project, and then manage their differing demands through good communication in the early stages of a project. In both of the projects studied various stakeholder groups have influenced project decisions beyond the control of the project management team.

Four major lessons for project managers could be learned from the projects studied here. (1) To investigate all possible alternatives and solutions to realise 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. (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.

The model presented here should be seen as a tool to identify and evaluate the influence of project stakeholders on project decisions. The purpose of this is, for forthcoming projects, to gain a knowledge of how project decisions affect stakeholders and how stakeholders affect project decisions in the construction process. A hypothesis is that the model of stakeholder mapping and the power/interest matrix could be a useful tool to, a priori, judge the potential influence of identified project stakeholders. One way to achieve this would be to add the dynamism factor as described by Mendelow [9], and thus be able to judge the intensity of the stakeholder scanning process for the project. However there is a need for further studies in order to determine how useful these models are in that context. This would indicate that a more ambitious strategy in the external stakeholder management process would increase the possibility of resolving conflicts of interests. However, a more ambitious strategy also requires more resources. Hence, the dilemma for the project management is to balance the use of resources with the appropriate strategy towards each individual stakeholder group.

6. Further research

Further research is needed to formulate a more general model of how an external stakeholder management process should be conducted for construction projects. The model should be able to combine identification of stakeholders, assessment of their needs and their demands on project implementation, assessment of their potential influence on project decisions, choice of stakeholder strategy, assessment of consequences of project decisions, and evaluation of the stakeholder management process. Furthermore, studies need to be conducted

of how the stakeholder management process relates to other project management processes, for instance, cost and risk management.

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