Original article

Identification and mapping of project stakeholders: criteria and methods

Wojciech Downar*

Faculty of Management and Economics of Services, University of Szczecin, Poland
wojciech.downar@wzieu.pl

ABSTRACT

A key issue for stakeholder management is to determine who, to what extent and why can influence a project. Proper identification of stakeholders and their classification according to the criteria adopted allows for defining their hierarchy, strength and impact on the project. This, in turn, conditions the development of a strategy for dealing with individual stakeholder groups. The definitions of the concept of a stakeholder have been reviewed to determine the identification criteria. The article also attempts to systematize methods of qualifying stakeholders, depending on the number of differentiation criteria. The methods used for the qualification of stakeholders are often presented graphically.

KEYWORDS

stakeholders, mapping, project management

1. Introduction

The implementation of a project, regardless of its nature, size and complexity, involves resources, including human resources. Individuals (or entities) who have a specific role in a project and who influence the course of its implementation are involved in the project. In addition to those people (entities) being project participants, there are plenty of people (entities) in its surroundings who are interested, directly or indirectly, in the project objectives. The project implementation is related to the interest and engagement on the part of many stakeholders. The size and complexity of the project may be due to the number of people involved in its completion. The proper identification and determination of the stakeholders’ importance affects the success of a project, hence the establishment of appropriate strategies for each stakeholder group is necessary. The purpose of this article is to present a theoretical framework, including criteria to enable and facilitate the identification and classification of stakeholders, as a basis for defining action strategies that are relevant to the characteristics of the individual stakeholders.
2. Essence and significance of stakeholders in the project management

The significance of stakeholders in project management arises from many premises. Stakeholders can determine the fulfillment of the project objectives and decide its success. In extreme cases, they may contribute to the failure of the project. Moreover, they can affect the effectiveness of the project, its timeliness and its broadly understood quality.

Therefore, such an approach to stakeholders that will allow their identification, understanding their attitudes and potential actions as well as development of relevant strategies is appropriate. There are numerous reasons that justify the purposefulness of stakeholder management. Synthetically they can be divided into two groups, which, at the same time, constitute a way of approaching stakeholders 1.

The instrumental perspective that comes down to the statement that "we should manage stakeholders because it ultimately gives us a definite effect". Effects such as the possibility of partial control over the external environment, a higher level of operational efficiency, minimization of events that could prevent the project implementation (e.g. boycott, strike, unfavorable media, etc.), achieving a higher level of trust, reducing conflicts that may lead to lawsuits in extreme cases, more favorable contracts with stakeholders, etc., can be distinguished in this perspective.

The normative perspective justifies in turn the stakeholder management by ethical reasons ("we should do it because that is the way to proceed"). Ethical and moral premises, better perception of a project (organization) among the local community, among employees, also in the media, the higher status of the company management, which addresses the needs of a wide range of stakeholders, etc., can be identified in this group.

One of the contemporary tendencies in project management relates to diversion from understanding projects as a set of instrumental processes (as a linear sequence of tasks leading to a specific goal, using knowledge and specified procedures and techniques) to adopting the idea of a project as specific social processes that focus on interactions between internal and external stakeholders 2.

Statistical figures evidence the scientific interest in the stakeholder-related issues in project management. P. Littau, N.J.Jujagiri and G.Adlbrecht analyzed the appearance of themes about stakeholders in project management in key business and scientific journals for the years 1984-2009 3. In the analyzed period, the percentage of articles on

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3 Littau P., Jujagiri N.J., Adlbrecht G., 25 Years of Stakeholder Theory in Project Management Literature, Project Management Journal, September 2010, p. 18. The analysis was based on the determination of frequency of occurrence of the word "stakeholder" in the article title, its summary and keywords. Four journals were considered: International Journal of Project Management, Project
stakeholders was 5.7%, with a clear increase in the interest taken in the subject since 2004 (with the highest percentage of 17% in 2009). Considering one of the leading journals in this field, i.e. “International Journal of Project Management”, the percentage of articles on stakeholders in the past three decades increased from an average of 1.3% in the years 1987 - 1996 to 8.1% in 2007 - 2016⁴.

The answer to the question of who and why is a project's stakeholder is one of the key issues in the analysis, as well as broader in stakeholder management. The definitions of the notion attempting in general to identify its scope are useful in establishing the qualification criteria of stakeholders. Most of the following definitions of stakeholders refer to an organization (company) as a whole. However, due to the analogy of the essence of a stakeholder of an organization and a project, these concepts will be used interchangeably.

One of the first stakeholder definitions developed as a result of research on teamwork carried out by the Stanford Research Institute emphasized that stakeholders are those groups without the support of which an organization would cease to exist.⁵ E.R.Reeman and D.L.Reed emphasize that an organization is dependent on its stakeholders, upon whom its survival depends⁶. Stakeholders are those who interact with a company, thereby enabling it to function⁷. Any of the above definitions may apply to project stakeholders.

Project stakeholders, on the other hand, are people or organizations that are actively involved in a project or that can be positively or negatively impacted by the project implementation or completion. These entities can also affect a project and its results as well as project team members⁸.

The definitions of stakeholders referred to are sufficiently general that their content does not significantly limit the number of stakeholders. Narrowing their number and prioritizing them makes it possible to identify rational impact strategies. It is therefore important to identify the relationship of a stakeholder to a project (organization). The term "stakeholder" means that a stakeholder is a person (entity) involved in a project through a certain form of engagement, having a specific interest, measurable or not, but related to a benefit or loss. The stakeholder’s relationship with a project is a specific exchange of resources, in return for a form of compensation (Fig. 1.).


⁴ Data for the years 2010 - 2016 were calculated by the author of the article, based on the analogous methodology.
In particular: lenders provide financial resources, in return expecting timely loan repayment and interest; managers and employees devote their time, give their competence and commitment, expecting remuneration and good working conditions in exchange; clients generate income for a company in return for expected value, the local community provides the conditions for project implementation, expecting improved living conditions as a result, etc. (Table 1).

**Table 1. Exemplary interdependencies – a stakeholder – a project**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Contribution</th>
<th>&quot;Reward&quot;, expectation, compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Own financial resources, idea, risk</td>
<td>Business continuity, dividends</td>
</tr>
<tr>
<td>Banks</td>
<td>Financial assets</td>
<td>Percentage, timely loan repayment</td>
</tr>
<tr>
<td>Managers</td>
<td>Efficient work, expert knowledge</td>
<td>Salary, status, good working conditions</td>
</tr>
<tr>
<td>Employees</td>
<td>Efficient work, knowledge</td>
<td>Salary, job satisfaction, social benefits, partnership, employment, good working conditions</td>
</tr>
<tr>
<td>Clients</td>
<td>Purchasing a product / service</td>
<td>Products and services of good quality, moderate prices, delivery of the expected value</td>
</tr>
<tr>
<td>Suppliers</td>
<td>Raw materials, equipment, machines</td>
<td>A reliable and loyal customer of products / services</td>
</tr>
<tr>
<td>Local community</td>
<td>Location, local infrastructure, tax cuts</td>
<td>Maintaining, improving living conditions</td>
</tr>
<tr>
<td>Society (state)</td>
<td>Security, legislation, services for the society</td>
<td>Taxes, employment, providing living conditions</td>
</tr>
</tbody>
</table>

*Source: based on Strand R., Scandinavian Stakeholder Thinking: Seminal Offerings from the Late Juha Näsi, Journal of Business Ethics, 2015, No. 127, p. 91*
Identifying and understanding the relationship with a stakeholder is an initial step to answering the next question: the degree of importance of a stakeholder from the point of view of impact on the project. What determines their validity? What are the reasons that some stakeholders have a higher rank than others? The criteria helpful to identify a stakeholder and classify him/her into a specific group will be discussed in the first place. Next, additional criteria that help to develop a stakeholder hierarchy will be presented.

3. Criteria for identification of stakeholders

The criteria that derive from analyzing the essence of a stakeholder include the legitimate claim and the associated legitimacy, incurring risk and holding power, often resulting from disposing of key resources for an organization (project).

C.W.L Hill and T.M. Jones classify to the group of stakeholders all those who have legitimate and justified claims against a given company. Claims are understood as the right to participate in benefits resulting from the organization functioning (project implementation). Claims concern not only their legal sense (e.g. provided by law, such as participation in decisions), but also (or perhaps above all) their economic sense. A stakeholder is an entity that invests in a broadly defined organization capital (project) (e.g. by providing knowledge, devoting time, submitting information, etc.), and consequently claims certain benefits. Claims can have a formal (agreement, contract, legal regulation), informal (adopted rules of conduct) as well as quasi-contractual basis (Fig. 2).

![Fig. 2. Basis of claims for a project stakeholder](Source: own elaboration)

T. Donaldson and L.E. Preston emphasize that stakeholders are those individuals or groups of people who have direct or indirect contracts with an organization. The concept of a contract can be used in this context broadly, referring not only to formal relationships but also to an informal relationship between a stakeholder and an organization. Thus, the following relations can be distinguished:

- contractual, based on contractually agreed terms of cooperation, specified individually in each case (e.g. contracts with company employees, contracts with suppliers, etc.);

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- quasi-contractual, based on generally applicable framework rules, specifying the principles of cooperation with a group of people (e.g. contracts with customers, with local government institutions, although they are not drawn up in each case;

- non-contractual, not occurring in a formalized form, which may even be unaware and disclosed only when a problem arises (e.g. relationships with ecological groups or local communities, etc.).

The degree of validation (legitimacy) is crucial from the point of view of a stakeholder’s position and his/her importance. The validation reflects the legitimacy of a stakeholder’s claim as to the right to influence a project, arising, for example, from law provisions, a contract signed, invested capital or ownership held.

Risk incurred by stakeholders is a differentiator of the relation that links them to an organization (project)\(^{11}\). According to M. Clarkson, stakeholders are those individuals or groups that assume a certain amount of risk associated with an organization’s activities (e.g. investors are stakeholders since they are connected to an organization by taking risks, and it may also involve employees as special kind of investors). Thus, a stakeholder, as is an owner, is at risk (generally less) and proportionately claims his/her right to the portion of the surplus (residual value).

Power may also be a criterion for differentiating stakeholders. The power held by stakeholders is related to several sources. A stakeholder is in power and an organization is given in to pressure since it depends on the resources he/she provides. This is a common case, especially when resources are understood very broadly (including knowledge, information, innovation). The stakeholder’s power may also be due to institutional (e.g. regulatory institutions), social (e.g. environmental) or political reasons.

Application of additional criteria deciding a stakeholder’s position helps identify key stakeholders and to prioritize them from the point of view of the project’s objectives. These criteria include: the ability to cooperate, a stakeholder’s position in the network of relationships with other actors, the possibility of posing a threat to a project / an organization, the directness of impact on the project objectives, realization or results, predictability and urgency understood as the degree to which stakeholders’ demands require immediate action.

4. Methods of stakeholders mapping

Stakeholder mapping is a process aimed at drawing up a list of key stakeholders selected from among a wide spectrum of them, identified based on the set criteria, and

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presenting the analysis results in a way that helps a project team understand and support the stakeholder management strategy\textsuperscript{12}.

Stakeholder mapping can be divided into four phases:

\begin{itemize}
  \item identification of stakeholders (groups, organizations, individuals), according to established criteria;
  \item the analysis of the stakeholder perspective (i.e. their rationale, claims, risks, interests and expectations towards an organization / a project);
  \item classification of stakeholders according to accepted criteria;
  \item determination of relative importance of individual stakeholders and possible visualization of a stakeholder map\textsuperscript{13}.
\end{itemize}

An important aspect of stakeholder mapping is to replace, as far as practicable, the subjective perception of stakeholders by objective measures and make the process of analyzing stakeholders transparent. It is therefore substantial that the data collected on stakeholders are well understood and presented in a clear manner, also in several complementary forms, e.g. tables, drawings, lists, etc\textsuperscript{14}.

Using the above-mentioned basic and auxiliary criteria, various methods of mapping stakeholders can be found in the literature. These methods include a variable number of criteria. Examples of mapping stakeholders according to the number of criteria are depicted below.

The division into primary and secondary stakeholders is an example of stakeholder classification based on one criterion (Fig. 3). A stakeholder that is defined as primary occupies a central position in the network, i.e. has a direct connection with a project, "short" relationships with others, and controls resources of many other stakeholders.

\textsuperscript{12} A detailed review of the literature devoted to analyzing and examining various categories of project stakeholders who are perceived as key to achieving success is contained in: Davis K., \textit{Different stakeholder groups and their perceptions of project success}, International Journal of Project Management Vol. 32 (2014).

\textsuperscript{13} Based on: \textit{Business for Social Responsibility}, https://www.bsr.org/reports

\textsuperscript{14} Based on: Chinyio E., \textit{Construction Stakeholder Management}, http://www.mosaicprojects.com.au
Two criteria\textsuperscript{15} are usually distinguished in the classification and prioritization of stakeholders. Stakeholder characteristics from the perspective of the criteria: the possibility (potential) to create a threat and the potential for cooperation are an example of the classical one. The classification proposed by G.T. Savage enables finding answers to the following questions: what actions can be taken by a stakeholder?, Are these activities supporting a project or hostile? Can a stakeholder form a coalition with others? Moreover, the above classification presents the fundamental objective for which such classifications are drawn up, namely the definition of potential strategies for managing stakeholder groups (Fig. 4).

The typology proposed by K. Pajunen can also be used to determine the significance of a stakeholder. He applies two criteria: the first one is a stakeholder’s position in the network and the second is the degree of dependence of an organization / project on the resources at his/her disposal. The combination of these criteria gives nine types of stakeholders forming three groups (Fig. 5).

\textsuperscript{15} Literature in this field is very rich, both for projects as well as organizations. A broad overview of the stakeholder classification criteria is provided in: Vos J.F.J., Achterkamp M.C., Stakeholder identification in innovation projects. Going beyond classification, European Journal of Innovation Management, Vol. 9 No. 2, 2006. These issues are also discussed in: Bourne L., Walker D.H.T., Visualising and mapping stakeholder influence, Management Decision Vol. 43 No. 5, 2005. As regards stakeholder classification techniques used in project management, the techniques proposed in the PMBoK methodology can be distinguished: A Guide to the Project Management Body of Knowledge (PMBoK© Guide), Project Management Institute, Fourth Edition, 2008.
The first group of stakeholders includes "observers", i.e. those who have a relatively weak position in the network and do not have resources significant from the point of view of an organization. Their ability to influence, both positively and negatively, the objectives pursued by an organization is relatively low. Examples of such stakeholders...
are less important suppliers, local communities, some interest groups and small co-
owners. The second group concerns stakeholders, who largely meet only one of the
criteria or both but to a medium extent ("potential stakeholders"). A stakeholder who
has a strong position in the network and does not have significant resources, or has
significant resources but has a weak network position, does not pose a significant
threat at a given moment. An example of such a stakeholder may be an interest group
(e.g. branch organizations). A case where an entity possesses significant resources but
its position is weak refers in principle to a potential situation when it can only become
a stakeholder (e.g. a supplier, a bank that is just beginning to work with an organiza-
tion). Those who have key resources and a strong network position ("authorities") be-
long to the third group of stakeholders. They can influence other stakeholders and
impose organizational goals as well as ways of their achievement. Examples of this
group are primary stakeholders such as clients, employees, management, dominant
owners and major banks.

Literature also lists examples of merged matrices, which in turn represent the classifi-
cations of stakeholders from the perspective of more than two criteria. For example,
the matrices: authorities – a stakeholder’s predictability and authorities – an interest
(a stakeholder’s involvement in a project)\(^\text{16}\).

\begin{figure}
\begin{center}
\begin{tabular}{|c|c|}
\hline
\textbf{Predictability} & \textbf{Involvement in the project} \\
\hline
High & Low \\
\hline
No risk & Unpredictable, but possible to be managed \\
\hline
Holding power, but unpredictable & Posing a threat or providing opportunity \\
\hline
\end{tabular}
\end{center}
\end{figure}

\textbf{Fig. 6. Matrices: authorities – a stakeholder’s predictability and authorities –
a stakeholder’s engagement in a project}

\textit{Source:} Newcombe R., \textit{From client to project stakeholders: a stakeholder mapping

The above classification does not define or call individual stakeholder groups, but is
based on identifying potential strategies for identified stakeholder groups manage-
ment (Fig. 6).

\(^{16}\) Newcombe R., \textit{From client to project stakeholders: a stakeholder mapping approach. Construction
Management and Economics, December 2003, Vol. 21, p. 844.}
There are several characteristics that influence the nature of relations with stakeholders and their validity using three criteria. An example in this respect is the classical classification of stakeholders developed by R.K. Mitchell, B.R. Agle and D.J. Wood. These three criteria distinguishing stakeholders are as follows:

- validation (legitimacy) understood as reflecting the legitimacy of a stakeholder’s claim as to the right to influence an organization / a project;
- power;
- diligence (criticality) understood as the degree to which demands of stakeholders require immediate action. Some problems can be very important for a particular stakeholder in a strictly defined time\textsuperscript{17}.

R. Mitchell developed one of the most well-known stakeholder classifications based on the merger of these criteria, namely legitimacy, power and diligence. The names of the stakeholder groups according to the fulfillment of these criteria are shown in Fig. 7.

\textbf{Fig. 7}. Stakeholder classification according to R. Mitchell


A stakeholders may appear at three levels, depending on the number of the criteria met:

\begin{itemize}
  \item having only one described feature, of relatively low importance for a project (dormant, demanding and discreet);
  \item having two characteristics, of relatively higher importance (dangerous, dependent and dominant);
\end{itemize}

Another example of a stakeholder classification based on three criteria is the scheme proposed by R. Murray-Webster and P. Simon\textsuperscript{18}. The stakeholder classification is presented as a three-dimensional diagram (Fig. 8). The criteria that constitute the dimensions of the diagram are:

- power - the ability to influence a project / an organization (influential - not significant)
- interest in a project, understood as the degree to which a stakeholder will be active (active - passive);
- the approach to a project is understood as the degree to which a stakeholder(s) will support a project (supporting - blocking).

The combination of three criteria on a two-stage scale (positive and negative) gives eight cases: a savior, a friend, a saboteur, an irritant, a sleeping giant, a time bomb, an acquaintance and a potential trip wire.

**Fig. 8.** Stakeholder classification according to R.Murray-Webster and P.Simon


Table 2 shows the characteristics of each stakeholder category.

Table 2. Characteristics of individual stakeholder categories according to R. Murray-Webster and P. Simon

<table>
<thead>
<tr>
<th>Stakeholder category</th>
<th>Approach to the project</th>
<th>Power</th>
<th>Interest in the project</th>
<th>Description of the stakeholder strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>savior</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Highest attention and support</td>
</tr>
<tr>
<td>friend</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>Trustee of interests, maintenance of support, especially if he/she can increase his/her power</td>
</tr>
<tr>
<td>sleeping giant</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>Wake-up and taking an interest in the project</td>
</tr>
<tr>
<td>acquaintance</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Notifications</td>
</tr>
<tr>
<td>saboteur</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>Active involvement in order not to harm the project</td>
</tr>
<tr>
<td>irritant</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>Limiting and counteracting the negative impact</td>
</tr>
<tr>
<td>time bomb</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>It requires understanding and effort for the interest of the project</td>
</tr>
<tr>
<td>trip wire</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Minimizing the connection to the project</td>
</tr>
</tbody>
</table>


Conclusions

Stakeholder identification and mapping issues identified in this paper form part of a larger whole that makes up the stakeholder management process. Identifying and mapping stakeholders is valuable only if they help to understand the motives and potential behavior of stakeholders in project. This in turn enables drawing up strategies for dealing with individual groups of them. The development of scientific literature in this field is highly intense, as well as the practical application of the stakeholder theory is reflected in the project management methodologies and in the practical solving of management problems.

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Conflict of interests

The author declared no conflict of interests.

Author contributions

Author contributed to the interpretation of results and writing of the paper. Author read and approved the final manuscript.

Ethical statement

The research complies with all national and international ethical requirements.

ORCID

The author declared that he has no ORCID ID’s

References


**Biographical note**

**Wojciech Downar** – The area of his scientific interests includes particularly the management methods, management of stakeholders in various aspects, network organizations and inter-organizational relationships. He has practical experience in the field of the analysis and planning a company's activities and the analysis of efficiency of infrastructure investments. He is the author and co-author of several dozen scientific and research publications and research and scientific studies, also for economic practice.

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