

A SURVEY OF STAKEHOLDER VISUALIZATION APPROACHES

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Abstract

The aim of this paper is to present an overview of studies for the representation/visualization of stakeholders with a proposal of our own method of visualization. The following text examines the existing representational methods and at the same time critically evaluates their advantages and disadvantages. In addition, our own proposed approach is also presented.

The need to develop visualization methods for use in the concept of stakeholders has been accepted by researchers, and it is possible to encounter number of various alternatives which have been applied more or less successfully. The shared weakness of the majority of the models is that they only represent two main attributes simultaneously. When such models do contain three variables, then the third one is only a complementary aspect of the relationship compared to the two dominant attributes.

Our proposed visualisation model based on three Mitchell's (1997) stakeholder attributes should overcome the before mentioned disadvantage. Also, it takes into account the development over time in accordance with the dynamic of the relationships with the stakeholders. Therefore, the proposed three-dimensional model meets these needs and simultaneously removes the shortcomings of the other models, which are identified in our overview presented in this paper.

Keywords

Stakeholders, model, mapping, representation, visualization, Mitchell's attributes.

Introduction

The use of the stakeholder approach in managerial practice is continuing to grow. This is a consequence of the advances in management research, where it is necessary to consider all the important factors which together form the complex system of a business. The loosening of working relationships and the large number of affected subjects and rival alternatives are only some of the elements which lead to growing complexity in the relationships between interested parties.

Although there is no single, generally accepted definition of stakeholder, in theory and in practice it is possible to find a considerable number of applied criteria, of which the most regularly used (based on empirical verification) is the Mitchell model with its three attributes of power, legitimacy and urgency.

Due to the complexity of the stakeholder approach, visualization methods are a specific category which should provide the appropriate graphic representation of all the relevant aspects, as well as being user friendly. Quite often these two requirements seem to be mutually contradictory, where it is possible to gain the advantages from one of them at the expense of the other.

Stakeholder mapping, or constructing a map of stakeholders, is a means of making the acquired data more transparent for further use. The same is the aim of the BCG matrix, strategic group mapping, a graph of a value-chain analysis, and even a SWOT analysis can be given a visual form.

The aim of this paper is to present an overview of studies for the representation/visualization of stakeholders with a proposal of our own method of representation. In accordance with the above-indicated diversity of stakeholders' mapping and visualisation and in accordance with the aim set, we formulate these research questions:

Research question 1: What are the major deficiencies of existing methods of stakeholder visualisation?

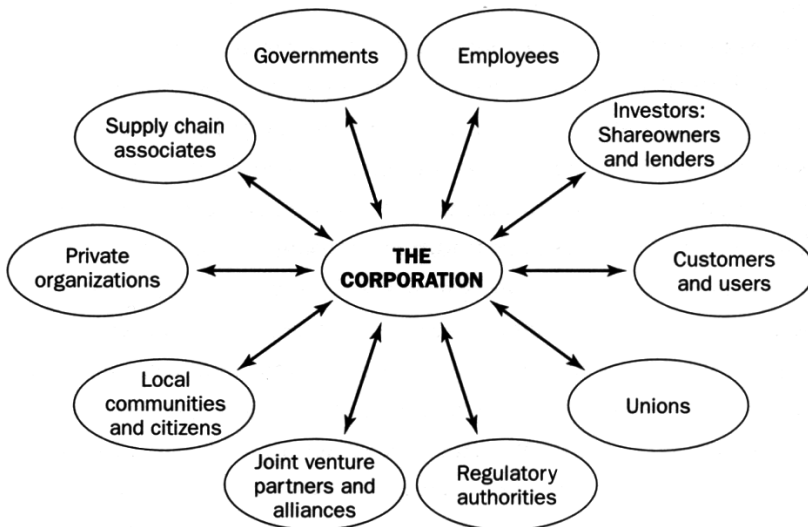
Research question 2: Which attributes the representational model should ideally contain, which might implement the most important current knowledge in that particular area of interest?

Research question No. 3: Which visualisation model is optimal?

The following text will examine the existing representational methods and at the same time will critically assess their advantages and disadvantages. In addition, our own proposed approach will also be presented. Some parts of this text are based on Ondřej Částek's doctoral thesis; this fact is indicated where appropriate.

Visualization Techniques

Many methods are used to give a graphic depiction of stakeholders. On the one hand, there are descriptive graphs which capture the very existence of stakeholders, or generic groups of them, in a simple way. An example is given in Fig. 1 (The Corporation and its Stakeholders).



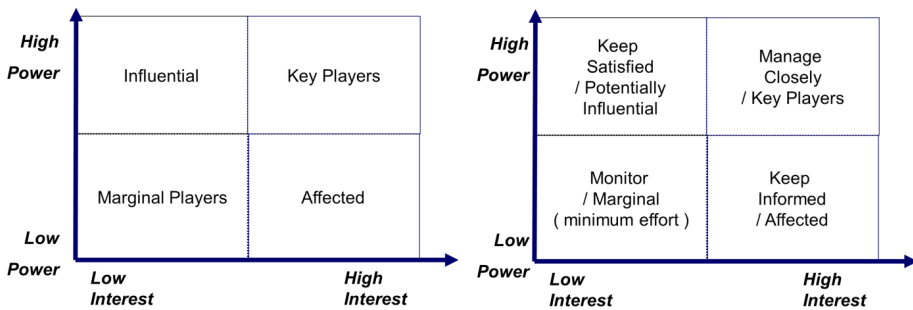
Source: POST, J. E., PRESTON, L. E., SACHS, S., 2002, p. 22.

Fig.1: The Corporation and its Stakeholders

This depiction, however, provides no other function than showing the stakeholders with whom the company has a relationship. It tells us nothing, or very little, about what type of relationship it is, how it came about, the attitudes of these stakeholders or their attributes (Částek, 2010). For these purposes the following methods can be found in the literature.

Interest/Influence Matrixes

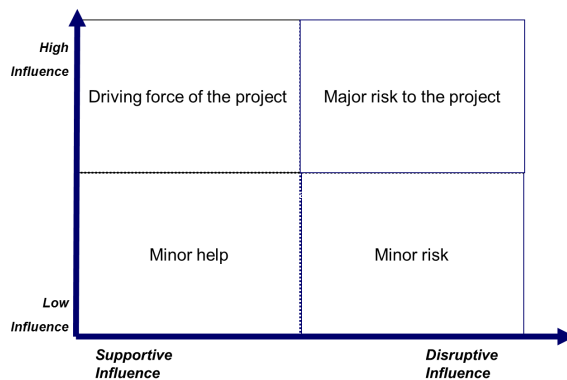
These matrixes are relatively simple and frequently used. In a two-dimensional space, they usually measure the strength of a stakeholder or the influence of his actions on the organization on one axis, and the attitude or interest of the stakeholder with regard to the organization, its strategy or some more specific activity (Částek, 2010).



Source: JOHNSON, G., SCHOLLES, K., WHITTINGTON, R., 1999, p. 156. Modified by the author.

Fig. 2: Power/Interest Matrixes

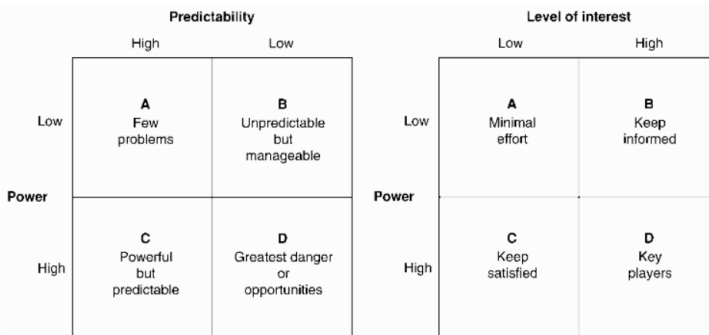
Chamberlain and Stutesman (2006) formulated an Influence/Attitude Matrix. Although originally aimed at project management, this matrix can be used to evaluate the attitudes of stakeholders towards the proposed strategy or parts thereof.



Source: CHAMBERLAIN, C., STUTESMAN, Y., 2006. [on-line]. Modified by the author.

Fig. 3: Influence/Attitude Matrix

Robert Newcombe (2010, on-line) introduced the Interest and Influence Matrix, designed for the specifics of construction projects. In his approach he suggested mapping stakeholders in large construction projects with regard to three attributes – power, predictability and the level of interest. Newcombe combines these three attributes into two matrixes, as can be seen below. Clearly, this approach can also be used for the purposes of strategic stakeholder analysis.



Source: NEWCOMBE, R., 2010. [on-line].

Fig.4: Interest and Influence Matrix

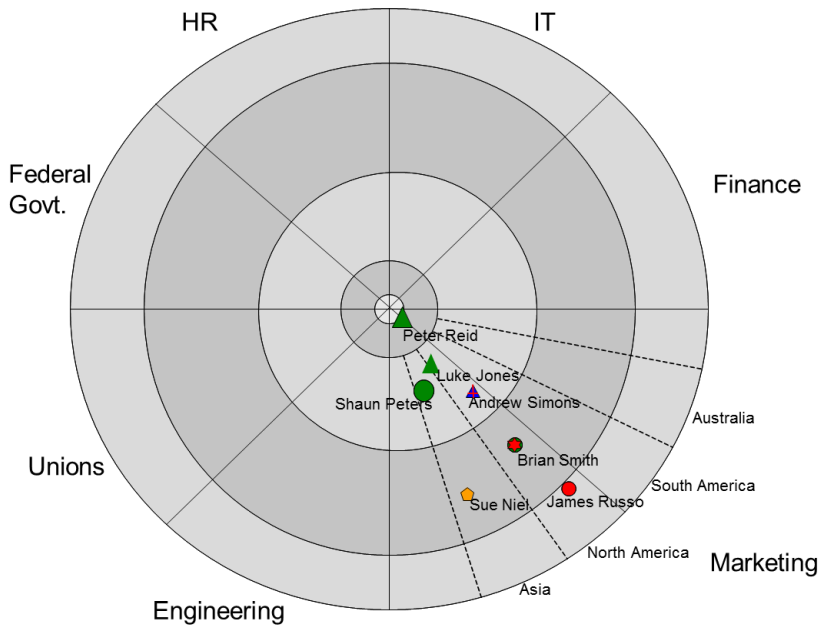
The intersection of the diagram presents the adoption of the corresponding behaviour by individual stakeholders, which results from the interest in a certain level of power, predictability and level of interest. It, therefore, refers to utility in the context of assessing stakeholders' views towards the organization's strategic direction.

All of these matrixes suffer from one shortcoming: they only express two realities at the same time. However, we can consider developing them by using (Částek, 2010):

- the size of the area denoting a stakeholder (or group). This method is used, for example, by maps of competing groups. The size of the area is suitable for expressing the number of stakeholders in a group and the volume of cash flows towards this stakeholder or group or similar (quantitative) variables.
- the colour of the area denoting a stakeholder. The colours (or shading) of the areas are suitable for expressing qualitative attributes. Unlike the size of the area, a key must be provided to explain the meaning of the different colours. In a power/interest matrix the various colours could, for example, indicate the stakeholder's attitude towards the organization.
- the shape of the area denoting a stakeholder. The same applies to the shape of the area as the colour of the area. Once again it is suitable for qualitative attributes and requires the provision of a key. Its use for expressing the type of leadership is set out below.

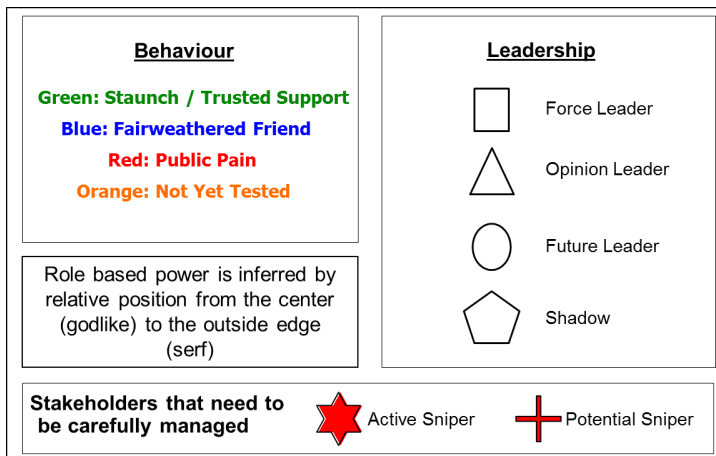
Stakeholder Map – PM Nautics

The stakeholder map for the company PM Nautics rejects the matrix layout and introduces a system of radial sectors, which can represent generic groups of stakeholders. These sectors record narrower segments of stakeholders or individual stakeholders. Their colour, shape and distance from the centre express various attributes (Částek, 2010).



Source: CHAMBERLAIN, C., STUTESMAN, Y. Stakeholder Management and Virtual Teams. [on-line].

Fig. 5: PM Nautics Stakeholder Map



Source: CHAMBERLAIN, C., STUTESMAN, Y. Stakeholder Management and Virtual Teams. [on-line]

Fig. 6: Key to the PM Nautics Stakeholder Map

The Stakeholder Circle

The authors Lynda Bourne and Derek Walker designed the methodology of the Stakeholder Circle™. This is an integrated procedure for stakeholder analysis, albeit adapted to suit the needs of project management. In comparison with strategic management it differs in terms of the dynamics of the development of stakeholder attributes. Whereas in strategic management the only known temporal regularities are manifested in a dependence on the length of the organization's existence (Jawahar, McLaughlin, 2001), in project management there is a dependence on the duration of the project, or more precisely on the phase of the project; Bourne and Walker (2006, p. 20) state that *"stakeholders may be unique to each part of the project from feasibility, through planning to execution"*. Changes in the composition of stakeholders or in their attributes thus manifest themselves much more quickly in project management than in strategic management (Částek, 2010).

However, the method of depiction which the Stakeholder Circle™ proposes can be used in strategic management too. An example of this can be found in the following diagram. It manages to simultaneously capture these facts:

Urgency

The concept of urgency as a factor of stakeholder importance is used by Bourne and Walker as well as Mitchell et al. in their model of three attributes determining the importance of stakeholders: it is based on the time-sensitivity of claims and their importance.

The degree of urgency is expressed by the length of the concentric border of the stakeholder. Of course, in some cases this kind of depiction makes it difficult to compare the urgency of two stakeholders situated on different sides of the circle and at different distances from the centre.

Power

In this model power is defined as the ability to influence a project, ranging from the inability to bring about many changes to the ability to terminate the project.

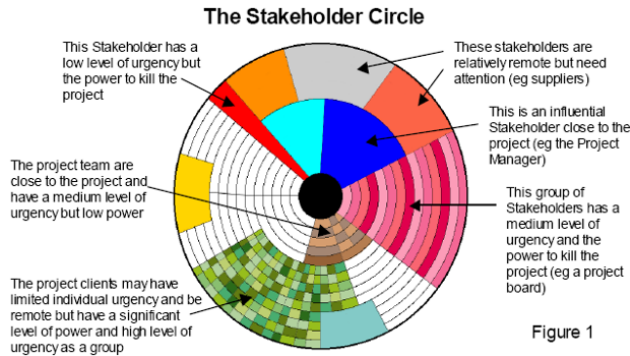
Power is measured along the radial axis. The more of this axis the stakeholder takes up, the greater his power.

Proximity

Proximity is described by Bourne and Walker as self-explanatory. It can range in value from direct involvement in the project (members of a project team mainly employed on the project) to "relatively distant from the project".

Proximity is expressed by the distance from the centre. The closer the stakeholder is to the centre, the closer his position is towards the project. Unfortunately, in the case of subjects with high power, it is more difficult to depict proximity to the project (see red sector).

The use of colours indicates membership of different groups of stakeholders. In this way it adds a new piece of information to the aforementioned three. For example, the different shades of green in our example show that the project in question has many clients, each of whom has relatively low power in themselves and their claims are not urgent in relative terms. However, it shows quite clearly that if these clients unite, they can achieve both significant power and high urgency (these individuals are most likely to join forces if they share the same urgent claims).



Source: BOURNE, L., WALKER, D. H. T., 2006, p. 10.

Fig. 7: Stakeholder Circle

The model presented is thus a slight modification of the model by Mitchell et al. which will be introduced later. It retains two stakeholder attributes: power and urgency. The third, legitimacy, is replaced by the proximity of the stakeholder to the subject of analysis.

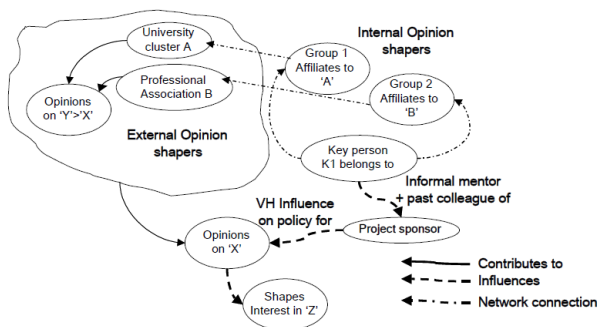
Walker, Shelley and Bourne (2010) updated their model in 2008, where they set a prerequisite which was close to being an axiom that proved to be of great benefit for implementing the visualization tools for managing stakeholders. In line with this position was the essential question of how the behaviour of stakeholders was to be represented for the visualization of opportunities and threats, and in a meaningful and transparent manner. The authors themselves admitted that these opportunities and threats can sometimes be abstract in character, which makes fulfilling the task more difficult.

In addition to the Stakeholder Circle, the Relations and Zoo Characters model (Shelley, 2007) was also added to the proposal in anticipation of synergism. The model works with reactions to different situations in the initial activation of instincts and then to the subsequent application of analytical thinking. It is, therefore, an attempt to implement the individual's psychological dimension in order to predict potential behaviour in relation to individual archetypes.

“Being able to better predict the behaviours and requirements of stakeholders enables team members to cater for these in their proposals. Recognizing the team have acknowledged their needs, the stakeholders are more engaged and a stronger working relationship builds between them and the team.” (Walker et al., 2010)

The proposed model with the Relations and Zoo Characters has only been vaguely outlined. Although Walker et al. (2010) suggested integration of Stakeholder Circle and Relations and Zoo Characters, they did not provide a resulting model, nor an explanation how it should work.

A more conceptual approach is offered by the implementation of another of Walker et al. model (see below) mapping the influence of opinion shapers who influence the behaviour of stakeholders. “Mentoring and seeking validation from reference groups can lead for example to a sponsor referring to a key network link who then seeks information, knowledge and advice from network colleagues. This helps to explain how opinion shapers outside any organization can exert a hidden (though not necessarily sinister) force that contributes to or results in firm impressions and perceptions being formed about issues. In this way, we can see that tools that help us visualize influence and impact are pivotal in any stakeholder management approach.” (Walker et al., 2010)



Source: WALKER, D. H. T., BOURNE, L., ROWLINSON, S. 2008, p. 76.

Fig.8: Influence Mapping

Factors such as trust, commitment and risk can become an important aspect in the management of interested subjects, although this influence is not examined further, despite the model being a partial source of inspiration for the Stakeholder Circle.

The original visualization tool then became used commercially, when in 2012 the Stakeholder Circle product could be purchased as a cloud application. The main advantage of the application is then emphasized by five uses (Stakeholder Management, on-line):

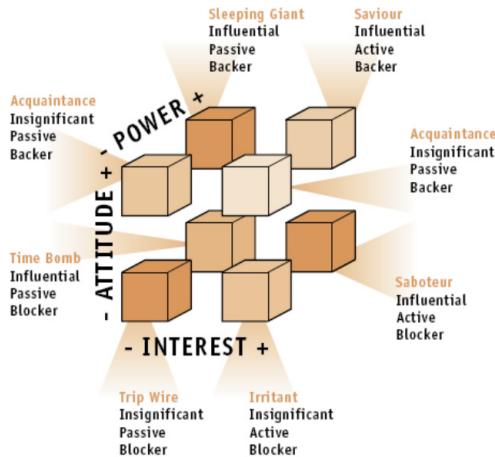
- The identification of stakeholders and understanding their needs.
- Determining the importance of individual groups of stakeholders.
- Mapping a profile of stakeholders.
- The formulation and development of strategies.
- Monitoring changes in time as a determinant for updating activities.

Therefore, the main advantage of this tool may be in the identification of key stakeholders together with the measurement and mapping of their impact and influence on the basis of the three mentioned parameters (power, urgency and the proximity of individual stakeholders to the subject under analysis).

Lucidus Consulting Three-Dimensional Model

The authors Ruth Murray-Webster and Peter Simon (on-line) used three attributes to characterize stakeholders: power, attitude and interest. They consider their model suitable for managing any kind of change, i.e. more widely applicable than just within project management. They perceive the individual properties as follows:

- Power – the ability to influence the project/organization, whether potential or actual.
- Interest – the extent to which they will be active or passive in the project/organization.
- Attitude – the extent to which they will support or resist the project /organization.



Source: MURRAY-WEBSTER, R., SIMON, P. *Make sense of stakeholder management with sensible stakeholder mapping.* [on-line]

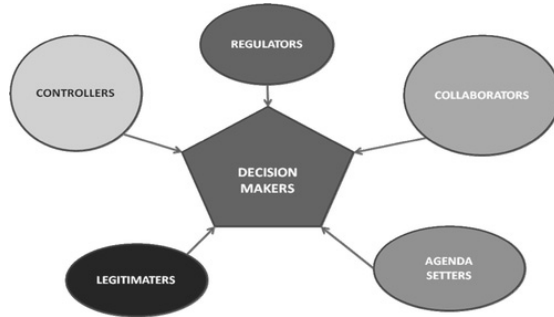
Fig. 9: Lucidus Consulting Three-Dimensional Model

Using the example in the diagram above, eight stakeholders with extreme values for individual characteristics are depicted. Unfortunately, if we were to include more stakeholders or groups of stakeholders into this graph, it would very quickly become difficult to interpret and would thus cease to fulfil its function (Částek, 2010).

A Five-Sided Model Of Stakeholder Influence

Thus far, attention has been focused on stakeholder models used in the private sector by enterprises for development of their strategic or project management. However, a stakeholder concept expands its applicability beyond that, for example to include local government.

Ricardo Gomes, Joyce Little and Luciana Gomes (2010, on-line) focused on identifying groups of stakeholders who are involved in decision making in the public sector. The model was based on research carried out in England and Brazil concerning how the decisions of management in local government are affected by stakeholders and their interests, which should be respected in order to achieve the desired goals.



Source: GOMES, R. C., LIDDLE, J., GOMES, L., 2010. [online]

Fig.10: General model for stakeholder management in local government

The resulting model is made up of five groups, which summarize the large number of factors which must be taken into account in the decision-making process. The influence of the groups is then based on the two factors of power and legitimacy, which are linked to the environment of the particular stakeholder:

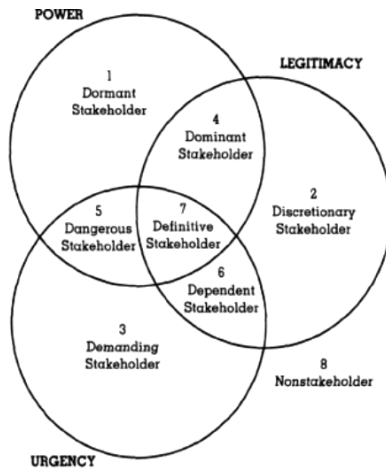
- Power over resources (stakeholders from a technical environment).
- Legitimacy – the right to establish rules and regulations, which the management must be in accordance with (stakeholders from an institutional environment).

Mitchell et al.’s Three Attributes Model

Mitchell et al. set up their model as an answer to two basic questions in stakeholder analysis: “Who are the stakeholders of a firm?” and “To whom do managers pay attention?”, which represent the stages of identifying stakeholders and assessing their importance. Both of them should be dealt with by the proposed system of three attributes; these being power, legitimacy and urgency. According to the authors, the broad definition of a stakeholder cannot be applied in practice. A problem, therefore, arises when we wish to narrow down our set of stakeholders. The criteria shown in the approaches above can be used for this. From this summary of the criteria it is evident that the most frequently used are the power of at least one of the entities in the relationship, and the legitimacy of the claim of one of the entities. On this basis the stakeholders can be divided into two groups: the “influencers” (they have the power to influence) and the “claimants” (they have a legitimate claim on the organization). However, according to Mitchell et al. this is not sufficient, and they define a third category – urgency.

Based on the possession of these three attributes, stakeholders can be divided into eight types, and these can be assigned to three classes. The following illustrates the various types of stakeholders.

The problem of the Mitchell et al. approach is that while they call for the consideration of three attributes at once, they still visualise them in two-dimensional space only. We shall look at this disadvantage later on.



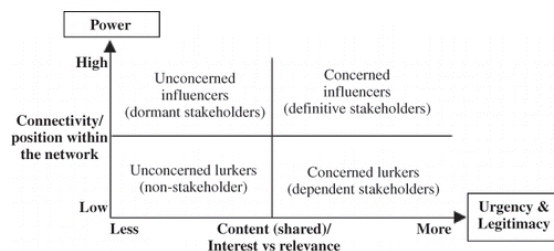
Source: MITCHELL, R. K., AGLE, B. R., WOOD, D. J., 1997, p. 874.

Fig. 11: Typology of Stakeholders according to Mitchell et al.

A Holistic Stakeholder Analysis Approach

Interest in social media is dynamically increasing in the need to take into consideration variables which necessarily connect with technological trends in the development of society. Therefore, in addition to the stakeholders we know so far, we can add a group of hitherto undiscovered stakeholders who are active through social media.

Sedereviciute and Valentini (2011, on-line) decided to take these new conditions into account and proposed a conceptual direction whereby organizations would map their stakeholders through a more holistic approach. This interest is the basis for the authors’ implementation of a set of relationships with the businesses as well as the groups which work within social media, i.e., outside of the traditional dyadic links.



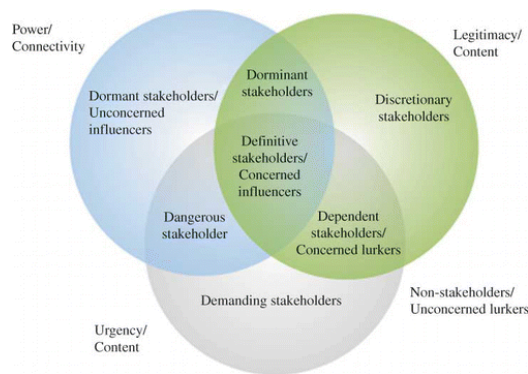
Source: SEDEREVICIUTE, K., VALENTINI, CH., 2011. [online]

Fig.12: Interest groups present in social media

In order to assess the influence of these stakeholders, the criteria of power, urgency and legitimacy are used. Unconcerned lurkers are defined as those who have no connection with other members within the network and at the same time have no interest in a particular organization through the use of social media. Therefore, in terms of the organization's strategic management they are unimportant participants. For these reasons, we can talk about the position of an uninterested subject.

In contrast to this we have the group of concerned influencers who have an important position in social networks and at the same time are greatly interested in the organization. They share content aimed at a specific organization, and therefore they also have legitimacy. The claims of this group of stakeholders can be considered as highly urgent, where their satisfaction has the potential to attract a large number of network members.

Therefore, individuals participating in dense social networks with high prestige and position have significant power to potentially affect the organization's decision making. In this way, both positive and negative publicity can be attracted as well as direct support. If the content is perceived by the other members as being important and significant, then these stakeholders also gain legitimacy.



Source: SEDEREVICIUTE, K., VALENTINI, CH., 2011. [online]

Fig.13: Holistic Mapping Model of Stakeholders

The proposed model combines the SSM (Stakeholder Salience Model) and the SNA (Social Network Analysis) as more of a holistic solution for identifying stakeholders, including those from the relevant social networks. In so doing it integrates the offline and online world in the process:

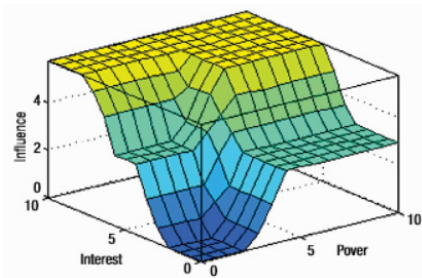
- Application of the SSM approach to identify key offline stakeholders.
- Classification of offline stakeholders into their respective groups.
- Identification of potential stakeholders using the SNA approach.
- Classification of online stakeholders on the basis of the connection and size of the content.
- Combination of results into one map.

The use of the model is found in the relationship to creating strategies in the interest areas of public relations or communication and publicity activities. It is, therefore, possible to acknowledge its main importance in the management of the relationship with the customers, where Kaplan and Haenlein (2010, p. 67) (in favour of the model) point to the significance of social media when establishing direct communication with the end consumers at relatively lower costs and higher levels of efficiency.

Kim and Grunig (2011) present a similar idea, where they understand social media as a factor which significantly affects people's everyday lives and therefore serves as a useful tool for overcoming the complexity of today's economic and social systems with informational asymmetry and incompleteness of information. It is also necessary to acknowledge the usefulness of the model for specific areas of strategic management in the connection of direct interaction and the communication of relevant information with specific stakeholders.

Empirical Insights into Understanding Stakeholder Influence

Susniénė and Purvinis's (2015, on-line) approach used fuzzy logic in their design for modeling and visualizing stakeholders, which was a concept operating with three attributes – power, interest and influence. Therefore, to a certain degree it is a modification of Mitchell's approach. The 3D diagram divides interested subjects from the zero values of all three attributes to the maximum, which can be expressed in the quantification of Interest = 10, Power = 10 and Influence = 5. The area displayed then corresponds to the intersection of these three variables.



Source: SUSNIENĖ, D., PURVINIS, O. [online]

Fig.14: Stakeholder 3D Model

In practical terms, the results provide a certain methodological approach for managing relationships with various stakeholders in respect to their individual attributes. The application of fuzzy logic is also used to explain or predict the influence of stakeholders while attempting to implement a temporal perspective into the model, which would differentiate the current and future time dimensions. Of all of the existing approaches this model is the most sophisticated to date.

In addition, the model was based on examining the results from real data from companies. Naturally, one of the weaknesses is the model's lower level of clarity if there is a need to portray more relationships simultaneously, with the threat of overlapping dimensions.

Map of Stakeholders – A Proposal for a New Visualization Method

Let us summarize our findings in the table below. Each visualization method is labelled, than the number of main characteristics is given and finally we indicate, whether the particular method can report anticipated changes in the main characteristics – in other words, we divide the methods in static and dynamic. The last-mentioned model labelled as “3D model” is to be proposed right after this table.

Model	Main characteristics	Static/dynamic
Power / interest matrix	Two: power, interest	static
Influence / attitude matrix	Two: influence, attitude	static
Interest / influence matrix	Two: interest, influence	static
PM Nautics	Two: behaviour, power	static
Stakeholder circle	Three: urgency, power, proximity	static
Influence mapping	Two: influence, impact	static
Lucidus consulting	Three: power, attitude, interest	static
Five sided model	Two: power, legitimacy	static
Three attributes model	Three: power, legitimacy, urgency	static
Holistic approach	Three: power, legitimacy, urgency	static
Empirical insights	Three: power, interest, influence	static
3D model	Three: power, legitimacy, urgency	dynamic

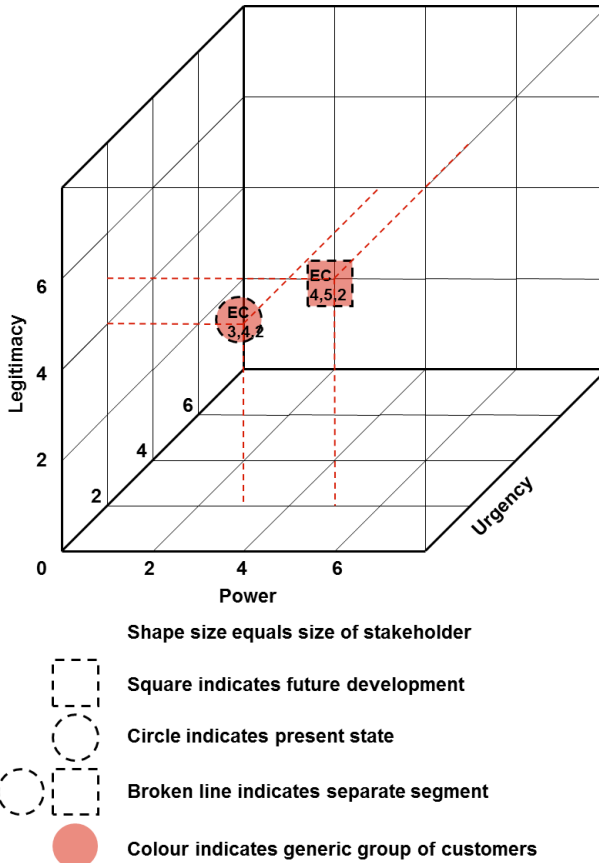
Source: Authors.

Table 1: Comparison of approaches to stakeholder visualization

Please note that the following suggestion is based on Částek (2010, pp. 185–188). The majority of the techniques employed restrict themselves to the use of two basic characteristics to describe stakeholders. This would appear to be inadequate as, on the one hand, different authors use different characteristics, and on the other, the validity of three attributes has been empirically verified (Mitchell et al.).

Of course, even two-dimensional methods of representation offer the incorporation of more than two attributes. We have already mentioned the possibility of using various colours, sizes and shapes for the objects representing stakeholders. Nevertheless, these attributes can only provide supplementary information to the basic two characteristics. Otherwise the graph would become difficult to interpret if two stakeholders were distinguished from each other by the third attribute only.

It thus appears that a three-dimensional model similar to the Lucidus Consulting model would be suitable for our proposal to use three attributes as the basic determinants of stakeholder importance. Though clarity remains an issue, the proposed means of depiction should solve this problem.



Source: Authors.

Fig. 15: Proposed Three-Dimensional Model

The individual points are coded as stakeholder or segment (end consumers in our example). For better orientation a three-digit vector then gives the values which the stakeholder achieved for the individual attributes. If only positive numbers are used for the evaluation (see the seven-point Likert scale of 1–7 used by Mitchell et al.), the resulting graph will be clearer. When looking from the different viewpoints, the distance of a point from the start of the graph gives clear information on where importance stems from.

We might also still consider the use of various shapes, colours and sizes to identify individual stakeholders. As with the Stakeholder Circle™ methodology, colours are useful for denoting membership of the same generic group of stakeholders. The size of the shape might indicate the volume of transactions between the organization and the stakeholder. The shapes might then be reserved for different time periods, which can number more than two. In our case the style of the shape’s border was reserved for the homogeneity segment. Other symbols could

also be considered, as in the approach of PM Nautics, which inserts, for example, crosses and stars into the shapes indicating stakeholders.

One more observation should be made about this particular image. Although it is a bitmap graphic, a vector graphic can be considered in practice, allowing the model to be rotated and making it much easier for the observer to grasp the sources of the stakeholder's importance. Naturally, in that case circles and squares would be replaced by three-dimensional equivalents.

It is useful to arrange the graphic data into a table. For this we propose the method described below. First of all, the relevant stakeholder is identified. Then he is assigned to a broader set of stakeholders with whom he shares some attributes, and to a generic group. In the following six columns the values have been entered for the stakeholder's basic attributes including a prediction of their development in the near future. The other columns depict all the characteristics used by the approaches which were summarized above. Again, they can be supplemented with information concerning predicted development. In the final column there are exchange values with the stakeholder. These should be described in more detail, so the column should actually be wider.

The effects of activities (sub-goals, specific activities) on a stakeholder can, of course, be expressed in more detail than only as positive/negative/neutral. However, any scale that is to be used has to be explained. The same applies to stakeholder size, where several methods immediately suggest themselves – market share, the volume of transactions with the stakeholder in absolute terms, or the relative size of the stakeholder in comparison with the company in question (measured by turnover or total assets). For our example of the end-consumer group, we chose this group's share in the total sales of the company. Where possible, the indicator should be the same for all stakeholders, e.g. for suppliers it would be the share of supplies in the total costs, and for employees the share of staff costs in the total costs. Nevertheless, this form may not always be relevant for all stakeholders, e.g. for communities in the area surrounding the company. In a case like this, a stakeholder such as the Greenpeace could be represented by the number of members or the number of events, which would at least allow for a comparison of this stakeholder within its generic group. However, the size attribute of a stakeholder should not duplicate the "power" attribute, as this would provide redundant information and could give a higher weighting to this attribute during analysis at the expense of the others.

End Consumer	Stakeholder
EC	Group
C	Generic group
3	Power
+2	- development
4	Legitimacy
+1	- development
2	Urgency
0	- development
0,3	stakeholder size
+	- development
P	effects of activities
0	- development
P	attitude towards the organization
0	- development
P	Interest
0	- development
0	Leadership
0	- development
list values	Values

Groups: EC – end consumers
 Generic groups C – customer generic group
 Effects, attitude, interest P – positive, N – negative, 0 – none, not predicted
 Source: Author.

Table 2: Summary of Information about Stakeholders

None of the previous examples (chapter 2) of mapping include development over time, despite the fact that many authors (including Bourne and Walker, Mitchell et al.) point to the dynamics of relationships with stakeholders. It would, therefore, appear to be appropriate to incorporate the future position of stakeholders into the proposed model. It is possible to use various shapes, for example, one shape for the current state of all the stakeholders and another shape for potential states, and perhaps also other shapes for several years into the future or several years into the past. Such a graph could then be used to evaluate the predicted effects of the external environment and also to evaluate the impact of the organization’s behaviour – e.g. its strategy or parts of it.

Conclusion

The need to develop visualization methods for use in the concept of stakeholders has been accepted by researchers, and it is possible to encounter different alternatives which have been applied more or less successfully as one can see in this study. The research questions were answered as follows:

Research question No. 1: What are the major deficiencies of existing methods of stakeholder visualisation?

The shared weakness of the majority of the models is that they only represent two variables simultaneously, with a two-dimensional model most often being used. This leads to user-friendly diagrams at the expense of the informational value of the particular method. When such models do contain three variables, then the third one is only a complementary aspect in the relationship towards the two dominant characteristics.

Research question No. 2: Which attributes the representational model should ideally contain? In other words, which attributes might implement the most important current knowledge?

The answer to this question is to be found in the model which takes into account Mitchell's (1997) attributes of power, legitimacy and urgency. Simultaneously it should also take into account the development over time in accordance with the dynamic of the relationships with the stakeholders.

Research question No. 3: Which visualisation model is optimal?

Our proposed visualisation model based on three Mitchell's (1997) stakeholder attributes should overcome the above mentioned disadvantages of other models. Also, it takes into account the development over time in accordance with the dynamics of the relationships with the stakeholders. Therefore, the proposed three-dimensional model meets actual needs and simultaneously removes the shortcomings of the other models, which are identified in our overview presented in this paper.

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