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A Method to Identify, Characterize  
and Engage Relevant Stakeholders in  
Decision Processes

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# A Method to Identify, Characterize and Engage Relevant Stakeholders in Decision Processes

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## ABSTRACT

Public decisions are often complex especially when the process is meant to be participatory involving various stakeholders. The engagement of different actors or organizations that affect or are affected by these problems is then needed to construct a high quality decision. Which stakeholders should be engaged in decision processes? This is the question addressed by this document. In the first section, terminology and theoretical aspects regarding decision aiding and stakeholder theory are described. This section is intended to explain what are stakeholders, and why should a decision project manager care about stakeholders' identification and engagement. A novel method is presented in the second section. It consists of four successive phases: identification of stakeholders, characterization of stakeholders, determination of appropriate levels of participation for each stakeholder and preparation of a participation plan. For illustration purposes, the method is applied to a project in transportation. By presenting concrete and detailed steps, this method seeks to fill a gap in the practice of stakeholder analysis and engagement, since current guidelines in this area are very general and lack applicability to concrete projects. We expect this contribution will help managers and researchers from very different fields to explore the benefits of seriously thinking about stakeholders' engagement in their projects.

**Keywords:** Stakeholders, stakeholder analysis, stakeholder theory, decision aiding, public participation, participatory techniques, problem structuring methods, multicriteria decision analysis.

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# Introduction

This document addresses the issue of identifying, characterizing and engaging relevant stakeholders in decision processes. It is intended to answer the question “which stakeholders should I engage in the decision process?”

A method was developed based on literature from operational research and management. In the first section, terminology and theoretical aspects regarding decision aiding and stakeholder theory are described. This section is intended to explain what are stakeholders, and why a decision project manager should care about stakeholders’ identification and engagement. Furthermore, different levels of engagement are discussed. The proposed method is presented in the second section. It consists of four successive phases: identification of stakeholders, characterization of stakeholders, determination of appropriate levels of participation for each stakeholder and preparation of a participation plan. For illustration purposes, the method is applied to a project in transportation.

By presenting concrete and detailed steps, this method seeks to fill a gap in the practice of stakeholder analysis and engagement, as current guidelines in this domain are very general and lack applicability to concrete projects (Wang & Aenis, 2019). We expect this contribution will help managers and researchers from very different fields to explore the benefits of thinking deeply about stakeholders’ engagement in their projects.

# Section 1: what are stakeholders and why should we care about them?

## Terminology

Most of the time, it is relevant and beneficial to involve stakeholders in the process of understanding and making a decision about a problem. But before presenting reasons and ways to engage stakeholders, it is critical to define a few concepts.

### *Decision, decision problem, decision process and decision maker: what are they?*

We all face decision problems in our everyday life. A **decision problem** is simply a problematic situation or issue that someone is facing and has to solve. A decision problem has three characteristics: it can be solved by different courses of action, there is some doubt as to which one should be selected and the choice made can have a significant effect (Ackoff, 1981). A decision problem is always an opportunity to articulate **objectives** (what do we really want to achieve in that context?) and **values** (why are we interested in that problem?) and to create alternative courses of action (Keeney, 1992). Moreover, the articulation of values and objectives can be a fertile ground for the proactive creation of new decision opportunities (ibid.).

In this document, we call '**project**' the action of responding to a decision problem. Unlike an impulsive and intuitive reaction, a response to a decision problem should be guided by reasoning.

But what exactly is a **decision**? In this method, it is the *resolution* of the decision process: the final selection from several available alternative courses of action. Those alternative courses of action are simply called **alternatives**. Once chosen, the selected alternative still has to be implemented to concretely solve the decision problem. A decision is said to be **effective** if it produces the desired effect when implemented (Vroom, 2003).

The process of making a decision is called the **decision process**. 'To make a decision' means "to make a judgment regarding what one ought to do in a certain situation after having deliberated on some alternative courses of action" (Ofstad, 1961, p.15). This process can take very different forms, but, at the very least, the decision maker considers several alternatives and his/her final choice involves a comparison between these alternatives and the evaluation of their outcomes (Eilon, 1971). A decision process is said to be **efficient** if it leads to the selection of a decision with little or no waste of resources (time, funds, etc.; Vroom, 2003).

A person responsible for the decision is called a **decision maker (DM)**. In this method, we also use the term **manager**. The DM is the one "who decides among alternative choices. He must decide which choice he believes will lead to a certain desired objective or set of objectives" (Churchman, 1968, p.17). The DM's first reason for interest in any decision problem

is “the desire to avoid undesirable consequences and to achieve desirable ones” (Keeney, 1992, p.3). In this method, we assume that the decision problem is solved by a group we call the **project management team (PMT)**. The PMT is sometimes called top management team (TMT) in the literature (e.g., Ackermann & Eden, 2011; Gregory et al., 2020). In our view, the PMT should include the decision maker and, depending on the context, one or two facilitators and chosen experts.

A **facilitator** is an expert of decision aiding who helps decision makers to think deeply about their problem, objectives, values and alternatives. They are like “teachers who, although they cannot learn for their students, can facilitate their students' learning for themselves” (Ackoff, 1979, p. 190). Facilitators generally help decision makers by constructing a **formal representation of reality** for and with them. This representation usually takes the form of a model and of a value system used to conceive and process the model (Roy, 2010).

Thus, a decision is the choice made by the decision maker, with the help of other persons, to respond to a decision problem. This decision is based on different aspects (objectives, values, etc.) that are made explicit through a formal representation. Most of the time, decision problems are complex and unstructured: **problem structuring methods (PSM)** are then of great use to understand what the problem *is* (Rosenhead, 1996). PSM are qualitative approaches for making progress with ill-structured problems (Rosenhead & Mingers, 2001). The proposed method in this paper refers to some PSM during its first phase and also indirectly enhances the understanding of the decision problem. However, this method is not strictly speaking a problem structuring method, and PSMs are not the subject of this report, since they are already well addressed in the literature (e.g., Ackermann, 2012; Belton & Stewart, 2010; Bouyssou, 1990; Buede & Downey, 1986; Franco & Montibeller, 2009; Gregory et al., 2012; Keeney, 1992, 2013; Keller & Ho, 1988; Marttunen et al., 2017; Rosenhead & Mingers, 2001; Smith et al., 2019). That being said, many PSMs could certainly be used as a complement to this method.

Finally, it is critical to say a word about **rationality**. One definition is that an individual is said to behave rationally if he/she “attempts to obtain the maximum utility” while solving a decision problem (Eilon, 1971, p. B-180). For example, if an action A is shown to be superior to B, the decision maker makes a rational decision if he/she selects A in preference to B. If he/she does not, then the decision is considered irrational (Eilon, 1971). However, the superiority of A on B is not absolute: it depends on decision criteria, and those criteria depend on objectives, values, own personality and beliefs of the decision maker (Eilon, 1971; Keeney, 1992). Moreover, rationality has to do “with goals as well as the *means* of the attainment of goals” (Churchman, 1968, p. 102, emphasis added). A rational decision is therefore relative to decision makers and situations. But rationality is also linked to questions of ethics and morality, since they are often embedded in the determination of objectives (Churchman, 1968). We therefore adopt the view, that a decision is rational if it is consistent with the decision makers preferences and values.

## *What is a stakeholder?*

**Stakeholder** is a compound word that literally meant “the holder of a wager” in its first uses in the 18<sup>th</sup> century (Oxford English Dictionary (3 ed.), 2004). “Stake a claim” meant to “declare or assert your right to something” in North America (The Oxford Dictionary of Word Origins (2 ed.), 2009). *Stakeholder* first appeared in the management literature in 1963 at the Stanford Research Institute (now SRI International) and the term “was meant to generalize the notion of *stockholder* as the only group to whom management needs be responsive. Thus, the concept of the *stakeholder* was originally defined as ‘those groups without whose support the organization would cease to exist’” (Freeman et al., 2010, p. 31, emphasis added).

Nowadays, stakeholders are commonly considered as “persons who have a vested interest in some ‘common item’” (Banville et al., 1998). This interest can vary from perceiving a project as essential or detrimental to survival, to a mere intellectual curiosity (Martin & Morrissey, 2002). A stakeholder can be a single person or “any group of people, organised or unorganised, who share a common interest or stake in a particular issue or system” (Grimble & Wellard, 1997). Despite being generally unstructured and unorganized, the public can be considered as a distinct stakeholder in some projects (e.g. Luyet et al., 2012). Stakeholders are identified and characterized by doing a **stakeholder analysis**.

**Stakeholder theory** is the body of knowledge that focuses on simultaneously taking the interests of multiple stakeholders into account (de Gooyert et al., 2017). Stakeholder theory was developed by researchers from philosophy, management and operational research (Freeman et al., 2010). Seminal works in Stakeholder theory were produced by researchers from the Carnegie Mellon University (Igor Ansoff), from the Wharton School of the University of Pennsylvania (Russell L. Ackoff, James R. Emshoff, R. Edward Freeman, Richard O. Mason and Ian I. Mitroff), from the University of California, Berkley (C. West Churchman and Edwin M. Epstein) and from the Stockholm School of Economics (Eric Rhenman; Freeman et al., 2010). The proposed method in this paper is based on many works from Stakeholder theory.

There are many concrete ways to engage stakeholders in decision processes, such as presentations, workshops, individual interviews, online surveys, etc. In this report, a **participatory technique** is the use of any approach, method or tool to involve stakeholders in the decision process, even if the considered approach, method or tool is not generally used for that purpose. For example, by considering multicriteria decision analysis, geographical information systems or cognitive maps as participatory techniques, we implicitly take for granted that they are used *with* stakeholders, even if those techniques can undeniably be used without them in other contexts.

## Question 1: Why should we care about stakeholders' identification and engagement in decision processes?

*First reason: Stakeholders' participation is key to a decision's success*

Nutt (2002) analyzed over 400 decisions made by top managers in private, public and non-profit organizations across the United States, Canada and Europe. Half of the decisions examined ended up in failure, meaning that they were not fully implemented after two years. According to the author, these decisions failed mainly because of three major reasons:

- (1) managers identified a concern and adopted the first solution encountered;
- (2) managers spent time and money during decision-making on the wrong issues, such as defending the hastily selected solution;
- (3) managers applied failure-prone tactics, such as not involving stakeholders in the decision-making process.

Nonetheless, these situations could have been prevented by engaging stakeholders during different parts of the decision process, and by taking into account their concerns, aspirations, perspectives, values and objectives, from the problem structuring phase to the implementation of a decision. In fact, Nutt noted that decisions that draw on participation to foster implementation succeed more than 80 percent of the time. These conclusions are confirmed by Vroom (2003), a senior researcher and consultant in management, who reported that stakeholders' participation could enhance the *decision effectiveness* (i.e. the decision produces the desired effect) and the *efficiency of the decision process* (i.e. the decision process is effective with little or no waste of time and money).

Vroom identified four potential outcomes of participatory processes:

- (1) stakeholders' participation can improve the quality of the decision. A high-quality decision is one in which the action chosen is consistent with the goals of the PMT and "with potentially available information about the probabilities of actions leading to the attainment of these goals" (Vroom, 2003, p. 969).
- (2) stakeholders' participation can improve the implementation of the decision. This implementation is influenced by the degree to which stakeholders understand and support the decision. This outcome has been known for a long time: people are considerably "more inclined to implement plans in which they have had a productive hand than those that are handed down to, or imposed on, them" (Ackoff, 1979, p. 190).

For Vroom, quality and implementation are components of the *decision effectiveness*. He went on with two more outcomes of participatory processes:

- (3) stakeholders' participation can slow down the decision-making process. This is a good thing most of the time, except in emergency situations, in which case engaging stakeholders could jeopardize action. When the PMT takes the time to engage

stakeholders in the decision process, their participation acts as a team-building function: it improves communication between stakeholders, builds positive relationships among them and helps to meld them into a team. It can also provide a training ground in which the PMT “can think through the implications of decisions in anticipation of a later time” (Vroom, 2003, p. 969).

- (4) Stakeholders’ participation can aid in aligning the individual goals of stakeholders with the goals of the PMT.

For Vroom, these last two outcomes (time and team-building/goal-alignment activities) are components of the *efficiency of the decision-making process*. Depending on the context, a manager could spend time on team-building and goal-alignment activities, or on the contrary could try to speed up the decision process because of time issues. A careful balance has to be found.

In summary, any PMT will be interested in engaging stakeholders in the decision process if it wishes to enhance the quality of its project and secure the project’s implementation. With the exception of emergency situations, stakeholder analysis and engagement is worth the investment, either for moral reasons because “it is the right thing to do” or for instrumental reasons such as “it is increasing our performances” (de Gooyert et al., 2017).

Moreover, there are many other reasons to engage stakeholders, such as informing and educating the public, incorporating public values and knowledge into decision-making, building of trust, reducing conflicts and ensuring cost-effectiveness (Beierle and Cayford, 2002, cited by Marttunen et al. 2015). However, there are also downsides to stakeholders’ participation. It consumes time and funds. It could also raise unrealistic expectations from stakeholders or exacerbate existing conflicts in some cases. Luyet et al. (2012) listed the main advantages and risks linked to stakeholders’ engagement (**Table 1**). The identification and characterization of stakeholders, that we call ‘stakeholder analysis’, is then of great use to assess those risks and can help managers in choosing appropriate participatory techniques in their decision process.

**Table 1.** Advantages and risks of public participation (based on Luyet et al., 2012).

Advantages of participation	Risks of participation
<ul style="list-style-type: none"> <li>• Better trust in decisions</li> <li>• Public acceptance of the decisions</li> <li>• Better understanding of projects and issues</li> <li>• Integration of various interests and opinions</li> <li>• Optimizing implementation of plans and projects</li> <li>• Improving project design using local knowledge</li> <li>• Fostering and developing social learning</li> </ul>	<ul style="list-style-type: none"> <li>• Expensive process</li> <li>• Time consuming process</li> <li>• Potential stakeholder frustration</li> <li>• Identification of new conflicts</li> <li>• Involvement of people who are not real stakeholders</li> <li>• More power to an already influential stakeholder</li> </ul>

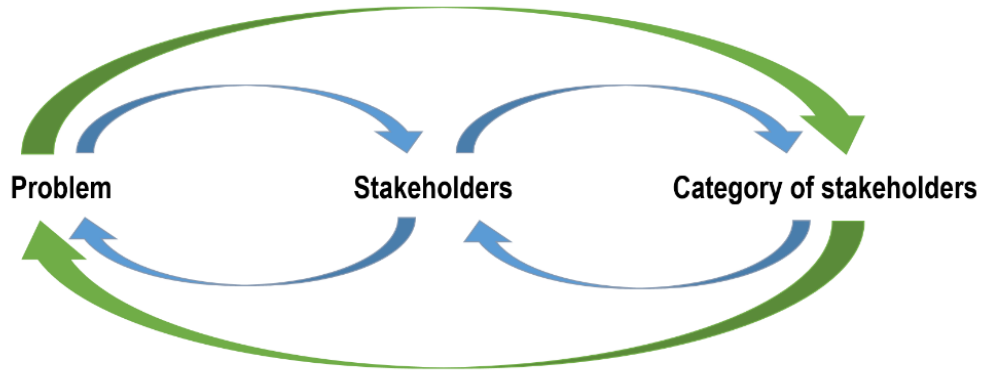
*Second reason: Stakeholder analysis enhances the understanding of the decision problem*

Stakeholders have, by nature, a vested interest in a decision problem. However, their relation to the decision problem is not always the same: they could be mainly affecting it, they could be mainly affected by it or both (Banville et al., 1998). By completing a stakeholder analysis, a manager considers “all the parties who will be affected by or who affect an important decision. [Stakeholder analysis] requires the manager to list as many parties or interest groups, as he or she can, who have a stake in the policy under consideration” (Mitroff, Emshoff and Kilmann, 1979, p. 586). A more complete stakeholder analysis also characterizes stakeholders according to different relevant properties, or classifies them in categories.

Two positive circularity effects are produced by stakeholder analysis (**Figure 1**).

First, the identification of stakeholders helps to identify the problem, and the identification of the problem helps to identify stakeholders (Banville et al., 1998). Therefore, stakeholder analysis positively enhances the understanding of the problem at hand while revealing the persons who have a stake in the project or the situation.

Second, the creation of a category of stakeholders may lead to the identification of new members of that category or of other stakeholders to be included in a new category (Banville et al., 1998). In turn, these new stakeholders and categories of stakeholders further enhance the PMT’s understanding of the decision problem. This deeper understanding, achieved with stakeholder analysis greatly assists the PMT in their decision process, by clarifying what *is* the decision problem. It is, in some regards, a problem structuring method.



**Figure 1.** Two circularity effects related to stakeholder analysis (based on Banville et al., 1998).

Understanding the decision problem is important, because it improves the decision effectiveness. You can “make a well-considered, well-thought-out decision, but if you have started from the wrong place – with the wrong decision problem – you won’t have made the smart choice” (Hammond et al., 1999, cited by French et al., 2009, p. 271). Thinking deeply about the decision problem also helps managers to minimize “the potential for post-decision regret by being satisfied that all criteria or factors have properly been taken into account” (Belton & Stewart, 2002, p.2). Finally, depending on how and when stakeholders are engaged in the decision process, the understanding of the problem and what constitutes an improvement can change markedly (Churchman, 1970). Stakeholders’ participation widens the borders of the decision problem.

But how do we identify and characterize stakeholders? And how does a stakeholder analysis reveal appropriate levels of participation for each of them? The next sub-section offers a few answers.

## Question 2: How to characterize stakeholders?

### *The multiple benefits of characterization*

The characterization of stakeholders consists of the identification of their properties. Examples of properties that the PMT could consider are shown in **Table 2**. But first: why should stakeholders be characterized?

Characterization of stakeholders is generally useful, except in small projects where their number is small (Luyet et al., 2012). By shedding light on power relationships and stakeholders' ability to affect or be affected by the project under consideration, it can help identify stakeholders that should not be included in the decision process, namely those with weak influence or weakly affected (Franco & Montibeller, 2009; Luyet et al., 2012). Moreover, stakeholders' characterization can help elicit a preliminary list of solutions and decision criteria (Banville et al., 1998). Indeed, considering stakeholders' interests in a decision problem can provide a preliminary overview of the alternatives that stakeholders would be willing to implement and of the evaluation criteria they could propose. In addition, this exercise is helpful for assigning the appropriate level of participation to each stakeholder, which in turn is helpful to choose an appropriate participatory technique, such as presentations, workshops, focus group, interviews, etc. (Luyet et al., 2012). Finally, as already mentioned, classification of stakeholders is a means of becoming better acquainted with the decision problem.

**Table 2.** Possible characteristics of stakeholders (excerpt of Mason & Mitroff, 1981, pp. 97-98)

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Possible characteristics of stakeholders
1. Purpose and motivation
2. Beliefs
3. Resources
a. Material
b. Symbolic
c. Physical
d. Positional
e. Informational
f. Skills
4. Special knowledge and opinions
5. Commitments
6. Relationships to the other stakeholders in the system:
a. Power
b. Authority
c. Responsibility
d. Accountability

---

## *Categorizing*

There are many ways to classify stakeholders depending on the project and the type of decision-making process. Categories can be based on both scientific and grey literature related to the project. For example, Gregory et al. (2020) base their preliminary categories on scientific literature around green innovation and on news reports from the project's geographical area. Interviews with the project's principal investigator and stakeholders helped them to refine these categories.

Categories of stakeholders can also be structured in advance on the basis of some broad characteristics. Banville et al. (1998) propose a non-exhaustive and non-exclusive list of six types of stakeholders depending on their visibility, their participation and the way they affect or are affected by the decision problem (Table 3).

'Standard Stakeholders' correspond to "a somewhat ideal view of a democratic decision making process where those affected by and affecting a problem participate in its resolution" (Banville et al., 1998, p. 18). 'Fiduciary stakeholders' are "typically those persons acting on behalf of clients and representing them, such as, to take a rather trivial example, the agents of professional athletes" (Ibid.). 'Client' should then be understood in a very broad sense. 'Silent Stakeholders' are characterized by "the fact that they personally have no direct control over the resources or uncertainties deemed relevant for solving the problem" (Ibid.). Depending on the situation, silent stakeholders may not exist (future generations), or they may not have the means to make their voices heard (children, people with disabilities, etc.) or they may be forgotten. In this latter case, if they control relevant resources, formulating and solving the problem may run into trouble. Taking into account silent stakeholders can help fulfill a moral duty (e.g., to protect the environment for future generations, to take into account as many stakeholders as possible in the process, etc.) and can also widen the boundaries of the problem at hand. "The two deepest mysteries of cooperation are the men who once lived and the men who will live, the voiceless majority. It is probably ridiculous to ignore what our ancestors would wish us to do if they were alive, and probably fatal to ignore what our progenitors will wish we had done," (Churchman, 1970, p. B-49). Finally, two last stakeholders are staying "in the shadows". 'Éminence grise' are "having direct access to participating stakeholders" and are "in a position to influence them", or even "have some de facto veto power on critical dimensions of the problem-solving process" (Banville et al., 1998, p. 18). 'Unwilling stakeholder' may feel that the problem under investigation is not "significant enough for these stakeholders to participate" or "are satisfied with the current 'participating' stakeholders" (Ibid.).

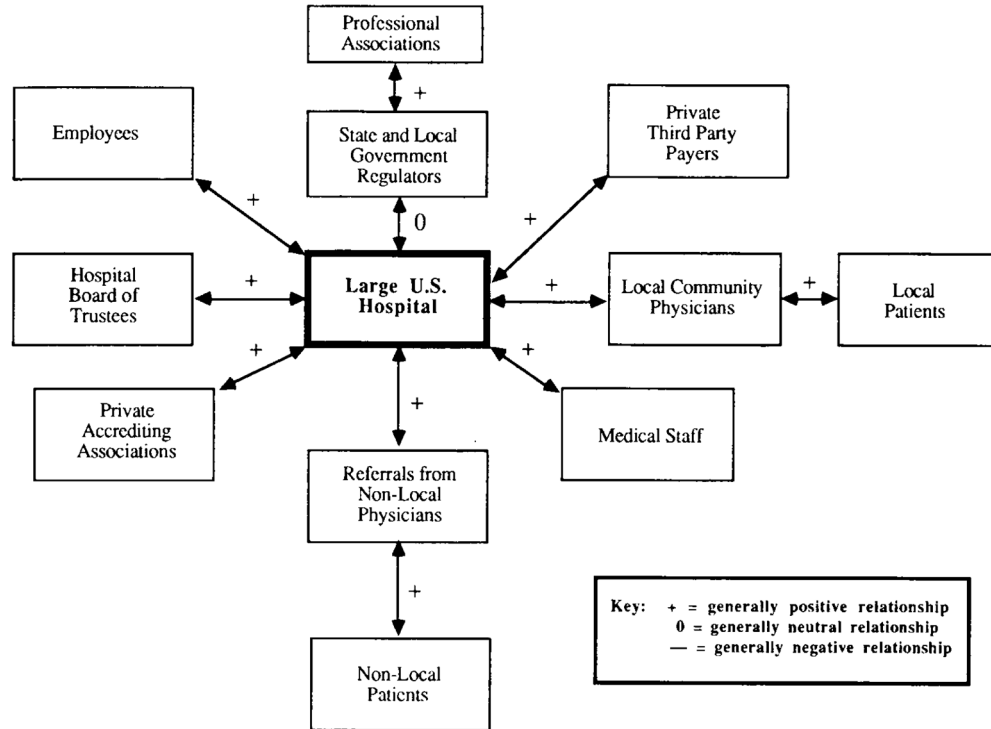
**Table 3.** Types of stakeholders (based on Banville et al., 1998).

Type of stakeholder	Type of influence	Type of participation	Type of visibility
Standard stakeholder	Both affected by and affecting a problem.	Participate in the process of formulating and solving the problem.	Visible
Fiduciary Stakeholder	Acting on behalf of clients and representing them (they affect the way a problem is solved but they are not personally affected by the problem).	May participate in the process.	Visible
Fiduciaries' clients	Affected by the problem and affecting the problem by controlling resources.	Do not participate directly in formulating or solving.	Less visible than others
Silent stakeholder	Affected by the problem but not affecting it.	Do not participate in formulating or solving.	Invisible
Éminence grise	Affected and affecting the problem.	Do not participate in formulating or solving. They are in positions of influence but do not take directly part in the decision process.	Invisible
Unwilling stakeholder*	Affected and sometimes affecting the problem.	The problem is not significant enough for them to participate or they are satisfied with the current participating stakeholders.	Less visible than others

\*We named this category.

### *Revealing relationships*

Another way to characterize stakeholders is to represent relationships and power. Are relationships between stakeholders neutral, positive or negative? Do stakeholder have power over the decision problem or process? Is there a potential for threat or for cooperation from stakeholders? Some techniques to understand relationships and power were developed by Savage (1991), Fottler et al. (1989) and Whitehead et al. (1989). An example of a relationship map is given in **Figure 2**, showing relationships between stakeholders linked to large hospitals in the USA. This kind of characterization can shed light on potential conflicts between stakeholders and help to select proper participative strategies.



**Figure 2.** A simplified stakeholder map for a large U. S. hospital in the late 1950s (excerpt of Fottler et al., 1989).

### *Considering potential for alliance*

In many situations, it is useful to assess stakeholders' potential support. Martin & Morrissey (2002) propose to categorize stakeholders in seven factions depending on their type of vested interest (positive or negative) and on the way they see the issue. This exercise can reveal potential for alliances. The various factions are described in **Table 4**. They were primarily developed for business situations but we adapted them to a more general decision problem context: F1, F2 and F3 are natural allies; F4 and F5 are potential allies; F6 and F7 are 'blind resources' (circumstantial allies or enemies).

Martin & Morrissey alert potential users of the factional scale that they "should exercise extreme caution and avoid stratifying individuals, particularly in the F6 and F7 categories described below, without ample evidence. Even when the analysis reveals the existence of F6s and F7s on a given issue, the data should be shredded" (Martin & Morrissey, 2002, p. 155).

Characterization of stakeholders is generally relevant and helps to understand stakeholders' resources, power and relationships. But how does this information help us identify who should participate, and how? This is the subject of the next sub-section.

**Table 4.** The seven factions of stakeholders. Most of the terms and explanations are from Martin & Morrissey (2002, pp. 155-162). However, we adapted their ideas to the general context of a problem solving situation (any kind of project). The text is addressed to the PMT.

Faction	Description	Perception of the project
F1 – Family	This category comprises your most active and unconditional supporters, i.e., the people who see your objectives as vital to their own mission or objectives. They are your most valuable assets.	Solving the decision problem is essential to their survival.
F2 – Friends	People in this faction could be seriously handicapped if your objectives are not achieved. Some members of this faction are <i>followers</i> : people that will unquestionably support your objectives. Trust, past experience, love, tradition and reciprocity are among the many reasons that motivate followers.	See the decision problem as important, but solving it is not essential to their survival.
F3 – Fellow-travellers	Fellow-travellers are <i>passive supporters</i> , i.e., the people who see your project as desirable but neither vital nor important. They are favorably disposed but their support is <i>soft</i> either because of the risks involved or because their interests will not be greatly affected by your decision. They can be sympathetic to the cause but will not fully commit themselves to it.	Solving the decision problem is desirable for them, but neither essential nor important.
F4 – Fence-sitters or Foreigners	Fence sitters are neutral – neither for nor against you. Among others, intellectual curiosity can spark the vested interest of this faction. Most fence-sitters ignore your existence. Others adopt the fence-sitter position by choice, preferring to remain independent or keep their options open, pending further developments. There are also individuals who adopt the fence-sitter position by necessity vis-à-vis friends or family members who are engaged in a conflict.	Are neutral by necessity, choice or ignorance.
F5 – Foes	Foes are people whose interests would be negatively affected by the success of your project. They are clever adversaries but can be open to collaboration or even ephemeral coalitions on issues of mutual interest. Their behavior is characterized by hidden agendas. Every neglected ally is a potential foe. It is best to consider foes as temporal, territorial and situational.	See your project and objectives negatively.
F6 – Fools or Fly-By-Night	This group includes a variety of types that range from those who are naïve and easily duped to those who exploit current fears to launch hoaxes, pranks or other forms of irresponsible behavior. It includes people with erroneous perceptions, inconsistent behaviour or fragile loyalty who often act against their own interest... and are more dangerous by accident than by design. F6s are more dangerous when they hold a key position among stakeholders.	Are opposed to your project and objectives.
F7 – Fiascos or Fanatics	This faction is interested in all-out opposition, including the systematic obstruction of your project, regardless of the consequences, even if it means self-destruction. Included in this category are individuals who see the decision problem as vital to their survival but will not hesitate to adopt vigilante tactics, obstruct peace or even risk their lives to achieve their aim. They are dangerous by choice.	Are strongly opposed to your project and objectives.

## Question 3: Which stakeholders should participate and how?

### *Situations where stakeholders' participation is necessary*

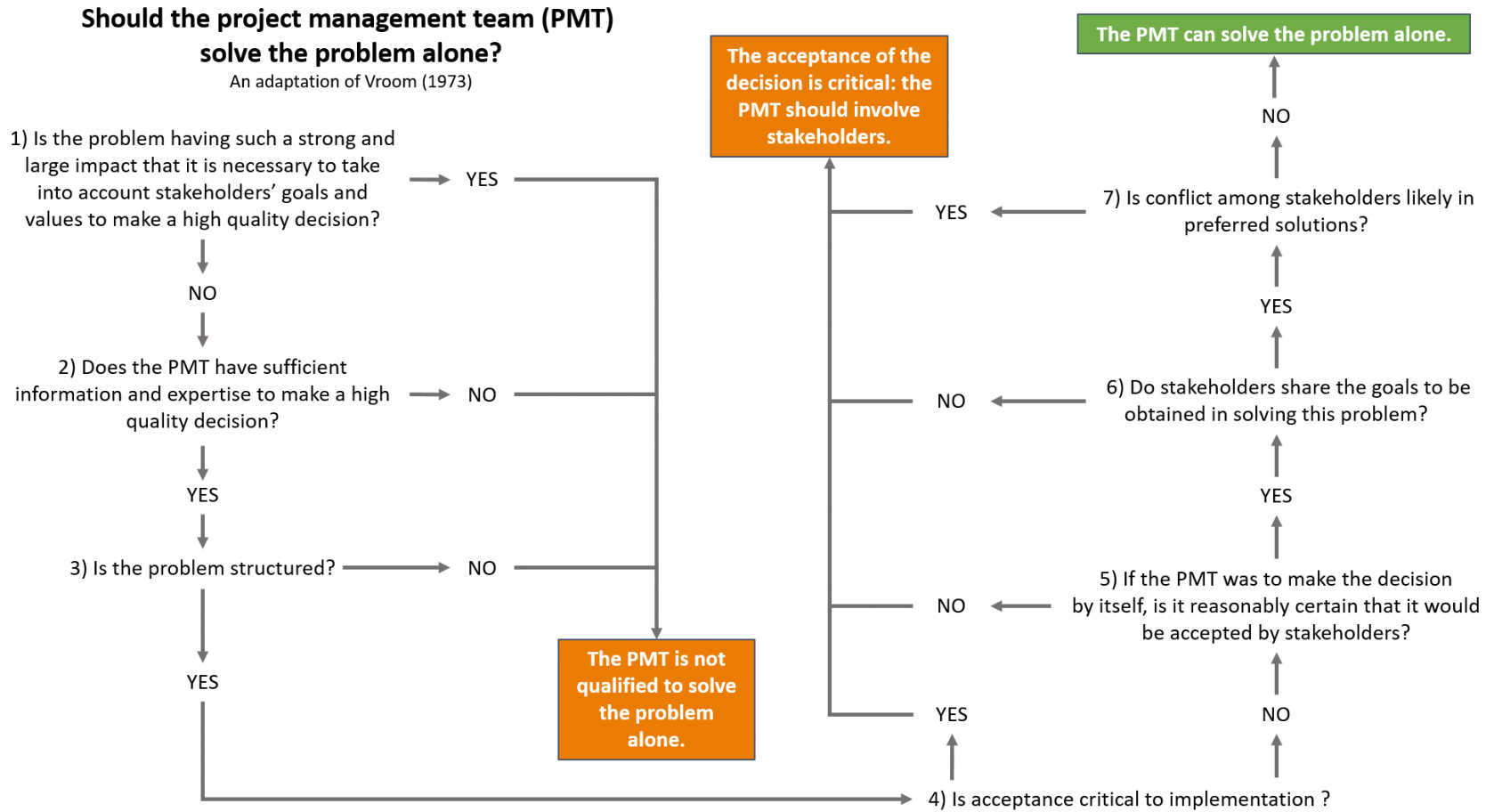
Once stakeholders have been identified and characterized through different classification processes, the remaining question is: which stakeholders should participate in the decision process and how? An easy answer could be: “none of them”. And indeed, engaging stakeholders is not proven to be *always* beneficial or necessary.

In his reflection regarding the necessity to engage stakeholders in a decision process, Vroom (1973) formulated a few key questions a manager should ask himself/herself before making a decision. We summarize these questions in **Figure 3**. Vroom originally proposed it to help managers decide whether they should involve or not their subordinates in any decision-making process; we adapted it to a situation without a relationship of authority. The diagram refers mainly to the *quality* and the *acceptance* of the decision (terms are defined below).

The left part of the figure asks three questions related to the quality of the decision. For Vroom, a high-quality decision is one in which the action chosen is consistent with the goals of the PMT and “with potentially available information about the probabilities of actions leading to the attainment of these goals” (Vroom, 2003, p. 969). If the decision is important (e.g., high and long impact on many stakeholders), then, there is a quality requirement that invites the PMT to look for help from other stakeholders before making a decision (question 1). Moreover, lack of information or expertise (question 2) and unstructured problems (question 3) are two other reasons for the PMT to think about their decision problem with other people.

The right part of the figure questions the acceptance of the decision. If acceptance is critical to the implementation of the decision (question 4), then it is beneficial for the PMT to engage stakeholders in the decision process. Indeed, stakeholders' participation could enhance their support (question 5), help to align goals (question 6) and deactivate potential conflicts related to the final decision (question 7).

Situations with a critical need for high quality decision and/or acceptance are pretty common in the public and private spheres. As a consequence, stakeholders' engagement is critical for many decision problems. Hence, the question still remains: which stakeholders should the PMT engage? To answer this question, the role of stakeholders regarding the decision process has to be clear for the PMT.



**Figure 3.** An adaptation of the thinking process proposed by Vroom (1973) to help a PMT decide whether it should engage stakeholders in the decision-making process.

### *Four traditions of engaging stakeholders*

Based on a literature review of stakeholders in operational research, de Gooyert et al. (2017) distinguished four traditions of working with stakeholders: optimizing, balancing, structuring and involving traditions (**Table 5**). Each one of them gives a different role to stakeholders in decision processes. Those four traditions are based on different assumptions. Moreover, they deal differently with three main issues. In order to identify the tradition, the following questions are useful:

1. Why are stakeholders considered important? The main reason can be *instrumental* (engaging stakeholders is beneficial for the project) or *moral* ("it is the right thing to do"). Optimizing and balancing traditions share instrumental reasons, while structuring and involving traditions share moral reasons.
2. Is the PMT focusing on supporting a trade-off between the interests of various stakeholders, or on seeking new solutions where the interests of stakeholders are aligned, thereby avoiding having to resort to trade-offs? In the first case, alternatives from which a choice is to be made are generally considered as given, and the PMT considers how to prioritize stakeholders' opinions. In the second case, objectives, alternatives and values are explored with stakeholders. The optimizing tradition always focuses on making trade-offs. Structuring and involving traditions always focus on avoiding trade-offs. With the balancing tradition, both are possible.
3. How are stakeholders engaged in the decision process? There are many different ways to engage stakeholders in the decision process and the implementation of the decision. Stakeholders can be engaged at specific points along the decision process or all along. They can participate only during the decision process or also during implementation. Moreover, there are different levels of participation, and different participatory techniques associated with those levels. The optimizing tradition only engages stakeholders in very specific situations to obtain or share information during the decision process. The balancing tradition engages stakeholders during the decision process with different methods, and sometimes during implementation. Structuring and involving traditions engage stakeholders during the decision process and frequently report on acceptance and implementation.

**Table 5.** Four traditions of working with stakeholders in operational research (based on de Gooyert et al., 2017).

Tradition	Assumptions	Reason to engage stakeholders	Orientation towards trade-offs	Orientation towards stakeholders	Common methods
Optimizing	Implementation is unproblematic.	Instrumental stakeholder theory: stakeholders are engaged because it is beneficial for the decision maker / the focal organization / the PMT.	Focus on <i>making</i> trade-offs. Which stakeholder should have priority over another?	Rarely engaging stakeholders.	Goal programming, mixed-integer linear programming, neural networks.
Balancing	“You cannot have it all. How to divide the pie?”		Focus on <i>making</i> trade-offs or focus on <i>avoiding</i> trade-offs.	Engaging stakeholders through participation during the process, and sometimes during implementation.	Multicriteria decision analysis (MCDA), data envelopment analysis (DEA), analytical hierarchy process (AHP), analytical network process (ANP) and fuzzy variations of these methods.
Structuring	Not all relevant knowledge is available. Gaining a better understanding of the problem “makes the pie bigger” before “dividing the pie”.	Moral stakeholder theory: stakeholders are engaged because it is “the right thing to do”.	Focus on <i>avoiding</i> trade-offs by building a shared understanding of the situation	Engaging stakeholders by working with them and frequently reporting on acceptance and implementation.	Discrete event simulation, soft systems method, system dynamics, simulation mixed methods
Involving	Different viewpoints need to be incorporated to be able to structure the problem, because it is desirable based on ethical arguments.				Critical systems thinking, soft systems method (SSM), computer-supported communication, other approaches

By thinking about the tradition that best matches with its own way of conceiving research (i.e., its research paradigm; see Hatch, 2002, for further details), the PMT can clarify the role it wishes to give to stakeholders in their project. For example, Gregory et al. (2020) clearly positioned themselves in the critical-systemic epistemology (Ulrich, 1994): they engaged as many relevant stakeholders as they could find in their project (a workshop to help them structure an environmental problem in United Kingdom) because they thought there is a “moral principle associated with stakeholder engagement: those who will be affected by decision-making, but are not (initially) involved in it, ought to have a meaningful input into what is decided, not only because they have relevant knowledge, but also because it is empowering and combats alienation when people have a reasonable amount of collective control over what happens in their own lives and communities (Ulrich, 1983)”. Gregory et al.’s study is therefore part of what de Gooyert et al. (2017) call the ‘involving tradition’ of working with stakeholders (**Table 5**).

### *Levels of participation and participatory techniques*

Another aspect to consider while considering on stakeholders’ engagement is fairly pragmatic: the larger the number of stakeholders involved, the longer and costlier are the project study and implementation. And some may add: “but the greater the real social benefit” (Churchman, 1970, p. B-44). The PMT has to balance costs and benefits of engaging stakeholders in their project, in addition to the need to match this engagement with the PMT’s tradition of working with stakeholders. It is likely that the more the PMT perceives a problem as critical, the more it will seem necessary to secure the views of as many stakeholders as possible in managing the problem’s definition and ultimate solving (Mitroff, Emshoff and Kilmann, 1979).

Furthermore, the cost-benefit balance is influenced by an important aspect of stakeholder engagement: the level of participation. Luyet et al. (2012) proposed five levels of participation based on the previous work of Arnstein (1969) and Vroom (2003) (**Table 6**). Depending on stakeholders’ characteristics and on PMT’s resources and tradition of working with stakeholders, different levels of participation can be chosen for each stakeholder.

Various participatory techniques may be used. **Table 7** presents some of these techniques for each level of participation.

**Table 6.** Luyet et al.'s five levels of participation (2012).

Level of participation	Description
Information	Explanation of the project to stakeholders.
Consultation	Presentation of the project to stakeholders, collection of their suggestions, and then decision-making with or without taking into account stakeholders' input.
Collaboration	Presentation of the project to stakeholders, collection of their suggestions, and then decision-making taking into account stakeholders' input.
Co-decision	Cooperation with stakeholders towards an agreement on solution and implementation.
Empowerment	Delegation of decision-making over project development and implementation to the stakeholders.

**Table 7.** Possible participatory techniques according to the level of participation (based on Luyet et al., 2012). We added the 'social media' technique.

Participation technique	Information	Consultation	Collaboration	Co-decision	Empowerment
Newsletters	x				
Reports	x				
Presentations, public hearings	x	x	x		
Internet websites	x	x			
Social media	x	x			
Interviews, questionnaires and surveys	x	x	x		
Field visits and interactions	x	x	x		
Workshops		x	x	x	x
Participatory mappings			x	x	x
Focus groups			x	x	x
Citizen juries		x	x	x	x
Geospatial/decision support system	x	x	x	x	
Cognitive maps	x	x	x		
Role playing			x	x	x
Multicriteria analysis			x	x	
Scenario analysis		x	x	x	x
Consensus conference		x	x	x	x

Participation levels can be assigned to each stakeholder based on the PMT's experience of working with stakeholders or on more formal tools. For example, Vroom (2003) developed a model to select an appropriate level of participation for each stakeholder and translated it into two matrices with seven questions to answer with "low" or "high". The development-driven matrix is intended where there is abundant slack time and one wishes to invest in the development of the group (i.e., team-building and goals-alignment activities). The time-driven matrix is intended for situations in which time is important and development is not a

consideration. These two matrices are presented in **Figure 4** and **Figure 5**. Their use has been proposed and illustrated in several stakeholder supported approaches (e.g. Banville et al., 1998; Luyet et al., 2012).

In the next section, we propose a detailed method to identify, classify and determine the level of engagement of stakeholders, based on the concepts and tools presented above.

		Decision Significance	Importance of Commitment	Leader Expertise	Likelihood of Commitment	Goal Alignment	Group Expertise	Team Competence					
P R O B L E M  S T A T E M E N T	H	H	H	-	H	H	H	H	Delegate				
							L	L	Facilitate				
							L	-	Consult (Group)				
					L	H	H	H	H	H	Delegate		
									L	L	Facilitate		
									L	-	Consult (Group)		
	L	L	-	-	H	H	H	H	Delegate				
							L	L	Facilitate				
							L	-	Consult (Group)				
					L	L	-	-	-	-	L	-	Decide
											L	-	Delegate
											L	-	Decide

**Figure 4.** Development-driven matrix (excerpt of Vroom, 2003)


							<b>Instructions:</b> The matrix operates like a funnel. You start at the left with a specific decision problem in mind. The column headings denote situational factors which may or may not be present in that problem. You progress by selecting High or Low (H or L) for each relevant situational factor. Proceed down from the funnel, judging only those situational factors for which a judgment is called for, until you reach the recommended process.											
		Decision Significance	Importance of Commitment	Leader Expertise	Likelihood of Commitment	Goal Alignment	Group Expertise	Team Competence										
PROBLEM STATEMENT	H	H	H	H	H	-	-	-	Decide									
					L	H	-	-	H	H	Delegate							
							L	H	L	L	Consult (Group)							
				L		-	-	-	-									
				L	H	H	H	H	H	H	H	Facilitate						
										L	L	L	Consult (Individually)					
		L	-			-	-	-										
		L	H		L	L	H	H	H	H	Facilitate							
									L	L	L	Consult (Group)						
									L	-	-		-					
		L	L	L	-	H	H	H	H	Facilitate								
									L	L	L	Consult (Individually)						
	L								-	-	-							
	L					L	L	-	L	-	-	-	-					
														H	-	-	-	Decide
														L	-	-	-	Facilitate
	L	H	-	-	H	-	-	-	-									
										H	-	-	-	Decide				
L										-	-	-	Delegate					
L	H	-	-	L	-	-	-	-										
									H	-	-	-	Facilitate					
									L	-	-	-	Facilitate					

Figure 5. Time-driven matrix (excerpt of Vroom, 2003).

## Section 2: Proposed method and application for the identification, characterization and engagement of stakeholders

### An overview of the method

This section presents a detailed method to identify and characterize stakeholders in order to determine their appropriate levels of participation in a decision process or a participation plan. **Figure 6** provides an overview of the method that is divided in to four phases.

In the first phase, persons or organizations who have a vested interest in the decision problem at hand are identified with the help of a diagram and seven procedures of identification. At the end of this phase, the PMT should have a pretty exhaustive list of stakeholders related to their project.

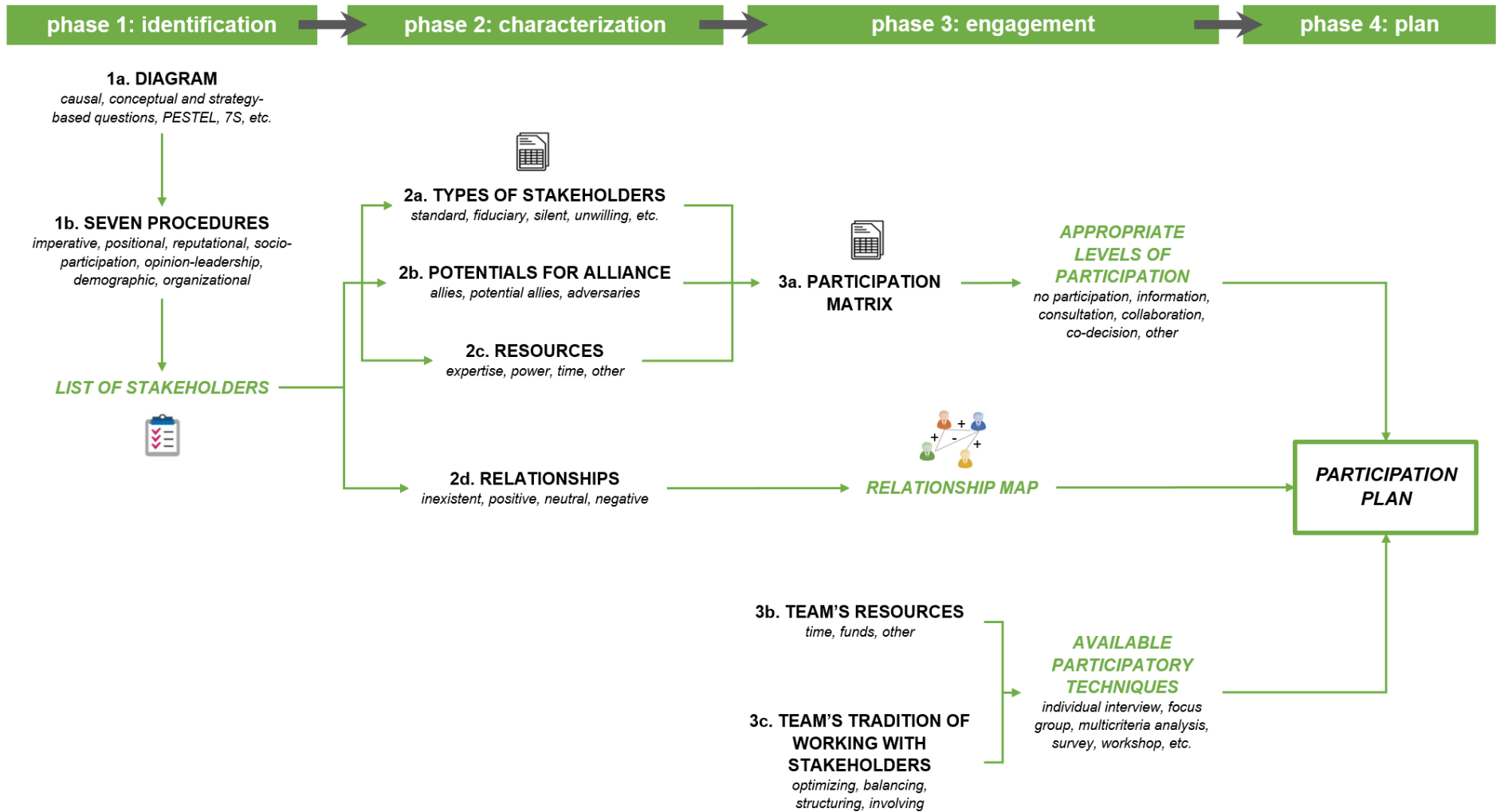
In the second phase, the PMT characterizes stakeholders according to several assumptions regarding their vested interest, their potential for alliance and their resources. Moreover, a relationship map sheds light on potential conflicts and coalitions between stakeholders.

In the third phase, the PMT uses a participation matrix to assign an appropriate level of participation to each stakeholder. Moreover, the PMT thinks about its own resources (time, funds, etc.) and tradition of working with stakeholders, which allows it to identify appropriate and realistic participatory techniques within the context of the project.

Finally, in the fourth phase, the PMT builds a sound and realistic participation plan based on the available participatory techniques, the assigned levels of participations and the relationship map.

In order to illustrate the applicability of the proposed method, each phase is applied to an example in transportation. This example is based on a real on-going project (Waygood et al., 2019) that we could summarize as follows:

*Children's active and independent mobility is positively linked to many domains of children's wellbeing (i.e. physical, social, psychological, cognitive and economic domains). In contrast, passive modes such as cars are typically negatively or less positively linked to such measures. Likelihood of children's independent mobility seems to depend on traffic conditions, street design, land use and options of destination for children at the neighbourhood scale. How to measure neighbourhoods' quality regarding children's independent mobility? And how to communicate this level of quality to: (1) urban planners, to help cities improve conditions for children and (2) to parents, to help them to identify neighbourhoods that support their children's different needs? The PMT would like to create a tool for children's independent mobility, and believes contributions from various stakeholders could help it to better understand children's independent mobility at the neighbourhood scale and what kind of tool would be useful and effective for cities and parents.*



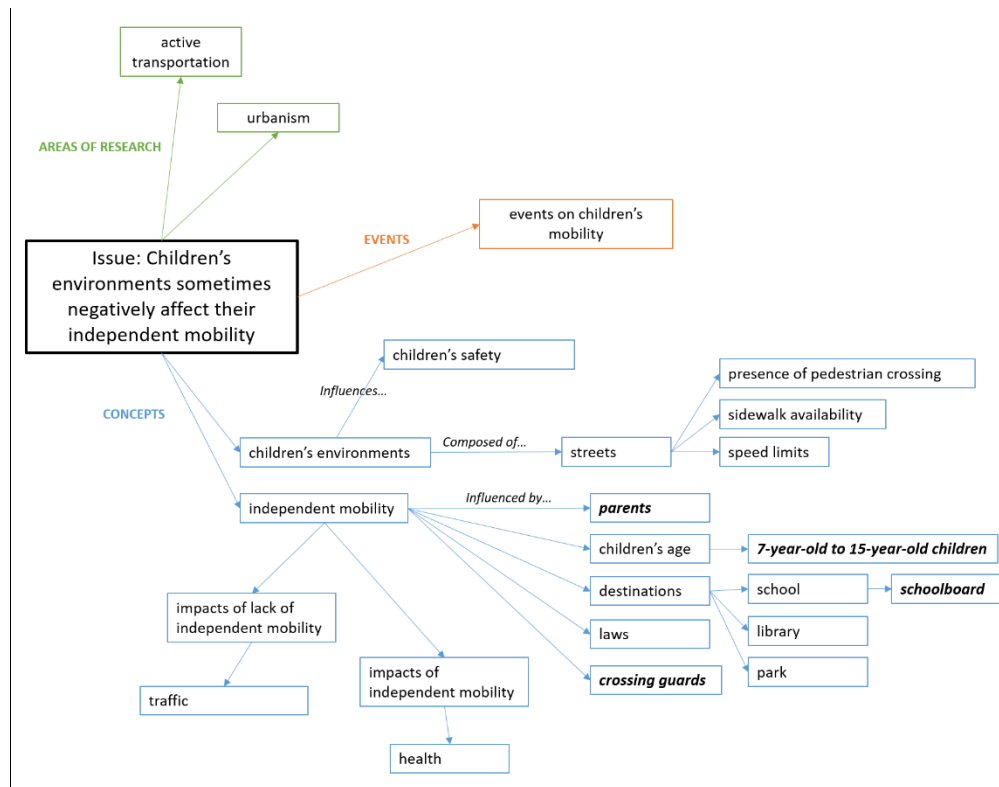
**Figure 6.** A schematic overview of the method's different phases. References and sources of inspiration are given in the text.

## Phase 1: Identification

The identification phase is divided in two steps. In the first step, the PMT has to draw a diagram (*Step 1a*). Then, in the second step, the PMT has to follow seven procedures of identification with the help of the diagram (*Step 1b*). All steps are illustrated in **Figure 6** (previous page).

### *Step 1a: the diagram*

During this first part of the identification phase, the PMT draws a diagram of all the activities, events, areas of research, concepts or other relevant aspects that are related to the decision problem in consideration. An example of a diagram following a brief brainstorming session is given in **Figure 7**. The diagram may be produced during a brainstorming session based on scientific material (project description, literature reviews related to the project and issue, etc.). If the PMT is acquainted with problem structuring methods, these could be of great use to prepare this diagram. Several examples of structuring questions are shown in **Table 8**. Moreover, the PMT could ask for the help of collaborators or important stakeholders in contemplating the problem. However, it is important to note that this procedure is not supposed to be linear and definitive. As already noted above, stakeholders' identification, classification and engagement enhance the understanding of the decision problem; it is therefore very likely that the diagram will be modified during the decision process.



**Figure 7.** A draft diagram about children's mobility. Words in bold and italic are identified stakeholders.

**Table 8.** Questions that may help identify aspects related to the decision problem (based on French et al., 2009).

Causal and conceptual questions	Strategy-based questions	Political, economic, social, technology, environmental and legal analysis (PESTEL)	Seven S
<p>What might be the cause(s) of this decision problem? Of this project?</p> <p>What are the core concepts related to your decision problem and project? What are sub-concepts? What are the links between all of these concepts?</p> <p>What are the areas of research related to these concepts and sub concepts?</p> <p>Can you think of any similar decision problem or project that might help in thinking about yours?</p> <p>Can you think of activities related to your decision problem?</p> <p>Can you think about events related to your decision problem/project?</p> <p>Have you heard anything recently that seems relevant in some way?</p>	<p>Can you think of any factors that would make this project fail?</p> <p>Under what scenario would this project work? not work?</p> <p>Why might others disagree with you about the suitability of this project? What eventualities might concern them?</p>	<p><b>Political:</b> Is there anything on current political agendas that may have an effect on your project?</p> <p><b>Economic:</b> Are there any changes in the economy or the financial world that may affect your project?</p> <p><b>Social:</b> Are there any societal issues or changes that should be considered?</p> <p><b>Technology:</b> are there relevant technological issues, including any imminent advances?</p> <p><b>Environmental:</b> should possible environmental impacts be introduced into the discussion?</p> <p><b>Legal:</b> are there any relevant legal issues or potential changes on the government's agenda?</p>	<p><b>Strategy:</b> what are your team's broad strategic objectives and direction?</p> <p><b>Structure:</b> what is the organizational hierarchy, including responsibilities, accountabilities and authorities?</p> <p><b>Systems:</b> what are the relevant information systems and work processes?</p> <p><b>Style:</b> are there any issues that relate to the way of working and doing your project?</p> <p><b>Shared values:</b> what are your team's core beliefs, values and expectations?</p> <p><b>Skills:</b> what are the key capabilities and knowledge in our team?</p> <p><b>Staff:</b> how will your collaborators react to your project?</p>

### *Step 1b: the seven procedures*

There are about a dozen different techniques in the literature to identify stakeholders (Banville et al., 1998; Luyet et al., 2012). In this method, we propose to follow the Mason & Mitroff's (1981) approach, created in the context of the formulation of a new policy, but adaptable to other contexts. It seems to be the most exhaustive approach formulated to date (Luyet et al., 2012) and is based on seven identification procedures (**Table 9**), each with its own advantages and disadvantages. However, when the procedures are used together, the advantages accrue while the disadvantages are reduced. In the end, following these seven procedures reduces the risk of forgetting a stakeholder linked to the project. The seven identification procedures can be completed by the PMT during one or several meetings, depending on the PMT's resources and the criticality and extent of the project. In **Table 10**, we present techniques that the PMT can use while going through each identification procedure. Many of them are adapted from Mason & Mitroff's suggestions. Examples are also given in the table.

The preliminary list of stakeholders generated at the end of this phase would probably include many persons or organizations. It will not be possible to engage all these people in the project due to resources constraints. Moreover, all participations are not equally relevant. In the subsequent phase, the PMT characterizes stakeholders in order to facilitate the assignment of an adequate level of participation to each of them.

**Table 9.** An adaptation of the seven procedures of stakeholders' identification proposed by Mason & Mitroff (1981). Each procedure is described, and related advantages and disadvantages are highlighted. Most of the explanations and the terms in this table are from Mason & Mitroff, 1981, pp. 95-97. We only changed a few words in the description column and added a few advantages and disadvantages.

Procedure	Description	Advantages	Disadvantages
Imperative	The imperative approach is based on the notion of revealed interest. This procedure identifies stakeholders that are vividly affected by the issue; addressing the issue is then imperative for them. The PMT makes a list of as many as possible of the imperatives, slogans, and catchwords that have been uttered in the context of the issue the project is addressing. Also identified are any acts of defiance (e.g., strikes, sit-ins, and lying in front of trucks) or others actions that suggest dissatisfaction with how the issue is currently handled by the policy system. The <i>sources</i> of the imperatives and acts are identified and each is considered as a potential stakeholder.	It identifies those who feel needs strongly about the issue and act on them.	It misses silent stakeholders who may nevertheless have a strong opinion on the policy issue.
Positional	The positional approach identifies those who occupy formal positions in the formal structures related to the issue, whether internal or external to the PMT (e.g., government). Organization charts and legal documents are a good source for this procedure.	It identifies those who occupy formal positions in the policy-making structure related to the issue the project addresses.	It ignores stakeholders who are not formally a part of structures and yet have an impact on them.
Reputational	The reputational approach is a sociometric one. It entails asking various knowledgeable or important persons to nominate those whom they believe have a stake in the issue.	If a preliminary list is given to the person, then this procedure is similar to the snowball technique (King et al., 1998; Stanghellini & Collentine, 2008; Gregory et al., 2020).	Unorganized, nonelite, and disenfranchised groups may be ignored. There is a risk of ending up with a homogeneous network, which could be minimized with multiple "entry points" (i.e. very various persons; Luyet et al., 2012)
Socio-participation	The socio-participation approach identifies individuals or organizations as stakeholders to the extent that they participate in activities related to the issue. Membership in organizations or committees, attendance at meetings, voting, and other instances of observable behaviour are taken as evidence of having a potential stake in an issue.	It identifies individuals or organizations that participate in activities related to the issue.	Many latent, currently non-participating stakeholders (e.g., the "silent majority" or future generations) will be overlooked.
Opinion-leadership	It identifies only those who tend to shape the opinions of other stakeholders.	It identifies important stakeholders who are not part of the formal structures or do not have the same status as those selected by previous procedures.	It is less precise and requires more judgment on the part of the PMT than some of the other procedures.
Demographic	It identifies stakeholders by characteristics such as age, sex, ethnicity, occupation, religion, place of birth, and level of education.	For many policy, planning, and strategy issues, these distinctions are necessary, since it is to be expected that a policy will have a different impacts on different demographic groups.	It assumes homogeneity of interest within any particular group.
Organizational	It selects a focal organization in the policy system and identifies the individuals and organizations who have important relationships with the focal organization. Typical relationships are those of (1) supplier, (2) employee, (3) customer or client, (4) ally, (5) competitor or adversary, (6) regulator or controller (e.g. government) (7) regulated or controlled (e.g., subdivisions of a parent organization, legally controlled entities), (8) research partner, (9) research funder, etc.	It identifies potential parties or elements that other approaches can overlook.	It has the disadvantage of not being comprehensive and of potentially missing some key stakeholders such as opinion-leaders.

**Table 10.** Techniques and examples to identify new stakeholders with each identification procedure (inspired of Mason & Mitroff, 1981). The PMT has to use the diagram (previously drawn in *Step 2a*) to apply these techniques.

Procedure	Techniques to identify new stakeholders	Examples (project related to children’s independent mobility)
Imperative	For each element in your project’s diagram, answer the following question: a. Who is affected by this element of the decision problem? b. Who has an interest in this part of the decision problem, and in the outcomes of the project? c. Who can affect this part of the project’s adoption, implementation or execution? d. Who has expressed an opinion on this part of the decision problem, on this project?	The current project is related to destinations of interest for children. One of the destinations is the school. <i>Questions:</i> Who is affected by children’s mobility to school? Who has an interest in this type of travel? Who can affect traveling to school? Who has expressed an opinion about children’s mobility to school? <i>Potential answers:</i> children, parents, crossing guards, school board, transport department, different NGOs, police, etc.
Positional	Using the diagram, identify individuals or organizations who occupy a formal position related to the decision problem/project or an element of the decision problem/project.	The built environment has an impact on children’s mobility. One aspect of the built environment is street design. Who’s in charge of street design in the district (or city, or higher level)?
Reputational	Choose various stakeholders in the preliminary list you are making. Present the decision problem and your project to these persons and ask them individually to suggest stakeholders related to the decision problem/project. Then, show them your preliminary list and ask them if they could add supplementary stakeholders. Note the reasons why they suggested these stakeholders.	The PMT identified a list of experts including a specialist working on child safety in the Ministry of Transport, a parents group fighting to improve traffic safety, and a city who has high percentages of children walking and low KSI (killed or seriously injured) rates, amongst others. These different groups could give input and knowledge on the project.
Socio-participation	Using your diagram, identify individuals or organizations that publicly participated in activities related to your decision problem/project or an element of the decision problem/project.	In 2019, the University of British Columbia released a documentary called “Running Free: Children’s Independent Mobility” linked to an online public survey (UBC Media Relations, 2019). The researchers behind the documentary are potential stakeholders.
Opinion-leadership	Using your diagram, identify individuals who tend to shape the opinions of other stakeholders relatively to your decision problem or project or aspects of the decision problem/project.	Is there a columnist, a journalist, a blogger, a politician or any other influencer who talked about children’s independent mobility in the past in Quebec/Canada? If yes, then they are potential stakeholders. Ask yourself the same question with more precise aspects of the project. Example: the Civic Party of Montreal is actively trying to improve conditions for people of all ages travelling by modes other than cars.
Demographic	Using your diagram, identify groups of individuals who are impacted by the decision problem/project because of their age, sex, ethnicity, occupation, religion, place of birth, level of education or annual income.	The children of age from 6 to 15 will be affected by the project. They are potential stakeholders. Parents of children under the age of 16 are potential stakeholders, but should not be seen as a replacement for children’s voices.
Organizational	Using your diagram and your preliminary list of stakeholders, identify organizations that are closely linked to the decision problem/project. For each organization, identify individuals and organizations who have an important relationship with it, such as regulator, regulated, competitor, adversary, employee, supplier, customer, client, etc.	The Institut national de santé publique du Québec (INSPQ) studied and made recommendations on children’s independent mobility in several publications (e.g. Duranceau et al., 2010). Many stakeholders affected by or affecting children’s independent mobility are linked to the INSPQ, such as researchers, NGOs or government’s officials.

## Phase 2: Characterization

The identification phase allows the PMT to identify many potential stakeholders. The characterization phase is intended to help the PMT clarify stakeholders' interest in the decision problem, potentials for alliance, resources and relationships. The characterization phase is divided into four steps (2a, 2b, 2c and 2d). All of them are described below and illustrated with examples. These steps are shown on the schematic overview of the method (**Figure 6**). To facilitate the aggregation of results, the PMT may write down results of the *Steps 2a, 2b and 2c* into tables, such as the ones proposed in **Appendix 1**.


### *Step 2a: stakeholders' types*

In this first step of the characterization phase, the PMT classifies stakeholders according to their *type* by answering the following four questions:

1. Is this stakeholder affected by the issue or project?
2. Does this stakeholder affect the issue or project?
3. Does this stakeholder wish to participate in the decision process?
4. Can this stakeholder participate in the decision process?

In questions 1 and 2, terms such as “being affected by” or “affecting” the issue are intended to be understood in a very broad sense (see **Example 1**). Question 3 allows the PMT to think about the interest of stakeholders to participate in the decision process (e.g. *Unwilling stakeholders* do not wish to participate in the project, but in some cases the PMT could try to negotiate with them). Question 4 requires the PMT to think about the capability of stakeholders to participate (e.g. *Silent stakeholders* cannot participate, but taking into account their interest could be necessary in some cases, such as environmental projects for example). Answers to these four questions are collated in a matrix (**Table 11**). This matrix is also available in Appendix. The PMT has to navigate in the matrix from the left to the right. Types of stakeholders are partly based on Banville et al. (1998)'s work (as previously described in **Table 3**). We added a type of stakeholder (“Interested stakeholder”: a stakeholder affected by the issue but not affecting it, and willing to participate in the decision process) and some variations (e.g., “Unwilling stakeholder with/without influence”, “unwilling fiduciary stakeholder”, etc.) to the list.

**Table 11.** Matrix to determine stakeholders' types (based on Banville et al., 1998). Stakeholders are or are not affected by the problem (*impact*), can or cannot affect the problem (*influence*), want or do not want to participate in the process (*willingness to participate*), and can or cannot participate in the decision process (*ability to participate*)

<b>Impact:</b> Is this stakeholder affected by the issue or project?	<b>Influence:</b> Does this stakeholder affect the issue or project?	<b>Willingness:</b> Does this stakeholder want to participate in the decision process?	<b>Ability to participate:</b> Can this stakeholder participate in the decision process?	<b>Type of stakeholder*</b>	
Yes	Yes	Yes	Yes	Standard Stakeholder	
			No	Standard Stakeholder (unable to participate)	
		No	Yes	Unwilling Stakeholder with influence or Fiduciary's client	
			No	Unwilling Stakeholder with influence (unable to participate) or Fiduciary's Client (unable to participate)	
	No	Yes	Yes	Interested Stakeholder	
			No	Silent Stakeholder	
		No	Yes	Unwilling Stakeholder without influence	
			No	Unwilling Stakeholder without influence (unable to participate)	
No	Yes	Yes	Yes	Fiduciary Stakeholder	
			No	Fiduciary Stakeholder (unable to participate)	
		No	Yes	Unwilling Fiduciary stakeholder	
			No	Unwilling Fiduciary stakeholder (unable to participate)	
	No				Not a stakeholder

\*Definitions:

- *Standard Stakeholder:* both affected by and affecting a problem. Usually participating in the process of formulating and solving it.
- *Fiduciary Stakeholder:* acting on behalf of clients and representing them (affects the way problem is solved but not personally affected by the problem). May participate in the process.
- *Fiduciary's Client:* affected by the problem and affecting the problem by controlling resources. Not participating directly in the process.
- *Silent Stakeholder:* affected by the problem but not affecting it. Not participating in formulating or solving. Examples: they don't exist (future generations), they don't have means to make their voice heard (senior, children, etc.), they have been forgotten (if they control relevant resources, formulating and solving the problem may run into trouble).
- *Unwilling Stakeholder:* affected by and sometimes affecting the problem. The problem is not significant enough for them to participate or they are satisfied with the current participating stakeholders. They are sometimes in position of influence (Éminence grise).
- *Interested Stakeholder:* affected by the issue but not affecting it, and willing to participate in the decision process.

Answers to questions in **Table 11** are assumptions the PMT makes about stakeholders; assumptions are the characteristic properties of stakeholders that are posited or hypothesized (Mason & Mitroff, 1981). They could be challenged by PMT members through discussions and they will probably be challenged during the subsequent phases of the project. These assumptions are subjective by nature, and the PMT only needs to agree on them.

This step sheds light on stakeholders that cannot or do not want to participate in the process. It also generates a list of potential criteria and alternatives, by increasing the understanding of stakeholders' potential interests (see **Example 1**). Written notes from the identification phase are very useful to complete this classification step.

### Example 1

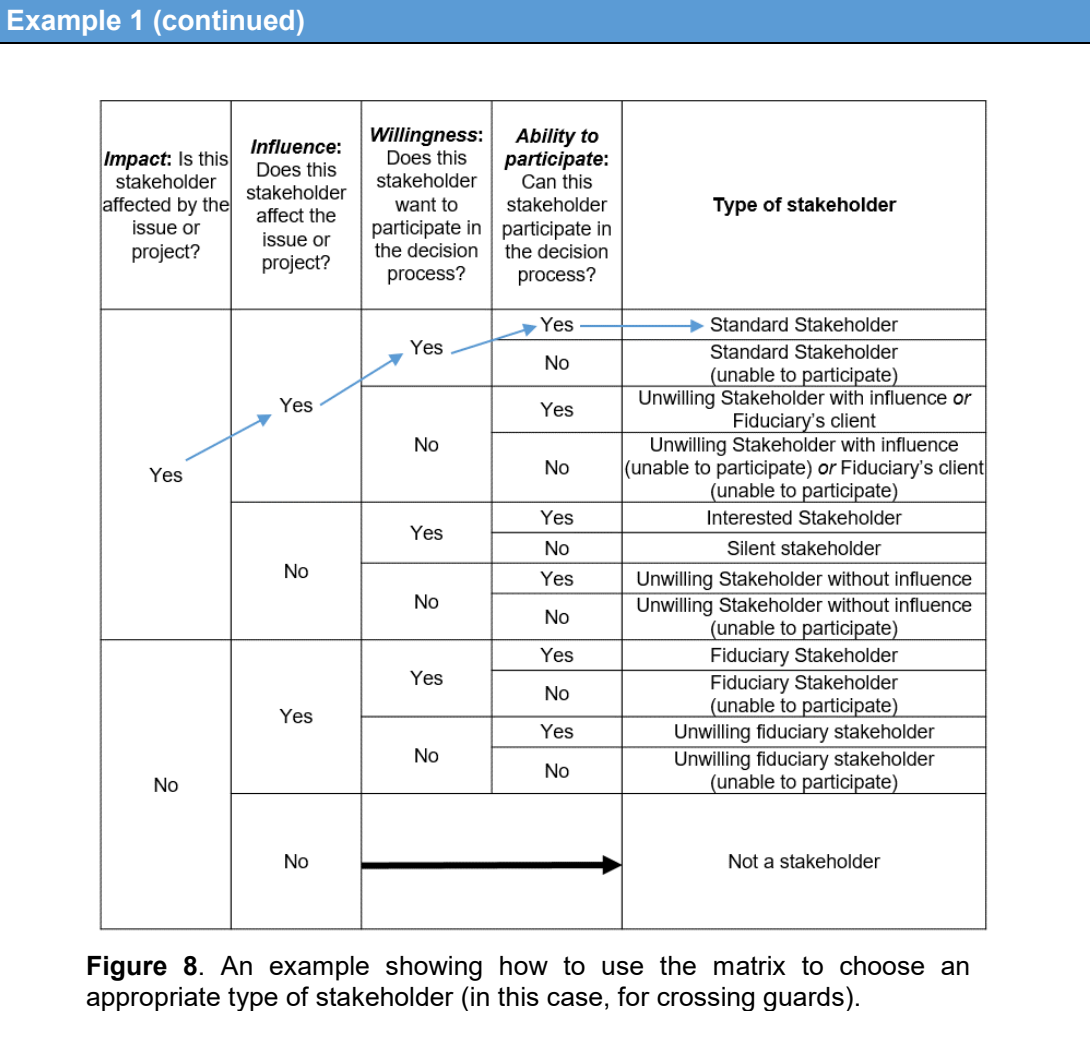
In the considered project, the PMT wishes to elicit a list of stakeholders to analyze children's independent mobility at the neighborhood scale.

Crossing guards are potential stakeholders. They affect children's independent mobility by helping them to cross the road. If there is no crossing guard at busy intersections, it is likely that many parents will not let their children go to school unaccompanied. Crossing guards therefore affect the issue by increasing the potential of children's independent mobility.

They are also affected by the project, because the tool envisioned in the project could identify neighborhoods where it is risky for children to walk alone due to high traffic and the number of intersections to cross. This tool could therefore be used to identify intersections where it would be useful to add crossing guards.

Finally, it is possible that some crossing guards will want to participate in the process if they are invited. In conclusion, crossing guards can participate in the process and are affected by and affect the project: they are *standard stakeholders* (**Figure 8**).

In this description, we can highlight a few words: security, parents' confidence, risks, traffic and intersections. These words are links between the project and crossing guards. They are also clues for preliminary criteria to measure children's independent mobility at the neighbourhood scale and identify the proper tool to develop.



*Step 2b: stakeholders' potentials for alliance*

In the second step of the characterization phase, the PMT has to answer the following question: "How does this stakeholder see the issue?" for each stakeholder. Answers help to classify stakeholders in Martin & Morrissey (2002)'s seven factions (see **Table 4** in section 1). This step clarifies stakeholders' potential for alliance (see **Example 2**). These potentials are used to assign each stakeholder to an appropriate level of participation. They also shed light on the potential reactions of stakeholders to the decision that will be implemented at the end of the project.

### Example 2

How do crossing guards see the project of measuring children's independent mobility and communicating this measure with a tool?

Crossing guards are useful at any intersection. However, the traffic and level of safety is not the same for every intersection. It is likely that crossing guards will feel more valued in doing their work if they are helping many children to cross a high traffic road than a few on a very calm street. Moreover, the nature of their work being children's safety, it is likely that crossing guards are naturally positive about any project that could increase children's safety.

In conclusion, crossing guards probably see the project as desirable and important, without being essential to their existence: they are "F2: friends" (natural allies).

### *Step 2c: stakeholders' resources*

In the third step of the characterization phase, the PMT identifies stakeholders' potential resources. Do stakeholders have time to be engaged in the project? Do they possess any useful expertise? Do they have power (positive or negative influence on politics, funding, professional network, etc.)? Do they have any other meaningful resources?

This step clarifies stakeholders' resources in the context of the project (see **Example 3**). It helps to determine a relevant level of participation for each stakeholder. For example, some stakeholders could have a low potential of alliance (as seen in *Step 2b*) but also a weak power in the context of the project: their engagement in the project is then not really relevant. Others could have a neutral position regarding the project, but an important expertise: their engagement could be helpful.

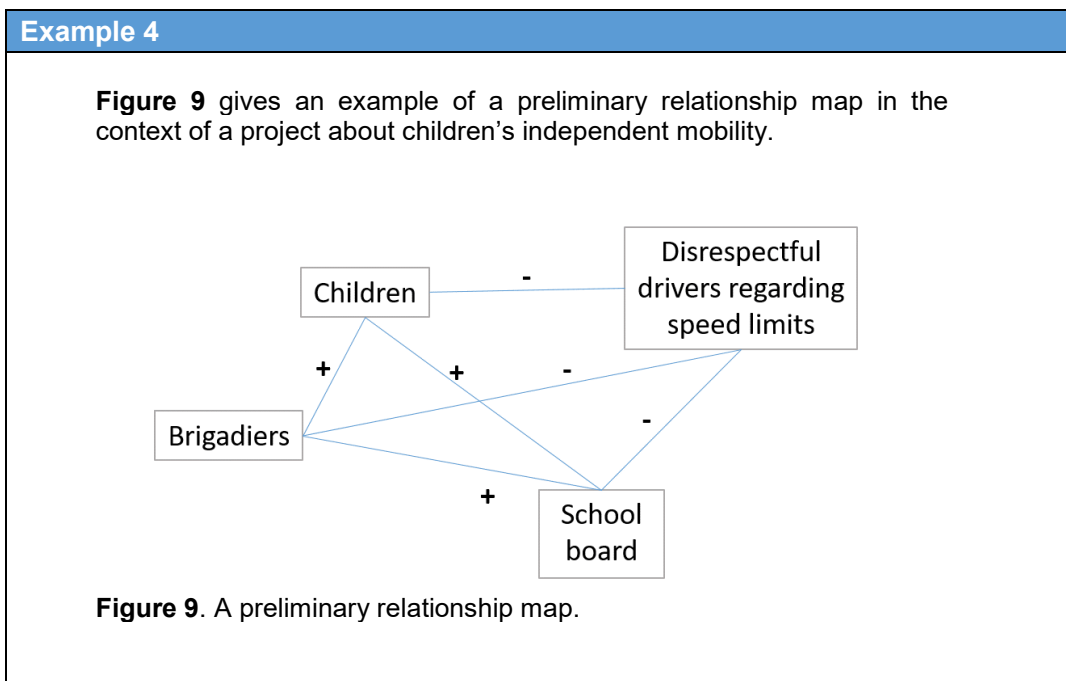
### Example 3

Crossing guards would have to use their free *time* to be engaged in this project. They have an important field *expertise* on the local scale. They do not have *influence* on any aspect of the project development or implementation.

### Step 2d: stakeholders' relationships

In the fourth step of the characterization phase, the PMT has to draw a relationship map. Are relationships neutral, positive or negative among stakeholders?

This step sheds light on potential conflicts and coalitions among stakeholders (see **Example 4**). It also shows the absence of links between stakeholders; indeed, it is very likely that some stakeholders have never worked or communicated with each other before. The resulting map helps to understand the level of cooperation between stakeholders, and therefore is useful to select appropriate participatory techniques, among others.



## Phase 3: Engagement

At this point of the project, stakeholders linked to the project are identified and assumptions about their interest, potential for alliance, resources and relationships have been described by the PMT through reflection and discussion. In this third phase, the PMT uses these assumptions to assign an appropriate level of participation to each stakeholder (*Step 3a*). Moreover, the PMT thinks about its team's resources (*Step 3b*) and tradition of working with stakeholders (*Step 3c*). Those two elements highlight which participatory techniques could realistically be used with stakeholders.

Finally, in the last step, the PMT starts to build a participation plan that is consistent with assigned levels of participation, available participatory technique and stakeholders' relationships.

### *Step 3a: stakeholders' participation levels*

To assign an appropriate level of participation to each stakeholder, we adopted Luyet et al.'s (2012) levels of participation (previously described in **Table 6**) and adapted Vroom's (2003) matrix logic. The resulting matrix is presented in Appendix ("Matrix to reflect on the appropriate level of participation depending on stakeholders' types and characteristics"). For each stakeholder, the PMT has to navigate in the matrix from left to right. In the first column, the PMT selects the *type of stakeholder* (based on *Step 2a*). Then, in the four next columns, the PMT answers "yes" or "no" before going to the next column (based on *Step 2b*). Finally, the last column suggests an appropriate level of participation or a recommendation.

This matrix is supposed to encourage discussion and reflection within the PMT about stakeholders' engagement. It is intended to *aid* the decision, not to *make* the decision regarding stakeholders' engagement. The use of the matrix is illustrated in **Example 5**.

In the participation matrix, the "empowerment" level of participation is never suggested to the PMT. Indeed, in this method, we do not consider the delegation of the decision, even if it is theoretically possible. The PMT remains responsible for the decision from the beginning to the end of the project.

#### **Example 5**

In the considered project about children's independent mobility at the neighborhood scale, crossing guards were identified as stakeholders.

Crossing guards were classified in the *standard stakeholder* category (they are affected by the issue/project and affecting the issue) and are considered as *natural allies* (Faction 2: friends).

Moreover, they have important field *expertise* and could probably find the *time* to participate in the project. However, they do not have any *power* to influence this project (negatively or positively).

With this information, the matrix suggests the "collaboration" level as an appropriate way to engage crossing guards in the project (see **Figure 10**). This means that the project could benefit from a presentation of the project to crossing guards and a collection of their suggestions.

**Example 5 (continued)**

Type of Stakeholder	Potential for alliance	Expertise	Power	Other	Time	Level of participation
Standard Stakeholder or Fiduciary stakeholder	Ally	Yes	Yes	Yes	Yes	Co-decision
				Yes	No	Collaboration
				No	Yes	Co-decision
			No	Yes	No	Collaboration
				Yes	Yes	Co-decision
				No	No	Collaboration
	No	No	Yes	Yes	Yes	Co-decision
				Yes	No	Collaboration
				No	Yes	Consultation
			No	Yes	Yes	Consultation
				Yes	No	Information
				No	No	Information

**Figure 10.** An example showing how to use the matrix to choose an appropriate level of participation for a stakeholder.

*Step 3b: team's resources*

Once participations levels have been assigned, it is critical to consider which participatory techniques the PMT could use with stakeholders. **Table 7** gives many examples of techniques depending on participation levels. However, before choosing a technique, it is necessary for the PMT to clarify the resources at its disposal. Obviously, time and funds affect how the PMT can realistically engage stakeholders. There are also other elements to consider, such as logistic and technological capabilities, language barriers, protocols, time differences, etc. **Example 6** is an illustration of a resources analysis.

**Example 6**

*Time:* Four researchers are involved in the project on children's independent mobility. Two of them wish to participate in the preliminary meetings with stakeholders to discuss with them how to measure a neighbourhood's quality regarding children's independent mobility. Only one researcher lives near the selected neighbourhood. They agree that the other researcher could come to meet stakeholders for up to two consecutive days, since she is giving classes the rest of the week.

**Example 6 (continued)**

*Funds:* enough funds are allocated in the project to cover for up to three light meals and a few coffee breaks for 10 people if needed.

*Logistics:* The school board is ready to give the PMT access to a congenial and spacious room to meet with stakeholders after school hours from Wednesday to Friday. Moreover, one researcher could book meeting rooms at his University. However, it is over 10 km from the selected neighbourhood, and the travel resources could be a barrier to participation. All researchers have access to voice recorders if needed.

*Human resources:* two doctoral students working on children's independent mobility could give a hand to participate in workshops, interviews or qualitative analysis if needed.

Given this information on the PMT's resources, many participatory techniques could be used with stakeholders. However, if face-to-face meetings are to be selected, the PMT will have to carefully manage time. Furthermore, skilled facilitators are needed.

*Step 3c: team's tradition of working with stakeholders*

Another important aspect influencing the choice of participatory techniques is the PMT's tradition of working with stakeholders. The four traditions were described previously and summarized in **Table 5**. The PMT's tradition can be clarified by answering three questions:

1. Why are stakeholders considered important? The main reason can be *instrumental* (engaging stakeholders is beneficial for the project) or *moral* ("it is the right thing to do").
2. Are alternatives and decision problem considered as given? Is the PMT focusing on supporting trade-offs between stakeholders' interests?
3. When and how were stakeholders engaged by the PMT in previous projects? Or, if stakeholders were never engaged before, when and how would the PMT naturally engage stakeholders?

By answering these questions, and with the help of **Table 5** the PMT should be able to position itself in a tradition of working with stakeholders thereby highlighting participatory techniques that are consistent with this tradition. An analysis of a tradition of working with stakeholders is given in **Example 7**. Finally, if the PMT is composed of researchers, they could also consider their research paradigm to help them identify which participatory techniques are consistent with their way of conceiving research and knowledge. Many publications on epistemology could guide this reflection (e.g. Avenier & Gavard-Perret, 2012; Hatch, 2002; Kuhn, 2012; Schwandt, 1998).

### Example 7

*Research paradigm*

Researchers involved in the project on children's independent mobility work in three areas of research, namely transportation, psychology, decision aiding and civil engineering. Their previous works in social science were within the constructivist (Guba & Lincoln, 1989) research paradigm.

*Why are stakeholders considered important?*

All researchers in this team consider that it is beneficial to involve stakeholders (instrumental reason) and some feel they have a moral duty to involve silent stakeholders in their project (e.g., children). Moreover, silent stakeholders' engagement is also beneficial (e.g., only children can truly tell how they think and see the world).

*Are alternatives and decision problem considered as given? Is the PMT focusing on supporting trade-offs between stakeholders' interest?*

Being constructivist, the team does not consider alternatives as given. Moreover, even after extensively studying the literature on children's independent mobility, they still think stakeholders could help them understand how to capture what is a high quality environment for children. Finally, the PMT does not consider that one stakeholder's opinion should be prioritized in the process.

*When and how were stakeholders engaged by the PMT in previous projects?*

This PMT has considerable expertise with multicriteria decision methods, and had generally involved stakeholders at different moments of the decision process in the past, but rarely during implementation of decisions.

Based on this information, the PMT can affirm it adheres to the balancing tradition of working with stakeholders.

## Phase 4: Participation plan

After every stakeholder has been assigned to an appropriate participation level (*Step 3a*), the PMT has to use these levels and the relationships map (drawn in *Step 2d*) to build a participation plan that is consistent with PMT's resources and tradition of working with stakeholders (*Steps 3b* and *3c*). Participation levels inform the PMT about stakeholders' engagement. The relationship map informs the PMT about potential conflicts and coalitions among stakeholders. Together they are helpful to decide whether two stakeholders with the same participation level could be engaged with the same participatory technique.

A non-exhaustive list of participatory techniques is given in **Table 7**, and **Example 8** illustrates the process within a PMT to build a participation plan in the context of a project about children's independent mobility.

### Example 8

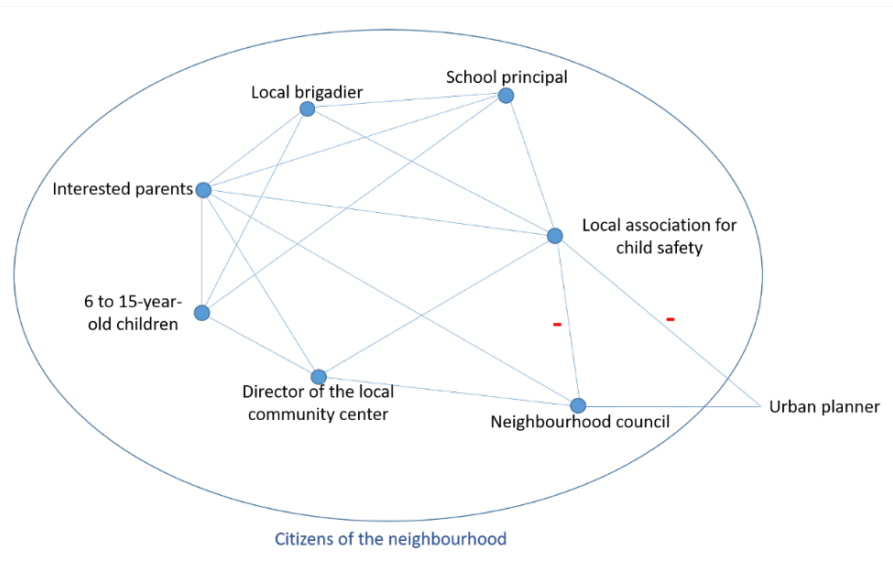
One aspect of the project about children's independent mobility evolves around the communication of a neighbourhood's quality regarding CIM to urban planner and parents.

The PMT has identified a given neighbourhood with diverse built environments to lead an exploratory project. It identified nine stakeholders. It characterized them and determined appropriate participation levels for each of them (**Table 12**).

It also drew a relationship map (**Figure 11**). All relationships are positive between stakeholders, except between the Local association for children's safety and the Urban planner, and between the Association and the Neighbourhood council. Many times, the Association had asked for the local speed limit to be reduced in some neighbourhoods, but those requests were not seriously considered by the Council and the Urban planner. Past events have weakened trust between the Association and the Council, that consists of different citizens.

This PMT has experience with multicriteria decision methods and adheres to the *balancing* tradition of working with stakeholders.

Finally, its resources allow it to spend up to two complete days with stakeholders. If needed, it has full access to a congenial place to meet stakeholders either in group or individually.



**Figure 11.** The children's independent mobility project's relationship map.

### Example 8 (continued)

Based on this work, a participation plan was produced by the PMT. The following four objectives are to be pursued in order to engage stakeholders in the decision process and design related actions.

**Objective 1:** Look for a Fiduciary Stakeholder to represent the neighbourhood's 6 to 15-year-old children, and engage this stakeholder through collaboration.

Action 1-1: organize a group of children (Fiduciary Stakeholder).

- contact the local schools' principals to organize one or two workshops with children at neutral locations such as the local library. This group of children will represent the neighbourhood's children.

Action 1-2: engage these children through collaboration.

- Offer to transfer knowledge about safety, active transportation and research. During this workshop, build mental maps with children to understand their favourite destinations in the neighbourhood, which destinations they cannot go to without being accompanied by adults, and how they travel in their environment (an example in Putri et al., 2019).

**Objective 2:** Make sure Citizens of the neighbourhood are well represented by current Fiduciary stakeholders.

Action 2-1: Think about citizens' representation. Who is not represented?

Action 2-2: consider engaging another Fiduciary Stakeholder if necessary.

**Objective 3:** Make sure Fiduciary stakeholders for Citizens of the neighbourhood are engaged in the decision process.

Action 3-1: think about the participation levels and relationship map (**Table 12** and **Figure 10**).

- Neighbourhood Council, Interested parents and Local association for children safety are currently representing Citizens. The participation matrix suggests to co-decide or collaborate with them. However, the relationship map foreshadows potential conflicts between the Council and the Association if they are gathered around a table.

Action 3-2: choose an appropriate participatory technique.

- The PMT considered the potential conflict between stakeholders, and chose to take the risk of engaging them into a MCDA process anyway.

**Objective 4:** choose participatory techniques for the remaining stakeholders.

Action 4-1: think about the participation levels and relationships map.

- Relationships are good between the other stakeholders. The participation matrix suggests collaboration with the Local crossing guard, the Urban planner and the Director of the local community center. Co-decision is suggested with the School principal.

Action 4-2: choose an appropriate participatory technique for every stakeholder.

- The PMT chose to conduct individual interviews with a local crossing guard and the Director of the local community center. It also decided to engage a school principal in the MCDA process. Finally, it decided to invite the Urban planner to participate in the MCDA process (if he/she refuses, it will propose an individual interview instead). The MCDA process should last two days.

**Table 12.** Information gathered by the PMT about stakeholders in Example 6.

Stakeholder	Type	Potential for alliance	Useful expertise	Power	Other	Time	Level of participation
1. Local crossing guard	Standard Stakeholder (the project could affect his/her future work, and he/she is affecting children's independent mobility)	Ally (F2: friends)	Yes. Local expert of children's mobility to school.	No.		Probably yes.	Collaboration
2. School principal	Standard Stakeholder	Ally (F2: friend)	Yes. Knows exactly which children are going home on their own and how far from the school they live.	Yes. Can suggest other relevant stakeholders and encourage a safe atmosphere around the school. Has power over school rules (e.g., He/she decided that younger than 8-year-old children may not leave school without being accompanied by an adult and that older children may not accompany their younger siblings).		Yes	Co-decision
3. Local association for children's safety	Fiduciary Stakeholder (represents local citizens interested in children's safety)	Ally (F2: friend)	Yes. Has local knowledge about challenges and opportunities regarding children's safety.	Yes. Can suggest other relevant stakeholders. Can organize citizen actions (petitions, workshops, complaints, etc.).		Yes	Co-decision
4. Interested parents	Standard Stakeholder	Ally (F1: family)	Yes. Local knowledge: children's habits, parents' habits, etc.	Yes. Are the ones choosing where and when children can go outside on their own. Are the ones choosing children's school, home location, etc.		Fluctuating	Co-decision or collaboration

Stakeholder	Type	Potential for alliance	Useful expertise	Power	Other	Time	Level of participation
5. Neighbourhood council	Fiduciary Stakeholder (represents local citizens)	Ally (F2: friends)	Yes. Local knowledge.	Yes. Can suggest other relevant stakeholders. Can organize citizen actions (petitions, workshops, complaints, etc.). Are linked to upper decision levels.		Yes.	Co-decision
6. Urban planner specifically working in this district of the city	Standard Stakeholder (The project could affect his/her future work, and he/she has power to affect children's independent mobility and the project)	Ally (F3: fellow-travelers). Sees the issue as desirable, but neither essential nor important. Because there were no child pedestrian fatalities in this neighbourhood in the last decade, he/she does not really understand the purpose of the project.	Yes.	Yes. This urban planner could influence the built environment in the long term, propose other stakeholders and give the PMT useful information.	Yes. This urban planner has access to many information regarding zoning, future projects in the district, etc.	No. This urban planner has a very busy schedule.	Collaboration
7. Director of the local community center	Standard Stakeholder (The project could affect children's attendance to center's activities in the future. He/she affects children's independent mobility by offering attractive activities for children)	Potential ally (F4: Fence-sitter). Has many ongoing community projects, and this project does not seem to be a priority.	Yes. Knows who is attending the Center's children activities.	Yes. The Center offers varied activities for primary school aged children that do not require parents' attendance. The Community Center is therefore supposed to be a nice destination option for children in the neighbourhood that could encourage children's independent mobility.		Not a lot of free time to be engaged.	Collaboration

Stakeholder	Type	Potential for alliance	Useful expertise	Power	Other	Time	Level of participation
8. 6 to 15 year-old children	Silent stakeholder	Ally (F1: family)	Yes. Are the ones experiencing street walkability for children.	No.		Depends on parents and educators.	The PMT should look for a Fiduciary Stakeholder who can represent this Silent Stakeholder, and then engage this Fiduciary Stakeholder in the decision process through collaboration.
9. Citizens of the neighbourhood	Fiduciary's client (represented by Neighbourhood council and Local association for children safety)	Ally (F2: friends)	Yes. Are the ones living in the project's area.	Limited power on issue and project as individuals.		No (too fluctuating )	The PMT should make sure the Fiduciary Stakeholder representing this Fiduciary's Client is engaged in the decision process.

## Conclusion

We have developed, presented and applied a method to help decision makers and facilitators to identify, characterize and determine stakeholders' levels of participation in a decision-making process. The method is based on literature from the management and decision aiding fields. This method is an attempt to fill a gap in the practice of stakeholder analysis and involvement, as current guidelines in this domain are too general and lack applicability to guide concrete projects (Wang & Aenis, 2019).

By considering several aspects related to the issue they are facing, managers can identify persons and organizations who have a vested interest in their project; in other words: relevant stakeholders. Then, they can classify these identified stakeholders on the basis of several characteristics, such as the way they affect and are affected by the issue or project, the way they see the issue (are they potential allies?) and their resources (power, expertise, and time). Moreover, the mapping of relationships between stakeholders can help managers to detect potential conflicts or coalitions between stakeholders, which is useful to know if they are to be gathered at some point in the decision process. Once these assumptions on stakeholders' characteristics are established, managers collate them into a matrix to select an appropriate level of participation for each of them. Finally, and based on participations level and relationship maps, managers build a participation plan which is consistent with their tradition of working with stakeholders and their resources.

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# Appendix

Examples of tables to log the results of *Steps 2a, 2b and 2c* of the characterization phase (phase 2, section 2).


**Table 13.** Example of a table to log the answers to the four questions of *Step 2a* and then identify stakeholders' types (with the use of the stakeholders' types matrix, Table 11). This matrix is also available in Appendix ("Matrix to determine stakeholders' types"). There are 13 possible stakeholders' types.

#	Stakeholder  <i>individual or organization</i>	<b>Impact: Is this stakeholder affected by the issue or project?</b>  <i>yes or no</i>	<b>Influence: Does this stakeholder affect the issue or project?</b>  <i>yes or no</i>	<b>Willingness: Does this stakeholder want to participate in the decision process?</b>  <i>yes or no</i>	<b>Ability to participate: Can this stakeholder participate in the decision process?</b>  <i>yes or no</i>	Type of stakeholder  <i>see matrix</i>
1						
2						
...						

**Table 14** Example of a table to log the results of the first three steps (*2a, 2b and 2c*) of the characterization phase (phase 2). Stakeholders' types are based on Table 13 and stakeholders' potentials for alliance are selected with the help of Table 4. Results in this table can be used to determine an appropriate level of participation with the participation matrix available in Appendix ("Matrix to reflect on the appropriate level of participation depending on stakeholders' types and characteristics").

#	Stakeholder  <i>individual or organization</i>	Step 2a: stakeholders' types (based on Banville et al., 1998)  <i>see type from Table 13</i>	Step 2b: stakeholders' potentials for alliance (based on Martin & Morrissey, 2002)  <i>see potential from Table 4</i>	Step 2c: stakeholders' resources			
				Expertise	Power	Other important aspects	Time
1							
2							
...							

**MATRIX TO REFLECT ON STAKEHOLDERS' TYPES (BASED ON BANVILLE ET AL., 1998)**

Is this stakeholder affected by the issue or project?	Does this stakeholder affect the issue or project?	Does this stakeholder want to participate in the decision process?	Can this stakeholder participate in the decision process?	Type of stakeholder
Yes	Yes	Yes	Yes	Standard Stakeholder
			No	Standard Stakeholder (unable to participate)
		No	Yes	Unwilling Stakeholder with influence <i>or</i> Fiduciary's client
			No	Unwilling Stakeholder with influence (unable to participate) <i>or</i> Fiduciary's client (unable to participate)
	No	Yes	Yes	Interested Stakeholder
			No	Silent stakeholder
		No	Yes	Unwilling Stakeholder without influence
			No	Unwilling Stakeholder without influence (unable to participate)
No	Yes	Yes	Yes	Fiduciary Stakeholder
			No	Fiduciary Stakeholder (unable to participate)
		No	Yes	Unwilling fiduciary stakeholder
			No	Unwilling fiduciary stakeholder (unable to participate)
	No			Not a stakeholder

**Matrix to reflect on the appropriate level of participation depending on stakeholders' types and characteristics.**

Type of Stakeholder	Potential for alliance	Useful expertise	Power to influence the project (positively or negatively)	Other important aspect	Time	Level of participation	
<b>Standard Stakeholder</b> This stakeholder is affected by the issue/project and affecting it. He/she wants to participate in the project.	Ally (family, friends and fellow-travellers)	Yes	Yes	Yes	Yes	Co-decision	
				No	No	Collaboration	
			No	Yes	Yes	Co-decision	
		No	Yes	Yes	Yes	Co-decision	
				No	→	Collaboration	
			No	Yes	→	Collaboration	
	No			→	Collaboration		
	Yes			Yes	→	Collaboration	
	No			→	Collaboration		
	<b>Fiduciary stakeholder</b> This stakeholder is not affected by the issue or project, but he/she is affecting it. He/she wants to participate in the decision process. He/she is representing another stakeholder (Fiduciary's client, or Silent Stakeholder, or Unwilling Stakeholder, etc.)	Potential ally (fence-sitter/foreigner and foes)	Yes	Yes	Yes	Yes	Co-decision
					No	No	Collaboration
				No	Yes	Yes	Co-decision
No			Yes	Yes	→	Collaboration	
				No	→	Collaboration	
			No	Yes	Yes	→	Collaboration
		No		→	Collaboration		
		Yes		Yes	→	Collaboration	
		No		→	Collaboration		
Blind resources (fools and fanatics)		Yes	Yes	→	Collaboration		
			No	→	Collaboration		
		No	Yes	→	Collaboration		
	No		Yes	→	Information		
	No	No	→	No participation			

**Matrix to reflect on the appropriate level of participation depending on stakeholders' types and characteristics.**

Type of Stakeholder	Potential for alliance	Useful expertise	Power to influence the project (positively or negatively)	Other important aspect	Time	Level of participation	
<b>Standard Stakeholder (unable to participate)</b> This stakeholder is affected by the issue and project and he/she is affecting it. He/she wants to participate in the project. However, he/she is unable to participate.	Ally (family, friends and fellow-travellers)	Yes	—————→			Standard Stakeholder: look for a Fiduciary Stakeholder who can represent this Stakeholder. Engage this Fiduciary Stakeholder in the decision process through co-decision or collaboration.  Fiduciary Stakeholder: contact the Fiduciary's client to find another Fiduciary Stakeholder. If it is impossible, find another Fiduciary Stakeholder by yourself. Engage this Fiduciary Stakeholder in the decision process through co-decision or collaboration.	
		No	Yes	—————→			No participation
			No	Yes	————→		
		No	No	————→			
<b>Fiduciary Stakeholder (unable to participate)</b> This stakeholder is not affected by the issue or project, but he/she is affecting it. He/she is representing another stakeholder (Fiduciary's client, or Silent Stakeholder, or Unwilling Stakeholder, etc.) He/she wants to participate in the decision process. However, he/she is unable to participate.	Potential ally (fence-sitter/foreigner and foes)	Yes	—————→			Standard Stakeholder: look for a Fiduciary Stakeholder who can represent this Stakeholder. Engage this Fiduciary Stakeholder in the decision process through co-decision, collaboration or at least consultation.  Fiduciary Stakeholder: contact the Fiduciary's client to find another Fiduciary Stakeholder. If it is impossible, find another Fiduciary Stakeholder by yourself. Engage this Fiduciary Stakeholder through co-decision, collaboration or at least consultation.	
		No	Yes	—————→			No participation
			No	————→			
					————→		
<b>Blind resources (fools and fanatics)</b>	Blind resources (fools and fanatics)	Yes or No	Yes	—————→			Standard Stakeholder: look for a Fiduciary Stakeholder who can represent this Stakeholder. Engage this Fiduciary Stakeholder in the decision process through consultation. Reflect on how this stakeholder could negatively affect your project, and or to manage this impact.  Fiduciary Stakeholder: contact the Fiduciary's client to find another Fiduciary Stakeholder. If it is impossible, find another Fiduciary Stakeholder by yourself. Engage this Fiduciary Stakeholder through consultation. Reflect on how this stakeholder could negatively affect your project, and or to manage this impact.
			No	————→			No participation
					————→		

**Matrix to reflect on the appropriate level of participation depending on stakeholders' types and characteristics.**

Type of Stakeholder	Potential for alliance	Useful expertise	Power to influence the project (positively or negatively)	Other important aspect	Time	Level of participation
<b>Unwilling stakeholder with influence</b> This stakeholder is affected by and affecting the issue/project, but does not want to participate in the project.	Ally (family, friends and fellow-travellers)	Yes	—————→			Try to negotiate this Unwilling Stakeholder's engagement. If collaboration/consultation is impossible, ask if a Fiduciary Stakeholder could represent this Unwilling Stakeholder. At least inform this stakeholder about the project.
		No	Yes	—————→		
			No	Yes	—————→	
		No	No	—————→		
	Potential ally (fence-sitter/foreigner and foes)	Yes	—————→			Try to negotiate collaboration/consultation with this Unwilling Stakeholder. At least inform this stakeholder about the project.
		No	Yes	—————→		
	No	No	—————→			No participation
	Blind resources (fools and fanatics)	Yes or No	Yes	—————→		Try to negotiate consultation with this Unwilling Stakeholder. Reflect on how this stakeholder could negatively affect your project, and how to manage this impact.
No			—————→		No participation	
<b>Fiduciary's client</b> This stakeholder is affected by the issue/project and is affecting it by controlling resources. He/she is not participating in the decision process, but uses a representative (the Fiduciary Stakeholder).	Ally (family, friends and fellow-travellers)	Yes	—————→			Make sure the Fiduciary Stakeholder representing this Fiduciary's client is engaged in the decision process.
		No	Yes	—————→		
			No	Yes	—————→	
		No	No	—————→		
	Potential ally (fence-sitter/foreigner and foes)	Yes	—————→			Make sure the Fiduciary Stakeholder representing this Fiduciary's client is engaged in the decision process.
		No	Yes	—————→		
	No	No	—————→			No participation
	Blind resources (fools and fanatics)	Yes or No	Yes	—————→		Make sure the Fiduciary Stakeholder representing this Fiduciary's client is engaged in the decision process.
No			—————→		No participation	

**Matrix to reflect on the appropriate level of participation depending on stakeholders' types and characteristics.**

Type of Stakeholder	Potential for alliance	Useful expertise	Power to influence the project (positively or negatively)	Other important aspect	Time	Level of participation	
<b>Interested Stakeholder</b> This stakeholder is affected by the issue or project without affecting it. He/she does not have power by nature. However, he/she wants to participate in the decision process.	Ally (family, friends and fellow-travellers)	Yes	No	—————→		Collaboration	
		No	No	Yes	—————→	Consultation	
	Potential ally (fence-sitter/foreigner and foes)	Yes	No	—————→		Collaboration	
		No	No	Yes	—————→	Consultation	
	Blind resources (fools and fanatics)					—————→	No participation
						—————→	No participation
<b>Silent stakeholder</b> . This stakeholder is affected by the issue/project without affecting it. He/she does not have power by nature. Moreover, he/she can't participate in the decision process.	Ally (family, friends and fellow-travellers)					Look for a Fiduciary Stakeholder who can represent this Silent Stakeholder. Engage this Fiduciary Stakeholder in the decision process through collaboration.	
	Potential ally (fence-sitter/foreigner and foes)	Yes			—————→		No participation
		No	No	Yes	—————→		
	Blind resources (fools and fanatics)					—————→	No participation
						—————→	
<b>Unwilling Stakeholder without influence (able or unable to participate)</b>  This stakeholder is affected by the issue/project without affecting it. He does not have power by nature. He/she does not want to participate in the decision process. He/she is not always able to participate.	Ally (family, friends and fellow-travellers)	Yes			—————→		Try to negotiate collaboration/consultation with this Unwilling Stakeholder. At least inform this stakeholder about the project. If this stakeholder is unable to participate, consider to engage a Fiduciary Stakeholder to represent him/her.
		No	No	Yes	—————→		
	Potential ally (fence-sitter/foreigner and foes)	Yes			—————→		Try to negotiate consultation/collaboration with this Unwilling Stakeholder. At least inform this stakeholder about the project. If this stakeholder is unable to participate, consider to engage a Fiduciary Stakeholder to represent him/her.
		No	No	Yes	—————→		
	Blind resources (fools and fanatics)					—————→	No participation
						—————→	

**Matrix to reflect on the appropriate level of participation depending on stakeholders' types and characteristics.**

Type of Stakeholder	Potential for alliance	Useful expertise	Power to influence the project (positively or negatively)	Other important aspect	Time	Level of participation	
<b>Unwilling Fiduciary Stakeholder</b> This stakeholder is not affected by the issue or project, but he/she is affecting it. He does not want to participate in the decision process. He is representing another stakeholder (Fiduciary's client, or Silent Stakeholder, or Unwilling Stakeholder, etc.)	Ally (family, friends and fellow-travellers)	Yes	—————→			Try to negotiate collaboration or consultation with this Fiduciary Stakeholder. If negotiation does not work, contact the one the Fiduciary Stakeholder is representing to find another Fiduciary Stakeholder. If this option is impossible or does not work, at least inform the unwilling Fiduciary Stakeholder about the project.	
		No	Yes	Yes	—————→		Information
				No	Yes	—————→	
			No	No	—————→		
	Potential ally (fence-sitter/foreigner and foes)	Yes	—————→			Try to negotiate collaboration/consultation with this Fiduciary Stakeholder. If negotiation does not work, contact the one the Fiduciary Stakeholder is representing to find another Fiduciary Stakeholder. If this option is impossible or does not work, at least inform the unwilling Fiduciary Stakeholder about the project.	
		No	Yes	Yes	—————→		Information
				No	Yes	—————→	
			No	No	—————→		
	Blind resources (fools and fanatics)	Yes or No	Yes	—————→			Try to negotiate collaboration/consultation with this Fiduciary Stakeholder. Reflect on how this stakeholder could negatively affect your project, and or to manage this impact.
			No	—————→			No participation