

# FIVE PROPOSITIONS ON HOW TO COMBINE THREAT AND OPPORTUNITY MANAGEMENT IN PRACTICE TO FURTHER DEVELOP THE PROJECT

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**Abstract:** Risk management in project contexts is increasingly more in focus amongst researchers and practitioners, including the debate on if and how opportunities can be integrated into the work with threats, or if separation is better. In this conceptual paper, integrating several strands of literature including risk management, project management, and organization theory in terms of sensemaking and paradox perspectives on decision making, it is argued that a sequential approach is a better option: An initial deliberate focus on threats to make sense of the existing project plan, then on innovative responses often entailing new opportunities. Five propositions on how this can be conducted in practice by project organizations are discussed as well as an overarching flow-chart linking the five propositions together, while recognizing that projects are temporary organizations in which a mix of people with a different frame of references are expected to deliver results after short initiation. Therefore, it is important to be realistic and implement a clear and practical process for project risk management, which distinctly links to existing forums and processes for decision making rather than creating new ones. Several managerial implications are presented, but also some theoretical notions.

**Keywords:** project, risk, threat, opportunity, uncertainty, practice

## 1 INTRODUCTION

The interest in structured risk management in project contexts has increased continuously over the recent decades (e.g., Atkinson et al., 2006; Denney, 2020; Hillson, 2002 & 2019; Jaafari, 2001; Olsson, 2007), especially as regards complex projects including large construction projects (e.g., Eskeröd et al., 2018; Eweje et al., 2012; Gil & Tether, 2011; Johansen et al., 2018; KarimiAzari et al., 2011). The overarching debate on how to define risk and whether opportunities should be incorporated in the process has influenced project risk management as well (e.g., Atkinson et al., 2006; Denney & Powell, 2020; Eskeröd et al., 2018; Hillson, 2002; Johansen et al., 2018). Although there are still some competing views it seems that most scholars and increasingly more practitioners, believe that project risk management should comprise both threats and opportunities (Denney, 2020; Denney & Powell, 2020; Hillson, 2019; Qazi et al., 2020).

However, there are different opinions on how to incorporate opportunities in practice in daily work with project risk management. For instance, Eskeröd et al. (2018) and Johansen et al. (2018) suggest that although both threats and opportunities are relevant aspects of uncertainty in project execution, it is necessary to use separate processes. Others argue for a simultaneous mix of both perspectives and suggest different approaches on how to stimulate focus on both threats and opportunities, e.g., Atkinson et al. (2020), Denney (2020), Hillson (2002 & 2019), Olsson (2007), and Qazi et al. (2020). Moreover, in a recent literature review, Denney and Powell (2020) argue for increased focus on opportunity management in project contexts for the reason that it is not as mature as the management of threats, although they stress that both aspects are important. They highlight several gaps, e.g., that it is not sufficiently investigated how to identify, document, monitor and track opportunities, that it is not clarified how opportunities can be qualitatively analysed, and they furthermore raise questions on if and how opportunities and threats are compared in a business perspective, momentarily and over time. Similarly, Willumsen et al. (2019) highlight that the value creation of project risk management is contextual and dependent on stakeholder views and argue that more research with holistic perspectives is required to better grasp the differences in how value creation is perceived by practitioners in project contexts.

In this conceptual paper, the question on how to combine the management of threats and opportunities in project contexts in practice will be addressed, including many of the gaps highlighted by Denney and Powell (2020), and partly the

overarching value creation (Willumsen et al., 2019). Five separate propositions on how to enhance the project outcomes through risk management activities are described and argued for by incorporating insights from several other strands of literature, including project management-as-practice (Blomquist et al., 2010; Hällgren & Wilson, 2008) and organization theory in terms of sensemaking (Weick, 1979; Weick et al., 2005) and paradox perspectives (e.g., Lewis, 2000; Lewis & Smith, 2014; Smith & Lewis, 2011). Moreover, an overarching process is presented, explaining how the five propositions together facilitate value creation in terms of both risk mitigation, as well as opportunity management that strengthens the business case.

The paper continues with a brief theoretical background of risk management and decision making in project contexts for the purpose of understanding how risk, threat and opportunity is described in prior research (Section 2), followed by a description and discussion of the five propositions and the suggested overarching process/practice on how to enhance the project plan through risk management activities (Section 3). The concluding Section 4 highlights some contributions to theory and several managerial implications, as well as limitations and suggestions for further research.

## 2 RISK MANAGEMENT AND DECISION MAKING IN PROJECT CONTEXTS

This section summarizes prior research on risk management in project contexts and some specific parts of the management literature relevant for the five propositions, rather than covering all prior research in these two broad fields, an approach that is appropriate for a conceptual paper like this one (Gilson & Goldberg, 2015).

A general note is that this paper follows the terminology in PMBOK (2017) in that Project Directive is where clients put together the purpose, long-term effects aimed for, and other requirements and restrictions, and that Project Plan is where project managers describe the corresponding project objectives and how to achieve them. In practice, both terms represent several documents and sources of information, out of which some are a result of the work performed in early project stages. For instance, the project plan in a construction project comprises models, drawings, and technical specifications, and in IT-projects, e.g., HW/SW-specifications and user guidelines. However, to facilitate the coming discussion, the two terms are consistently used as summarizing concepts.

### 2.1 Risk related terminology in project contexts

The maturity of risk management practices has developed over the years, also in project contexts. Today there are several frameworks and corresponding guidelines applicable to projects, e.g., ISO31000 (2018), PMBOK (2017, chapter 11), PM<sup>2</sup> (2018, chapter 9.7). However, it seems that coherence between theory and practice is still lacking (Denney & Powell, 2020; Hillson, 2019), and there are also somewhat deviating views on the terms risk, uncertainty, threat, and opportunities, as well as on how they interrelate theoretically and in the practical implementation in project contexts.

The original and still often persisting view amongst project practitioners is that risk management is all about avoiding potential problems (e.g., Denney, 2020; Hillson, 2019; Olsson, 2007), talking about risk as potential events with negative impacts on the project outcome. Thus, many practitioners still use the term risk as a synonym to threat. However, over the years, several scholars have highlighted the importance of broadening the scope of risk management to also cover uncertainties (Chapman & Ward, 2004; Perminova et al., 2008; Sanderson, 2012; Ward & Chapman, 2003), as well as discussing if and how opportunities should be dealt with within risk management practices (e.g., Böhle et al., 2016; Denney, 2020; Hillson, 2002; Johansen et al., 2018; Olsson, 2007).

Reviewing the different interpretations of uncertainty show that many scholars argue that it covers both negative and positive scenarios (e.g., Chapman & Ward, 2004; Hillson, 2002; Ward & Chapman, 2003). Indeed, Perminova et al. (2008) define uncertainty as 'a context for risks as events having a negative impact on the project's outcomes, or opportunities, as events that have a beneficial impact on project', thus highlighting that the nature of any possible event identified is uncertain. They argue that amongst practitioners, the word uncertainty is often viewed as events that endangers the profit, whereas the word risk is most often used to describe events that entail a loss. Somewhat contradictory, Sanderson (2012) highlights that in many contexts, uncertainty is used interchangeably with risk entailing that uncertainties are often ignored or treated as threats. Others problematize the focus on events, arguing that a broader perspective on risk management is required. For instance, that it would be better to change the name of the process to uncertainty management to get away from a threat- and event-based view, and instead focus on understanding and dealing with different sources of 'root uncertainty' (Atkinson et al., 2006; Chapman & Ward, 2004; Ward & Chapman, 2003).

However, others still use the term event but elaborate on the type of events that relate to uncertainty. For example, Söderholm (2008) argues that uncertainties in the project environment often entail unexpected events that require innovative reactive actions. Böhle et al. (2016) similarly argue that uncertainties are unpredictable events but suggest that it instead calls for proactive approaches that can spur innovation capabilities and benefits. Similar notions are made by Gil and Tether (2011), arguing that design flexibility is, therefore, an important complement to risk management. Although Olsson (2006) also argues that flexibility during project execution is important and commonly used, he concludes that it is seldom proactively prepared for. Moreover, Osipova and Eriksson (2013) incorporate organizational theory on mechanistic/organic managing systems arguing that flexibility during project execution enhances the management of unforeseen events, but add that control is also required to achieve effective project risk management. It is highlighted by Eriksson et al. (2019), that although reactive problem solving may create innovations, it is more effective over time to work with proactive development. They conclude that joint risk management can facilitate the transition to proactive efforts, where all involved parties work together to foresee potential problems as well as with solutions.

For clarity in coming discussions and reasoning, this paper adheres to the following terminology; threat is a possible unplanned event with a negative effect, and conversely opportunity is a possible unplanned event with a positive effect, and project risk management will consistently be used as a headline for all activities related to the management of threats, opportunities, and uncertainties.

### 2.2 Integrating or separating threat and opportunity management

In Hillson (2002), the pros and cons of either dealing with threats and opportunities separately or using a common process are discussed. Hillson (2002) argues that it is clearly beneficial from a managerial and resource perspective to handle both threats and opportunities within the risk management process instead of creating a new additional process for opportunities, and therefore suggests some adaptations of the risk management process. For example, to enhance risk identification with SWOT Analysis and other techniques to assist practitioners in broadening the scope, expanding the risk matrix used for qualitative assessments with positive impact, and to add exploit, share, enhance, and ignore to the risk response planning step of the process.

Thus, Hillson (2002) argues for a full integration of threat and opportunity management, which is also stressed in Hillson (2019, p. 3): 'The central idea behind this book is that risk is a broad concept that includes both opportunity and threat, and consequently risk management should also manage opportunities as well as threats.'. The suggested adaptations of the risk management process in Hillson (2002) are further emphasized in Hillson (2019), and also that in workshops and similar activities, focus can either be on threats or opportunities separately, or both aspects simultaneously. Hillson (2019) also argues that focus on realistic risk responses is important, and that they are ideally added to the existing project plan.

The benefits of parallel work with threats and opportunities are also emphasized by Jaafari (2001), stressing the importance of holistic and strategic views in project risk management. He argues that especially in complex projects it is necessary to not only focus on project objectives but instead consider 'risk/reward' for the overarching business objectives. Similarly, Chapman and Ward (2004) argue that simultaneous work with threats and opportunities enable decision making based on a 'risk/reward' comparison. Also emphasizing holistic views, Atkinson et al. (2006) highlight that in interorganizational projects the different parties often have different views on whether a certain event is a threat or an opportunity. Olsson (2007) also argue for an integrated approach, although highlighting that it often fails due to a lack of holistic views, especially during project execution where a threat-perspective is prevalent, but also in the bid/sales phase where opportunities are instead often in focus. Managing threats and opportunities in a joint process also shed light on interdependencies between the two types of uncertainties (Qazi et al., 2020), enabling decisions to be more balanced in terms of loss adversity and gain seeking amongst practitioners.

However, others have highlighted benefits with separated processes. For example, Johansen et al. (2018) highlight that arranging separate opportunity management workshops and using separate opportunity registers, makes it possible not only to cope with changes and struggles during project execution, but also to harvest new opportunities arising. Similarly, Eskeröd et al. (2018) emphasize the importance of focus on opportunity management during project execution, in which benefits for stakeholders that weren't even though of in early stages can be incorporated, thus enhancing the overall project outcome by applying a more holistic view on what to achieve for whom over time. Denney (2020), found in

her qualitative study covering more than 60 practitioners with relevant experiences, that although work with both threats and opportunities is important, the practical use and implementation of opportunity management is less developed and mature and often restricted to the early stages of projects. She, therefore, argues that it is necessary to prioritize efforts specifically on opportunity management, for example, training, describing good examples, and development of useful templates. Similar deficiencies in how practitioners work with opportunity management are highlighted in a recent literature review by Denney and Powell (2020), listing several specific gaps such as how to perform opportunity identification, where and how to document and keep track of opportunities and corresponding responses/actions, and how to compare threats and opportunities from a business perspective.

Thus, although prior research points out the importance of working with both threats and opportunities, there is no consensus on how to combine the two perspectives in practice, and how to conduct opportunity management seems less developed.

### 2.3 Sensemaking, paradoxes and focus on practices

According to Weick (1979), all organizations are permeated with ambiguities in terms of uncertain and deviating interpretations of the information available. To take action, people need sensemaking (Weick, 1979; Weick et al., 2005), a continuous process in which people try to cope with the ambiguities, individually as well as jointly with their colleagues. Accordingly, Weick (1979) emphasizes the importance of understanding what is going on in organizations over time rather than focusing on snapshots of reality. For instance, to understand how people in organizations think and communicate with each other to reach a common understanding of strategies and plans, but also decisions and activities in unexpected and critical situations (Weick, 1993; Weick & Sutcliffe, 2015).

The paradox literature recognizes the frequent existence of ambiguities in organizations (Weick, 1979), and like some of the research on project risk management presented in subsection 2.2, researchers adhering to paradox perspectives emphasize holistic approaches in decision making (e.g., Lewis & Smith, 2014). There are different definitions of a paradox depending on the context, but for the purpose of understanding paradoxes in organizations, Smith and Lewis (2011 – p. 382) suggest 'Contradictory yet interrelated elements that exist simultaneously and persist

over time'. Hence, in order to understand paradoxes, it is necessary to observe chains of events, otherwise, it is not possible to check if a certain action actually solves the tension or if it persists.

Moreover, the paradox literature argues for a both/and perspective on organizational tensions such as control/flexibility and stability/change, rather than choosing either/or (e.g., Lewis & Smith, 2014; Smith et al., 2010). Building on prior research on self-reinforcing causal loops (Weick, 1979) and reinforcing spirals (Eisenhardt, 2000), it is argued that lack of holistic approaches and focus on one element might spur vicious cycles in which the tension increases in strength (Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003), whereas parallel focus on both elements can nurture virtuous cycles resulting in better decisions and sustainable solutions (Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003; Tse, 2013). For instance, applying a holistic paradox perspective in project contexts can facilitate simultaneous focus on both control and flexibility (Szentes & Eriksson, 2016).

Ambiguities in project organizations are highlighted by Pich et al. (2002), arguing that in practice, project managers rarely have access to sufficient information of possible events, thus decreasing the adequacy of traditional risk management approaches. Therefore, they suggest more efforts to be spent on continuous reflection and learning during project execution and working in parallel with different solutions, thus enabling flexibility until more information emerges. They also note that although such an approach may be costly, it can also entail opportunities. The interrelation between information management and risk management is also discussed by Eweje et al. (2012), arguing that decision making in general and strategic value-creating decision making in particular, can be improved by using a risk-based structure for the information-flow during project execution. Moreover, it is recognized that projects are temporary organizations in which substantial efforts are often required to obtain sufficient integration of people, processes and tools (Turner & Müller, 2003). Accordingly, the challenge of jointly making sense of risk terminology and risk management efforts is particularly demanding in project contexts due to the mix of people with various backgrounds and due to lack of time before the team is expected to function together. Similarly, Willumsen et al. (2019) point out that when developing project risk management further, it is necessary to reflect on how different stakeholders perceive the effects and value of risk management.

Similarly, there is research emphasizing the importance of understanding what is going on in the project organizations in practice, thus refraining to theoretical and idealistic views

on project management, often under the headline project-as-practice. For instance, Blomquist et al. (2010) argue for a project-as-practice approach, highlighting that it is important for both researchers and practitioners to better understand the events and actions occurring in projects, and that it is thus necessary to go beyond formal procedures. Also explicitly applying a project-as-practice approach, Hällgren and Wilson (2008) studied crises occurring in several construction projects, thus recognizing that unexpected events do take place as highlighted by Söderholm (2008). Similarly, Sanderson (2012) argues that within projects there are a wide range of actors and parties affecting the execution over time, and that to fully understand how projects are governed it is necessary to follow in detail the decisions that project managers make every day based on how they interpret and anticipate e.g., risks and uncertainties. It is further emphasized by Böhle et al. (2016) that in addition to formal procedures and rational actions that can be visualized and explained, there are also experiential-based decisions that are integrated into practical work action, which is not easy to deconstruct and analyse.

All in all, the aforementioned research suggests that project risk management in practice is more about the ongoing efforts amongst project members to identify and make sense of potential unplanned events and the responses implemented, rather than the formal procedures. Important aspects of the continuous sensemaking efforts are addressing ambiguities, paradoxes, and potential vicious cycles.

### 3 FIVE PROPOSITIONS ON HOW RISK MANAGEMENT CAN DEVELOP THE PROJECT

Over the years, several researchers have highlighted the importance of not only focus on formal procedures and structures in project contexts, but instead attempting to understand how work is performed in practice (e.g., Blomquist et al., 2010; Hällgren & Wilson, 2008). The approach proposed in this paper thus attempts to consider the characteristics of project organizations and related practices. For instance, the strain of resources and managerial focus (Hillson, 2002 & 2019), how decision-making works in practice (Böhle et al., 2016; Sanderson, 2012), and the efforts required to integrate people, processes, and tools (Turner & Müller, 2003). Similarly, it is recognized that in temporary organizations there is less time available for sensemaking of the ambiguities always present in processes (Weick, 1979; Weick et al., 2005), a problem further aggravated by the fact that that people are exchanged over time, especially in long-lasting projects.

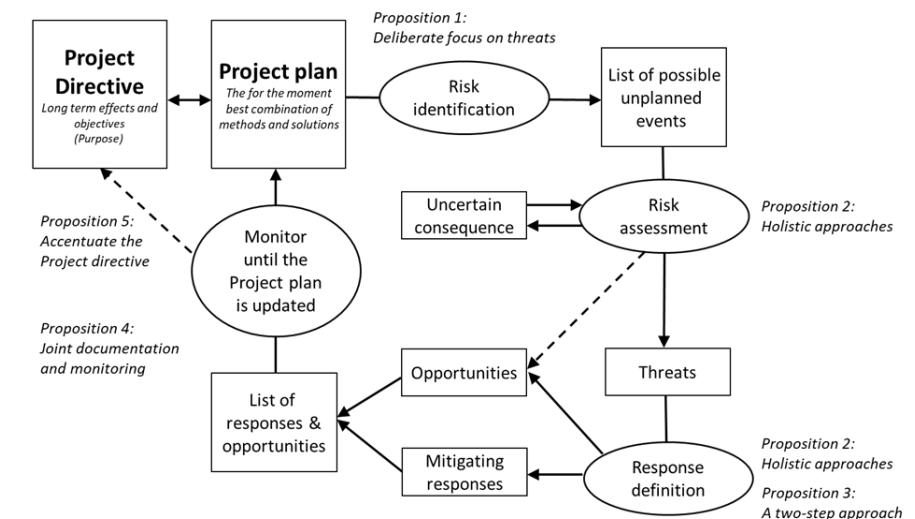
Accordingly, it is important to have a realistic view of the resources and managerial focus available for risk management in project contexts, thus implementing processes and tools that are intuitive and adapted to the existing flow of information. These insights are also supported by the fact that risk management is only a support process, although a very important one, in project management practices (e.g., PMBOK, 2017; PM<sup>2</sup>, 2018). Moreover, keeping the risk management process and tools clear enables more time for sensemaking of threats and potentially critical situations (Pich et al., 2002; Weick, 1993; Weick & Sutcliffe, 2015), instead of trying to make sense of the procedure as such.

Five propositions on how to use risk management practices to develop the project plan are presented and discussed in subsections 3.1-3.5, and it is argued that each proposition can separately improve the results of risk management efforts. However, the five propositions also form a logical combination that together can further improve the project outcome over time. This will be discussed in each of the subsections that follow, and the most important overarching effects will be summarized in the concluding Section 4. To guide the reader and facilitate the argumentation (Fulmer, 2012), the flow of information and the related risk management activities are presented in **Figure 1**, with the five propositions highlighted.

One basic idea behind the five propositions is that the project plan represents, and should always represent, the combination of methods and solutions deemed not only feasible and in line with the project objectives, but also the best combination based on the knowledge available in each moment (compare with Hillson, 2019). As stated in Section 2, the term project plan is consistently used as a representation of all documents stating project objectives, solutions and methods, and project directive is consistently used as a representation of all documents stating the purposes, and long-term effects and requirements.

In this paper, it is suggested that project risk management focuses on possible unplanned events, whereas inherent uncertainties as regards the cost and time required for the planned activities are dealt with in quantitative calculation work. This is not in line with the suggestions given by, e.g., Atkinson et al. (2006), Chapman and Ward (2004), and Ward & Chapman (2003), to rename the process to uncertainty management. Moreover, this distinction between possible unplanned events and uncertainties in planned events address the problem raised by Sanderson (2012), that uncertainties are often treated purely as threats. Using for instance a min/max-approach, three-point-estimations, or similar methods to describe the uncertainties related to the planned activities, will show that there are estimations better than the average as well as worse, thus similar to that some unplanned events have positive effects, while some have negative.

Figure 1. Project risk management is a circular and iterative process, in which the project plan is developed by integrating improved solutions and methods deemed better than the prescribed, out of which some require changes in the project directive as well.



Moreover, whenever a possible unplanned event is identified, it can either be assessed to have negative effects (threat), positive effects (opportunity), or sometimes both simultaneously when reflecting on different project objectives, and quite often the nature of the consequences is uncertain (Perminova et al., 2008), at least initially. Further assessments follow, in a sensemaking process (Pich et al., 2002; Weick, 1979; Weick et al., 2005), revealing more characteristics of the possible unplanned event, and also creating ideas about responses that may be relevant and necessary. Should any of these responses be contradictory to what is prescribed in the existing version of the project plan, it needs to be updated to again represent the best combination of methods and solutions. Sometimes, it is necessary to update the project directive as well. Thus, Figure 1 describes a truly iterative process throughout the project execution, as suggested by (Denney & Powell, 2020).

### 3.1 Proposition 1 – Initial focus on threats, then on opportunities

*Initial focus on understanding threats creates motivation to think twice over the details in the existing project plan, a process in which not only mitigating responses can be identified, but also opportunities in terms of alternative solutions that are far better than the ones prescribed.*

For example, the identification of and work with a possible unplanned delaying event related to a certain method prescribed in the project plan, can spur alternative methods that are not only faster or more certain in terms of scheduling predictability, but also cheaper, more secure from a health and safety perspective, or less disturbing for the vicinity, etc. If the threat of being delayed due to the specific method hadn't been identified and addressed, it is likely that alternative methods had not been considered at all. Similarly, responses to avoid or mitigate threats related to for example health and safety can spur new ideas on methods that are not only safer but also cheaper, quicker, or better in other ways.

According to Denney (2020) and Hillson (2019), the persisting view amongst practitioners is that project risk management is mainly about dealing with threats, and that when they attempt to incorporate opportunities, it is often unclear how to do this in practice (Denney, 2020; Denney & Powell, 2020). In this paper, it is suggested that instead of going against this persisting view, it is better to apply a sequential approach. Accordingly, Proposition 1 stipulates a deliberate initial focus on threats when making sense of the existing project plan, in order to create a rich list of possible

unplanned events, and at the same time motivate the team to think twice about alternative solutions. Although Hillson (2019) mentions that some believe that initial focus on threats in workshops and similar is logic due to the dominant view amongst practitioners, this paper adds explanations on why and how this approach can nurture the creation of new opportunities.

*Proposition 1* provides support to the extensive prior research arguing for projects to work with both threats and opportunities (e.g., Atkinson et al., 2006; Böhle et al., 2016; Chapman & Ward, 2004; Denney, 2020; Hillson, 2002 & 2019; Qazi et al., 2020). However, in this paper it is furthermore argued that the idea of working with threats and opportunities rather than with either of them is supported by the paradox literature (Lewis & Smith, 2014; Smith et al., 2010), including the principles of vicious and virtuous cycles (Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003; Tse, 2013). One-sided focus on threats may entail vicious cycles in which threats are becoming overwhelming and paralyzing, and similarly, a one-sided focus on opportunities may entail over-optimism and dangerous risk exposure. Instead, working continuously with both threats and opportunities may nurture a virtuous cycle leading to sustainable business overtime.

*Proposition 1* highlights the benefits of integrating work with threats and opportunities (Chapman & Ward, 2004; Hillson, 2002 & 2019; Jaafari, 2001; Olsson, 2007), as well as the importance of enhancing opportunity management as it is often less developed in project practices (Denney, 2020; Denney & Powell, 2020; Eskeröd et al., 2018; Johansen et al., 2018). However, Proposition 1 provides a specific suggestion on how the work with opportunities can be enhanced by addressing interdependencies between threats and opportunities (Qazi et al., 2020), in a sequential approach. Thus, in this paper, it is argued for one common process, but within that process a deliberate initial focus on threats, then while discussing responses a separate focus on opportunities, addressing the need recently highlighted by and Denney (2020), Eskeröd et al. (2018), and Johansen et al. (2018).

In practice, these two activities may be performed in the same risk management workshop or in two adjacent workshops within a couple of days. Nevertheless, to succeed it is important that sufficient time is spent on making sense of any ambiguities in the existing plans (Pich et al., 2002; Weick, 1979; Weick et al., 2005), and on ambiguities, as regards the threats and potentially critical scenarios

identified (Weick, 1993; Weick & Sutcliffe, 2015). It is this thorough review of the planned activities and the arising understanding of potential unplanned events that enables effective responses, alternatives, and sometimes new opportunities to take form, in an adjacent sensemaking process described below.

### 3.2 Proposition 2 – Spurring innovative responses and opportunities by holistic views

*Holistic approaches in terms of mixing competencies in order to understand different root causes, defining the threat in detail, and describing all types of consequences not only for the project but also for the different stakeholders, can spur innovative responses as well as new opportunities.*

Continuing the example from subsection 3.1, it is added that understanding the different ways that the time-consuming event can be triggered, together with detailed descriptions of how the project and different stakeholders would be affected by such an event, will increase the chance of finding responses that mitigate potential delays, but also alternative methods that could possibly eliminate the threat as well as entail potential benefits for different stakeholders in terms of function, quality, costs, etc.

*Proposition 2* draw on the insight that a threat is a problem that has not yet occurred, and that it is, therefore, reasonable to believe that the well-known quote 'A problem well stated is a problem half solved' by the inventor Charles Franklin Kettering (1876 – 1958), is applicable also on efforts to avoid or mitigate threats. Accordingly, as mentioned in Proposition 1, threat identification, assessment, as well as response definition are in many aspects sensemaking processes (Weick, 1979; Weick et al., 2005). Whenever assessments show that a specific unplanned event would actually be beneficial should it occur, it is from that moment to be treated as an opportunity. This is visualized in Figure 1 as a dashed line from risk assessment to opportunities. The line is dashed because since project plans consist of the methods and solutions deemed best (see intro to Section 3), and the deliberate focus on threats (according to Proposition 1), it is more likely that the assessments result in more threats than opportunities. This is increasingly more the case the further into the execution phase a project goes, whereas in the early stages, the project plan is not as mature and optimized as regards solutions and methods.

To enhance sensemaking during assessments and definition of responses, holistic approaches are suggested in line with

notions by Denney (2020), Eskeröd et al. (2019), Jaafari (2001), Olsson (2007), and Sanderson (2012). More specifically, Proposition 2 highlights the importance of understanding root causes and why certain situations entail threats (Atkinson et al., 2006; Chapman & Ward, 2004; Ward & Chapman, 2003), including unplanned events arising due to dependencies to the project environment (Söderholm, 2008). A prerequisite for the project team to make sense of such information is a distinct description of each threat (Hillson, 2002 & 2019), no matter if it concerns loss or endangered profit (Perminova et al., 2008). Moreover, Proposition 2 emphasizes that to define innovative responses that effectively address different aspects of a threat, it is crucial to elaborate on the consequences for different stakeholders. This is in line with, e.g., Böhle et al. (2016) and Eskeröd et al. (2018) as regards external project stakeholders, and Eriksson et al. (2019) and Sanderson (2012) as regards parties within the project.

However, Proposition 2 adds that the same thorough understanding of each threat including its root causes, distinct description of each threat, and elaborations on different stakeholder perspectives, will also increase the chance of finding new opportunities to incorporate in the project plan. Moreover, by applying holistic views on project stages, embracing that a project is an ongoing endeavour involving several parallel sensemaking processes (Weick, 1979; Weick et al., 2005) from initiation to closure, this innovative creation of new opportunities can take place throughout the entire project, as can the value creation (Willumsen et al., 2019). Accordingly, Proposition 2 addresses the problem highlighted by Denney (2020) and Olsson (2007), that focus on opportunities is often concentrated to early stages, instead of throughout the project execution as argued for by Eskeröd et al. (2018), and Johansen et al. (2018). Finally, in line Böhle et al. (2018), Hillson (2019), and Sanderson (2012), it is argued that one important measure to enable the holistic views is to ensure that generalists and specialists from different relevant areas are involved in risk management practices.

### 3.3 Proposition 3 – A two-step approach for effective responses and opportunities

*An iterative two-step approach when working with responses, where step one is a brainstorming session to facilitate flexibility, and step two a review and prioritization of the options to add control, increases the chance of finding effective responses as well as new opportunities.*

Step one enables full effect of the holistic approaches described in Proposition 2, by allowing time for cross-fertilization of different competences and perspectives, and by encouraging the participants to elaborate on several tentative responses. However, in order not to jump into conclusions and implement responses without sufficient analyses, step two ensures that the list of alternatives is controlled in terms of feasibility, costs, and fulfilment of project objectives. Reviewing the alternatives often spur new ideas, which can then be added to the list for a new round of reviews. This iterative approach to response definition facilitates effective and optimized responses as well as new opportunities.

Reactive problem-solving in project contexts is highlighted in prior research (e.g., Söderholm, 2008; Hällgren & Wilson, 2008), and indeed a broad survey-based study amongst practitioners ranked problem-solving expertise as the second most important competence for project managers, closely after leadership (Brill et al., 2006). However, in this paper it is argued that this strong problem-solving focus can sometimes entail that the project team settles with the first solution they come up with rather than investigating different alternatives and then pick the best one. Not only in reactive problem-solving, but also during proactive response definition, resulting in quick fixes and often only partial or suboptimal solutions. In addition, the time pressure in projects (e.g., Eriksson, 2013), will put further strain on project management to go with the first response identified.

Although Hillson (2019) stress the importance of creativity and alternative solutions, Proposition 3 offers a practice of how to achieve this, where step one is a bit contradictory to what Hillson (2019) state about realistic responses. Instead, Proposition 3 suggests initial brainstorming with no limitations, then after a break, discussions and prioritization of the extensive list of alternatives (including the intuitively unconventional alternatives) will increase the chance of finding the best combination of responses, and new opportunities. This is in line with common knowledge about creativity, but in this paper, it is emphasized that this approach is particularly important in project contexts where the schedule is often tight, and the problem-solving culture is strong.

Proposition 3 can be related to the need for flexibility during project execution in order to enhance risk management, as emphasized by, e.g., Gil and Tether (2011), Olsson (2006), and Pich et al. (2002). It is argued that the wide range of possible ways forward created in step one nurtures a flexible mindset, although other measures are naturally required to fully implement flexible design during project execution. The need for both flexibility and control in project risk management is emphasized by Osipova and Eriksson (2013). The review in step two adds this control, but also when monitoring closely the implementation of the responses (further discussed in Proposition 4). Moreover, step two brings down the cost of keeping several options open (Pich et al., 2002), by decreasing the number of responses available after weighing pros and cons.

For prioritization of opportunities, it is suggested by Hillson (2002 & 2019), that the traditional matrix for threat evaluation is complemented with positive impact and probability. Although this enables an integrated approach to threats/opportunities, it is not feasible when opportunities are viewed as tentative responses as suggested in Propositions 1-3. The positive impact is relevant, but the probability is not when the situation is that the project management is deciding on which way to go rather than assessing the probability of an event. Therefore, for the purpose of prioritizing mitigating responses and opportunities, a comparison of the potential effect (similar to 'intensity', see Hillson, 2019, p. 171), and the effort required for each response is suggested. It is suggested that for such qualitative prioritization, a four-field approach is sufficient in most situations (Figure 2).

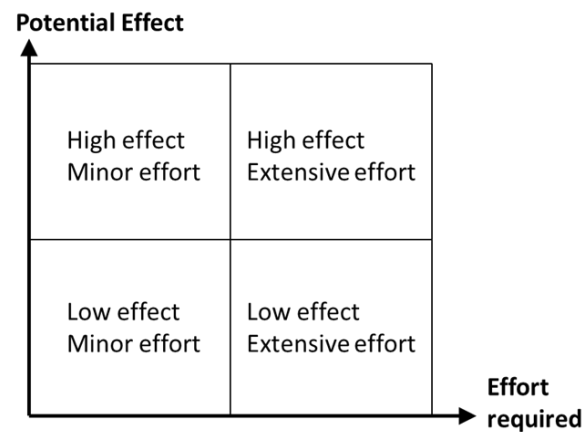


Figure 2. To prioritize the different tentative responses and opportunities created in step one, a comparison of the effect and effort required for each response is suggested.

It is furthermore suggested that the combination of Propositions 1-3 can address so-called wicked problems, which is rare in project risk management (Olsson, 2007), as well as facilitate the identification of potential threats related to the implementation of responses, so-called 'secondary risks' (Hillson, 2019, p. 174). The argument is that the combination of holistic approaches in which several stakeholder perspectives are considered (thus in line with Olsson, 2007), using a paradoxical both/and-perspective on threats and opportunities, and allowing sufficient time for sensemaking amongst the project team members, the joint understanding of contradictory demands and complexities as regards causes, events and consequences increases.

**3.4 Proposition 4 – Joint monitoring of responses and opportunities**

Since threat responses and opportunities both represent actions that most often are to be incorporated into a new revision of the project plan, it is both logical and practical to document them together and monitor them in a common process.

Many of those who argue for integrating threat and opportunity management suggests one common register for both, albeit in a structured way, whereas those who argue for separate processes, unsurprisingly, propose a separate opportunity register to get appropriate focus. According to Denney and Powell (2020), how to best document and track opportunities and related responses is not studied enough by researchers. Proposition 4 offers a somewhat different approach to this gap; suggesting that opportunities are documented and monitored together with threat responses (which is logic, because when following Propositions 1-3, most opportunities are identified during work with threat responses).

However, the main logic behind Proposition 4 is that the important thing when implementing threat responses is that they are monitored until they are executed, thus a type of control measure as stated by Osipova and Eriksson (2013), including when the response is about changing a method or solution prescribed in the project plan in order to eliminate or mitigate a threat. Well, the same goes with opportunities, they need to be monitored until they are implemented – so why create a new process/system for that?

**3.5 Proposition 5 – accentuate the project directive in the iterative process**

Accentuation of the iterative transformation of purposes and requirements in the project directive to project objectives and

corresponding solutions and methods in the project plan, can facilitate the implementation of opportunities.

Opportunity management in project contexts can be viewed as conducted mainly in two ways, 1) when putting together the project directive, thus creating the business case and defining desirable long-term effects and objectives in line with the overarching business plan, and 2) when putting together the project plan, initially, and when new ideas and alternatives are identified during project execution. In Proposition 5, it is argued that a more dynamic view on the project directive can nurture a better comparison of short-term threats and long-term opportunities.

The creative activity of finding and prescribing the best solutions and methods starts with the initial creation of the project plan, often involving several rounds of communication (visualized in Figure 1 by the two-ended-arrow). However, the refinement of the project plan should continue throughout the entire project using new knowledge, e.g., stemming from the project risk management practices (thus supporting Hillson, 2019). Accordingly, it is argued in Proposition 4 that the characteristics of opportunities and mitigating responses are similar in the sense that they are both often about adaptations of methods and solutions prescribed in the existing project plan.

However, Proposition 5 stresses that sometimes the desired actions require a change of the project directive, especially as regards opportunities involving the revenue element in the business case. In those cases, a change of methods and solutions in the project plan first requires a decision to adapt the long-term effects and requirements stated in the project directive. In Figure 1, this is shown by the dashed line between the monitoring activity and the project directive. Moreover, deliberate discussions of the project directive based on knowledge stemming from the project risk management practices is also a trigger to discuss and compare threats and opportunities from a business perspective, thus explicitly addressing the common lack of such comparisons (Denney & Powell, 2020). Such discussions involve people with a greater mandate than the project manager, further enabling innovative solutions based on risk information (Böhle et al., 2018) and strategic value-creating decisions (Eweje et al., 2012).

Altogether, Propositions 1-5 emphasize flexibility as regards solutions and methods, and control measures in order to secure implementation of the changes, thus supporting similar notions by, e.g., Gil and Tether (2011), Osipova and Eriksson (2013), and Szentes and Eriksson (2016). The



approach suggested in this paper also highlights the circular and iterative characteristics of project risk management, in line with previous notions by Denney and Powell (2020), thus facilitating opportunity management during the entire project execution instead of only in early projects stages, a common problem highlighted by Denney (2020), Eskeröd et al. (2018), and Johansen et al. (2018).

#### 4 CONCLUSIONS AND FURTHER RESEARCH

The main contribution of this paper is explicit suggestions on how threat and opportunity management in project contexts can be dealt with in practice, considering the temporary nature of project organizations, the blend of stakeholder perspectives, and the common flow of information and decision making in projects. The propositions and the overarching process presented integrate prior research on project risk management, but also adds insights and explanations by incorporating other strands of literature.

It is argued that starting project risk management with a deliberate focus on threats and then add opportunities into the thought process when discussing alternative measures to avoid or mitigate the threats, can nurture the identification and incorporation of new opportunities. Making sense of the different solutions and methods prescribed in the existing project plan entails an understanding of things that can go wrong and why, insights that motivate the project team to think twice, and encourage them to search for improvements. Sometimes, those alternative solutions and methods represent not only avoidance or mitigation of threats, but also new opportunities.

This way of using detailed knowledge about potential problems to create new opportunities can be further enhanced by applying holistic views in project risk management practices, as well as by following an iterative two-step approach in work with threat responses. Moreover, it is feasible to document and monitor opportunities together with risk responses because they both represent adjustments of the existing project plan. Some adjustments require changes in the project directive as well, which is an important reminder of the relation between projects and the overarching business plan.

#### 4.1 Theoretical contributions

This paper provides support for prior conclusions to deal with opportunities within project risk management, being an iterative way of working in which the project plan gets updated over time. Moreover, the importance of holistic views on stakeholders, project stages, and

interdependencies between threats and opportunities in the value creation efforts is recognized.

However, this paper also contributes with new insights and suggestions. First, the paradox literature (e.g., Lewis & Smith, 2014; Smith et al., 2010) provide additional arguments for prior research suggesting integration of opportunity management in project risk management, by explaining how a one-sided focus on either threats or opportunities can create vicious cycles (Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003), in which negativism or conversely too optimistic views thrive. Accordingly, the paradox literature highlight that a more balanced approach can create sustainable and virtuous outcomes (Smith & Lewis, 2011; Tse, 2013). Second, the sequential focus on threats and opportunities represents an alternative to prior suggestions on integration (e.g., Chapman & Ward, 2004; Hillson, 2002 & 2019; Olsson, 2007), or separation (Denney, 2020; Eskeröd et al., 2018; Johansen et al., 2018). Thus, recognizing that there are interdependencies between threats and opportunities (Qazi, et al., 2020), and that the nature of potential events is initially often uncertain (Perminova et al., 2008), it is explained how sensemaking of potential unplanned events can trigger new ideas and opportunities that can enhance the project plan. Third, incorporating the project directive into the iterative loop can facilitate comparisons of threats and opportunities and thus enable value creation in a business perspective, addressing the gaps highlighted by Denney and Powell (2020) and Willumsen et al. (2019).

#### 4.2 Managerial implications

The approach presented including the five propositions provide some explicit suggestions relevant for project managers and other decision-makers in project contexts. First, to reflect on the level of ambition as regards project risk management, to implement processes and tools that are manageable for the temporary and heterogenic project organization which also often change over time. Part of that reflective work is to couple the project risk management practices to existing processes rather than creating new, and to avoid that the scarce time available is spent on trying to understand the procedures as such. Second, to focus on potential unplanned events in the iterative risk management process, whereas uncertainties as regards costs for planned activities are managed in calculation work, although also iteratively due to continuous enhancements of the project plan. Third, to recognize that potential unplanned events identified can be threats, opportunities, or both, and that

focus on understanding causes, the nature of the potential event, and the consequences for different stakeholders, can often transform threats into opportunities in terms of alternative solutions and methods. Over time, such a transformation will motivate people to focus further on project risk management practices. Fourth, to further facilitate the continuous enhancement of the project plan, it is important to keep flexibility during project execution, and to mix various experts and generalists in sensemaking activities to stimulate the creation of several alternatives in a two-step approach rather than settling with the first idea. Fifth, one measure to stimulate comparisons of cost-related threats and revenue-related opportunities is to bring the project directive into the iterative loop, enabling decisions to implement threat responses with high short-term costs when this is better for the long-term business case.

#### 4.3 Limitations and further research

The approach and propositions presented in this paper are derived from the author's extensive practical experience in project risk management as well as in organizing and governing projects, together with reflections on different strands of literature encountered during research in construction management. However, although these twenty years of practical experience and continuous reflections are the basis for this paper, the data are unfortunately not available as transparent empirical material. Therefore, this conceptual paper aims to logically argue for the propositions by cross-fertilizing insights from prior research on the management of uncertainty, risk and opportunity in project contexts, as well as from other strands of literature related to organizing and decision making, thus an attempt to apply theoretical pluralism as suggested by Söderlund (2011).

One obvious suggestion and encouragement for further research is therefore to identify or create specific empirical data to assess the validity of the suggestions and conclusions in this conceptual paper. One idea is to conduct action research, perhaps while combining different methods (Erro-Garcés & Alfaro-Tanco, 2020). Since a large portion of the experiences behind the writing of this paper is from various large and complex facility and construction projects, it would be of specific interest to broaden an empirical investigation to several types of projects in different contexts. Lastly, it would be interesting to investigate if Propositions 1-4 are feasible not only in project contexts but also in a process-related environment, as well as to further investigate the relation between using the five propositions on the project level and long-term innovation and exploration of opportunities on the business level.

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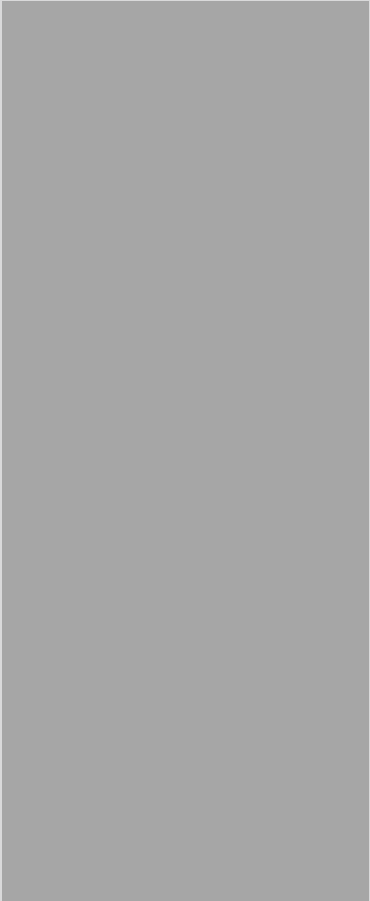
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