Association for Project Management

The Asymmetry between Threats and Opportunities in Risk Management

Results from a Survey among APM Corporate Members

Because when projects succeed, society benefits

Prof Dr Ir Alexander Verbraeck, Delft University of Technology, the Netherlands
Dr Ir Marian Bosch-Rekveldt, Delft University of Technology, the Netherlands
Dr Sara Rye, University of Bradford and APM Risk SIG, UK
Peter Simon HonFAPM, Lucidus Consulting, UK and former Chair, APM Risk SIG, UK

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Foreword

It was not until the mid-1990s that the concept of risk being both positive and negative entered the project management lexicon (PMI 1996, Association for Project Management (APM) 1997). Since then, the accepted definition of risk has been "something that might happen, that if it did would have a positive or negative impact on achieving a project's objectives". The adopted terms for positive and negative risks have become respectively opportunity and threat.

Even though the lexicon changed more than 25 years ago, the concept of risk being both positive and negative hasn't been universally accepted within the project management community. Where the concept has been accepted, the terms opportunity and threat are still not always used.

Some organisations still prefer the word risk for negative risk, resulting in the discipline being called risk and opportunity management rather than just risk management. A further complication is communication to and from people outside the project management community, where risk is still generally perceived as negative.

The recognition that the concepts and terms are still not generally accepted led to the APM Risk Specific Interest Group (SIG) questioning if something was not quite right with the whole concept of opportunity management and the belief that risk has a positive side. This further led to questions whether one process can be used for both dimensions, were the terms themselves correct and if there are better ways to undertake the management of opportunities. To find out more about the practice of opportunity management as part of project risk management and to answer these questions, the SIG organised a survey among APM corporate members. The findings of this survey are set out in this report.

The APM Risk SIG would like to thank APM for allowing the survey to be sent to its corporate members and organising the APM Risk SIG Conference 2023, at which the survey findings were first briefed and discussed. We also thank Delft University of Technology for collaborating in this work and ensuring that due process was followed throughout.

Peter Simon

Chair, APM Risk SIG
2020 to 2022

Robert Balaam

Chair, APM Risk SIG
2022 to present

Executive summary

Project risk management helps to achieve project objectives, especially those concerning cost, time and quality. In the current APM definition, project risks are uncertain events or circumstances that may or may not happen. Risks can be either threats that hurt the project objectives or opportunities that are positive for the project objectives. Over time, project professionals have expressed concern with the idea that risks can be positive, since it does not generally align with the thinking in the non-project world, where risks are always seen as negative. There is also the feeling that opportunities are often not identified or treated differently from threats.

The perceived difficulties with the adoption of the threat and opportunity risk definition in projects triggered APM's Risk SIG to conduct a survey among APM's corporate members to assess the state of risk management in projects, with an emphasis on opportunity management. More than 100 project professionals responded and around 80 completed the entire survey, representing a wide variety of (mostly UK-based) organisations. The survey was anonymous and included questions about personal experiences with threat and opportunity management, as well as the wider organisational view.

More than 90% of the organisations who responded carry out risk management in projects and use APM's definition of a risk. There is, however, quite a difference between the application of risk management for larger and smaller projects. As an example, 70% of the larger projects have the role of risk manager, whereas for smaller projects this is only 35%. Quantitative risk analysis is used in more than 60% of the larger projects, but in less than 30% of the smaller projects. These and other results from the survey show that risk management is taken seriously by project organisations, but more so for larger projects.

The most interesting part of the survey focused on opportunities and showed that 50% of the organisations see opportunities as quite different from threats – so they are not viewed as two sides of the same coin.

The most striking answer was that opportunities involve a conscious choice whether or not to seize it (66% of the respondents), whereas a threat is an event that may or may not happen purely by chance. Apparently, organisations seem to relate opportunities less to the risk world, where it is completely uncertain whether the opportunity will materialise or not, and more to the business world, where one can choose to seize a known business opportunity. This also relates to the types of opportunities that are typically identified, with over 70% of the organisations indicating they pursue business-related opportunities on their projects. For 55% of the organisations, the distinction between a risk-related opportunity and business opportunity is not clear. Project managers like to keep control of these opportunities, though, with fewer than 10% wanting to leave opportunity management to the business. Although there is clearly confusion about the opportunity concept, most organisations feel they can properly deal with opportunities (more than 70%) and they do not just do it because the client requests it (less than 15% do). There is also a lot of reluctance to discuss opportunities with the client who, as stated by one of the participants, may ask, "why are you not doing this already?"

The confusion is fuelled by the idea that risks can be positive. More than 60% of the respondents associate risk with a negative outcome and more than 65% would therefore prefer the term threat and opportunity management over risk management in projects. More than 60% would like to use the term risk and opportunity management, replacing threat by risk.

In the comments provided by the respondents, there is a repeated call to change the terminology, but not necessarily to overhaul the risk management process completely. Some indicate that opportunity management is different and could benefit from its own register. Others want to prevent creating yet another log, disconnected from everything else, and they ask for more gradual changes. Clearly, some things have to change, but there is still a lot to discuss about what and how.

APM made a start with this discussion during a workshop in February 2023, when representatives of APM's corporate members, individual members and other interested parties met to discuss the results from the survey and the further implications for project risk management. The workshop clearly showed that the participants recognised the outcomes of the survey and that a reduced definition of the term 'risk' might be a way forward, where risk focuses on the downside events in projects. This could possibly be combined with a process for opportunity management that differs from the threat management process. There are different opinions on how much these processes should differ, though. Finally, there is a need for improving communication, training and providing examples for proper opportunity management in projects. The APM Risk SIG is the body within APM that can help to further guide the development of improved definitions and processes around risk management in general and opportunity management in particular.

Reading this report

This report describes the results of a survey among APM corporate members to assess the state of risk management in projects, performed by Delft University of Technology, the University of Bradford and Lucidus Consulting. In Chapter 1, project risk management is defined and perceived issues in threat and opportunity management are described. In Chapter 2, the survey set-up is introduced and an overview of the responses is given. Results of the survey are presented in Chapter 3. These survey results were also discussed at the APM opportunity management workshop held on 23 February 2023, as described in Chapter 4.

1 Project risk management: background

1.1 Risk management

Agreed project objectives are challenging to adhere to, particularly when it comes to cost, time and quality. Project delays, cost overruns and quality issues often arise as a result of risks: unforeseen events that hamper our ability to deliver the project exactly as planned. Many of these risks are rarely a complete surprise, however, and could have been foreseen. For most known risks, responses can be planned that either influence the likelihood or the consequences of the risk, should they materialise. Therefore, risk management has become an integral part of the international project management standards such as the *APM Body of Knowledge*. To support the risk management process, APM uses strict definitions of risk-related terms and it publishes the Project Risk and Analysis Management (PRAM) Guide[1] that contains a generic risk management life cycle. Key definitions are:

"Risk is the potential of situation or event to impact on the achievement of specific objectives."[1]

"A risk event is an uncertain event or set of circumstances that would, if it occurred, have an effect on the achievement of one or more objectives."[2]

Objectives are the core promises of what the project should deliver in terms of, for example, scope, quality, cost and duration. They play a central role in the risk definitions, since risk can both help or hinder our ability to meet those objectives. In the project management standards, any deviation from the project objectives is regarded as a risk. This means that risks can either have a negative or downside impact on the objectives and referred to as a threat, or have a positive or upside impact and referred to as an opportunity. Consequently, both threats and opportunities have to be actively managed to optimise the result of the project.

A second term that plays a central role in project risk definition is the notion of a risk event. A risk event is a set of circumstances that may or may not happen. An example is the price of a piece of equipment exceeding a threshold during a certain phase of the project. This can be considered a risk event; it either transpires or it does not (note that it could also decrease). Another example is a natural event like a hurricane that would impact the project. This might or might not happen within the relevant timeframe. According to the APM definition of risk, both the underlying circumstances and the risk events can be sources of impact on project objectives. For example, the general availability of a critical machine part on the world market (circumstances) can influence a project's timely completion and adherence to the agreed cost, since low availability often means longer lead times and higher cost. The possible total unavailability of that part (a risk event) has an even more pronounced influence on our objectives.

The difficulty of risk management is that the presence of the circumstances and the occurrence of the risk events are uncertain. Sometimes the exact impact of the risk on the project objectives is uncertain as well. Often, we do not know the effectiveness of risk response strategies. This renders risk management an important yet difficult activity in project management. As we will show in the next section, there are several issues with the risk definitions and the risk management practices in projects, especially concerning the inclusion of opportunities within project risk management.

1.2 Perceived issues in threat and opportunity management

Despite risk management being an integral part of project management for several decades, project professionals still find it difficult to carry out risk management properly – especially opportunity management. From a theoretical perspective, several issues can be identified:

1. *Project Risk and Analysis Management (PRAM) Guide*, second edition, Association for Project Management
2. *APM Body of Knowledge 7th edition*, Association for Project Management

Risk as something positive
The world outside project management sees a risk as something negative. The *Oxford Learner's Dictionary* has the following definition for risk: "the possibility of something bad happening at some time in the future; a situation that could be dangerous or have a bad result". This definition, and every definition in every dictionary, predominantly focuses on the downside of risks and rarely acknowledges the concept of opportunity. *The Orange Book*[3] on managing risks from the UK Government consistently uses the terms risk and opportunity in the manual, thereby indicating that the term risk denotes something negative as opposed to the positive opportunity. This disparity is evident in almost all fields outside project management, such as safety science, engineering, insurance and decision sciences, where the term risk is predominantly used to denote a negative meaning.

Asymmetry of threats and opportunities
While project management manuals strive to depict symmetry between threat management and opportunity management, there remains an inherent asymmetry in the way they are approached. The four risk responses for a threat have four mirrored responses for an opportunity. There is also a mirror risk assessment matrix, often referred to as the probability impact (PI) matrix, available for opportunities. Note, this is often visualised as a double or mirrored PI matrix. The way we treat threats and opportunities in projects is, however, asymmetric. Threat management tries to direct the actual project promises towards the planned objectives. This aligns nicely with the definition of the risk as something that hampers us in achieving our objectives as promised. Opportunity management, on the other hand, tries to move the actual project promise farther away from the originally planned project promise. When project activities are, for example, cheaper or safer, this is typically perceived as beneficial. When activities finish earlier than planned, however, it may benefit the project, but it is different from what we promised. It can lead to secondary risks caused by misalignment of the 'benefitting' project activities with other project activities.

Clients/owners are sometimes overly optimistic
A second asymmetry between threats and opportunities is often the result over-optimism (optimism bias) on behalf of the client/owner. To deliver the best business value for a project, clients/owners will often assume that not only everything goes to plan when delivering the project, but in addition all or most opportunities are realised and thus budgets and schedules are minimised. This leads to unrealistic promises to stakeholders and difficult-to-achieve targets included in tender documents.

Tender processes can turn opportunities into threats
A third asymmetry between threats and opportunities results from the fact that many projects are the result of a tender process. To secure the tender, the project organisation has to offer maximum benefits for the lowest cost and in the shortest time. This means that the project execution becomes highly susceptible to threats, while fewer opportunities are left. All opportunities that, albeit uncertain, could be foreseen have already been incorporated in the project promises within the tender phase. The fact that some of these subsumed opportunities are still uncertain turns them into threats. If an opportunity with a 50% likelihood and a cost saving of £100,000 would have been treated as an opportunity, the project could, with a 50% chance, become cheaper. If the cost saving of £100,000 would have been incorporated into the budget to win the tender, it suddenly becomes a threat with a likelihood of 50% of the project becoming more expensive. On the positive side, even when opportunities do not directly improve cost or schedule, they can still offset threats to the project and thereby increase the chance of meeting the project promises.

Hard to identify proper opportunities resulting from an event
Another issue is that it is hard to identify compelling examples of opportunities, especially when utilising the risk event definition for an opportunity. Many project management handbooks and manuals only list threats in their examples, with opportunities being mentioned sparingly if at all. One teaching manual for the old APMP[4] exam provided three examples of risks in the section where the authors emphasised the inclusion of opportunities; all three examples are threats.

The term opportunity is overloaded
The term opportunity carries multiple meanings. Next to opportunity referred to as an 'upside risk', the term business opportunity and opportunity being a part of SWOT analysis are also used frequently in

3 UK Government, *The Orange Book: Management of Risk – Principles and Concepts*, Crown copyright, 2000

4. J Bolton and P Naybour, *Your Journey to Professional Project Management: how to pass the APMP*, Reading, UK: Parallel Project Management Ltd, 2011 (p.140)

the project management domain. Additionally, there are activities such as value engineering, defined by APM as "optimising the conceptual, technical and operational aspects of deliverables", which share similarities with managing opportunities within project risk management.

In addition to the issues specific to opportunity management, there are more generic issues with the risk management process that impact both opportunities and threats.

Non-linear scales of the probability impact (PI) matrix
In many cases, the PI matrix (or risk assessment matrix) uses scales that are non-linear, sometimes even logarithmic (for example, impacts of £100, £1,000, £10,000, £100,000 and £1,000,000 for the project cost), but there are also examples where the scales are neither linear nor fully logarithmic. This makes the scales difficult to grasp.

There are also cases where no values are attributed at all to the 'very low' to 'very high' probability and impact scales, undoubtedly leading to different interpretations by different professionals on the project.

Should the downside and upside PI matrix be symmetric?
Symmetric versions of the PI matrix to classify opportunities exist. In most examples, the probabilities and impact scales are the same for the positive and negating PI matrix. Given the inherent asymmetry between opportunities and threats, it raises the question of whether the scales for probability and impact should be the same for the threat PI matrix and the opportunity PI matrix. The question is if that is wise, given that the possible gains from opportunities are much less than the loss from the threats. The relationship between opportunities and threats is again asymmetrical.

Focus on high-likelihood, high-impact risks and not on Black Swan risks
The PI matrix is made in such a way that the focus is on high-probability, high-impact risks for both opportunities and threats, often overlooking the so-called Black Swan risks[5] or long-tail risks. These very low probability, very high-impact risks are often given low priorities and represented in a green or amber area of the PI matrix, indicating that they do not deserve much attention. There are two observations to make here. One, projects do go terribly wrong at times and often because of a downside Black Swan risk that was indeed improbable, but also well-known. Two, is there an equivalent set of Black Swan opportunities, which could have a major positive impact on the project and which are typically neglected? Perhaps there is no chance that a project can go terribly right.

Lack of usage of quantitative risk assessment
Many risk processes rely solely on qualitative assessment of risks. Once placing the risks in the (double) PI matrix, the focus typically shifts to the red risks without a further analysis of the exact impact of (combinations of multiple) risks on the project objectives. Especially for risks that affect the project schedule, a speed-up or delay of one of the activities might not have an impact on the overall project duration.

Only when the risk impacts an activity on the critical path of the project schedule, the risk will affect the project as a whole. Quantitative risk analysis can assess these effects, including the effects of pooled risks (risks with the same cause), where multiple impacts can be foreseen.

5 Taleb, NN, *The Black Swan: The Impact of the Highly Improbable*, Random House, 2007

2 Assessing the state of the art of risk management in projects

2.1 Introduction

The perceived difficulties with the adoption of the symmetric risk definition in projects prompted the APM's Risk SIG to conduct a survey among APM corporate members. The aim was to assess the state of the art of risk management in projects, with an emphasis on opportunity management. The survey was prepared and analysed by Delft University of Technology, University of Bradford and Lucidus Consulting. The survey and the survey protocol were approved by APM and the Human Research Ethics Committee of Delft University of Technology prior to sending it to the APM corporate members.

In summary, the survey tried to address the following questions:

- Do organisations carry out risk analyses for their projects? If so, in what project phase and is there a difference between small and large projects?
- Does the organisation use a formally defined risk analysis process, are risks stored in an official risk register and is a person designated to the role of risk manager?
- Is a quantitative risk analysis carried out in addition to a qualitative risk analysis?
- Are opportunities identified in addition to threats and is there a difference in the inclusion of opportunities for small and large projects?
- Why are opportunities identified and what type of opportunities are typically defined?
- Are opportunities and threats treated symmetrically and managed using the same process?
- Should opportunity management and threat management follow the same process?
- Is there any confusion regarding the term 'opportunity' or upside risks in general?
- Are opportunities seized early in the project life cycle and threats deferred to a later phase?
- Are sufficient knowledge and tools available in the organisation to address opportunities?

In addition, questions were asked about the person who answered the survey as well as the organisation:

- Role of the respondent within their organisation.
- Sector in which the organisation operates.
- Role of the organisation in projects (for example, contractor, client, consultant).
- Project management standards used by the organisation.
- Continents where the organisation carries out projects.
- Project management qualifications held by the respondent.
- Project management qualifications for those in typical project management roles.
- Years of project management experience of the respondent.

2.2 Survey set-up

The survey structure includes five parts:

Part 0: Introduction and consent
The explanation of the survey's purpose and data processing methods, assurance of anonymity and privacy. The respondents were given the option whether to proceed with the survey or not.

Part 1: Company and project management roles
The respondent answered questions about themselves and the organisation they represented.

Part 2: Experience with threat and opportunity management on a selected project
To make the questions concrete, we asked the respondents to consider a recent project they had worked on and answer questions on threat and opportunity management practiced for that project.

Part 3: Threat and opportunity management in the organisation
After answering questions about a specific project, we asked the respondents to broaden their perspective and reflect on threat and opportunity management for projects carried out by the organisation in general. We also asked questions about symmetry, confusion about terminology and general concerns about opportunity management. The aim was to gather insights from the wider view of the organisation rather than solely relaying on the respondent's personal view.

Part 4: Final thoughts
An open question at the end encouraged the respondents to reflect on the application of opportunity management in their organisation and on ways to enhance or improve the opportunity management process in general.

2.3 Participants selection

The survey was distributed to the contact persons of the APM corporate member organisations, with a request to forward it to any employees dealing with risk management in projects. The APM Risk SIG also mobilised the member channels in social media to encourage the corporate members to complete the survey. Two reminders were sent to ensure sufficient participation.

2.4 Survey protocol

Several versions of the survey were created for testing by the researchers, APM staff and members of the APM Risk SIG. The original survey underwent several modifications based on feedback, until all parties were satisfied with its set-up.

The survey was conducted online using the Qualtrics platform, which guarantees data security and employs an extensive set of measures for data protection. On completion of the survey, all raw data was downloaded to a secure storage at Delft University and deleted from storage at Qualtrics. To maintain confidentiality, the data was stripped of information that could identify the corporate member organisations or individuals.

2.5 Responses

In total, 107 people opened the survey, with 96 respondents giving consent and answering the first question. Of these, 79 respondents completed the survey until the last question. The breakdown of the primary role of the organisations represented by the 96 respondents was as follows.

Mainly as a contractor to others	19
Mainly as a client/owner using contractors	24
Sometimes as a contractor, sometimes as a client/owner, depending on the project	10
As an organisation that typically executes projects fully internally	13
As a consultant or service organisation for projects	21
As a training, educational or research organisation for project management	8
Other (third-party logistics provider)	1

The spread of the respondents across contractors, clients/owners and consultants ensured a broad view on the topic of risk management, without being dominated by a single type of project organisation.

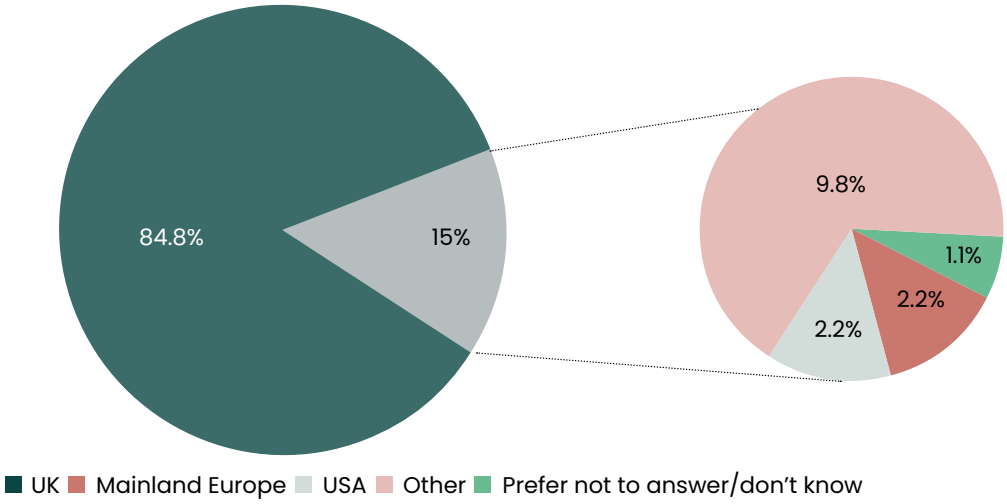
The companies carry out projects in a wide range of sectors, with a significant presence in construction, public administration and defence, oil and gas, energy and transport. Many other sectors ranging from agriculture to research were also present in the organisations' project portfolio.

In terms of project management standards, 76 organisations use APM standards, 14 use PMI, 33 use Axelos (for example, PRINCE2 or M_o_R) and 37 use ISO standards such as ISO 31000. Additionally, 33 organisations use internal project management standards. The fact that the numbers exceed the number of respondents shows that several organisations use multiple standards.

The typical roles held by the respondents in projects (only roles with more than 10 respondents included) were as follows.

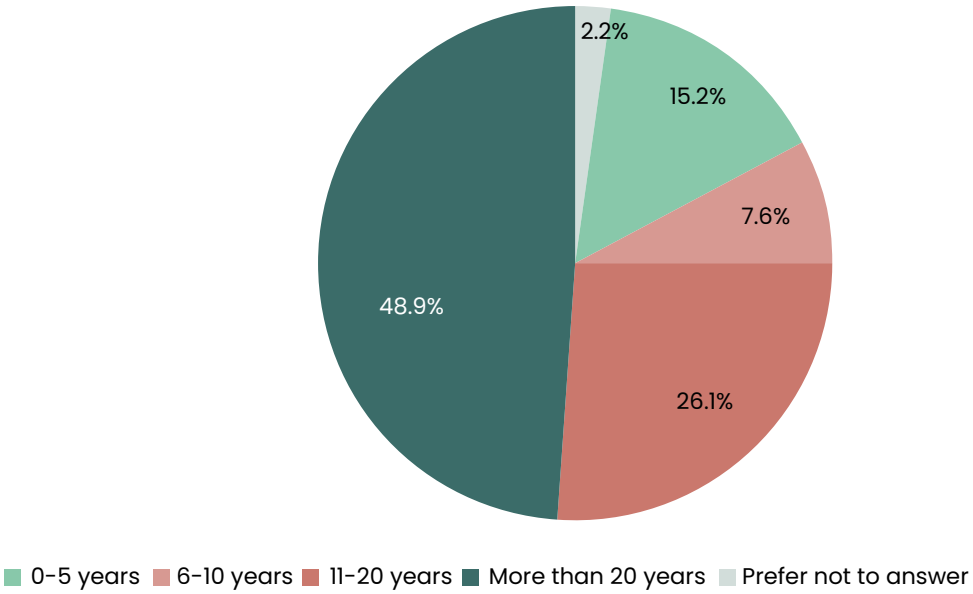
Project risk manager/risk facilitator/risk engineer/risk coordinator	39
Project director/project manager	37
Programme director/programme manager	27
PMO/project services/project controls	22
Portfolio manager	16
Sponsor/senior responsible officer	13
Business change manager/business opportunity manager	13

Most organisations have their main operation based in UK, with only a few located outside of the UK:



Almost all the organisations carry out projects in the UK. Around one-third also have projects in mainland Europe, Asia, North America and Australia. Around one-fifth of the organisations are active in Ireland, one-fifth in Africa and one-fifth in South America.

Around half the respondents have more than 20 years' experience in project management, with three-quarters having more than 10 years' experience:



Most of respondents have qualifications in project management from APM, Axelos, IPMA, IRM or PMI, with quite a number completing specific training on risk management as well. Only six respondents indicated that they do not have any specific training in project management or risk management. The most common was the APM Project Management Qualification (29), followed by external or internal training course(s) on project management (27), external or internal training course(s) on risk management (23) and Axelos' PRINCE2 (22). A total of 14 respondents completed Axelos' M_o_R training and 12 hold a certificate and/or diploma in risk management from IRM.

Others in the organisation who are involved in project management roles typically have training through APM (71), Axelos (41) and internal training courses (37), and to a lesser extent through independent external training courses (23), APMG (13), PMI (10) and IPMA (three). Four respondents indicated that their colleagues in project management roles do not receive any formal training.

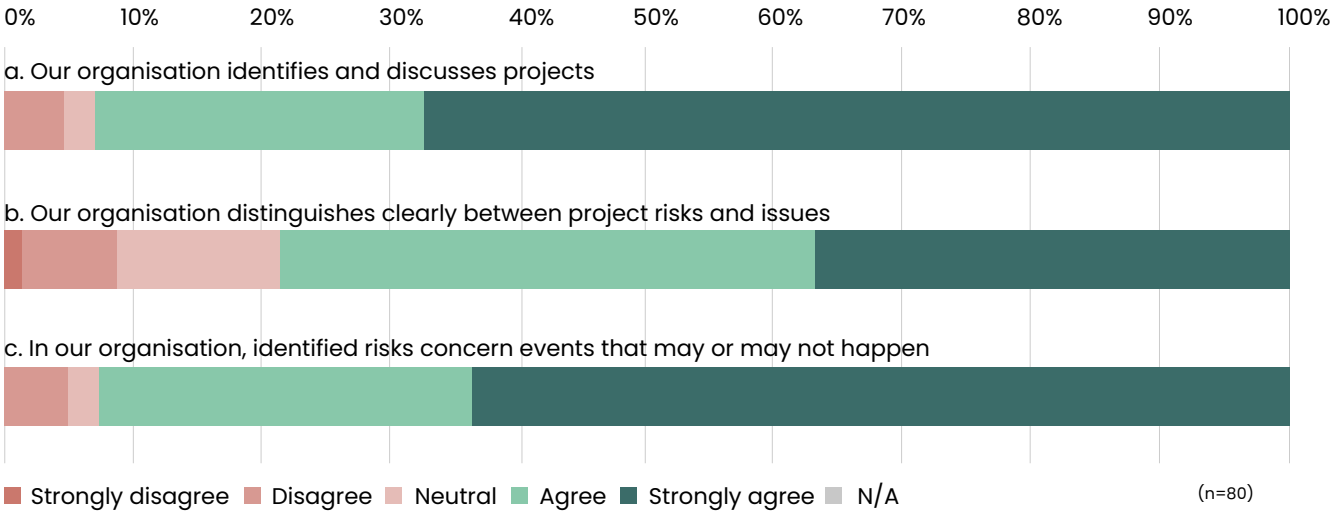
Concluding, it can be stated that the set of respondents for the survey is dominated by British organisations operating in a wide variety of sectors and carrying out projects on various continents. The respondents are typically experienced and received training in project management, with many respondents also being qualified in risk management. Most organisations use standards for project management. This shows that the majority of respondents have a broad experience with projects and will have encountered risks and opportunities for their projects. In that sense, they serve as a good representation of APM's audience for providing insight on project management and risk management practices, issues and solutions.

3 Project risk and opportunity management: practice

3.1 Risk management

Questions targeted risks in projects, encompassing both threats and opportunities. The questions help to identify whether an underutilisation of opportunities in risk management is caused by a disparity between threat and opportunity management, or by a general underutilisation of risk management in general.

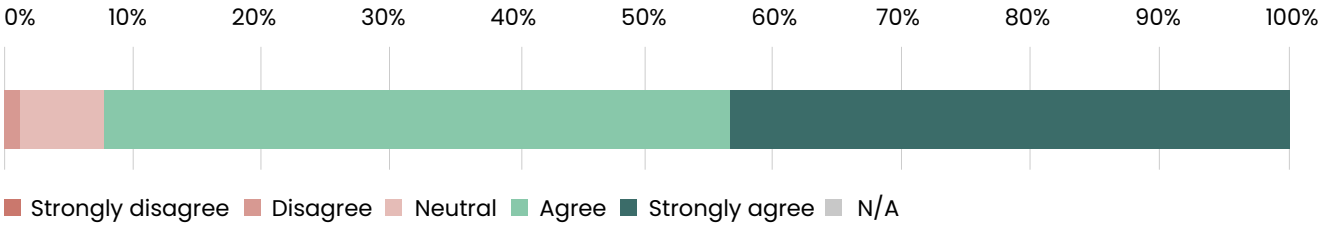
Usage of risk management in organisations
The majority of the organisations who responded to the survey identify and discuss project risks, distinguish between risks and issues, and practice the event-based definition of a risk, meaning that risks concern events that may or may not happen.



The results clearly show that the organisations who responded to the survey take risk management seriously. More than 90% of the respondents identify and discuss risks for their projects. A majority of 80% distinguishes clearly between issues and risks. In the survey, an issue was defined as a "problem that is now or is about to breach delegated tolerances for work on a project or programme. Issues require support from the sponsor to agree a resolution". An example of an issue could be the two-week delayed arrival of a key piece of equipment and its installation is on the critical path of the project's schedule. More than 80% of the organisations adopt the event-based definition of project risk, where a risk is defined as "an uncertain event or set of circumstances that would, if it occurred, have an effect on the achievement of one or more objectives of the project".

We also asked if the surprise element of threats serves as one of the reasons that the project team take risks seriously. Almost all organisations confirmed that this is indeed the case.

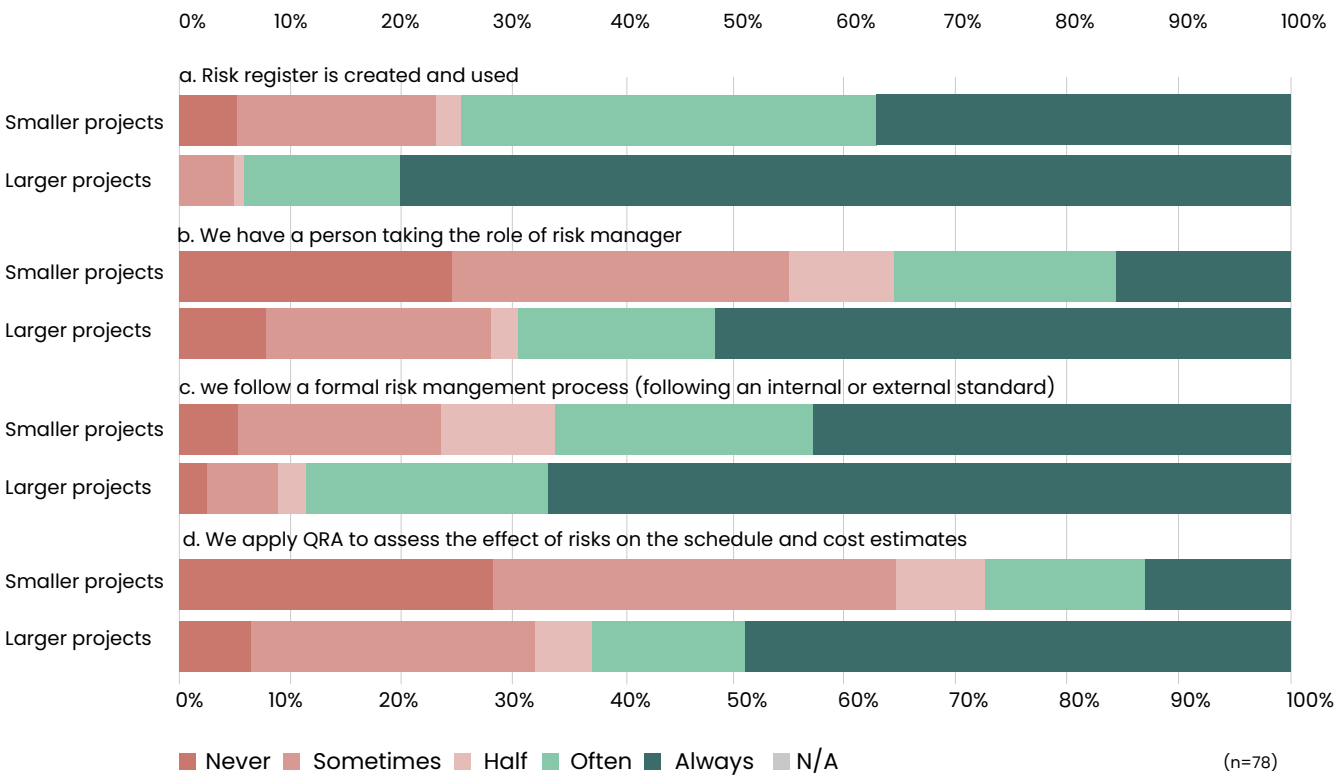
19g. We take threats very seriously because they consider risk events that could harm the project by surprise



Conclusion

- **Organisations take risk management seriously and apply common standards for definitions of risks.**

Small versus large projects
We asked four questions about risk management in smaller versus larger projects, with the distinction between smaller and larger projects being relative to each organisation, meaning that one organisation's small project could have the size of another organisation's large project.



The above graph shows there is a huge difference in risk management practices between smaller and larger projects. The response to the last sub-question is especially striking: less than 30% of the organisations use quantitative risk analysis to determine the effect of risks on cost and schedule estimates for smaller projects. In contrast, over 60% of the organisations employ this practice for their larger projects.

The results of the other questions also exhibit significant differences. While the use of risk registers is relatively common (65% for smaller projects, more than 90% for larger projects), the appointment of a dedicated risk manager is only observed in 35% of organisations for their smaller projects and approximately 70% for their larger projects. Thus, even for larger projects, around 30% of organisations do

not assign a specific individual responsible for the risk management process. Furthermore, the adoption of a risk management standard also varies notably between smaller and larger projects, with only 65% of organisations following a standardised process for smaller projects, which increases to nearly 90% for larger projects.

The other questions also show significant difference in results. Although the use of risk registers is quite common (65% on smaller projects; more than 90% on larger projects), a risk manager is only appointed by 35% of the organisations for their smaller projects and by around 70% for their larger projects. So even for larger projects, around 30% of the organisations do not assign a specific person responsible for the risk management process.

The adoption of a standard for the risk management process is also varied for smaller and larger projects. For smaller projects, only 65% of the organisations follow a standard process, which increases to almost 90% for larger projects.

Conclusion

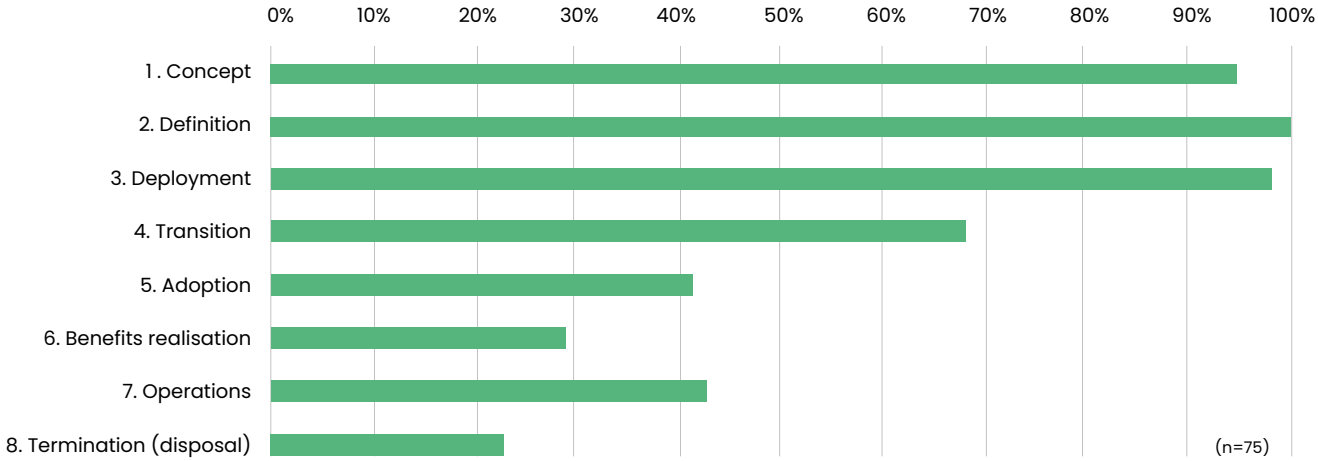
- **There is a huge difference between smaller and larger projects regarding the uptake of standards, dedicating a risk manager and the use of quantitative calculations to analyse the effects of risks on cost and schedule estimates.**

When are risks identified?

Regarding the timing of risk identification, the typical advice is to identify risks early in the project life cycle. This leaves ample time to address these risks properly, especially if this would lead to significant changes in the business case or technical concept of the project. We asked in the survey about the phases in which risks are typically identified for both smaller and larger projects. We asked the respondents to distinguish between the following phases:

1. Concept (project identification/feasibility study, ending with the business case)
2. Definition (project planning, ending with the project management plan)
3. Deployment (project execution/implementation/ construction/design and build)
4. Transition (commissioning and handover)
5. Adoption
6. Benefits realisation
7. Operations
8. Termination (disposal)

The responses were as follows for larger projects (75 out of 80 organisations answered the question, four organisations preferred not to answer and one does not typically carry out risk management on their projects):



For smaller projects, the results for the definition and deployment phases were similar, although several more organisations indicated they do not typically carry out risk identification for smaller projects.

The percentage of organisations carrying out risk identification in the other phases (one and four to eight in the above graph) of smaller projects was around 20% lower than for larger projects.

Conclusion

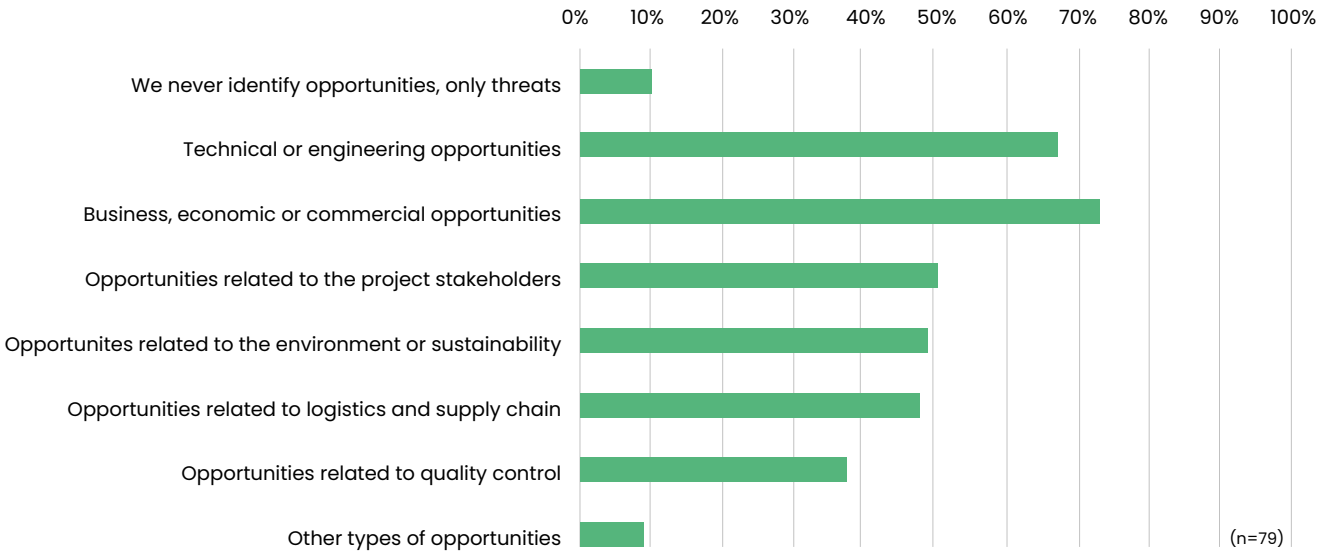
- **Risk identification is carried out proactively in the early phases of the project by almost all organisations. Risk identification for new risks still takes place in later phases of the project for a sizable percentage of organisations.**

3.2 Opportunity management

A second set of questions was specifically targeted at identifying opportunities in projects as part of the risk management process. We asked whether the organisations identified opportunities and, if so, what types of opportunities. Similar to the identification of risks in general, we examined the differences between smaller and larger projects regarding the identification of opportunities.

Types of opportunities identified

The concept of non-technical risks (NTRs) is gaining more importance, especially in the oil and gas sector, but increasingly in other sectors as well. Many of the risks projects face that result in significant budget and schedule changes have a non-technical nature. Examples include environmental, legal and societal risks, usually stemming from the interaction with the project's stakeholders. In the literature, the coverage of NTRs usually focuses only on threats. Therefore, we specifically asked the organisations what types of opportunities they typically pursue in their projects and whether the opportunities are technical or also non-technical (see graph on the next page).



The answers clearly indicate the set of identified opportunities in projects is quite broad, with business and technical opportunities playing the most important role in projects for the majority of organisations. Other types of opportunities related to stakeholders, the environment or logistics are each identified by around half of the organisations who responded.

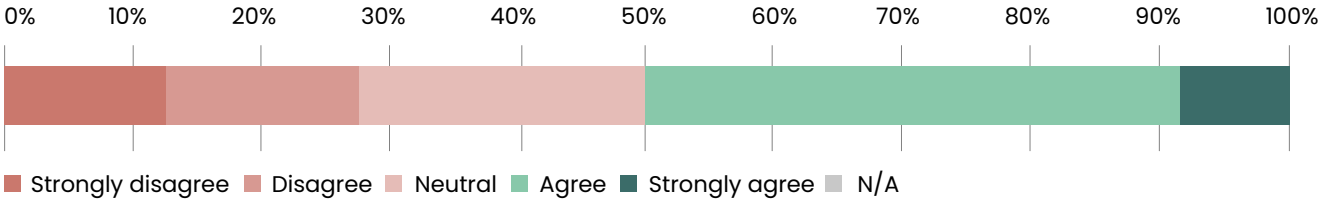
Conclusion

- **The types of identified opportunities by organisations are broad, with business-related and technical opportunities dominant but organisations identify a broad set of non-technical opportunities as well.**

Asymmetry: what makes opportunities different from threats?

We asked participants to reflect on several propositions for their organisation relating to the differences between opportunities and threats. The first question builds on the discussion from the previous section on the types of identified opportunities. It explores whether opportunities are more focused on the business, whereas threats are typically depicted as having a technical nature.

19a. When we identify opportunities for our projects, these contain more of a business perspective, whereas threats are more technical



The answer to question 19a shows that around 50% of the respondents agree with this perspective, although, for the previous question about the types of opportunities identified (above), close to 70% of the respondents indicated that they also identify technical opportunities. This shows that a sizable percentage of the organisations believe that opportunities and threats have somewhat different natures. Two quotes from respondents include:

"Opportunities usually need a project of their own to develop the solution."

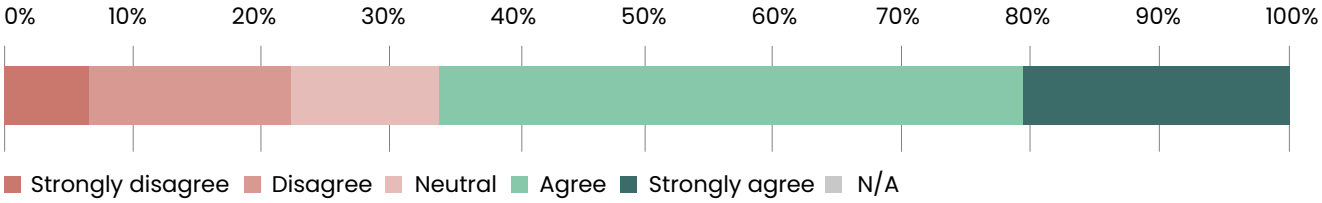
"Business needs to approve the spend on the development of opportunities."

These quotes support the aforementioned scores and show that some survey respondents feel that opportunities are more closely aligned with the business and to business decisions than threats, while threats are perceived as within the project team's control. Additionally, a participant's quote suggests that significant opportunities are often beyond the project team's control, leading to project teams primarily focusing on reducing the threats they can control and disregarding opportunities entirely:

"The most significant opportunities identified are often outside the control of the project, which can lead to projects only focusing on mitigating the threats they control and ignoring opportunities completely."

The answers suggest that opportunities are not perceived as uncertain events or circumstances that may or may not occur, but rather as circumstances that have already presented themselves, giving the project team the choice to capitalise on the opportunity or not. Note that this differs greatly from the threats that are included in the risk register as uncertain events or circumstances that have not yet materialised. In that sense, some organisations apparently see opportunities as the positive variant of the issue. According to the APM, an issue is as a "problem that is now or is about to breach delegated tolerances for work on a project or programme. Issues require support from the sponsor to agree on a resolution". Therefore, we asked whether the respondents treat opportunities as a situation where they can choose to seize the opportunity or not (see question 19h below).

19h. Opportunities are different from threats, since they often involve a conscious choice whether to seize the opportunity or not



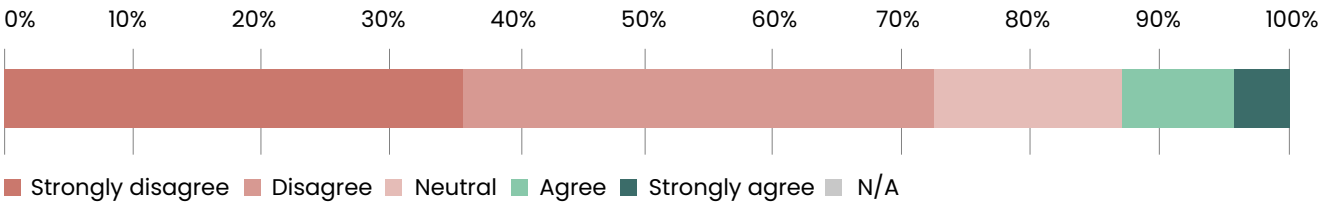
More than 65% of the organisations see opportunities as a situation that involved a conscious choice whether or not to seize the opportunity. When opportunities would be seen as an uncertain event, choosing to seize the opportunity would not be possible, since it would still be uncertain whether the opportunity would materialise or not.

One quote from a respondent:

"Opportunities are a choice. Often time is limited and they are overlooked, too much trouble or missed."

Although opportunities are seen as a business choice, they are not there to help define the business case, as the answers to question 19l clearly show:

23l. In our organisation, opportunities are dealt with in the concept phase to define the business case. Threats follow later in the definition phase. Because of the different timing, they do not and should not belong to one umbrella risk process.



Less than 15% of the respondents use opportunities to help define the business case for the project early in the project life cycle and only start thinking about threats afterwards. For these respondents, opportunities are probably seen as business opportunities rather than upside risks. Later, in question 23g, we will see that more than 55% of the organisations find it challenging to distinguish between opportunities as part of risk management, business opportunities and opportunities as a general term.

To illustrate this, one respondent indicated: **"The concept of risk having negative impact and opportunities is understood, although from experience opportunities can be confused with commercial or new business activities."**

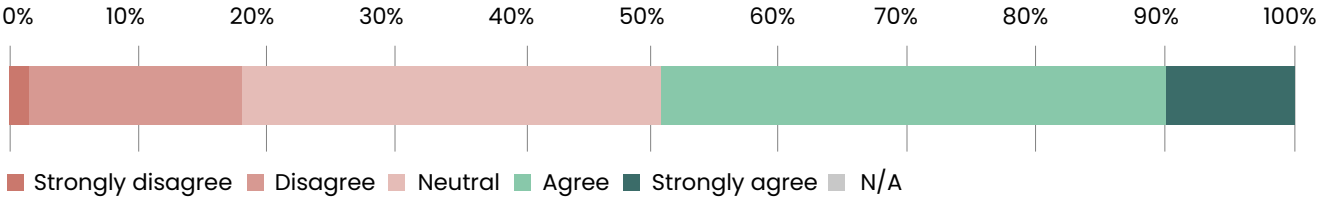
Conclusion

- **According to the majority of the respondents, threats and opportunities are truly asymmetric. Threats involve downside risks that may or may not happen to the project, whereas opportunities are seen as a business choice that can be made at any moment to improve the project outcomes. Yet, opportunities are not used to help define the business case itself.**

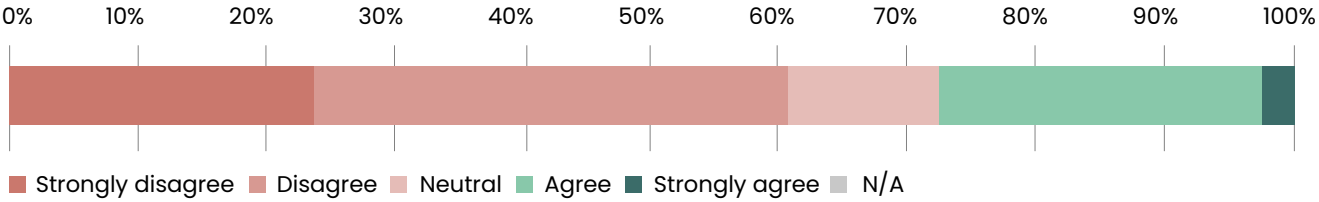
Are opportunities seized early in the project life cycle?
If opportunities are seen as a business decision, where the likelihood for the opportunity to materialise apparently does not play a role, one would expect that opportunities are seized early in the project when there is still room to include them in the scope of work.

Therefore, we asked the respondents in question 19b whether opportunities are seized early in the project (concept and definition phases), whereas threats may be dealt with in the deployment phase (question 19c). The responses are shown below.

19b. For our projects, opportunities are seized quickly in the early phases (concept and definition)



19c. For our projects, responding to threats is typically deferred to the deployment phase



Indeed, close to 50% of the organisations seize opportunities early. Fewer than 30% of the organisations delay their threat response to the deployment phase, though. One respondent phrased it as follows:
"Opportunities are often more difficult to identify and assess than threats. However, once identified, an opportunity will either be accepted and included in the schedule and estimate very early or the opportunity will be rejected. In both cases, thus closing the opportunity in the risk register. Therefore, the risk register will, inevitably, be dominated by threat risks."

Others indicated:
"Opportunities are often seized as the project progresses, but are not always evident for inclusion in the risk register at conception stage."

"We encourage identification of both opportunities and threats throughout the project life cycle but threats remain our main preoccupation beyond the concept stage."

To see whether there is a relationship between seizing opportunities early and deferring threats till later, we looked at the correlations between the two answers. It turned out there is no correlation ($\rho = 0.02$) between the answers to the above two questions, so organisations that seize opportunities early neither defer threats till later, nor deal with threats early.

Conclusion

- **In about half of the organisations that responded to the survey, opportunities are typically seized early in the project life cycle.**

Opportunities in small versus large projects

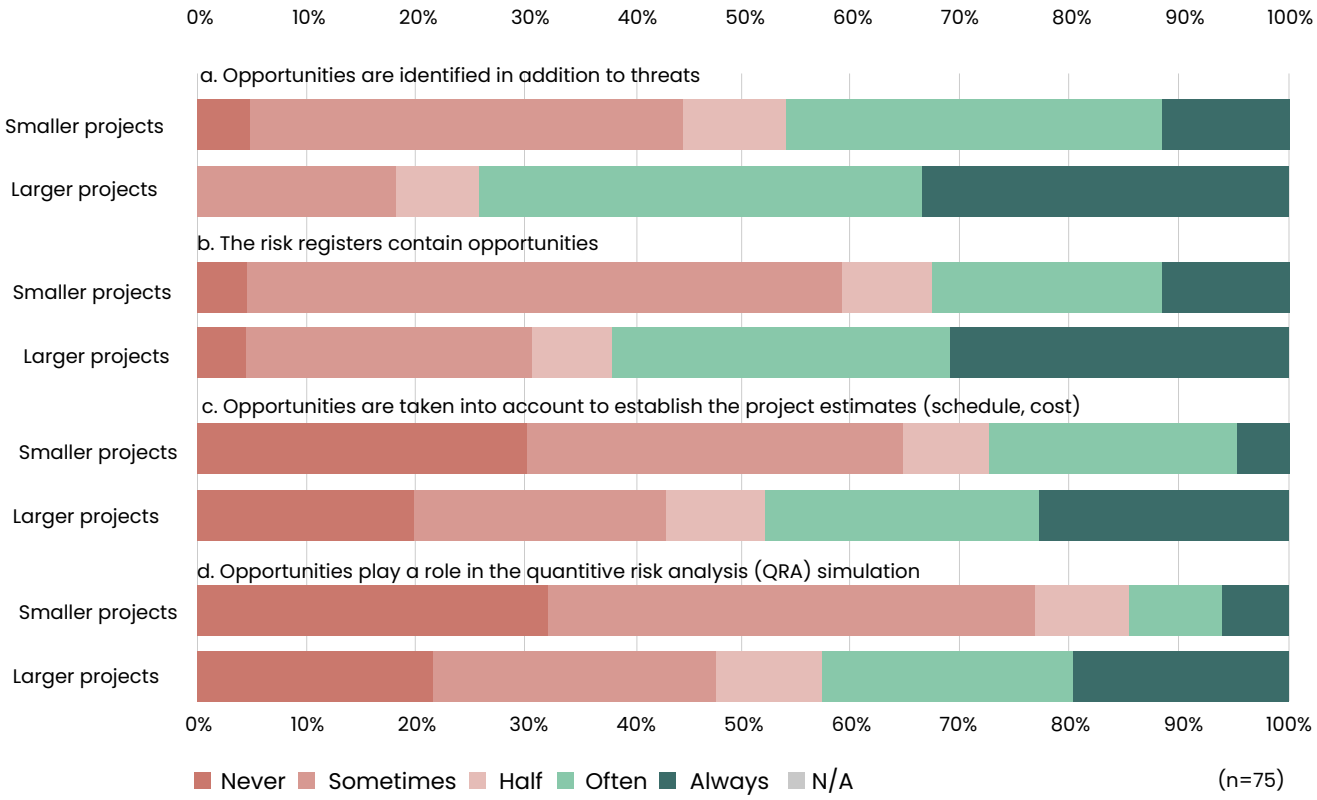
We also asked four questions about opportunity management in smaller versus larger projects, where, again, smaller and larger projects were defined as those that were smaller or larger for the organisation, meaning that one organisation's small project could have the size of another organisation's large project.

The answers show that for larger projects, opportunities are typically identified (75%) and entered into the risk register (62%). For smaller projects, though, this number drops considerably.

Fewer than half of the organisations identify opportunities for smaller projects and around 32% include opportunities in the risk register.

Even more striking is if the effect of opportunities on the main project estimates (cost and schedule) is calculated, either with a point estimate or using a quantitative risk analysis (QRA) simulation.

Even for large projects, these numbers are below 50%. For smaller projects, they're around 25% for point estimates and less than 15% for QRA.



The numbers for questions c and d are especially low. The risk management process asks to assess the effects of all risks, threats and opportunities on project objectives such as cost and schedule. This can be done qualitatively using the PI matrix or qualitatively using a QRA. Therefore, it is striking that risk assessment is so rarely done for opportunities. But it seems to be the general practice for the majority of organisations. Some quotes from respondents:

"Opportunities need to be kept separate. Never rely on them to make a business case because they are made of snow. Risks are made of concrete."

"Opportunities should not be included as part of QRAs/baselines."

"Opportunities are excluded from estimates, whereas threats are included."

We asked participants whether risks were taken into account to establish the project estimates for schedule and cost on one of their recent projects (question 12d). Of these, 94% of the respondents indicated that threats were included in the estimates.

Conclusion

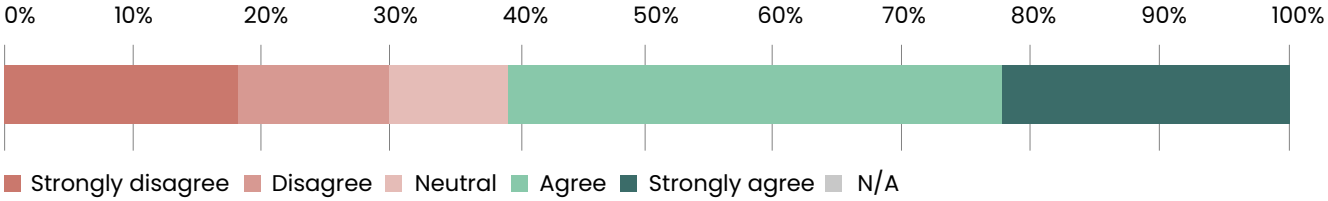
- **Opportunity management is used far more in large projects than in small projects. However, the opportunities play no role in cost and schedule estimation for the majority of organisations, whereas threats are typically included in the estimates.**

The term risk

As indicated in the introduction, one of the perceived issues is that the term risk can indicate both positive and negative effects on the project objectives. We therefore asked the respondents to the survey several questions: do they indeed perceive the terminology to be confusing? Would they want to change the terminology? If so, what would be good options for the changed terminology?

The first question is whether project professionals and project risk professionals perceive the term risk with a negative outcome.

23d. I associate the term risk with a negative outcome



Indeed, more than 60% of the respondents associate risk with a negative outcome. Only 30% of the project professionals do not associate risk with a negative outcome in line with APM's definition of project risk. This makes it problematic to use the term risk to denote both threats and opportunities. Many respondents also reflected on this with comments. Two examples:

"Risk does have a negative/downside context for most people - it's hard to remember risks can be positive."

"Normalising the term risk would go a long way in helping resolve some confusion - HS&E, quality and finance only recognise risk as a threat. If ISO could resolve the varying definitions and the risk-based thinking approach many standards are insisting on, we could then work on tackling the opportunity side of risk with a more recognised lexicon."

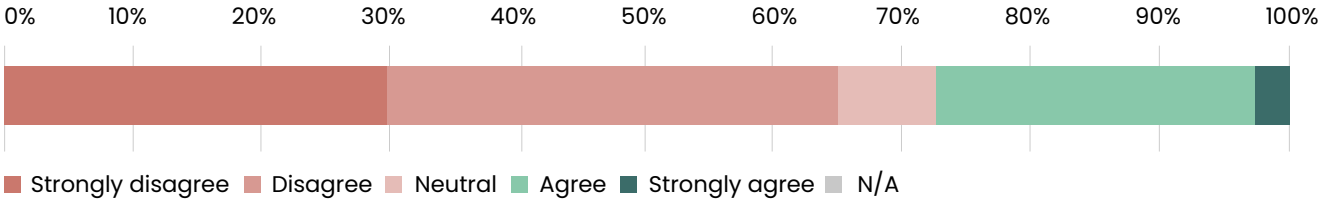
Conclusion

- **Project professionals and project risk professionals associate the term risk with a negative outcome. This is a major problem for including opportunities in the risk management process.**

The term opportunity

In addition to confusion about the term risk, there was also a hypothesis that the term opportunity could be confusing. Opportunity has many meanings in an organisation, such as business opportunity, upside risk and its more colloquial meaning. We wanted to know from the respondents whether the term opportunity to denote risks with a positive impact is confusing within their organisations. The answers were as follows (see next page).

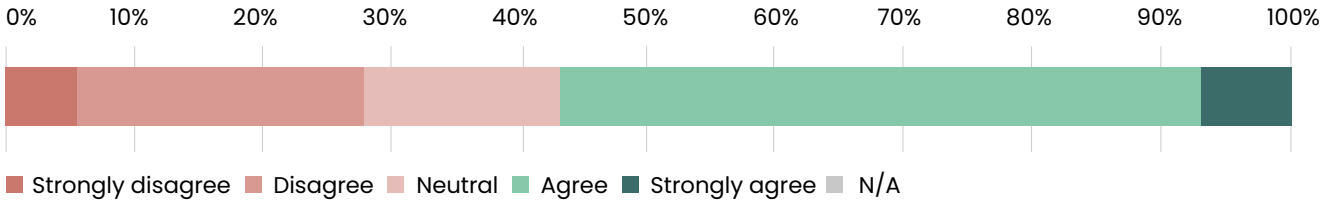
23a. The term opportunity to denote risk with positive impacts on the project objectives is confusing



The majority of the organisations (64%) have no problem with using the term opportunity to indicate an upside risk. Still, a bit over 25% of the organisations do. Although this is a minority, it can be considered high for such an important term in the project risk mindset.

A second question was whether those different meanings of the term opportunity cause confusion in the organisations and whether organisations are able to distinguish between the different meanings of the term.

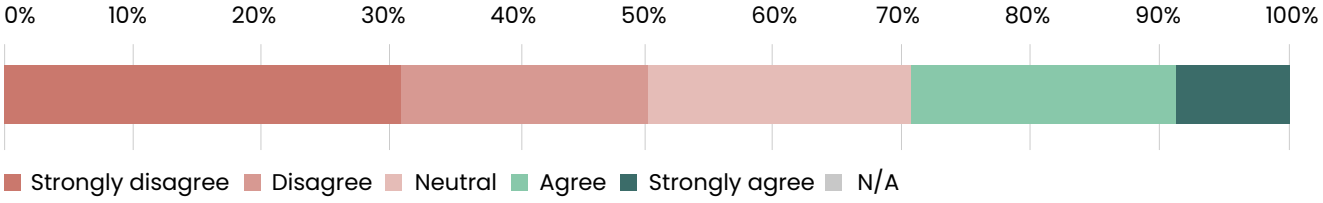
23g. The distinction between business opportunity, opportunity as an upside risk and opportunity in the colloquial sense is not clear in our organisation



Indeed, there is confusion about the use of the term opportunity in organisations. More than 55% of the organisations apparently struggle with the different meanings of the term. Only 28% claim they do not have any problem with the different meanings of the term.

This means that for the majority of organisations, the concept of opportunity is not confusing, but the term can cause some confusion. As a next question, we looked at whether the confusion about the term opportunity leads to a lack of strict standards.

23c. Our organisation has strict standards in place for the use of the term opportunity



As can be seen, half of the organisations do not have strict standards for the term opportunity, while almost 30% do. In other words, the confusion around the term opportunity goes hand in hand with the lack of strict standards for the term opportunity. The correlation between the answers to these two questions is -0.34, suggesting that there is indeed a relation between these two questions. A total of 31% of organisations who are confused about the terminology do not have strict standards in place; 15% of organisations who are not confused about the terminology do have standards in place. The value of -0.34 (not being close to -1) also suggests that this does not hold for all organisations; there are organisations that are confused, but still have standards (12%) and organisations that are not confused, yet they lack standards (6%). The rest of the organisations scored 'neutral' on any of the two questions.

Conclusion

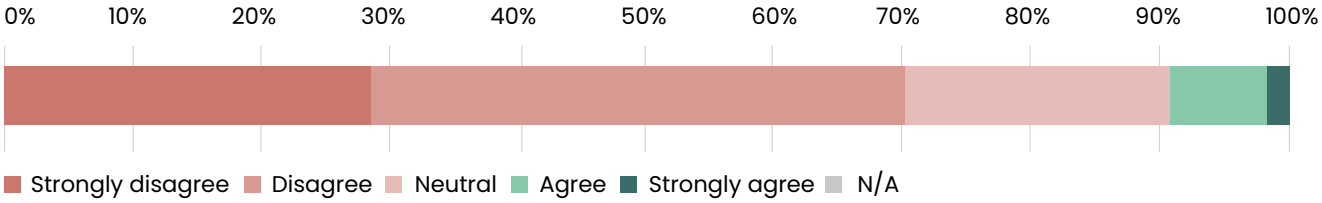
- **There is quite some confusion around the term opportunity and half of the organisations do not have strict definitions in place for what an opportunity is, exactly. Using the term opportunity for an upside risk is not considered problematic by the majority of responding organisations.**

Possible solutions for confusing terminology

Given the fact that the term risk is typically perceived as just pointing to events with a negative outcome for the project and the term opportunity is perceived as being confusing, we hypothesised that a change in terminology could help. Note that identifying events with a positive influence on the project is not perceived as problematic, since a majority of organisations typically practice this for their larger projects.

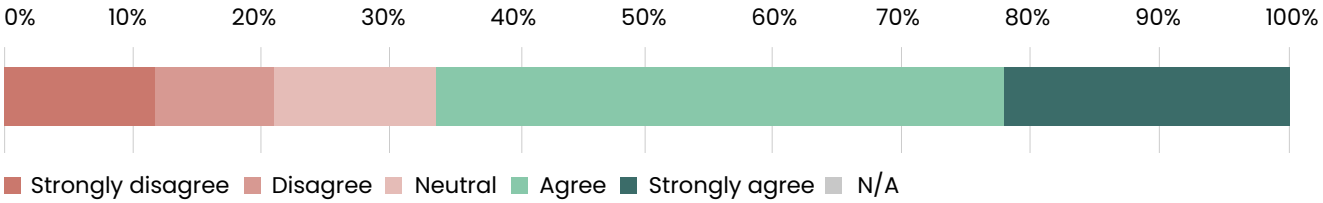
A first suggestion was to use the term upside risk instead of opportunity.

23b. Using the term upside risk rather than opportunity would be helpful



The participants to the survey indicated, however, that they do not see this as helpful. A second suggestion was to avoid the term risk management altogether and replace the overarching term with threat and opportunity management. This would allow project people to use the term risk in its negative meaning, since it is not reserved for the overarching term any more.

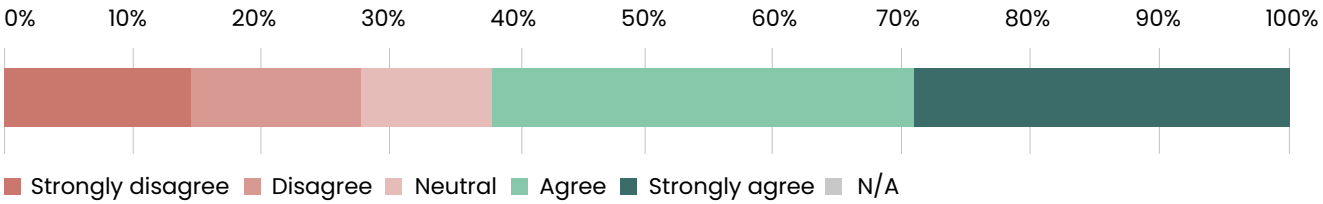
23e. Using the term threat and opportunity management instead of risk management would help to include the upside risks in project risk management



As can be seen, many respondents think that this would be helpful. It takes away the problem that risk can mean something positive or negative. Since threat and opportunity are already the terms used in the current risk management process, it does not introduce a new and unknown term.

Another solution would be to use risk only in its negative meaning (analogous to how many other fields such as HSE use the term) and stop using risk as the overarching term. We could then use the term risk and opportunity management for the overarching process, which consists of identifying and managing risks (negative) and opportunities (positive).

23k. The term risk as an umbrella term that includes both threats and opportunities is difficult to grasp. A better use of words would be risks and opportunities



As can be seen, the reaction to this suggestion is also quite positive. It resonates with the idea that risk is still considered to have only a negative outcome by the majority of the respondents and organisations. Calling 'risk management' 'risk and opportunity management', where risks are negative and opportunities are positive, aligns well with the respondents' feelings as reported earlier.

Many comments were made about the terminology. Apparently, the current use of terminology is causing some real issues for organisations:

"Using a different name as suggested in the survey would be helpful to include opportunities."

"I do believe that risk management is a term which does not provoke enough thoughts to opportunities and the idea of risk and opportunities management or similar would be a better industry phrase or terminology to consider."

"Agree there should be distinct language for opportunities management to keep it at the forefront of minds."

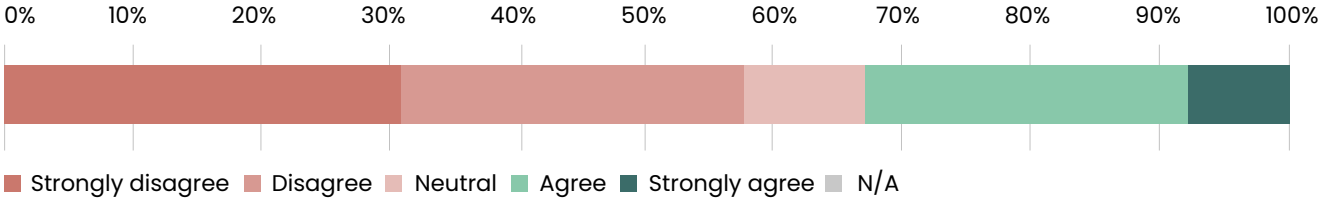
Conclusion

- **Respondents not necessarily want to replace the term opportunity by another term, but a vast majority want to stop using the word risk for the overarching concept and reserve the term risk or threat for negative outcomes only. The overarching process can then be called threat and opportunity management or risk and opportunity management.**

Risk process for threats and opportunities

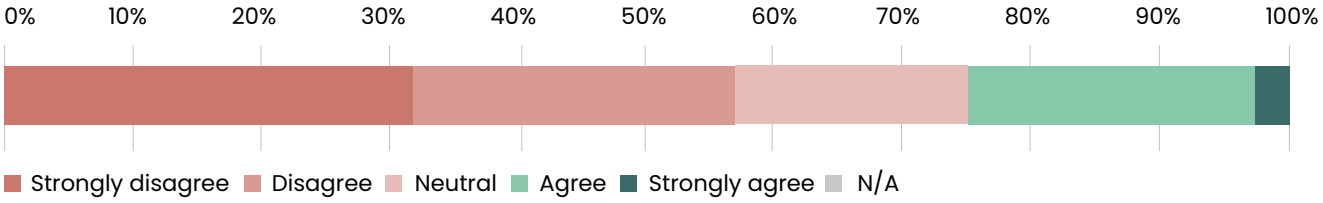
The project risk management process is the same for threats and opportunities, but using a mirrored RAM/PI matrix. It is of course the question whether the two processes should be the same. Maybe the nature of an opportunity is perceived to be so different from the nature of a threat that as a result it might be treated differently, for example, as part of a process that is structured in a different way.

23h. The opportunity management process should be separated from the threat management process



The answers to question 23h show that more than 55% of the organisations disagree. Apparently, they feel that threats and opportunities can or could be handled in the same way. Still, over 30% indicate that they want to separate the process. We tested how many organisations already have separated the opportunity management process and even moved it out of the overarching risk management process.

23m. Our organisation carries out some form of opportunity management, but it is not part of the Risk Management process

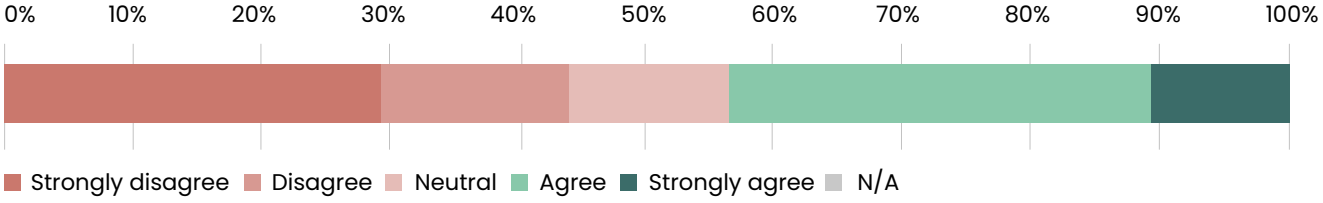


As can be seen, 25% of the organisations have created a separate process to deal with opportunities that are not a part of the risk management process. Also in the comments, several organisations showed that they have already carried out that separation:
"We have removed opportunities from our ROMP and written two different documents. We will provide training separately and recommend separate reviews to encourage better engagement."

Yet other organisations indicate that they are very much against 'yet another process' that is hard to integrate with all other processes in project management:
"For a quantitative risk analysis to be reliable, threats and opportunities need to be analysed together."

"I think overly tight compartmentalising of different aspects of a project is usually detrimental. Risk and opportunity is a team sport..."

23i. A separate opportunity register would be helpful instead of having to add the opportunities to the standard risk register



As can be seen, the reactions are quite mixed. The organisations in favour and against are evenly balanced.

Some organisations indicate in the remarks that a separate opportunity register (and not necessarily a separate opportunity process) might be a good way forward:
"I liked your question around having a separate opportunity log - I think I may well try to implement this within our org to try to get more time spend on opportunity management."

"My organisation used to include opportunities in risk registers, then diverged to create separate efficiencies trackers."

But remarks also show that not all organisations want a separate opportunity register:
"... the management of a project is very administration heavy as it is; do not try to add additional registers to complicate the situation. As many opportunities come from risk identification, they need to be kept together and can be used to support the overall process of risk management."

Or they change the name to remove some of the issues:
"We have recently changed our company risk registers to a threat and opportunity register."

Some organisations even want to move back after having worked with a separate opportunity register:
"Opportunity management is not carried out as robustly as risk management and for many years opportunities have been held separately to risks, often in an offline register and in a manner bespoke to each project. We are currently investing effort to bring opportunities into alignment within a single tool, alongside the risks as part of a change programme. At the same time, we want to go back to basics and re-educate personnel on effective opportunity management."

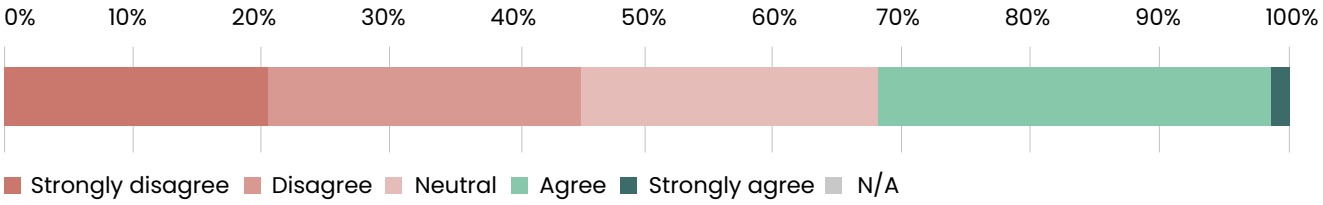
Conclusion

- **Opinions on whether to separate threat management and opportunity management are mixed. Around a third of the organisations favour two different processes and even have taken steps to move the opportunity management process out of risk management, other are very much against. The same applies to using two separate registers for threats and for opportunities. Here, the split is 50/50.**

Opportunities and project cost and schedule estimates

We asked a number of questions about the relation between opportunities and the cost and schedule estimates of projects. Especially when opportunities are defined correctly, but even when defined in the wrong way, opportunities clearly have a potential positive effect on the project objectives. Since opportunities are uncertain according to the definition, they should not be made part of the project cost and schedule estimates, since they may or may not happen. Therefore, we asked the organisations whether opportunities are seized immediately and made part of the estimates.

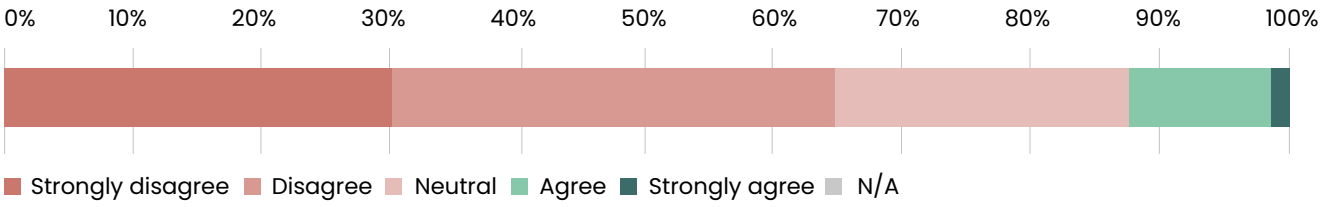
24a. When an opportunity surfaces in one of our projects, it is seized immediately and made part of the estimates and promises



As can be seen in the results, more than 30% do seize opportunities immediately (as if they are not uncertain and constitute a business opportunity) and incorporate them into the estimate. A total of 55% of the organisations do not typically show this behaviour.

One of the questions is whether this behaviour of incorporating positive effects in the estimates is to help win the tender for the project. Leaving out threats and incorporating opportunities makes the project look better on paper (but of course results in not being able to realise the project within schedule and budget in the end).

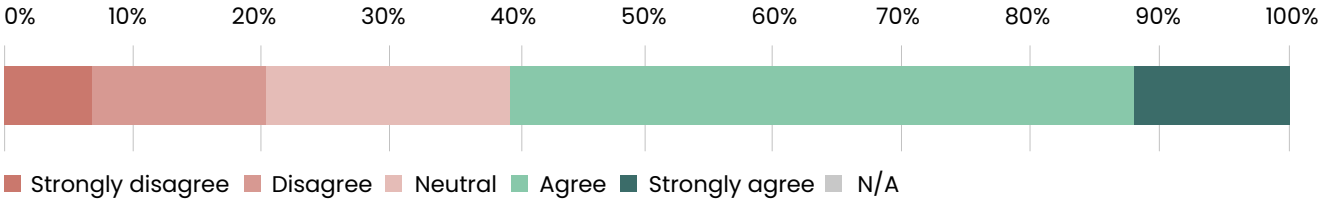
24b. Our estimates typically include most opportunities but not all the threats as this puts us in a better position for the project to continue or to win a tender



The vast majority of organisations do not include opportunities with the purpose of inflating their project budgets in the tender process.

Cost and schedule estimates should be set up in such a way that a P50 is a true P50. In other words, there is a 50% chance that the final cost and schedule of the project are better and a 50% chance that the cost and schedule are worse. Practice shows that this is not the case and P50 projects estimates do not account correctly for threats and opportunities. We asked the respondents whether they felt that the estimates for the project are indeed too positive, resulting in the fact that the communicated P50 estimates are in reality not a 50% estimate, but much lower.

24c. The estimates for our project are set up in such a way that there is little room for improvements, but a lot of room for threats to make the outcome worse than the estimates



Indeed, the majority of organisations see that there is an issue with the estimates: there is little room for improvement, but lots of room to make the outcome worse.

This was also heavily discussed in some of the free text responses we got. Some organisations try to account for risks and opportunities using a quantitative risk analysis, which should get them a realistic P50:

"In my experience we always generate a realistic schedule and a realistic cost estimate. The risks and opportunities are below-the-line figures. A P50 or P80 or a SQRA or a CQRA is then conducted to realise a potential outcome or scenario. We do not add risk into activity durations or activity cost estimates."

Whereas others realise that their cost and schedule estimates are too optimistic and do not account properly for threats and opportunities:

"Project people love the concept of identifying and pursuing opportunities but in reality, the base estimates/plans are usually optimistic. Focusing on opportunities established the right mindset but could distract teams from managing threats that really need attention."

"The cost/benefit analysis linked to opportunities and its place in overall risk budgets/contingency management is an area where some discussion between APM and perhaps accounting and cost professional bodies could be helpful."

"...The other problem within projects I find is PMs wanting to include opportunities when running QCRA/QSRA when they are not certain that they will progress the opportunity. This in turn reduces the risk pot for the project and when the opportunities don't come to fruition for whatever reason, there is an underestimation of the project risk exposure or risk pot."

The last comment links to an earlier question where we found that a sizable percentage of organisations see opportunities not as something that may or may not happen, but as a choice that the organisation can make to capitalise on the opportunity or not. With this definition, every opportunity that is included in the base estimate turns into a threat, because it may not be possible to come to fruition and indeed create an underestimation of the project risk exposure.

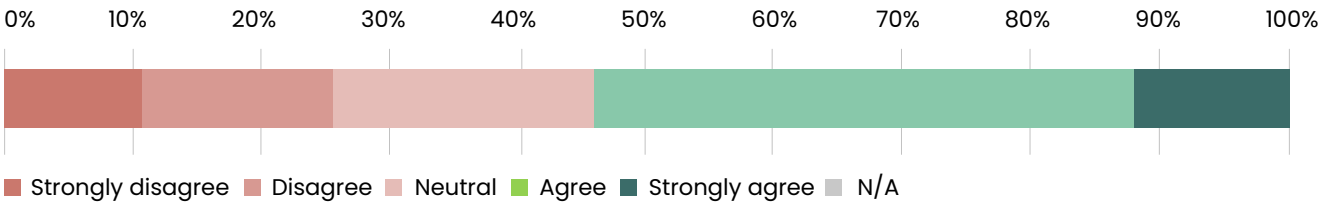
Conclusion

- **Threats are typically included in estimates for schedule and cost in some way, more for larger projects than for smaller projects. Opportunities, however, are often not included in cost and schedule estimates. P50 estimates are therefore asymmetric with respect to threats and opportunities, and not a true P50.**

Planning responses for opportunities

Do organisations who identify opportunities also actively plan responses? This question was one of the last questions of the survey and was answered by around 70 organisations.

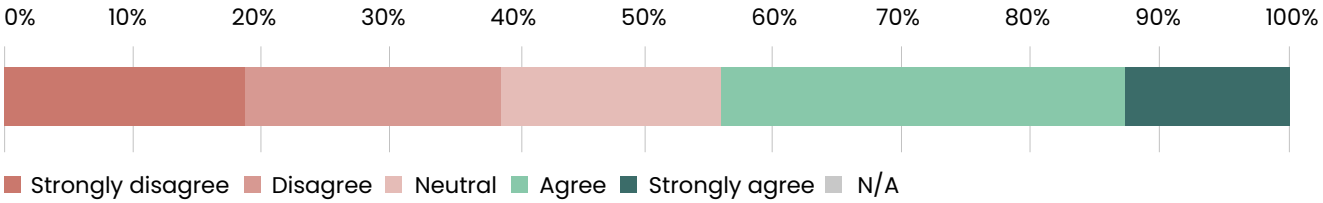
25a. My organisation actively plans responses for opportunities



As can be seen, only a minority of 25% do not plan any responses and around 55% do. The question is, however, whether a response is just seizing the opportunity. This followed on from an earlier question whether managing opportunities is a decision rather than managing for an event, to which 65% answered agree (question 19h).

Management of opportunities has specific responses, where the four strategies for threats (avoid, transfer, reduce and accept) are mirrored for opportunities as exploit, share, enhance and reject. The survey asked if these concepts are used.

25b. In planning responses to opportunities, my organisation uses the concepts of exploiting, enhancing, sharing and rejecting



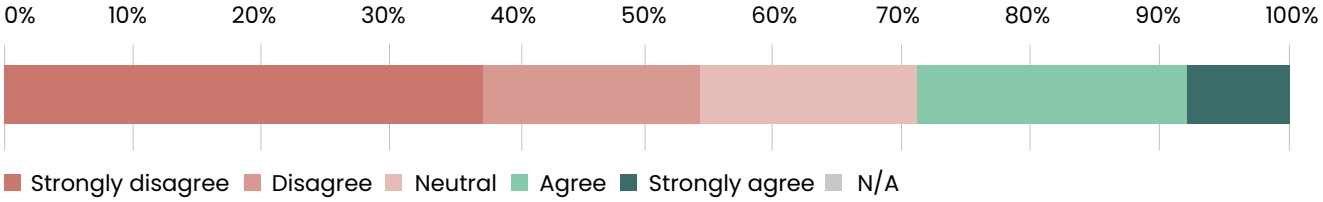
The answer shows that the organisations are divided almost 50/50, with more than 15% neutral answers. In other words, some do use the specific concepts for responses, some do not.

Is more education needed?
We asked whether knowledge and/or tools are sufficient for organisations to carry out opportunity management.

Conclusion

- **The majority of organisations plan responses and many use the theoretical concepts for opportunity response management. Yet around a quarter of the organisations do not plan responses and close to 40% do not use the specific concepts. Given the fact that these earlier questions showed that there is a lot of misunderstanding around opportunities, it is the question how response planning is exactly implemented in organisations.**

23n. My organisation lacks the knowledge and/or tools to include opportunities in the risk management process



As can be seen, most organisations have the requited knowledge, but close to 30% perceive issues with their knowledge or tools. Yet only 12% of the organisations indicate that they typically do not include opportunities in the risk process because they do not know how to respond to the opportunities after their identification (question 23f). Several comments about awareness and training were also made by the respondents:

"More education needs to be given to PMs about looking at risk not just from a negative standpoint. It is inherently human to consider something risky to be negative."

"We do apply opportunity management but we could improve in this area through standard approach and training etc."

"...the opportunities are harder to identify and more training and focus can be provided from the industry professionals on this subject."

Conclusion

- **The majority of organisations feel that extra training for opportunity management is not needed. Still, close to 30% of the organisations feel that they lack sufficient knowledge and/or tools to include opportunities in the risk register. The response to opportunities is, however, not perceived as being problematic.**

3.3 Concluding remarks

Despite a sizable percentage of organisations struggling to incorporate opportunities as part of the risk management process, there are also many who adhere to the standards and successfully apply threat and opportunity management under the umbrella of risk management. Some organisations have recognised and embraced opportunities as part of the risk process for many years, considering both threats and opportunities in their projects, programmes and portfolio:

"Our organisation has identified opportunities for many years as part of the risk process, which includes both threats and opportunities in projects, programmes and the portfolio."

"Construction and infrastructure projects I have worked on seem to have no problem with grasping threats and opportunities as under the umbrella of risk management."

There is a growing awareness that risk management, encompassing both positive and negative aspects, should be an integral part of all functions within a firm:

"I believe awareness of risk (both positive and negative) management at a fundamental level should be a part of all the functions that we have at our firm."

For some organisations, participating in the survey served as an eye-opener, revealing their tendency to neglect opportunity management and therefore discard possible improvements for their projects:

"We all know opportunities should be included as part of risk management, yet we rarely think about opportunities."

"This survey has got me really thinking about opportunity management now."

"The survey has prompted me to consider this for our company and some of the large programmes we are managing. I see a need and benefit to focus far more on opportunity management and the process of opportunity management as a discrete thing to risk management. I can see this needs a much higher profile in our organisation and in the industry - especially with the carbon and environmental challenges we are facing. Thank you."

These responses highlight the realisation that opportunity management deserves greater attention and should be recognised as a distinct process alongside risk management. The survey has sparked a re-evaluation of the importance of opportunity management, particularly in the context of the industry's current challenges, such as those related to carbon and the environment.

3.4 Disclaimer

The survey was held among APM corporate members, who might not be representative of the overall project management community worldwide or in the UK. Also, although the respondents to this survey represent a wide variety of APM corporate members, they have decided themselves to respond to the request to participate in the study. This means that organisations who are having issues with risk management or with opportunity management might have been more likely to respond. The corporate membership of APM consists of around 450 organisations, so the sample of around 100 organisations who participated in the study does represent a sizable set of the project management community in the UK.

4 APM opportunity management workshop February 2023

The issues around risk management and more specifically the identification and management of project opportunities were discussed in a face-to-face APM workshop on 23 February 2023. Representatives from APM's corporate members, individual members and a number of non-members attended a full-day workshop. The main results from the survey were shared and discussed in a number of breakout panel sessions. In addition, several speakers provided their view on opportunity management in relation to risk management or threat management.

At the start of the workshop, participants were asked to fill out a card with a risk, where the context could be in any context. All 30 cards contained a threat and not a single card contained an opportunity. Since this was a workshop highlighting opportunity management as part of risk management, this is surprising.

As one of the presenters, Greg Paoli from Risk Sciences International in Canada, who is also a member of the ISO/TC262 committee on risk management, gave his view from the ISO community on where opportunity fits in with risk management. In the ISO committees, there are different views on whether risk can be positive. In a sense, the project community is one of the few where this is considered and even there, it is contested. The word 'risk' is the 1,000th most commonly used word in British English[6] and its meaning to the general public is only associated with a potential negative outcome. Changing the meaning of such a common word is close to impossible. Many fields outside of project management also consider risk to be negative. This explains why it is so hard to convince people in organisations to view risk management as threat and opportunity management.

The views from the panel sessions were diverse and it was clear that there is not a single view on how to proceed. On one end of the spectrum, there were clear advocates for change. Ideas included changing the terminology and processes for risk to only focus on negative outcomes and to create new processes for opportunity management. Value management was mentioned as a potential process to be used for managing opportunities. On the other end, there were those for whom the current standards work well and who have invested a lot in training to comply with the standards. They focused on education and communication as the main tools to overcome apparent issues. Those in between proposed ideas to use terms like risk and opportunity management, where risk would considered to be negative. Another conclusion was that the timing, mindset and responsibilities for threat management and opportunity management differ.

Two other presentations from Alice Bullington (Shell) and Alex Deas (Network Rail) highlighted how their organisations deal with using opportunity management. An interesting view was the possible relation between value management/engineering and opportunity management, presented by Julie Warriner from the Institute for Value Management.

Conclusion

- **In general, the workshop participants recognised the survey results and realised the need for actions to ensure the success of project risk management. Actions could include separating threat management (possibly relabelled as risk management) and opportunity management, developing different processes for threat and opportunity management, and improving communication, education and examples to comply with the APM standards.**

6. Geoffrey Leech, Paul Rayson, Andrew Wilson (2001). *Word Frequencies in Written and Spoken English*: based on the British National Corpus. Longman, London. Dataset from ucrel.lancs.ac.uk/bncfreq

Appendix A: where to find the survey and responses

Alexander Verbraeck, Marian Bosch-Rekveldt, Sara Rye and Peter Simon (2023): *Survey on Opportunity Management as part of Project Risk Management*. https://doi.org/10.4121/479b9031-a1f5-426c-b7a9-7e9225ce9536.v1

Appendix B: APM terminology

Opportunity: A positive risk event that, if it occurs, will have an upside/beneficial effect on the achievement of one or more objectives.
Project risk: The exposure of stakeholders to the consequences of variation in outcome.
Project risk management: A structured process that allows individual risk events and overall project risk to be understood and managed proactively, optimising project success by minimising threats and maximising opportunities.
Risk: The potential of a situation or event to impact the achievement of specific objectives.
Threat: A negative risk event; a risk event that if it occurs will have a downside or detrimental effect on one or more objectives.
Value management: A structured approach to defining what value means to an organisation. It is a framework that allows needs, problems or opportunities to be defined and then enables review of whether these can be improved to determine the optimal approach and solution.
Qualitative risk analysis: A generic term for subjective methods of assessing risks that cannot be identified accurately.
Quantitative risk analysis: The estimation of numerical values of the probability and impact of risks on a project, usually using actual or estimated values, known relationships between values, modelling, arithmetical and/or statistical techniques.

Authors

Alexander Verbraeck
Alexander Verbraeck is a full professor in the Faculty of Technology, Policy and Management at Delft University of Technology, where he chairs the Policy Analysis Section. His research focuses on modelling and simulation, especially in heavily distributed environments and using real-time data. Examples of research on these types of simulations are real-time decision making, interactive gaming using simulations, data-driven simulation and digital twins. The major application domains for his research are logistics and transportation, and safety and security, for which simulation models and serious games are developed in government and industry funded projects. In addition, Alexander researches project risk management and supply chain risk management. His research has been published in book chapters and in many leading journals and conferences.

Marian Bosch-Rekveldt
Marian Bosch-Rekveldt holds a PhD in project management from Delft University of Technology. She is an associate professor in the group Integral Design and Management at the faculty of Civil Engineering and Geoscience. Marian is also involved in education (BSc, MSc and professional education, on campus as well as online) and research in the field of management of large technical projects. She coordinates the projects and people specialisation of the Master Construction Management and

Engineering and has developed several MOOCs related to improving project management skills.

Her current research focuses on creating value by projects in the broadest sense, including developing fit-for-purpose project management approaches and by trying to exploit project complexity to grasp opportunities. She is aware that when heading towards major transitions, people are key in the delivery of such large technical projects that are surrounded by intrinsic uncertainties. Marian has supervised several PhD candidates on topics such as improving risk management, flexible project management and improving project performance.

Sara Rye
Sara Rye specialises in risk management, humanitarian logistics and the application of decision-making tools and techniques. She has experience as a supply chain manager at an automotive manufacturer and as a performance consultant in a global distribution network of medical equipment. Her educational background is in decision sciences, operations research, economics and research methods. Her research focuses on various aspects of operations management, systems thinking, disaster management, decision making and serious games. She provides consultancy to not-for-profit organisations on a pro-bono basis.

Sara is a member of several research groups, including the Gender and Disasters group at UCL, the Simulation SIG research interest group and OR society, the Natha Puri Research Institute at London South Bank University and APM's Risk SIG committee. She has led international research projects on game-based learning across Europe and the Middle East. She has supervised PhD candidates on subjects such as humanitarian logistics, sustainable projects, simulation and serious games, operations risk, behavioural OR, decision science and project and agile risks.

Peter Simon
Peter Simon has more than 40 years of experience as a project management consultant and practitioner across all industries and business sectors. He has built a professional reputation as a particularly knowledgeable and skilled adviser and trainer, particularly in the areas of risk management, project planning and resource management. The last 20 years of this time has been as Director of Lucidus Consulting Limited.

Peter is an Honorary Fellow of the APM. He was an elected member of the APM's Council from 1998 to 2001 and a Trustee and Board Member from 2008 to 2009. He has been Chair of the APM's Risk SIG on two separate occasions.

Peter has written many published articles and is the co-author of two books: *Starting Out in Project Management* and *Practical Project Risk Management: the ATOM Methodology*, both of which are in their third editions. This ATOM book was awarded the 2013 PMI David I Cleland Project Management Literature Award for the best project management-related book in 2013.

Peter is also a Visiting Fellow at Cranfield University School of Management and a member of BSI's RM/1 Committee.

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Association for Project Management
Ibis House, Regent Park,
Summerleys Road,
Princes Risborough,
Buckinghamshire HP27 9LE
0845 458 1944
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