# Improving Public Investment in Bulgaria

## A best-practice guide to project selection and risk management

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A best-practice guide to project selection and risk management

This manual provides step-by-step guidance to Bulgarian officials involved in public investment decision-making. The manual instructs officials on an international best-practice approach to project selection, which ensures investment decisions deliver the best value for money and achieve important societal objectives, such as green and digital outcomes. The manual also provides a best-practice approach to managing risks at all stages of the investment lifecycle.

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# Table of contents

## Figures

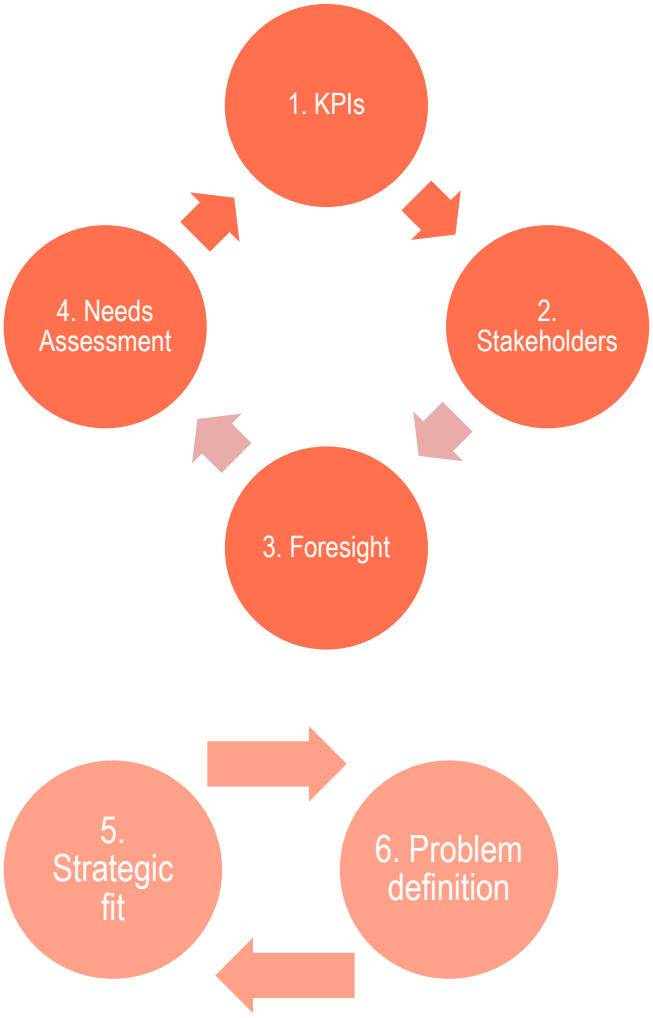


## Boxes



## Examples

# 1 Map of the Guide




**A. Confirm the strategic context**

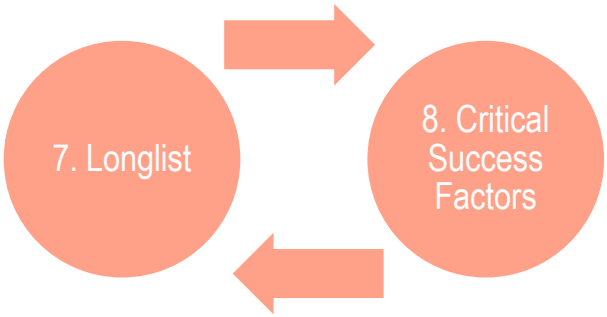
Is there sufficient information on future trends, KPIs and infrastructure needs? Are the right stakeholders involved?

- *If yes, proceed to next step*
- *If no, return to step 1.*

**B. Establish the case for change**

Does the investment or activity align with the overall strategic direction?
Is there a genuine problem to solve?

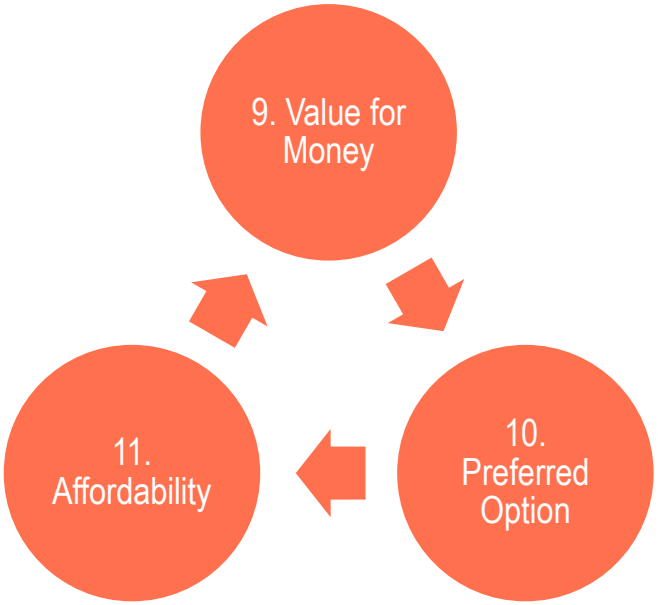
- *If yes to both, proceed to next step*
- *If no to either, return to step 4 or abandon project.*




**C. Identify and assess the options**

Is 'success' defined and a credible longlist of options has been developed?

- *If yes, proceed to next step*
- *If no, return to step 6.*




**D. Determine value for money**

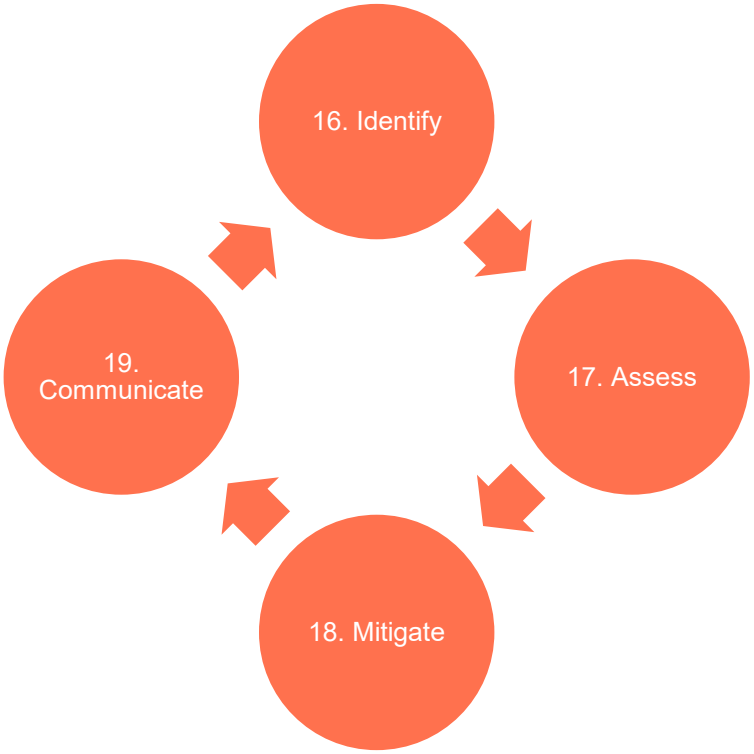
Is there a preferred option which is affordable and has net social benefits?

- *If yes, proceed to the next step*
- *If no, return to step 8 or abandon project*


**E. Developing the Deal**

Is there a preferred procurement approach with risks transferred to the right parties? Is there a process for inviting competition while upholding integrity?

- *If yes, execute the deal*
- *If no, return to step 11.*




**F. Manage the Risks**

Is there a plan in place to identify, assess, mitigate and communicate information about risks to necessary parties?

# 2 Confirm the Strategic Context

## 1. Identify the key performance indicators sought from future investment and initiatives

| Question | Answer |
|---|---|
| What is a key performance indicator? | A key performance indicator (KPI) is a quantifiable measure used to evaluate the success of an investment or initiative, including whether an investment or initiative have achieved – or is on track to achieve – its intended objectives. They should be applied at all stages of the investment lifecycle and may need to be updated as investments progress through the investment lifecycle.[1] |
| Why is establishing the key performance indicators an important part of risk management? | KPIs give decision-makers information about whether an investment or initiative is achieving what it was intended to do, or whether changes are necessary. Having this information allows decision-makers to manage the risk that an investment or initiative may not deliver on its intended purpose. |
| How should key performance indicators be developed? | KPIs must be independently observable and measurable, so that they can be monitored and evaluated. Objectives must comply with the SMART framework, meaning they must be:<br>• Specific<br>• Measurable<br>• Achievable<br>• Realistic<br>• Time-limited |
| At what stages of the investment lifecycle are key performance indicators particularly relevant? | KPIs are relevant at all stages of the investment lifecycle. However, they may need to be revised to better reflect the specific outcomes sought from each lifecycle stage.<br><br>KPIs must cascade from the highest level of government policy making and through the planning hierarchy, being reflected in the subordinate planning instruments delivered by ministries, agencies and municipalities. Ministries, agencies and municipalities will need to build upon the high-level direction with more specific objectives, which should become more specific the further down the planning hierarchy. The cascade approach ensures government policy makers can easily measure whether their policy goals are being implemented. |

[1] 4.2. "SMART Objectives", The Green Book (2022), HM Treasury, United Kingdom.

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| How many key performance indicators should a proposed investment have? | Up to 5 or 6 SMART objectives should be established. More than this and a proposed scheme is likely to lack focus and is more likely to fail or significantly exceed costs and under-deliver. |
| What information is needed? | At this stage of the lifecycle, objectives are used to evaluate whether a long-term vision is being achieved. This means objectives require clear vision statements or statements that specify the long-term outcome that is being sought. These can be found in relevant strategic-setting documents delivered from the highest level of government. |
| Who needs to be involved? | Settings KPIs is a more technical task than confirming the needs assessment. It requires input from participants with more technical knowledge of the relevant sectors and therefore what is realistically achievable given a country's level of capacity, capability and accessing other services and resources that will be needed to achieve the relevant KPI.<br><br>This means the following actors should be involved:<br>• relevant line ministries, infrastructure delivery agencies, state-owned enterprises with responsibilities for delivering and maintaining relevant infrastructure sectors<br>• Ministry of Finance, Council of Ministers or others at the centre of government who ensure the KPIs align with the strategic direction of government and are, at a high-level, likely to be affordable<br>• relevant advocacy and membership-based organisations e.g. civil engineers institute, who may also have relevant technical expertise and who may contribute on behalf of their members<br>• civil contractor firms, engineering firms, land use planners and other private sector parties who play a role in providing skills, resources in expertise in delivering public infrastructure. |
| How should performance be monitored and evaluated? | Performance against KPIs (financial and non-financial) must be assessed and reported on as part of routine auditing. Individuals "responsible"[2] for an investment must also routinely assess an investment's performance against its KPIs. |

[2] Ref. Appendix 1. RASCI Framework.

### Box 1. Best practice example of setting key performance indicators in long-term vision (Bulgaria2030)

One of Bulgaria2030's priorities is "Digital Connectivity", which includes "… to build very high-capacity networks … ensuring that no part of the country or group is society will be left without adequate digital connectivity."

To measure this priority, Bulgaria2030 lists the following KPIs:

- Fixed very high-capacity networks coverage (HCNC), % of households to increase from 42% to 52% by 2030
- Fast broadband coverage through next generation access networks (NGA), % households to increase from 77% to 86% by 2030
- Rural broadband coverage also through NGA, % of households to increase from 28.4% to 60% by 2030.

These are examples of good KPIs because they follow the SMART approach:

- Specific: specify the nature of investment needed e.g. HCNC and NGA are specific programmes
- Measurable: provides percentage targets
- Achievable and Realistic: the targets are about expanding existing infrastructure networks, and do not set unrealistic expectations

Timebound: all KPIs are to be delivered by 2030.

## 2. Identify and involve the relevant stakeholders

| Question | Answer |
|---|---|
| Who are stakeholders | A stakeholder is someone who has a direct or indirect interest in the project activities, and may be in contact with it daily, or just occasionally. |
| Why are consultation processes an important part of risk management? | Involving stakeholders in decisions about public investments can help derisk investments by:<br>• Identifying issues with a proposed investment, such as its proposed route or location, from a user perspective<br>• Reducing the likelihood of legal challenge later in the process, minimising the likelihood of cost increases and delays<br>• Helping to achieve the support or acceptance of particularly influential stakeholders, such as advocacy groups or high-profile individuals, which can help reduce the likelihood of political or social discomfort with a proposed investment<br>• helps build trust in government, which can have a positive effect on how stakeholders perceive and interact with government on all matters, reducing risk to government programmes across the board.<br><br>For stakeholder engagement processes to be most effective, authorities must be transparent with stakeholders about their plans as early as possible in the investment process. This helps build trust and confidence between stakeholders, which can help ensure the proposed investment can progress as smoothly as possible. |

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| At what stage of the lifecycle are consultation processes most effective? | Consultation should take place at all stages of the investment lifecycle where significant decisions have been made that will have an impact upon stakeholders. Examples of the relevant lifecycle stages include:<br><br>• long-term vision and strategic planning, to ensure the high-level aspirations of stakeholders are captured and can then inform investment portfolios, programmes and projects<br>• investment needs analysis, to contribute to discussion on the types and timings of future public investments<br>• spatial planning, to contribute to discussions on how land and other resources in an area can be best used and protected, identify any potential conflicting land uses and inform options for the approximate location and route of proposed investments<br>• detailed planning, to inform specific details of an investment's location, route, land acquisition, environmental mitigation features and construction impacts<br>• decommissioning (if necessary) = to inform the process for managing the environmental impacts of decommissioning and restoring sites to their original use and repurposing sites for new activities. |
| Why is it important that consultation is 'right-sized' to the project? | While stakeholder engagement is an important part of any investment proposal, this needs to be balanced against the certainty of outcomes and delivering public investments efficiently. For example, it may be the case that engagement with stakeholders who will only be peripherally impacted by a proposed investment may not provide the project team with enough valuable information to justify its effort at the expense of other activities related to delivering the investment. Similarly, too many communications and engagement activities can result in ''consultation fatigue'', where citizens become over-exposed to a proposed investment to the point that they become disengaged.<br><br>While stakeholder engagement can be enormously beneficial to helping inform public investment decisions, this also needs to be balanced against the need to bring certainty to communities, businesses and other stakeholders. Best practice stakeholder engagement means undertaking thorough engagement at key stages but not necessarily allowing decisions to be revisited once they have been made with input from stakeholders.<br><br>Determining the appropriate amount of consultation is a judgment that needs to be applied to each individual project. However, key considerations when determining this should include:<br><br>• the scale of impacts upon stakeholders (e.g. the amount of land acquisition, impacts and risks posed to important natural and cultural sites, impacts of people's movements, consumer prices, etc)<br>• the breadth of stakeholders affected (e.g. this could range from a small neighbourhood to a city, region or multiple cities and regions. Larger, longer-lasting public investments that impact a wide range of people may need a more structured, systematic approach, involving many different communications and engagement methods to gather information, to accurately capture a wide range of perspectives. A more specific public investment, that might only have a direct impact on a small group of individuals may require more in-depth, targeted engagement.<br>• The need to consult with a diverse range if stakeholders i.e. age, gender, ethnicity, economic status (e.g. stakeholders from different backgrounds will need different communications and engagement methods in order to be reached. |

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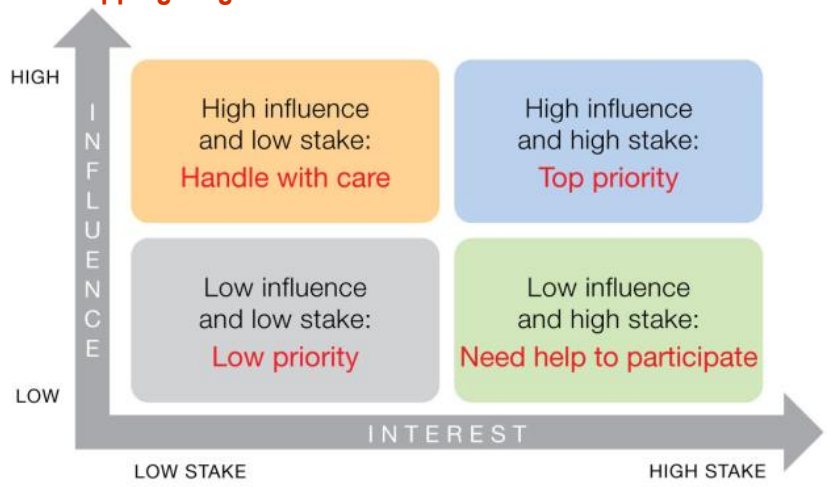
| | • the nature of the investment i.e. whether it is routine or novel (e.g. a routine investment may require less explanation and discussion with stakeholders compared with a novel, untested new technology, which may be seen as uncertain and have greater risks). |
| Who should be invited to participate in consultation? | With all investments, different stakeholders will be affected in different ways and will respond to different communications approaches. It is important to analyse who the key stakeholders are and how they can be best involved in developing an investment proposal that makes the most of their contribution while also upholding standards of public integrity and trust.<br><br>To choose the right stakeholders to involve, complete the following steps:<br><br>1. identify the relevant stakeholders<br>2. assess their level of interest and impact on a project, by following the matrix in Figure 1 [Influence = the stakeholder's ability to impact whether or not the proposal goes ahead e.g. a minister or mayor will have high influence; Impact = how directly affected a stakeholder is by a proposal e.g. a stakeholder whose property would be affected by a proposal is highly impacted.]<br>3. Group the stakeholders in to units (ref. examples in Figure 2)<br>4. Identify each stakeholder group's key concerns, existing and future communications methods and key messages (ref. examples in Figure 2).<br><br>Figure 3 depicts the spectrum of approaches for involving the different stakeholder groups. This framework helps identify how different stakeholders can be best involved in a decision-making process about a particular public investment. [Note: most stakeholders will be placed in the inform and consult, a smaller group in the involve and collaborate columns and very few (if any) in the empower column.] |

## Figure 1. Stakeholder mapping diagram[3]




[3] Stakeholder Analysis, International Atomic Energy Agency.

## Figure 2. Stakeholder mapping table[4]

| Stakeholder groups | Key concerns | Existing communication methods | More effective communication methods | Key messages |
|---|---|---|---|---|
| Host community | -Safety of operations<br>-Health and environmental impacts<br>-Benefits package<br>-Emergency preparedness | -Meetings<br>-Presentations<br>-Written communications | -Visits to similar facilities<br>-Educational activities and exhibitions | -Solution to long-term management of radioactive waste<br>-Safe and responsible operation<br>-Local socio-economic development |
| Media | -Public concern<br>-Is it newsworthy?<br>-media impact | -Meetings<br>-Seminars<br>-Written communication<br>-Social media | -Press conferences and press releases<br>-Site visits (media tours)<br>-Training<br>-Personal contact<br>-Social media | -Safe and responsible operation (in conformity with international standards)<br>-Direct access to accurate information |
| Politicians currently in power | -Funding of the project<br>-Legislative framework | -Meetings<br>-Written communications | -Meetings<br>-Lobbying | -Sustainable solution to long-term management of radioactive waste<br>-Safety first |
| NGOs | -Environmental issues<br>-Transparency<br>-Safety | -Meetings<br>-Seminars<br>-Written communication<br>-Social media | -Open forums<br>-Presentations and meetings<br>-Emails<br>-Personal approaches | -Safe and responsible operation<br>-Transparency |

[4] Stakeholder Analysis, International Atomic Energy Agency.

## Figure 3. Public Participation Spectrum[5]


| | INFORM | CONSULT | INVOLVE | COLLABORATE | EMPOWER |
|---|---|---|---|---|---|
| **PUBLIC PARTICIPATION GOAL** | To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions. | To obtain public feedback on analysis, alternatives and/or decisions. | To work with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. | To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution. | To place final decision making in the hands of the public. |
| **PROMISE TO THE PUBLIC** | We will keep you informed | We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. | We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision. | We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into decisions to the maximum extent possible. | We will implement what you decide. |

## 3. Undertake foresight analysis

| Question | Answer |
|---|---|
| What is foresight analysis? | The purpose of foresight analysis is to understand the future trends and opportunities that a community, region, country or the international community may face in the future. Foresight analysis can also be used to identify a preferred future e.g. a net zero emissions economy, which can then inform the public investment choices needed to achieve the desired future state.<br><br>A method often used as part of foresight analysis is horizon scanning, which is a process of searching for signs that something new is occurring that could disrupt the system in unexpected ways. Horizon scanning is a way of providing the evidence for foresight analysis.<br><br>Another technique used in foresight analysis is scenario analysis, which is a form of 'what if' analysis that is useful where there are significant future uncertainties. Scenarios may be chosen to explore significant technical, economic and political uncertainties which will affect the success of an intervention. Scenarios can help the decision maker devise a few investment packages with different levels of ambition (i.e. scenarios assuming strong economic growth will allow for more resources to be spent and for more projects to be delivered).<br><br>Scenario analysis must always be proportionate to the costs and risks involved. Low cost, low risk proposals may look at simple 'what if' questions. Major policies and more expensive, higher risk options may require modelling exercises which test the impact of different states of the world on expected costs and benefits. |

[5] Spectrum of Public Participation, IAP2, 2018.

| | |
|---|---|
| Why is this an important part of risk management? | Strategic infrastructure planning needs to include foresight analysis to ensure resilience of the infrastructure network in the future in the face of many potential future scenarios. This minimises the risk of any particular investments becoming redundant under future scenarios. |
| Over what future timeframe should foresight and scenario planning take place? | The timeframe for foresight analysis should be aligned with the timeframes applied to the investment needs assessment, for which 30 years is recommended. |
| What are the scope of scenarios that need to be covered in foresight and scenario planning? | The scope of scenarios should capture the widest possible range of macroeconomic events that will then drive decisions about public investment. More specifically, the scope of scenarios should include:<br>• Economic (e.g. international trade and supply chain impacts, inflation, technological change, domestic production trends, population and demographic changes, labour movements and immigration settings)<br>• Environmental (e.g. impacts from climate change, environmental quality (e.g. air quality, water quality)<br>• Social (e.g. technological adoption, social preferences, cultural customs). |
| At what stage of the lifecycle is this important? | Foresight analysis should take place at the same time as an investment needs assessment (ref. section 6). |
| What is the relationship between foresight and project selection and appraisal? | Creating scenarios is a helpful way of considering risks and uncertainty and also allows policy makers to test whether a project is robust against different possible states of the world. In this regard, scenarios can provide useful background in the appraisal process, but should not be included in a project selection or appraisal process because they risk making the process too complex.<br><br>Scenario planning can be a useful tool to analyse the limits of different investment proposals. For example, scenarios can test what the worst possible environmental outcome of an infrastructure development could be by making assumptions on high economic growth projects and certain CO2-intensive business models to be used. Another example would be a pessimistic scenario to test how low numbers of users would translate into the financial viability of an infrastructure project. |
| How is foresight different from forecasting? | Forecasting takes data from the past and extrapolates it into the future using a variety of tools, from statistics to simulations. Forecasting helps users understand the present and the most likely future (often with upper and lower limits). This is different from foresight, which, as noted above, focuses on identifying signs of emerging trends taking place now, instead of relying on data from the past.<br><br>By being future-focused, foresight is a particularly valuable approach at a time when the underlying systems are changing in fundamental ways, users of forecasting should take care to confirm that the supporting assumptions are still correct. |
| Who needs to be involved? | Because foresight analysis needs to take place alongside an investment needs assessment, involving the same stakeholders in both processes is recommended. |
| When should a foresight and scenario plan be reviewed? | A review of the foresight and scenario planning should take place at the same time as the review of the needs assessment, which should take place at least every 5 years. |

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| What are some useful approaches or frameworks for foresight analysis? | For identifying a preferred future and developing options for achieving the desired future state:<br>• FUTURES: Vision-led strategic planning for an uncertain world, Mott MacDonald and the University of the West of England:<br><br>For anticipating and responding to future scenarios:<br>• Foresight Training Modules, Policy Horizons Canada, 2018:<br>• Infrastructure Futures: the impacts of megatrends on the infrastructure industry<br><br>General advice from leading countries on scenario planning in infrastructure:<br>• 'Addressing Uncertainty Through Scenario-based Planning', Strategic Infrastructure Planning – International Best Practice, International Transport Forum (OECD) and National Infrastructure Commission (United Kingdom), 2017, pp.51 – 54. |

## 4. Undertake an investment needs assessment

| Question | Answer |
|---|---|
| What is an investment needs assessment? | An investment needs assessment reviews what public investments, such as infrastructure, will be required – now and in the future – to deliver on a country's long-term aspirations.<br><br>An investment needs assessment is not about identifying particular investment solutions. It is about identifying the broad issues that need to be addressed, which will then direct the project selection and appraisal process at a later stage.<br><br>An investment needs assessment may form the basis of a country's long-term infrastructure strategy. |
| Why is completing a needs assessment an important part of risk management? | A thorough needs assessment ensures that investment decisions made during the project selection and appraisal stage are informed by genuine societal needs. This ensures capital is allocated to the highest need investments and avoids the risk of being allocated to unproductive purposes. |
| What timeframe should be applied to a needs assessment? | As well as being informed by strategic direction at the highest level, it also needs to be informed by foresight planning and scenario analysis, in order to understand the future trends that infrastructure investment must address.<br><br>Countries commonly apply 20 to 30 year timeframes when developing their needs assessments. Given public investments, such as infrastructure, can be multi-generational assets, a timeframe of at least 30 years is recommended. |
| In what circumstances is undertaking an investment needs assessment essential? | All countries should have an investment needs assessment that has been updated at least within the last five years. |
| At what stage of the investment lifecycle should a needs assessment take place? | An investment needs assessment, updated within at least the previous five years, must be in place at all times so that it is available to guide all capital investment decisions. |

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| What information is needed? | An investment needs assessment must set out and describe the following:<br><br>1. Strategic objectives – this should set out the government's agreed vision, aspiration and targets at a macroeconomic level over the coming 30 years e.g. reduce carbon emissions in line with international targets, make communities more resilient to climate change, make the most of technological change. The strategic objectives should already exist and can be found in high-level direction-setting documents produced by government.<br>2. Current state – an analysis of current investments and policy initiatives, with timeframes for delivery and costings, and describe their combined capacity to contribute to achieving the strategic objectives e.g. the current level of investment in renewable energy and electrified transport is not enough to meet our international climate agreements. The current state should describe the specific investments or policy initiatives that will address the strategic context, including the timeframe for delivery and amounts spent. [Note: as well as focusing on physical capital investments, the current state should also consider non-physical investment, such as policy initiatives that manage demand on infrastructure].<br>3. Response – this analysis the capacity for the current state to address the strategic context. It should describe how current investments and policy initiatives will achieve the strategic objectives. Where the strategic objectives cannot be met under the current state, the response should describe at a broad level the outcomes required to achieve the strategic objectives e.g. demand for non-renewable energy will need to decline by X% in order to achieve our international climate agreements. |
| Who needs to be involved? | An investment needs assessment requires broad agreement from a range of parties involved in delivering, operating and using infrastructure. It is advisable to hold workshops or use online tools to capture the perspectives of these stakeholders. The particular stakeholders include:<br>• Infrastructure delivery bodies – line ministries, delivery bodies, state-owned enterprises, municipalities and other sub-national governments with responsibilities for infrastructure and private infrastructure businesses<br>• Membership organisations that represent particular professions e.g. institutes of engineers, water infrastructure professionals, construction professionals, etc<br>• General public |
| When should this be reviewed? | Investment needs assessments must be updated at least every five years. They may need to be updated more frequently in response to major, unforeseen events that may impact investment needs. |
| What are some useful examples of investment needs assessments? | Infrastructure and Projects Authority (United Kingdom), National Infrastructure Delivery Plan 2016 – 21 (2016).<br><br>Infrastructure Australia, An Assessment of Australia's Future Infrastructure Needs (2019). [Note: Infrastructure Australia (IA) is an agency that is tasked with giving the Australian Government independent advice on infrastructure. Because of this independence, IA are required to identify future trends in infrastructure, rather than respond to the Government's strategic objectives.] |

### *Example 1. Setting the strategic context for regional investment in Bulgaria*

The Council of Ministers has directed officials to develop public investment options focused on regional development. By following the guidance set out in this section, the officials start by reviewing the government's strategic vision, identify any relevant key performance indicators (KPIs), any relevant foresight analysis that is available and information relating to a needs assessment of existing infrastructure.

The officials review the National Development Plan "Bulgaria2030" and discover the following relevant vision statements. These vision statements can help the officials identify the challenges that the regional investment programme can solve:

- "Accelerated economic development
- Reduction of inequalities
- Connected and integrated Bulgaria
- Green sustainable Bulgaria".

Also in "Bulgaria2030", the officials find the following relevant KPIs. These KPIs can be used to measure whether the proposed regional development will help achieve the Government's strategic direction:

- "Reduce greenhouse gas emissions per capita (t CO2 eq/p) from 8.67 to 7.9 by 2030
- Reduce greenhouse gas emissions intensity (t CO2 eq/GDP) from 0.586 to 0.330 by 2030
- Percentage share of rail passengers increased from 4.5% in 2019 to 6.5% in 2030
- Percentage share of goods carried by rail increased from 15.5% in 2019 to 22% in 2030
- Percentage of rural broadband coverage by household increases from 28.4% to 60% by 2030
- Percentage of population at risk of poverty in rural areas (after deduction of household costs) decreased from 55.9% to 40% by 2030
- Percentage of the EU average of GDP per capita in predominately rural areas to increase from 35% to 50% by 2030."

Next, the officials undertake an infrastructure needs assessment with a focus on regional areas, holding workshops with a wide range of stakeholders to capture a broad range of views. The main themes are:

- The regional motorway network is not consistently meeting its service targets, unlike road networks in urban areas
- The fibre broadband network in rural areas is often found to be slow and unreliable
- The connections with the trans-European networks are insufficient
- In general, the quality of infrastructure is rural areas is lower than compared with urban areas.

At the same time as completing the infrastructure needs assessment, the officials also undertook foresight analysis. The views of stakeholders were captured during the needs assessment workshops. The key themes included:

- Without new investment, Bulgaria is likely to experience low and stagnant economic growth compared with the EU
- The export of low-to-medium value goods is expected to continue
- More frequent and severe weather events, due to climate change, will increasingly impact people's wellbeing and way of life.

# 3 Establish the case for change

## 5. Ascertain the strategic fit

| Question | Answer |
|---|---|
| What is strategic fit? | Strategic fit is the extent to which a proposed investment aligns with high-level, long-term policy objectives set by the Government. |
| Why is it important to establish whether a proposed investment is a good strategic fit with the Government's objectives? | Understanding the strategic fit ensures an investment aligns with the agenda that a democratically elected government was appointed to deliver.<br><br>It is vital to understand both the context within which policy objectives are being delivered and the change that will result from the proposed intervention and cause the desired policy objectives.<br><br>Developing investment proposals must start with developing a logical rationale and be based on a sound understanding of the current position. This needs to be understood in objectively quantifiable terms so that the scope and key features of the issues are understood appropriately. |
| Why is strategic fit an important part of risk management? | Understanding the strategic fit of a proposed investment ensures public resources are being allocated to activities that are high priority. This avoids the risk of public resources being allocated to activities that are not of high priority. |
| What information is needed? | This step requires information outlining the Government's high-level, long-term policy objectives that explain all relevant international, national and sub-national policies, initiatives and targets. These types of objectives can be found in strategic direction-setting documents, such as Bulgaria2030 and relevant sector plans. |
| At what stage of the lifecycle does the strategic context need to be established? | Establishing the strategic context needs to take place as the first step of an investment selection process. |
| Who should be involved? | At the beginning of a project selection and appraisal, the senior responsible officer and the project team must identify who the relevant stakeholders are and how they should be involved throughout the process. The RASCI Framework[6] describes how stakeholders should be involved at different stages of the project selection and appraisal process.<br><br>When ascertaining the strategic fit, engineers, economists, policy analysts, subject matter and sector experts, evaluation and research teams and finance teams need to be involved in determining the strategic context and whether a proposed investment is a good strategic fit. |

[6] Ref. Appendix 1: RASCI Framework.

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| | In applying the RASCI Framework, the following parties should be involved in the ways described below:<br>• Responsible – had lead responsibilities for ensuring the strategic context assessment is comprehensive and completed<br>• Accountable – need to have awareness that a strategic assessment context has been completed to a high degree of comprehensiveness but may not need to be part of gathering and assessing the information.<br>• Support, consulted, informed – not required for this stage, but relevant information should be made available to them as necessary. |
| What techniques/tools can be used to establish strategic fit? | Completion of the following steps is required:<br>1. Desktop research – nominate an individual to gather all relevant documents, strategies, reports and other information as described above<br>2. Analysis – nominate an individual, preferably who also completed the desktop research, to report to the 'responsible' stakeholders on the key objectives, goals and targets<br>3. Hold a workshop – include all 'responsible' stakeholders to discuss the research and analysis and confirm that the strategic context is comprehensive and complete<br>4. Report to the 'accountable' stakeholders – report the key objectives, goals and targets to the 'accountable' stakeholders, confirming that this phase is now completed. |

## 6. Define the problem being solved and the expected benefits[7]

| Question | Answer |
|---|---|
| Why is defining the problem and the expected benefits important? | Defining the problem and expected benefits ensures there is a logical rationale for why a proposed investment should be pursued and how it contributes to achieving the aspirations set in the strategic context. It ensures that public resources are allocated to activities and investments that will deliver sufficient net benefit to society. Identifying the expected benefits ensures that the chosen investment or initiative can be measured for its effectiveness at a later stage. |
| Why is this an important part of risk management? | It helps avoid the risk that public resources are allocated to low value investments, preventing the ability for those resources being allocated to more important matters. |
| How to define the problem? | Defining the problem being solved by a potential investment or activity includes understanding the following:<br>- The status quo – this requires understanding what is currently happening (e.g. a large share of the country's carbon emissions come from the transport sector). The description of the status quo should be neutral, non-judgmental depiction of existing public outcomes without identifying any particular solutions.<br>- The performance gap – this requires comparing whether there is a difference between where a sector is performing now against the outcomes it is intended to achieve, including any unexpected outcomes that may be occurring (e.g. carbon emissions are not reducing fast enough to meet climate targets). |

[7] For further guidance: International Guide to Developing the Project Business Case, HM Treasury (United Kingdom), 2018; Investment Management Standard Departmental User Guide, Department of Finance and Treasury, Victoria State Government (Australia), 2017.

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| How to define the expected benefits? | Defining the expected benefits includes identifying the positive outcomes that are expected from undertaking a particular investment or initiative, which can later be assessed for whether the benefit was achieved. |
| What is a good process for identifying the problem and expected benefits? | To gather the necessary information, the following steps must be met:<br><br>1. Hold a problem definition workshop<br><br>The workshop will set out to define the status quo, the performance gap and the expected benefits derived from addressing the performance gap.<br><br>It is recommended that an independent facilitator is appointed to facilitate this workshop. This must be someone who is not involved with delivering the investment or activity or the day-to-day operations of the relevant sector. It is important that the facilitator is neutral and does not have a strong preference for any particular solutions to address the problem. This helps ensure that the widest possible range of problems and benefits are considered, which will ultimately lead to the widest possible range of solutions being considered.<br><br>2. Prepare an investment logic map (that describes the problems and benefits)<br><br>The output of the problem definition workshop should be an investment logic map (ILM) that describes the problem that is being addressed and the benefits that are expected from addressing the problem.<br><br>An ILM is a single-page depiction of the logic that underpins an investment or initiative. The ILM represents an 'agreed investment story' that is created through the structured discussion of the workshop. It should be written in a simple way so that a person unfamiliar with the investment or concepts involved could understand it. The ILM provides the core focus of an investment and is modified to reflect changes to the logic throughout its lifecycle.<br><br>There should be 2 – 4 problem statements and at least 1 benefit attributed to addressing each problem. It is possible to have more than 1 benefit attributed to each problem statement. Percentage weightings need to be added to each problem statement and benefit, measuring the significance of each.<br><br>At this stage of the process, it is important to avoid finding solutions and to stay focused on the public outcomes that are being sought. Therefore, the problem statements and expected benefits should describe a public outcome, not describe a solution.<br><br>Refer to Figures 4 and 5 for an example of how the ILM should be prepared.<br><br>3. Hold a workshop to define the benefits<br><br>The expected benefits defined during workshop 1 now need to be refined. This workshop will:<br><br>• identify the KPIs and measures and potentially targets and timelines that the investment will need to deliver; and<br>• specify how the delivery of the benefits will be measured and reported.<br><br>It is also important to consider how uncertainty on different future scenarios (ref. *3.1. Undertake Strategic Foresight*) may impact the way benefits are defined and realised. Where potential uncertainty is identified, record its potential impacts on investment success. |

| | |
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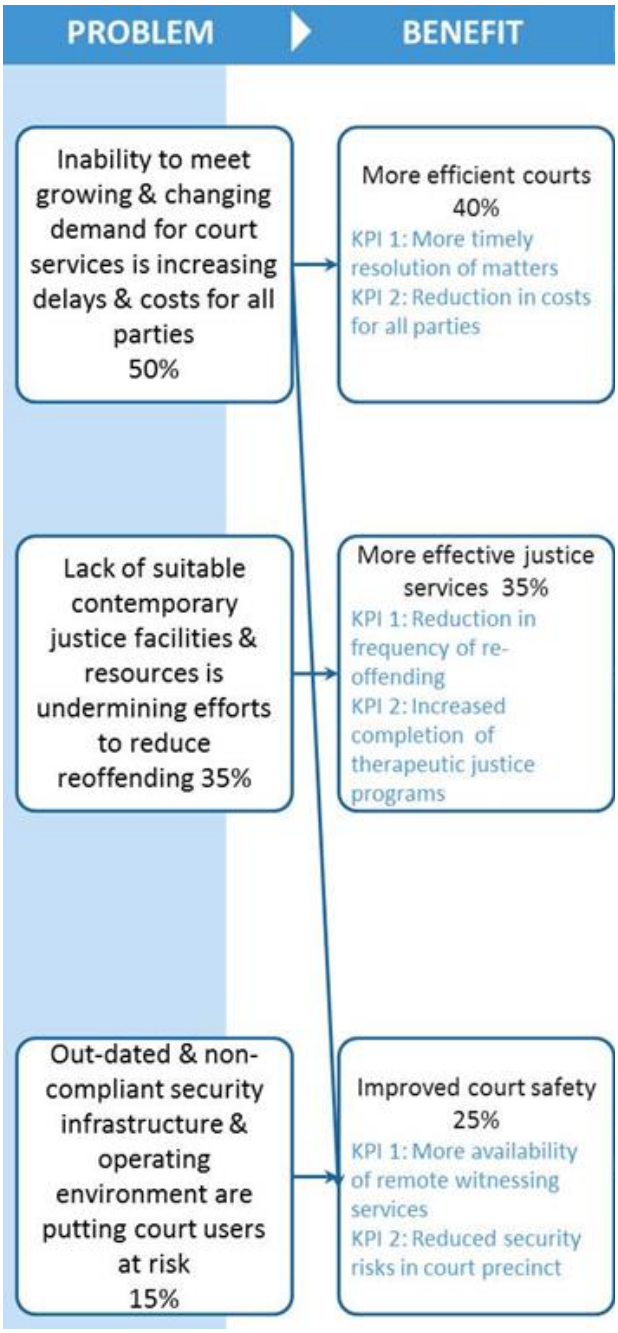
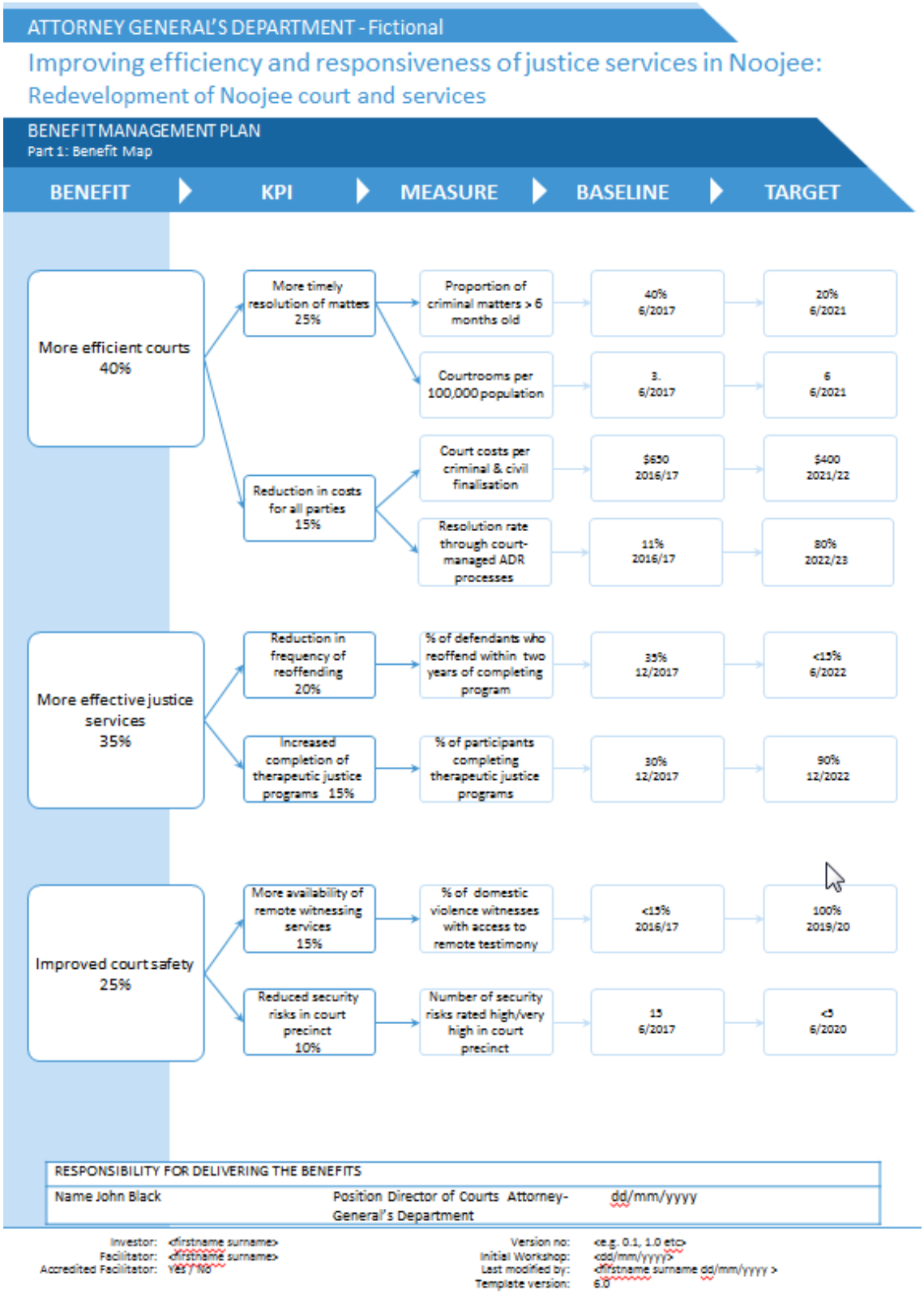
| | 4. Prepare a Benefits Management Plan<br><br>The output of workshop 2 is a benefits management plan, which captures the points concluded in the workshop. Refer to Figure 5 for an example. |
| Who should be involved?[8] | • Responsible – must participate in workshops 1 and 2 and be involved in preparing the relevant documentation. Completing these steps requires the involvement of people with a detailed operating knowledge of the relevant sector. In addition, to retain a diversity of thought and ensure the widest possible range of factors are considered, it is important to include people from a wide range of professions, backgrounds, gender and ethnicity.<br>• Accountable – senior responsible officer should present the findings from the two workshops and seek feedback. It is important that the "accountable" stakeholders approve the problem definition and expected benefits because this will significantly shape all upcoming decisions on the investment.<br>• Support – consider their involvement in workshops 1 and 2 if it is deemed they may have a useful contribution. Not essential that they are involved.<br>• Consult, Inform – must be consulted in line with the IAP2 Framework (Ref. Figure 3).<br><br>As noted above, a workshop facilitator who is not involved in the day-to-day operations of a particular sector is also needed. |
| When should this take place? | Identifying the investment objectives, status quo and investment needs must take place once the strategic context is established and before any particular investment solutions are decided on. Identifying the problems and benefits at the beginning of an investment process ensures the widest possible range of options can be considered at the project selection phase. |

[8] Ref. Appendix 1: RASCI Framework

**Figure 4. Problem Definition Workshop 1: defining the problem statements and expected benefits**



## Figure 5. Benefits Management Plan – example



## 7. Determine the risks, constraints and dependencies

| Question | Answer |
|---|---|
| What is a risk?[9] | A risk is an uncertain future condition or circumstance that could impact the achievement of objectives, and one that is often characterised by reference to potential events or consequences.<br><br>Objectives can have different aspects (such as financial, health and safety, gender inequality, or environmental) and can apply at different levels (such as strategic or project levels). Risks can therefore be conceptualised in terms of their component causes, events, and consequences:<br><br>• Risk factors are characteristics of an organisation's environment, policies, procedures or activities that are associated with risk.<br>• A cause is a fact or occurrence which alone or in combination has the potential to create risk.<br>• An event is an occurrence or change in circumstances. Events are usually thought of as something unexpected but can also be something expected which does not happen.<br>• Consequences are the outcome of an event affecting objectives and can be certain or uncertain. |
| What are constraints and dependencies? | • Constraint – the external conditions and agreed parameters within which the investment must be delivered, over which the investment has little or no control but which is imposed upon the investment. Examples include policy decisions, legislation, rules and regulations and timescales.<br>• Dependency – factors outside the scope of the investment but which determine the success of the project, including whether the investment can or cannot proceed. Common dependencies are with other programmes and investments. |
| Why is identifying the risks important? | Public investments such as infrastructure are particularly complex, making successful risk management critical to effective delivery. For infrastructure projects, governments often want to minimise upfront costs in order to be seen as being responsible with public money. People's natural tendency to optimism bias can result in incorrect forecasts and assumptions and an underestimation of risks, while often overestimating user uptake, revenue and growth potential. This commonly results in projects exceeding their time and budget commitments. |
| Why is identifying the constraints and dependencies important? | Dependencies and constraints place parameters around the project selection process, to ensure that only options that are realistic within the operating environment are considered. Some constraints or dependencies may not make a proposed investment unrealistic but may instead impose delays if the proposed investment depends on the completion of another programme first. |
| What information is needed? | A discussion amongst the stakeholders identified[10] as ''responsible'' should be sufficient to report the constraints and dependencies. |
| When should this take place? | This must take place after the problems and expected benefits are defined and before the project selection stage begins. This ensures that the project selection stage generates options that are realistic and take account of the relevant risks, constraints and dependencies. |

[9] For more information, refer to 8. Develop a Plan for Managing Operational Risks.

[10] Ref. Appendix 1: RASCI Framework

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| Who should be involved? | Stakeholders identified as being ''responsible'' in the RASCI Framework[11] should identify and record the risks, constraints and dependencies.<br><br>"Accountable'' stakeholders should be informed about the outcome of this process. |

## 8. Hold a workshop to confirm the case for change

| Question | Answer |
|---|---|
| What is the purpose of this workshop? | The purpose of this workshop is to ensure all relevant stakeholders agree that all the steps of the ''case for change'' stage have been met and sufficient information has been gathered to inform the next stage of the investment process.<br><br>This is the final step of the ''case for change'' stage before progressing to the next stage: 'identifying and assessing options'. At the end of each stage, it is important to confirm with all relevant stakeholders that all necessary information has been gathered, standards of quality have been met and that there is sufficient information available to progress to the next stage. |
| What are its objectives? | The ''case for change'' workshop should confirm:<br>• The strategic context and the strategic fit of the proposed investment<br>• The problem definition and expected benefits<br>• The risks, constraints and dependencies.<br>It is important that these elements are assessed for whether they have followed the process set out in the steps above.<br>Before proceeding to the next stage, the ''accountable'' stakeholders must be able to select 'yes' for all questions under the Problems and benefits columns in the Investment decision-makers' checklist.[12] If any questions are answered with 'partial' or 'no', the ''responsible'' stakeholders must be directed to gather more information in these areas (following the sections set out in this manual). |
| Who should be involved?[13] | • Responsible – must present the information to the ''accountable'' stakeholders<br>• Accountable – must be involved in critiquing the information gathered. Must also either approve or decline the case for change, permitting the investment proposal team to progress to the next stage, or identify areas where more work is required<br>• Support – may be required to support the ''responsible'' stakeholders on particular areas of specialty. Not essential.<br>• Consult – should be involved in the workshop where feasible. Some larger investment proposals will have too many consultees to involve all of them in a workshop. Where this is the case, a small group of consultees representing a wider cohort of consultees may be preferable e.g. advocacy group leaders, municipal leaders<br>• Inform – must be informed of the outcome of the workshop, including by being sent any formal minutes and key decisions. |

[11] Ref. Appendix 1: RASCI Framework.

[12] Ref. Appendix 2. Decision-maker's checklist.

[13] Ref. Appendix 1: RASCI Framework

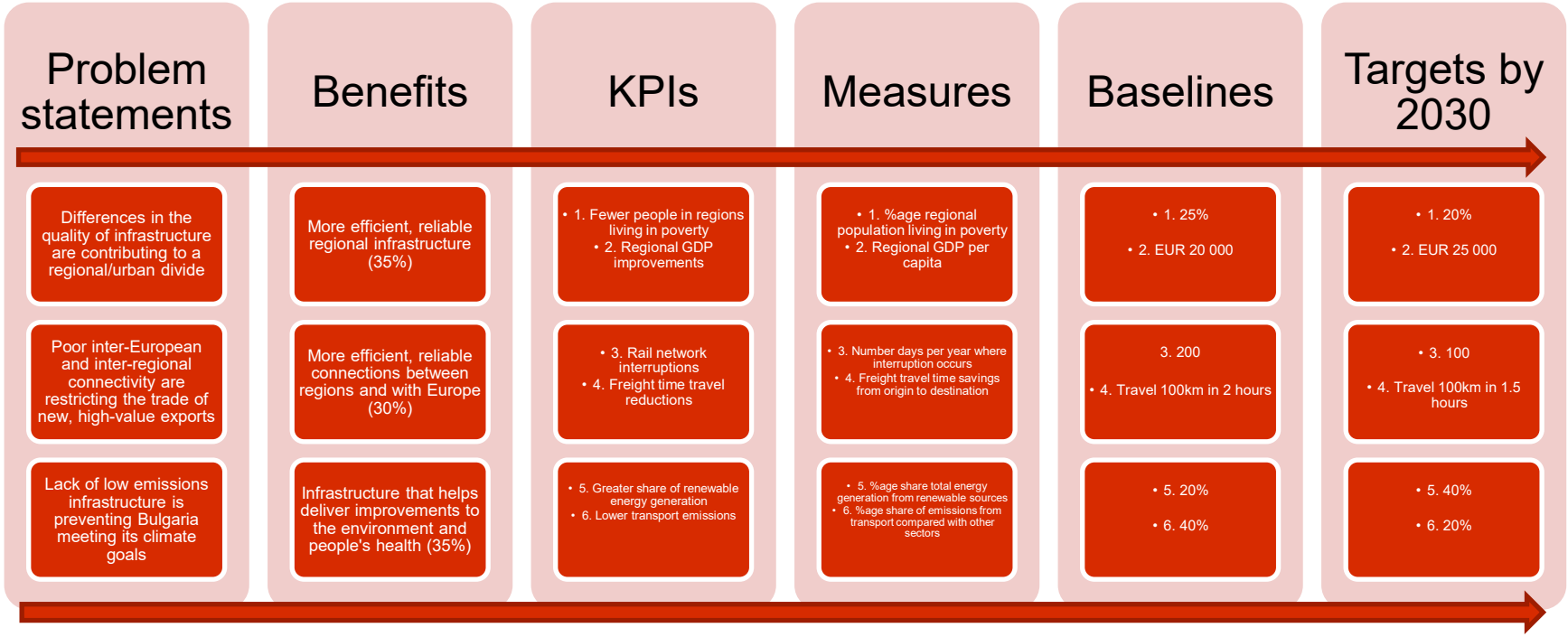
| | |
|---|---|
| How should the selection process be recorded? | The strategic context and the strategic fit of the proposed investment, problem definition and expected benefits and the risks, constraints and dependencies should be recorded in a single document. Once approved by those "accountable", the document should state that it has been formally approved by its governing entity.<br><br>This document should be made available to all stakeholders involved with preparing the ''case for change'' and those involved with delivering future stages of the investment proposal. This ensures all decisions relating to the investment proposal are transparent and can be used to inform future decisions relating to the investment proposal.<br><br>There is no single template for recording this information. Example templates are available at the HM Treasury (United Kingdom) website.[14] |

[14] The Green Book: templates and support materials, HM Treasury (United Kingdom): The Green Book: Templates and support material - GOV.UK (www.gov.uk)

### *Example 2. Defining the problems, identifying the benefits, establishing the measures (regional investment examples continued)*

Now that the officials have established the strategic context, they apply the steps described in Section 3 to define how investment in infrastructure can support the strategic vision described in example 1. In doing so, the officials identify the following:

- Problem statement – current problems related to public investment in regional Bulgaria that additional investment could solve
- Benefits – the benefits that would be derived from addressing the problem statement, with a percentage weighting based on each benefit's overall importance in relation to achieving the strategic direction
- Key performance indicators (KPI) – quantifiable measures used to evaluate the success of an investment or initiative, including whether an investment or initiative has achieved – or is on track to achieve – its intended objectives
- Measures - metrics by which the achievement of the benefits will be measured
- Baselines – the extent to which the measure is performing today (e.g. 25% of people living in regional areas live in poverty today)
- Targets by 2030 – the aspirational targets that would measure whether the proposed investment has made a meaningful contribution (e.g. only 20% of people living in regional areas live in poverty by 2030).




Now that the officials have clearly defined the problem, identified the benefits and established how the benefits will be measured, the officials can now progress to identifying and assess different regional investment options (ref. Example 3).

# 4 Identify and assess the options

## 9. Revisit the "case for change"

At the beginning of the "identify and assess" stage, the senior responsible officer and the project team should confirm that the "case for change" is still accurate and up-to-date and that there have been no new developments that should alter the "case for change". This ensures the project team that they can confidently proceed to the next stage knowing their decisions will be based on the latest, relevant information. This is particularly important if time has elapsed between completing the "case for change" and beginning the "identify and assess options" stage.

If there have been developments that have altered the "case for change", the SRO and project team should identify the aspects that need to be reviewed and redo the relevant steps accordingly.

## 10. Agree the critical success factors

| Question | Answer |
|---|---|
| What are critical success factors? | Critical success factors[15] (CSF) are attributes that are essential for the successful delivery of the proposed investment. They form the criteria against which the investment options will be assessed alongside the expected benefits identified in the "case for change".<br><br>The CSFs must be critical to the success of a proposed investment, not only desirable. They need to be broad enough to not unreasonably exclude important options before project selection and appraisal begins. |
| Why is establishing the critical success factors important? | Because CSFs are the criteria against which the investment options will be assessed, they ensure that those undertaking the appraisal can focus only on options that are well-placed to solve the identified problem. |
| Why is this an important part of risk management? | Identifying CSFs helps avoid the risk of public resources being allocated to investments and initiatives that will not generate the highest possible "return on social investment" to the public. |
| What are a suitable criteria for establishing critical success factors? | The CSFs should be broad enough in coverage that they capture all dimensions of a proposed investment (e.g. strategic, economic, financial benefits, costs and risks).[16]<br><br>Refer to Figure 6 for examples of suitable CSFs that should apply to all investments. In some cases, |

[15] Ref. '4.4 Longlist Appraisal and Options Filter Framework', International Guide to Developing the Project Business Case, HM Treasury (United Kingdom), 2018.

[16] Ref. Figure 6: identifying critical success factors

| | |
|---|---|
| | one or at most two additional factors may be added, but if a proposal's objectives, constraints and dependencies are correctly understood this is rarely the case. At most the number should not exceed seven. |
| How should critical success factors be selected? | The SRO and investment proposal team should meet to share suggestions and confirm a list of CSFs. The ''case for change'' is a good source of information, particularly for CSFs related to the strategic fit and ascertaining value for money. Other CSFs will be more generic, such as those relating to affordability and achievability. |
| When should this take place? | This must take place once the ''case for change'' is established and before options appraisal begins. This ensures options appraisal is guided by a clear, consistent and logical structure, ensuring all options are assessed equally and on their merits. |
| Who should be involved?[17] | • Responsible – SRO and project team must develop CSFs<br>• Accountable – governing entity must review and approve the CSFs before options appraisal begins<br>• Support – may provide particular specialist skills and knowledge if of value, but not essential<br>• Consult, Inform – must have access to the CSFs and information on how they were selected, but do not need to be involved in their selection. |

## Figure 6. identifying critical success factors

| Key critical success factors | Broad description |
|---|---|
| Strategic fit | How well the option<br>• Fits with the strategic context and has synergies with related investments<br>• meets the expected benefits |
| Potential value for money | • optimises public value (social, economic, environmental) in terms of potential costs, benefits and risks (ref. to ''case for change'' for this information) |
| Supplier capacity and capability | • matches the ability of suppliers to deliver the required services<br>• is likely to be attractive to the supply side |
| Potential affordability | • can be funded from available sources of finance<br>• achievable within sourcing constraints |
| Potential achievability | • is likely to be delivered given the organisation's ability to respond to the changes required<br>• matches the level of available skills required for successful delivery |

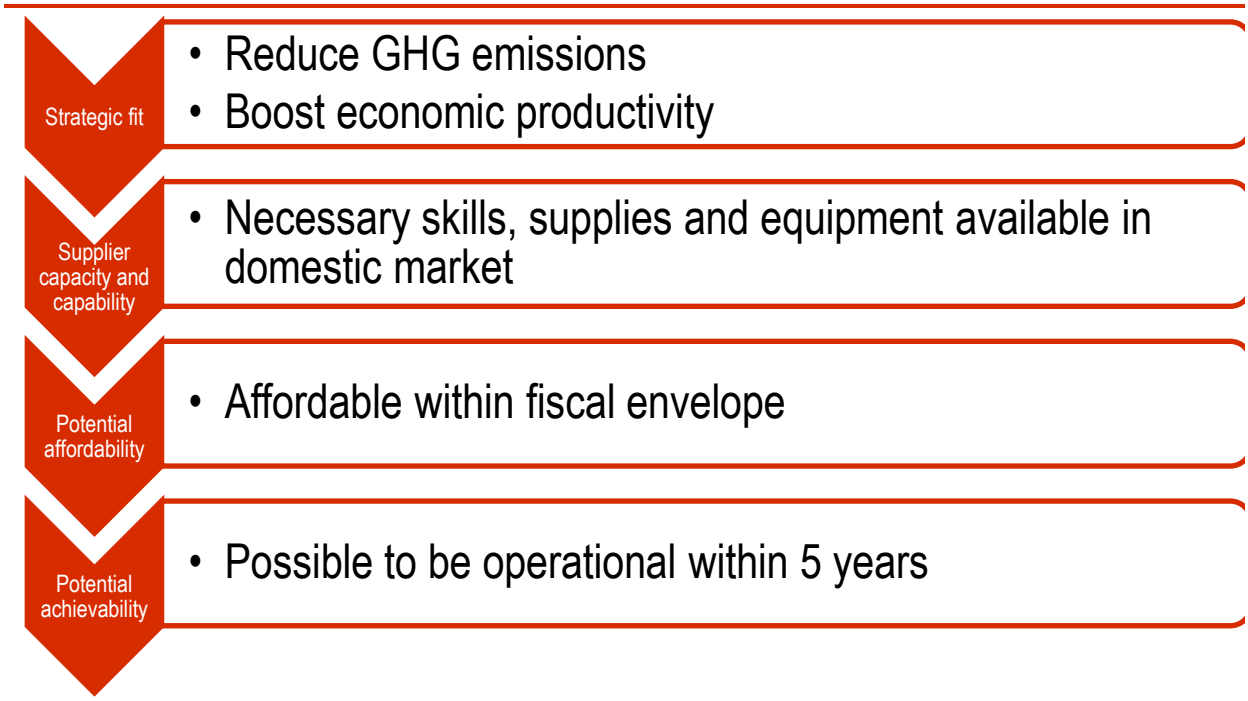
### *Example 3. Identifying the critical success factors for regional investment in Bulgaria*

Before developing a longlist, the officials must now identify the critical success factors (CSF). Taking on board the guidance in this manual, the officials begin developing CSFs that are:

- Critical to the success of a proposed investment, not only desirable
- Broad enough to not unreasonably exclude important options before project selection and appraisal begins
- Broad enough that they capture all dimensions of a proposed investment (e.g. strategic, economic, financial benefits, costs and risks).

The officials refer to the standard CSFs in Figure 6 and the information gathered as part of the "case for change" (ref. section 3) to identify the following CSFs for the regional investment proposal:

[17] Ref. Appendix 1: RASCI Framework




Now that the officials have identified the CSFs, they can start developing their longlist of options.

## 11. Establish a long list of options

| Question | Answer |
|---|---|
| What is a long list of options? | A long list is a wide range of realistic and possible options that align with the critical success factors and potentially address the problems and deliver the expected benefits identified in the ''case for change''. |
| Why is establishing a long list of options important? | Establishing a long list ensures a wide range of options for delivering maximum social value and value for money with public resources has been explored. |
| Why is this an important part of risk management? | A thorough long list ensures a wide range of value for money options are considered, reducing the risk of public resources being allocated to low value investments. |
| How should a longlist be prepared? | A workshop should be organised with the SRO and investment proposal team to develop the longlist.[18] Those attending should review the ''case for change'' and apply the critical success factors to develop a long-list of supply-side, demand-side or regulatory solutions. Each longlist option should also be assessed against a SWOT analysis. SWOT analysis assesses a proposal's strengths, weaknesses, opportunities (e.g. favourable external factors that could be leveraged by the proposed option) and threats (e.g. factors that may cause risk or harm if the investment proposal goes ahead).<br><br>Useful sources of information for developing a longlist includes researching relevant reports, including best practices from other countries, and consult with expert practitioners.<br><br>For larger investment programmes that impact a wide range of people, it may be appropriate to invite a wide range of stakeholders to help develop the longlist.<br><br>Through this process, some options will be removed because they fail to meet the critical success |

[18] '4. Generating Options and Long List Appraisal', The Green Book, HM Treasury (United Kingdom), 2022.

| | |
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| | factors. The options that 'pass' the critical success factors should enter the shortlisting phase. It is important to retain the ''business as usual' option at this stage, regardless of how it performed against the CSFs, to act as a baseline against other options. |
| What types of options should the long list include? | To compare different options against the status quo, a long list must include" business as usual" and a realistic "do minimum" options. "Do Minimum" is an option that meets core investment requirements and would require minimal new investment.<br><br>The longlist should contain a reasonably equal balance of supply-side, demand-side and regulatory solutions. Examples of supply-side solutions include new capital investments and asset upgrades. A well as new capital investments, supply-side solutions should also include options for prolonging the life of existing assets, such as through minor upgrades or investment in data to make more informed choices about the management of assets. Demand-side solutions could include user charges to manage the demand on networks and defer capital investment. Regulatory solutions could include allowing medical appointments to take place online to reduce the pressure on physical medical facilities.<br><br>The longlist options should include estimations of indicative social costs and benefits including the cost of risks that result from different options. These indicative values should be expressed as ranges. As the appraisal process progresses and knowledge increases, accuracy will improve resulting in a narrowing of these ranges. While absolute certainty is not a realistic expectation, unbiased estimates within reasonable ranges accompanied by plans to manage uncertainty are a requirement. For investments that potentially have a high or very high risk rating (ref. Figure 8), it is recommended to consider making adjustments for optimism bias. These adjustments do not have to be precise, but can be used to inform the estimated cost ranges of each option. |
| How many options should be included in a long list? | There is no prescribed minimum or maximum. However, there should be enough long list options to cover a wide scope of supply-side and demand-side solutions, while also not being so many that it becomes too burdensome a task for the investment proposal team to assess each. |
| When should this take place? | The longlist can be developed once all the steps in the ''case for change'' are confirmed and the critical success factors are agreed. |
| Who should be involved in preparing the longlist? | • Responsible – SRO and the investment proposal team must lead the development of a longlist<br>• Accountable – governing entity must review and approve the longlist, ensuring there are enough options, a balance of supply- and demand-side solutions and the list is consistent with the critical success factors. Should not be involved in preparing the longlist.<br>• Support – may be invited to help prepare the longlist if particular expertise and knowledge are required<br>• Consult – at a minimum, must have access to the longlist and information on the process for developing the longlist. Larger public investments may benefit from a wider range of ''consult'' stakeholders being involved in developing the longlist. When considering the extent to which ''consult'' stakeholders are to be involved, consider the value of their input against the time and resource cost involved with enabling their involvement<br>• Inform – must have access to the longlist and information on the process for developing the longlist.<br>• how they were selected, but do not need to be involved in their selection. |
| How should the longlist be recorded? | Each longlist option should be described in a report with descriptions of the following:<br>• full details of each option<br>• each option's strengths, weaknesses, opportunities and the threats (i.e. SWOT analysis) after being assessed against the CSFs<br>• confirmation of whether or not each option progresses to the shortlisting stage |

### Box 2. Options Filter Framework

The Options Filter Framework provides a structured approach to identifying and filtering a broad range of investment options during the long-listing stage. The Framework addresses the following five dimensions:

1. The 'what' in terms of the potential coverage (scope) of the programme.
2. The 'how' in terms of delivering the 'preferred' scope for the programme.
3. Who can deliver the services e.g. in-house, outsource, alliance, strategic partnership, public or private provision, combinations of the above
4. Potential implementation options are driven by deadlines, milestones, dependencies, economies of scale, delivery of benefits and risk management.
5. Funding required. Potential funding options include public or private capital, the generation of alternative revenue streams, operating and financial leases, and mixed market arrangements.

This is a useful tool to identify different options at a long list stage of project selection. The five dimensions for the anticipated investment are scoped systematically ranging from business-as-usual through to the 'do minimum' and 'do maximum' and intermediate options.

The 'do minimum' scope must be a realistic option that meets the 'core' scope and essential business needs of the programme. The 'do maximum' is predicated on meeting the full scope of the programme and all needs. The intermediate options should focus on key differences in relation to the desirable and optional scopes.

Scoping options discounted for delivery in the short-term may be retained in the strategic portfolio for consideration in the longer-term.

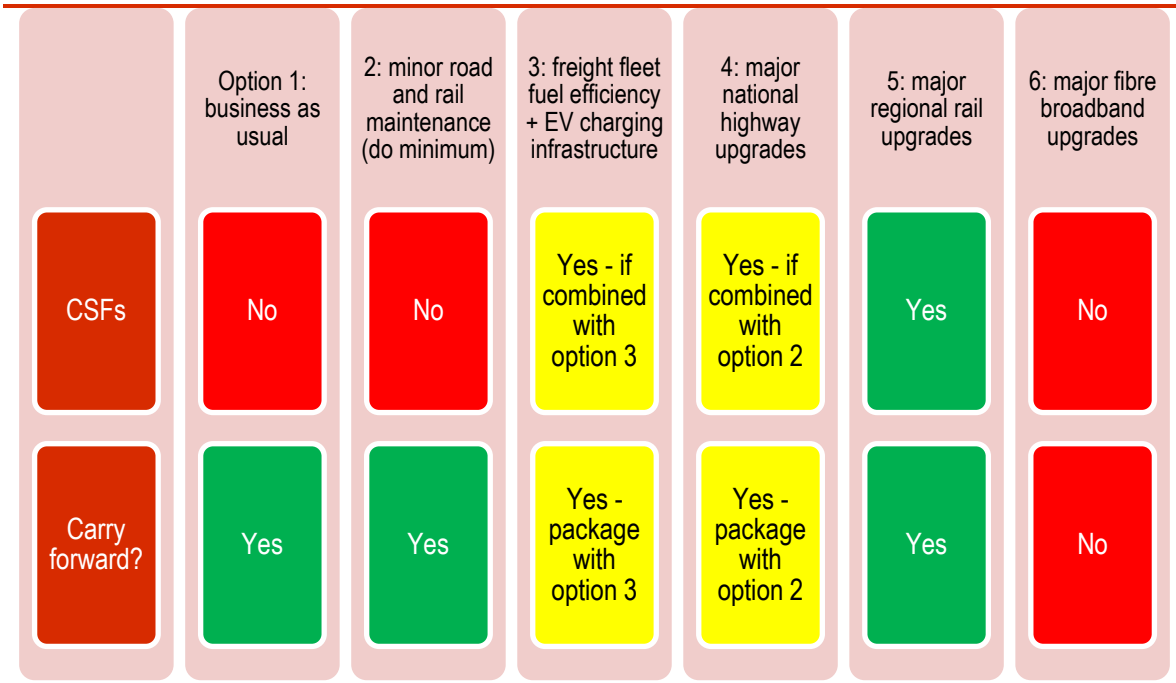
Reference: 4.4 Longlist Appraisal with Options-Filter Framework, The Green Book, 2022; Using the options framework for analysis, The Treasury (New Zealand), 2019.

***Example 4. Developing a longlist of regional investment options in Bulgaria***

The officials identify six options for their longlist, which include 'business as usual' and 'do minimum' options. The officials organize a workshop, which includes the team of officials analyzing the investment proposal and other officials with technical skills that are likely to be involved in planning, funding and delivering the investment. Given the large scale and wide-ranging impacts that the investment poses, the officials organize workshops to consult with regionally-based stakeholders, including municipal governments, NGOs and citizens, to get their views on what should be included on the longlist.

The officials then assess them against the critical success factors (CSF) that had earlier identified to conclude the following.

The officials now have three options that will be carried forward to the shortlisting stage.




## 12. Hold a workshop to confirm the shortlist and seek approval to progress to the next stage

| Question | Answer |
|---|---|
| What is the purpose of this workshop? | As a result of the longlisting exercise, there should now be approximately 3-5 options that have ''passed'' the CSFs. These options should have broad indications of their costs and benefits, with costs expressed in ranges. The shortlist should also include the "business as usual" option, which serves as a baseline to assess the value for money of other options.<br><br>The purpose of this workshop is to review this information and confirm the shortlisted options that will progress to the next stage: determining potential value for money. The outputs of the workshop should be:<br><br>• Appraisal of the longlist (including confirmation that it comprehensively addressed the steps described above)<br>• Approximately 3 – 5 short-listed options and a "business as usual" option (base case to test value for money). [No more than 5 is recommended because determining value for money is an in-depth analysis and can be resource intensive. Therefore, the number of options needs to be kept to a manageable number.]<br><br>Before proceeding to the next stage, the ''accountable'' stakeholders must be able to select 'yes' for all questions under the ''response'' column in the Investment decision-makers' Checklist[19]. If any questions are answered with 'partial' or 'no', the ''responsible'' stakeholders must be directed to gather more information in these areas (following the sections set out in this manual). |

[19] Ref. Appendix 2. Decision-maker's checklist.

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|---|---|
| Who should be involved? | • Responsible – must present the information to the ''accountable'' stakeholders<br>• Accountable – must be involved in critiquing the information gathered. Must also either approve or decline the shortlist and whether to progress to the next stage, or identify areas where more work is required<br>• Support – may be required to support the ''responsible'' stakeholders on particular areas of specialty. Not essential.<br>• Consult – should be involved in the workshop where feasible. Some larger investment proposals will have too many consultees to involve all of them in a workshop. Where this is the case, a small group of consultees representing a wider cohort of consultees may be preferable e.g. advocacy group leaders, municipal leaders<br>• Inform – must be informed of the outcome of the workshop, including by being sent any formal minutes and key decisions. |
| How should the selection process be recorded? | The key decisions taken at the workshop, including the assessment of the longlist and confirmation to proceed with the shortlisted options, should be recorded in a single document.[20] It is preferable to add this information to the "case for change" document, so all key decisions relating to the investment proposal are in one place and presented in a logical order. Once approved by those "accountable",[21] the document should state that it has been formally approved by its governing entity.<br><br>This document should be made available to all stakeholders involved with identifying and assessing the options and those involved with delivering future stages of the investment proposal. This ensures all decisions relating to the investment proposal are transparent and can be used to inform future decisions relating to the investment proposal.<br><br>There is no single template for recording this information. Example templates are available at the HM Treasury (United Kingdom) website. |

[20] For a best practice template, ref. 'Template for Strategic Outline Case', The Green Book: templates and support materials, HM Treasury (United Kingdom), 2022.)

[21] Ref. Appendix 1: RASCI Framework.

# 5 Determine potential value for money

## 13. Revisit the "case for change" and "identify and assess the options" stages

At the beginning of the "determining value for money" stage, the senior responsible officer and the project team should confirm that the reports on these two preceding stages is still accurate, up-to-date and that there have been no new developments that should cause these stages to be reviewed. This ensures the project team that they can confidently proceed to the next stage knowing their decisions will be based on the latest, relevant information. This is particularly important if time has elapsed between completing the preceding stages.

If there have been developments that have altered the preceding stages, the senior responsible officer and project team should identify the aspects that need to be reviewed and redo the relevant steps accordingly.

## 14. Confirm the social discount rate

| Question | Answer |
|---|---|
| What is a social discount rate? | The social discount rate (SDR) is a tool of cost benefit analysis that measures the opportunity cost of resource use over time and serves to compare projected revenues and costs (net cash flows) over different periods.<br><br>Discounting is a standard financial technique and the basis of intertemporal choice in economics. When making intertemporal choices, economic players make decisions on the trade-off between costs and benefits present at various times. Discounting creates the future and present equivalence of financial instruments. In a general case, the social discount rate is the rate at which the whole of the community/ society is willing to trade current benefits for future benefits.<br><br>During the calculation of the social discount rate, the use of the rate of time preference approach (SRTP) increases. The social discount rate recommended by the EU is also based on this time preference, or more precisely on the Ramsey formula. Social discount rate with the legends used in the EU: r = e x g + p Where: r = the real social discount rate of public funds, g = the growth rate of expenditures, e = the elasticity of marginal social welfare growth, p = the pure rate of time preference. |
| What discount rate should be applied for Bulgaria? | The European Commission recommends that countries are free to set their own social discount rates. However, it recommends a rate of 5% for major projects in cohesion countries and 3% for other European Union member states.[22] |

[22] Ref. Economic Appraisal Vademecum 2021 – 27, European Commission, 2021.

| | |
|---|---|
| Why is it an important step in risk management? | By making decisions about the trade-off between costs and benefits present at different times, accurately applying social discount rates avoids the risk of future opportunity costs being miscalculated and future benefits and costs being misjudged. |
| For what types of projects is this tool most applicable? | It is applicable for all project types, but it is most necessary to be used for long-life investments that will generate benefits and costs over several decades or more, such as infrastructure assets. |
| At what stage should this tool be applied? | Social discount rates should be applied to all short-listed options. |
| Who needs to be involved in confirming the social discount rate? | In many countries, the social discount rate is set by the Ministry of Finance and is applied to all capital investments. Individual social discount rates are not set for individual projects.<br><br>For examples of how other countries and international organisations set social discount rates, refer to Table 1, pp.77-78 of Gabriel Castillo and Zhangallimbay.[23] |
| What information is used to set social discount rates? | The weighted average approach holds that the social discount rate should be a weighted average of the marginal social opportunity cost of capital, the social rate of time preference, and, in the case of an open economy, the cost of borrowing on international markets. These weights should reflect the proportion of funds obtained from each source, implying a different social discount rate for each intervention.[24] |

## 15. Identify the benefits, costs and impacts

| Question | Answer |
|---|---|
| What are benefits, costs and impacts? | A cost is the monetary value of goods and services that producers and consumers use and purchase.<br><br>A benefit is a tangible outcome of an action or decision that contributes towards reaching one or more objectives.<br><br>Impact is typically the measurement of benefits or costs particularly to the wider public and society undertaken after an investment has been delivered. One method of identifying the impacts is to ask throughout the project selection process: who benefits from the proposed investment and how? |
| What types of benefits, costs and impacts should be included? (i.e. economic, social, environmental) | The types of costs that must be considered as part of project selection include:<br>• Direct costs - those directly linked to doing the work of the project (e.g. materials, labour).<br>• Indirect costs - these costs are not specifically linked to a proposed investment but are the general costs incurred by a line ministry, municipal council or other governing entity (e.g. project management, publicity costs).<br>• Fixed costs - everything that is a one-off charge. These fees are not linked to how long your project goes on for.<br>• Variable cost - the opposite of fixed costs - charges that change with the length of your project, i.e. salaries.<br>• Sunk cost- these are costs that have already been incurred. Sunk cost is a loss which should not play any part in determining the future of the project. |

[23] The Social Discount Rate in the Evaluation of Investment Projects: an Application for Ecuador, Jose Gabriel Castillo and Donald Zhangallimbay, CEPAL Review No. 134, August 2021.

[24] M. Paulden, Encyclopedia of Health Economics, 2014.

| | |
|---|---|
| | The types of benefits of a project include:<br>• Tangible benefits (i.e. financial savings, revenue increases, business continuity);<br>• Intangible benefits (improved quality of service, quality of life, reputation increase).<br>The types if project impacts are:<br>• Economic;<br>• Social;<br>• Environmental.<br>Each of the impacts may be defined as low/high or positive/negative, direct/indirect. |
| Why is identifying the costs, benefits and impacts an important step of risk management? | Identification and analysis of costs, benefits and impacts is essential for determining whether pursuing a proposed investment is a good use of the presently available public resources. This is important because there are always competing demand for public resources, which means money and time allocated to one investment means it cannot be allocated to another investment or activity.<br>Therefore, determining and weighing the benefits, costs and impacts of an investment avoids the risk of wasted money, time and other resources. |
| When should benefits, costs and impacts be identified? | As noted above, a high-level assessment of a proposed investment's benefits, costs and impacts must take place when confirming the strategic context of a potential investment (Ref. *4.2. Agree the critical success factors*).<br>When determining potential value for money, a more detailed assessment of the benefits, costs and risks should take place that builds on the benefits identified during the high-level assessment. The more detailed assessment must take place once a short-list is confirmed. Each short-listed option must be individually appraised for their benefits, costs and impacts. |
| For what types of projects is this most applicable? | All investments that involve the allocation of public resources require benefits, costs and impacts to be identified. However, a scaling approach must be applied to potential investments so that projects that carry greater costs and risks should be subject to a more detailed assessment of the benefits, costs and impacts. Potential investments at the lower end of the scale will not require as thorough an assessment of benefits, costs and impacts, but these should still be clearly identified, analysed and articulated as part of the investment plan.[25]<br>Proposed investments valued below EUR 1 million in capital expenditure only require a simplified cost benefit analysis (CBA). Simplified CBA considers financial costs (i.e. market prices) but does not consider economic costs (i.e. shadow prices applied where no market prices exist). This is a 'simplified' approach because gathering information on economic costs is particularly resource intensive.<br>Proposed investments valued above EUR 1 million in capital expenditure must be subject to a CBA that includes financial and economic benefits and costs and follows all steps set out in this manual. |
| How should greenhouse gas emissions be measured and calculated? | There is a legally adopted procedure and formula regarding technical requirements to energy characteristics of buildings (Ordinance RD-02-20-3 from 09.11.2022) setting out how emissions are to be measured and calculated. This corresponds with EU greenhouse gas emissions policy.[26]<br>The European Commission has published recommended shadow prices for carbon for the period 2020 – 2049 for European Union countries to follow.[27] |

[25] Refer to the following for guidance on applying traditional and simplified cost benefit analysis: Economic Appraisal Vademecum 2021 – 27: general principles and sector applications, European Commission

[26] Ordinance RD-02-20-3 from 09.11.2022 regarding technical requirements to energy characteristics of buildings, Annex 1, Point 3, Table 1, Formula 4 (НАРЕДБА № РД-02-20-3 от 9 ноември 2022 г. за техническите изисквания към енергийните характеристики на сгради)

[27] Economic Appraisal Vademecum 2021 – 27: general principles and sector applications, European Commission.

| | |
|---|---|
| How can the benefits, costs and impacts of resilience be calculated? | A method for analysing the financial costs of resilience investments is to compare the costs associated with one or more levels of resilience compared with the status quo scenario. This formula can be applied when comparing two or more investment options, such as transport routes:<br>Value of options relative to status quo =<br>• Net change in benefits in non-disruptive state plus (e.g. transport cost savings or other benefits not related to resilience)<br>Plus<br>• Net difference in benefits of resilience (e.g. the expected annual cost of disruption to reinstating the route after a landslip or other natural hazard event)<br>To then compare the financial benefits of resilience across two more options:<br>• Expected costs of disruption under the Base Case<br>Minus<br>• Expected costs of disruption under the alternative options.<br><br>For example, flooding causes annual costs of disruption of EUR 1 million along a particular route. An alternative route is being considered that provides transport cost savings valued at EUR 3 million per year. The new route is also subject to some flooding, but the annual cost of disruption is estimated to be EUR 0.4 million. The annual benefits of the alternative route relative to the base case are then estimated as EUR 3.6 million (EUR 3 million plus a EUR 0.6 million reduction in disruption costs). The methodology also factors in a wider range of costs and impacts, including user costs (diversion, waiting times; other direct costs (loss of life, injury, repair and reinstatement) and; indirect impacts (wider economic benefits).[28] |
| Who needs to be involved in identifying the benefits, costs and impacts? | Policy analysts, subject matter and sector experts, evaluation and research teams, finance and actuarial teams need to work together to build an accurate picture of an investment proposal's benefits, costs and impacts.<br>This stage needs to be driven by the stakeholder(s) identified as being "responsible".[29] If necessary, external expert support shall be involved as part of performing the cost-benefit analysis. |
| What information is required to identify the benefits, costs and impacts? | It is important to have completed all of the steps of project selection described above up to this point. In particular, it is important to have completed a preliminary analysis of the benefits, costs and impacts as part of the strategic assessment so that these benefits, costs and impacts can be refined as part of the value for money assessment.<br><br>It is also particularly important to have a shortlist of options for which benefits, costs and impacts can be analysed and compared against the different short-listed options.[30] |

[28] V McWha and R Tooth, Better Measurement of the Direct and Indirect Costs and Benefits of Resilience, New Zealand Transport Agency, September 2020:

[29] Ref. Appendix 1. RASCI Framework.

[30] Ref. Section 3.2. *Define the problem being solved and the expected benefits*.

## 16. Identify wider (or indirect) effects

| Question | Answer |
|---|---|
| What are wider (or indirect) effects? | These are effects, which are not a direct result of the project, often produced away from or as a result of an investment. They are also sometimes referred to as second or third level impacts, or secondary impacts.<br><br>Indirect effects may include growth-inducing effects and other effects related to the induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.<br><br>Below are examples of wider (or indirect) effects that, where applicable, must be taken account of as part of a thorough cost benefit analysis. |
| Why is identifying wider effects an important part of risk management? | Identifying the wider effects of a proposal ensures decision-makers have considered the widest possible range of benefits, costs and impacts that will be generated from a proposal. This ensures that all possible risks can be identified. |
| Example 1: local impacts | Local impacts are the effects of an investment that will have an impact on the immediate vicinity or location of the investments (e.g. land use patterns, employment, soil, air quality, noise, biodiversity impacts). |
| Example 2: induced demand | "Induced" is a term implying that a particular condition is indirectly caused by another condition. In the case of traffic volumes, the term arose from the phenomenon that improvements to a highway -- especially capacity improvements -- seemed to result in more traffic choosing to use the road than would be the case if the highway were not improved.<br><br>For example, a new bridge not only shortens the trip for the existing traffic but could also induce many people to travel who were previously discouraged by the long distance. The CBA therefore needs to estimate the additional demand that is induced by the policy, net of any reduction in demand elsewhere. |
| Example 3: additionality | Additionality exists where an intervention or policy causes economic agents (producers/consumers) to take actions which they would not have taken in the absence of the intervention.<br><br>For example, new road or water infrastructure facilitates the development of houses in a new area that was previously unserviceable. |
| Example 4: displacement | Displacement is the extent to which an increase in economic activity or other desired outcome is offset by reductions in economic activity or other desired outcome in the area under consideration or in areas close by.<br><br>For example, a new commercial development attracts employment away from a different commercial centre but does not generate new commercial development. |
| Example 5: agglomeration effects | Agglomeration effects are the economies of scale that come from having a denser profile of people and businesses who consume and produce goods and services within am urban area.<br><br>Public investments can generate agglomeration effects. For example, in Sweden and Denmark, investment in the Oresund fixed link coupled with significant public investments in universities and science parks, and in coordination with investment in other transport infrastructure achieved agglomeration effects by integrating labour markets.[31] |
| How can the impacts of climate change and | Quantifying greenhouse gas emissions is the basis for understanding a proposed investment's contribution to climate change (ref. European Commission guidance in right-hand column). |

[31] Strategic Infrastructure planning: International Best Practice, OECD/ITF, 2017

| | |
|---|---|
| adaptation be captured as part of identifying wider effects? | For adaptation, the European Commission's climate risk assessment provides a structured method of analysing relevant climate hazards and their related impacts to provide information for decision-making in relation to a proposed investment.[32] |
| When should wider effects be identified? | This should take place at the same time as all benefits, costs and impacts are being identified. |
| For what types of projects is this most applicable? | It is essential to identify wider effects for investments above EUR 1 million. For projects below this threshold and with low or moderate risk ratings, judgment should be applied about whether this is necessary. The question to consider is whether identifying the wider effects is going to be useful in informing the decision-making process. |
| Who need to be involved? | Policy analysts, subject matter and sector experts, evaluation and research teams, finance and actuarial teams need to work together to build an accurate picture of an investment proposal's wider effects.<br><br>This stage needs to be driven by the stakeholder(s) identified as being 'responsible' in relation to the RASCI Framework.[33] If necessary, external expert support shall be involved as part of performing the cost-benefit analysis. |
| What information is required? | It is important to have completed all the steps of project selection described up to this point.<br><br>For this stage, it is critical to have a shortlist of options for which the wider effects of each option can be analysed and compared. |

## 17. Set valuations (market and non-market valuations)

| Question | Answer |
|---|---|
| What are market valuations? | Market valuations are costs and benefits that can be quantified in monetary terms through a market price.<br><br>Market prices for inputs to investment proposals are often collected in unit price database (e.g. price of a square metre of concrete, steel, etc.) from bids submitted in tenders. It has a variety of uses at different project stages. It directly informs cost estimates when the design is mature enough to allow an estimation of quantities.<br><br>A price database reduces the reliance on ad-hoc information or partially completed databases. A price database needs to be accessible to everyone involved in delivering infrastructure and be maintained by a public entity.<br><br>Consistent price data can also be used to inform cost variation formulae, provide more robust pricing advice to contractors and help monitor price movements in anti-collusion investigations. The appraisal of projects by authorities and decision making will also benefit from this data.<br><br>Market valuations should take account of values that will be relevant to all stages of an investment's lifecycle (e.g. construction, operations, maintenance, decommissioning).[34] |

[32] European Commission, Technical guidance on the climate proofing of infrastructure in the period 2021-2027, 2021; European Commission, Economic Appraisal Vademecum 2021 – 27, 2021.

[33] Ref. Appendix 1. RASCI Framework.

[34] For further information: Future of Transport Mobility and Good Transport in Estonia, OECD, 2020:

| | |
|---|---|
| What are non-market valuations? | Non-market valuations are the value applied to social costs and benefits that may not have a direct market price. Examples include environmental effects, health benefits and costs, benefits of energy efficiency, the value of a statistical life, travel times, amenity value and access to recreational services. There are several methods of establishing non-market prices:<br><br>**Applying market prices** where there is a closely comparable market<br><br>**Shadow prices** e.g. The European Commission provides guidance on setting shadow prices for certain project inputs (e.g. carbon, labour, land, utilities and commodities).<br><br>**Revealed preferences**, which involve inferring an implicit price that a consumer places on a good by examining their behaviour in a similar or related market e.g. methods such as hedonic pricing study different in house sale prices before and after a particular good or service is introduced to a local neighbourhood to infer the value people place on that good or service.<br><br>**Stated preferences**<br>• Willingness to pay – understanding how much people are willing to pay for a good or service, often conducted via surveys<br>• Willingness to accept or prevent – understanding how much people are willing to pay to accept a loss or prevent an event from happening, also often conducted via surveys.<br><br>The effort undertaken to monetise non-market values should be proportionate to the scale and risk of the project. Proposed investments with a high or very high-risk profile should undertake a more thorough analysis of non-market values.<br><br>Where non-market valuations are imprecise, it is possible for them to be expressed in terms of ranges e.g. EUR 300 000 to EUR 500 000.<br><br>Non-market valuations should take account of values that will be relevant to all stages of an investment's lifecycle (e.g. construction, operations, maintenance, decommissioning).[35] |
| Why is this an important part of risk management? | Market and non-market valuations can have a significant influence on whether a preferred option, or shortlisted options, is worth pursuing. Valuations avoids the risk of missing significant benefits or costs during the appraisal of investment options.<br><br>To account for risk, market and non-market values should be adjusted for risk e.g. if project produces a benefit of EUR 10 million per year, but that there is a 25% chance that there will be no benefit, then the risk-adjusted benefit is EUR 7.5 million. |
| For what types of projects is this most applicable? | Market valuations are necessary for every investment, regardless of its scale or risk profile.<br><br>Even for proposed investments with lower levels of risk and of smaller scale, it will be important to set certain non-market valuations.<br><br>It may not be necessary to capture a wide range of non-market valuations, particularly valuations that measure people's subjective preferences (e.g. preference to use public facilities).<br><br>When determining the range of valuations that would be appropriate for a particular investment, the question to consider is which valuations are critical to informing a decision-making process and which would be less useful. |
| Who need to be involved? | Policy analysts, subject matter and sector experts, evaluation and research teams, finance and actuarial teams need to work together to build an accurate picture of an investment proposal's valuations. |

[35] For further information: The Green Book, Central Government Guidance on Appraisal and Evaluation, HM Treasury, United Kingdom, 2022, Annex A1; European Commission, Economic Appraisal Vademecum 2021 – 27, 2021.

| | |
|---|---|
| | This stage needs to be driven by the stakeholder(s) identified as being "responsible".[36] If necessary, external expert support shall be involved as part of performing the cost-benefit analysis. |

### Box 3. A template for quantifying an investment's direct and indirect benefits and costs (New Zealand)[37]

The New Zealand Treasury has developed a tool that quantifies the direct and indirect benefits and costs of a proposed investment over a 50 year period. The tool, known as CBAx, guides the Minister of Finance, and his/her Cabinet colleagues when selecting investments as part of the annual budget process where there is a limited fiscal envelope.

CBAx auto-generates cost-benefit analysis calculations based on the data that is pre-populated within the tool. CBAx also applies pre-set social discount rates on a year-by-year basis. The tool includes a database of monetized impacts for the government and wider society, which the user can choose from in order to calculate the overall wider economic costs of a proposal. The impacts database includes impacts for the wider government budget as well as from a whole-of-society perspective. Examples of monetized impacts in CBAx include:

- Cost per hour of a person's time (- NZD$32)
- Cost to health system after a fatal car crash (- $18,635)
- Physical health gain from walking per km (+ $6)
- Social cost of a loss of life (per person) (- $5,783,615)
- Cost of living in a cold house (per year) - often/always (- $7,027)
- People's willingness to pay to prevent extinction of up to 3 susceptible native species ($31 per year per person)
- One point change on individual wellbeing (scale: 0 – 10) (midpoint + $15,511)
- Cost of violent offences per incident for society (- $26,076).

The Treasury gathers these quantified impacts from the relevant line ministries, which are regularly updated.

The CBAx template also allows users to apply sensitivity analysis, whereby users can apply different impacts to test whether an investment would perform under different scenarios.

Once applied, CBAx gives a breakdown of net benefits/costs for the government and for wider society as well as monetized and un-monetized impacts under different scenarios. It calculates a benefit cost ratio and a return on investment for the government and wider society over a 50 year period, with a social discount rate applied. The output of CBAx is shown in the table below.

As the monetized impacts can never be precise at all times, CBAx is intended to help guide ministers to a decision, while also taking in to account wider economic, environmental and social factors. Tools like CBAx are not expected to generate absolute answers that ministers and officials must therefore follow.

[36] Ref. Appendix 1. RASCI Framework.

[37] CBAx Spreadsheet Model, The Treasury, 2022.

CBAx Spreadsheet Model – Results from Outputs Summary

| Net benefit summary 50-year PVs | 5% | 2% | Central | Worst case | Best case | Scenario A | Scenario B | Scenario C |
|---|---|---|---|---|---|---|---|---|
| Initiative costs present value i.e. Government investment $m | | | | | | | | |
| Government impacts $m | | | | | | | | |
| Wider societal impacts $m | | | | | | | | |
| Total societal impacts, net present value $m | | | | | | | | |
| Un-monetised impacts | | | | | | | | |
| Benefit cost ratio, Societal Total (50y) | | | | | | | | |
| Return on Investment, Societal Total (50y) | | | | | | | | |
| Return on Investment, Government only (50y) | | | | | | | | |

## 18. Undertake distributional analysis

| Question | Answer |
|---|---|
| What is distributional analysis? | Distributional analysis[38] assesses the impact of interventions on different groups in society. Interventions may have different effects on individuals according to their characteristics (e.g. income level or geographical location). These effects could be a deliberate government objective or the unintended consequences of an intervention. Distributional analysis is important where a proposed investment could have redistributive effects between different groups. To complete distributional analysis, undertake the following steps:<br><br>1. Identify the key stakeholder groups that stand to gain or lose.<br><br>2. Allocate the quantitative and qualitative costs and benefits already identified to one or more of these groups.<br><br>3. Consider whether any of these costs or benefits may be shifted to another group. |

[38] For further information: A3. Distributional Appraisal, The Green Book, 2022; Distributional Analysis (guidance note), Office of Best Practice Regulation, Department of Prime Minister and Cabinet (Australia), 2020.

| | |
|---|---|
| | 4. Acknowledge any uncertainty in the distribution of costs and benefits to stakeholders.<br><br>Distributional analysis need not be purely quantitative; providing qualitative assessments of perceived impacts can be useful context for informing decision makers. The level of detail and complexity devoted to the analysis should be proportionate to the likely impact on those affected. Assessment of distributional impacts could range from a simple quantitative or descriptive approach where the scale of the effect is relatively low, to an in-depth appraisal and detailed calculation of distributional effects where the scale is relatively high.<br><br>In practice, the use of distributional weighting is challenging. This is due to uncertainty in the assumptions relating to the groups between whom redistribution is measured and uncertainty in estimation of distributional weights. Therefore, distributional analysis should be undertaken in a systematic way and presented with the acknowledgement that it may not present a fully accurate picture of distributional effects. |
| Why is this an important step in risk management? | Distributional analysis ensures the effects of decisions on particular groups within society are properly understood and, where necessary, options for mitigation may be considered. This helps avoid the risk of unexpected or perverse consequences resulting from a particular investment. |
| For what types of projects is distributional analysis most applicable? | Where a proposed investment is expected to impact a diverse range of groups in society (e.g. age, gender, ethnicity, income levels), distributional effects should be appraised. Investments with high or very high risks[39] must be appraised for distributional effects. |
| Who needs to be involved? | Policy analysts, subject matter and sector experts, evaluation and research teams and finance teams need to work together to build an accurate picture of an investment proposal's valuations.<br><br>The process needs to be driven by the stakeholders identified as ''responsible''.[40] |

[39] Ref. Figure 8. Heat Risk Map.

[40] Ref. Appendix 1. RASCI Framework.

## 19. Rank the short-listed options (using net present value and benefit cost ratio)

| Question | Answer |
|---|---|
| Why is it important to rank the short-listed options using net present value and a benefit cost ratio? | Shortlisting the options ensures the expected costs and benefits of an intervention are estimated and the cost of risks and risk management are known.[41] |
| Why is this an important step in risk management? | Proposals should initially be considered from the perspective of the service needed to deliver the required policy outcome and not from the perspective of a preconceived solution or asset creation. This guards against thinking too narrowly or being trapped by preconceptions and subsequently missing optimum solutions. |
| What is net present value? | Net Present Value (NPV) is a generic term for the sum of a stream of any future values that have been discounted to bring them to a present value. NPV is the present value of a stream of future costs and benefits to society (that are already in real prices) and that have been discounted over the life of a proposal.<br><br>NPV is a financial metric that seeks to capture the total value of an investment opportunity. The idea behind NPV is to project all of the future cash inflows and outflows associated with an investment, discount all those future cash flows to the present day, and then add them together. The resulting number after adding all the positive and negative cash flows together is the investment's NPV. A positive NPV means that, after accounting for the time value of money, you will make money if you proceed with the investment. |
| How is NPV calculated? | To calculate NPV, you need to estimate the timing and amount of future cash flows and pick a discount rate equal to the minimum acceptable rate of return. The discount rate may reflect your cost of capital or the returns available on alternative investments of comparable risk. If the NPV of a project or investment is positive, it means its rate of return will be above the discount rate.<br><br>NPV = F / [ (1 + i)^n ]<br><br>Where:<br><br>PV = Present Value<br>F = Future payment (cash flow)<br>i = Discount rate (or interest rate)<br>n = the number of periods in the future the cash flow is calculated<br><br>Discount Rate=((1+r)n)−1<br><br>r = rate of return<br>n = number of periods<br><br>For example: |

[41] For further information: 5. Shortlist Options Appraisal, The Green Book, HM Treasury (United Kingdom), 2022.

| | |
|---|---|
| | Project A has a value of 1000 EUR over 5 years<br><br>Project B has a value of 1200 EUR and also over 5 years.<br><br>The Discount rate for both projects is 5%.<br><br>NPV(A)= {1000/(1,05)$^5$} = 783,53 EUR<br><br>NPV(B)= {1200/(1,05)$^5$} = 940,23 EUR. |
| What is a benefit cost ratio? | Benefit Cost Ratio is defined as a ratio of the present value of benefits to the present value of costs. It provides a measure of the benefits relative to costs.<br><br>A positive BCR indicates the investment is creating more wealth than it is spending. A negative BCR indicates that the investment is pending wealth without generating enough benefits to create net value. Therefore, a negative BCR is an indication to not proceed with the investment. |
| How are BCRs calculated? | To calculate BCR, divide the net present benefits (NPB) by the net present costs (NPC). For example:<br><br>NPB: 2,000,000<br><br>Divided by:<br><br>NPC: 1,000,000<br><br>Equals:<br><br>BCR: 2<br><br>See *How is NPV calculated?* for how to calculate net present costs and benefits. |
| For what types of projects is it important to rank short-listed options? | All short-listed investment proposals must be ranked according to NPV and BCR. |
| Who need to be involved? | Policy analysts, subject matter and sector experts, evaluation and research teams, finance and other individuals identified as being 'responsible' in relation to the RASCI Framework. If necessary external expert support shall be involved as part of undertaking a cost benefit analysis. |
| What information is required? | It is important to have completed all the steps of project selection described up to this point. For this stage, it is critical to have a shortlist of options which can be analysed and compared. |

## 20. Quantify the risks of each option

| Question | Answer |
|---|---|
| Why is it important to quantify the risks of each option? | Quantifying the risks identified during the ''case for change'' stage[42] helps define the likelihood of each short-listed option's benefits and costs materialising. Understanding this likelihood is important because decision-makers need confidence that the benefits and costs of their preferred option are likely to manifest before proceeding with a chosen investment. For example, if the projected benefits of a proposed investment are high, but the likelihood of them materializing is low, this undermines the proposed investment's overall value proposition.<br><br>As new information and details will have emerged since the "case for change" was developed, it is important to review the risks, identify any new risks that may have emerged and ensure the plans for controlling for these risks are still appropriate. This review should take place before risk quantification begins. |
| How are risks quantified? | Quantifying risks requires objectively based estimates of the percentage likelihood of a risk occurring. It can involve calculating the costs incurred if a risk materialises, calculated on an expected value basis. Expected values result from multiplying the expected cost if it occurs by the expected likelihood of it materialising.<br><br>A proposed investment's risks should be estimated in monetary terms as equivalent likelihood values – that is the cost of mitigation multiplied by the likelihood of occurrence.<br><br>Refer to the Green Book[43] for examples and demonstrations of tools used to quantify risks, including:<br>• Single point probability analysis<br>• Multi point probability analysis<br>• Real options analysis and decision trees<br>• Monte Carlo Analysis |
| When must risk quantification occur? | The risks associated with all short-listed options at all stages of the investment lifecycle must be calculated for the equivalent likelihood values. Particular attention should be given to risks with medium impact and likelihood.[44] |
| For what types of projects is a probability risk assessment most applicable? | All public investments valued above EUR 1 million must undergo a probability risk assessment. |
| Who need to be involved? | Policy analysts, engineers, legal, economists, financial specialists and other relevant technical specialists will play an important role in accurately quantifying risks. Individuals identified as being ''responsible''[45] must ensure that the risk quantification is completed to a level of quality that usefully informs the project selection process. Those "accountable" should be informed about the outcome of the risk quantification process. |

[42] Ref. Section 3: *Case for Change.*

[43] Ref. 13.4 Risk Quantification, The Green Book, HM Treasury (United Kingdom), 2022.

[44] Ref. Figure 8. Heat Risk Map.

[45] Ref. Appendix 1. RASCI Framework.

### *Example 5. Quantifying the risks of option 5: major regional rail upgrades*[46]

To help the officials calculate the value for money of each option, they must quantify the risks associated with each option. To do this, the officials need to understand the scale of the risk and the probability of its occurrence. To quantify the risks associated with the major regional rail upgrades option, the officials use the following methods to calculate the option's expected risks.

First, to quantify a single risk e.g. risk of a cost overrun, the officials use single point probability analysis as follows.

| **Method 1: Single point probability analysis** | |
|---|---|
| Cost of service | EUR 100 million |
| Estimated additional cost of overrun | EUR 25 million |
| Estimated probability of risk occurring | 0.1 |
| Estimated value of risk | EUR 2.5m |

By using single point probability analysis, the officials can estimate the value of a risk of a cost overrun, which they can include in their value for money assessment.

To quantify the risk of more than one cost scenario occurring, the officials use multi-point probability analysis, as outlined below.

| **Method 2: multi-point probability analysis** | | | | |
|---|---|---|---|---|
| | Cost forecast | Cost difference | Risk probability | Risk value |
| Cost forecast – high | EUR 125m | EUR 25m | 0.3 | EUR 7.5m |
| Cost forecast – medium | EUR 100m | 0 | 0.6 | 0 |
| Cost forecast – low | EUR 75m | EUR -25m | 0.1 | EUR -2.5m |

The officials also want to understand the risks presented by delivering different sections of the project over different timeframes. To do this, the officials apply real options analysis to determine whether they could achieve value for money now by including a rail extension in the project, or whether it would be best to defer this decision to a future date.

| **Method 3: real options analysis** | | | | | |
|---|---|---|---|---|---|
| | Cost (capital) | Benefits (freight demand – high) (50%) | Total | Benefits (freight demand – low) (50%) | Total |

[46] 13.4 Risk Quantification, The Green Book, HM Treasury (United Kingdom), 2022.

| | | | | | |
|---|---|---|---|---|---|
| Cost of regional rail: main route | EUR 60m | 175m | 115m | 75m | 15m |
| Cost of regional rail: extension (now) | 40m | 50m | 10m | 20m | -20m |
| Cost of regional rail: extension (later) | 50m | 50m | 0 | 20m | -30m |

Based on the real options analysis, the officials agree the best course of action is to proceed with main route because, even under low demand scenarios, it presents net benefits. However, they decide to not proceed with the rail extension until more information is available on freight demand, because there is a risk that it will not present net benefits.

## 21. Revisit (and aim to reduce) optimism bias

| Question | Answer |
|---|---|
| Why should optimism bias be revisited at this stage? | As the investment appraisal develops, more accurate costing of project or programme specific risk management should be undertaken. Accordingly, optimism bias set during the "case for change" may now be reviewed and reduced as more reliable estimates of specific risks are made. Any reductions should be presented transparently and tested with sensitivity analysis where appropriate.<br><br>Optimism bias adjustment should reduce in proportion to risk avoidance or risk mitigation measures taken. Objective and transparent evidence of the mitigation of contributory factors should be observed and verified independently before reductions are made. |
| What costs should be reviewed as part of reducing optimism bias? | Optimism bias should be applied to capital, operational and maintenance costs and benefits. Where possible, decommissioning costs and benefits should also have optimism bias applied.[47] |
| What information is needed to reset optimism bias? | Ideally adjustments should be based on an organisation's own evidence base for historic levels of optimism bias.[48]<br><br>In the absence of robust organisation-specific estimates, adjustment percentages should be used. Refer to *International Guide to Developing the Project Business Case, HM Treasury* for adjustment percentages used in the United Kingdom for costs and time over-runs. |
| Who should be involved in making this decision? | Policy analysts, engineers, legal, economists, financial specialists and other relevant technical specialists will play an important role in adjusting the optimism bias. Individuals identified as being "responsible"[49] must ensure that the optimism bias adjustment is completed and accurate to the bets of knowledge of the relevant subject matter experts. Those "accountable" should be informed that the optimism bias has been adjusted, but it may not be necessary to share with them the details. |

[47] Annex A5: Uncertainty, Optimism Bias and Risk, The Green Book, HM Treasury (United Kingdom), 2022.

[48] Apply Adjustments for Optimism Bias, International Guide to Developing the Project Business Case, HM Treasury, 2018, p. 36.

[49] Ref. Appendix 1. RASCI Framework.

## 22. Assess the short-listed options under different scenarios

| Question | Answer |
|---|---|
| Why is assessing the short-listed options under different scenarios important? | Alternative scenarios are useful in considering how options may be affected by future uncertainty and provide a valuable way of assessing risk, especially where there is a known risk of significant variations in external conditions.<br><br>Scenarios should be chosen to draw attention to the major technical, economic and political uncertainties on which the success of the proposal depends. Then assessing the ranked options in different scenarios via the tools listed below helps choosing the preferred option based also on the probability of the scenarios.<br><br>Best practice methodologies for testing shortlisted options under different scenarios include:<br><br>• Sensitivity analysis[50]<br>• Switching values<br>• Scenario analysis |
| In what circumstances can this be particularly useful? | Scenario analysis is a form of 'what if' analysis that is useful where there are significant future uncertainties. Scenarios may be chosen to explore significant technical, economic and political uncertainties which will affect the success of an intervention. Scenario analysis must always be proportionate to the costs and risks involved. Low cost, low risk proposals may look at simple 'what if' questions. Major policies and more expensive, higher risk options may require modelling exercises which test the impact of different states of the world on expected costs and benefits. |
| What information is needed? | At a minimum, sensitivity analysis and switching values should be carried out on the preferred option from the shortlist appraisal. These results must form part of the presentation of results. If the costs and benefits of the preferred option are highly sensitive to certain values or input variables, sensitivity analysis will probably be required for other options in the shortlist. |
| Who needs to be involved? | Policy analysts, engineers, legal, economists, financial specialists and other relevant technical specialists will play an important role in assessing the short-listed options under different scenarios. Individuals identified as being ''responsible''[51] must ensure that all shortlisted options have been adequately tested under different scenarios to an extent that it usefully informs the project selection process. Those "accountable"[52] should be informed that the shortlisted options have been tested under different scenarios but may not require any further detail. |

[50] Ref. Action 13 – Select the Preferred Option and Undertake Sensitivity Analysis, International Guide to Developing the Project Business Case, HM Treasury, 2018 (pp.56-57) for details on best practice methodologies.

[51] Ref. Appendix 1. RASCI Framework.

[52] Ref. Appendix 1. RASCI Framework.

## 23. Hold a workshop to select the preferred option

| Question | Answer |
|---|---|
| What is the purpose of holding a workshop? | The purpose of the workshop is to validate the findings, appraise the qualitative benefits and risks and identify the preferred option for the project that offers best public value.<br><br>As selecting the preferred option is a significant milestone in the appraisal process, it is important that the decision is carefully considered and involves all relevant stakeholders with a diverse range of expertise and perspectives.<br><br>While the selection process is largely an exercise in adding up the costs and benefits identified at earlier stages, it also requires specialized judgment regarding the following:<br><br>• How to weigh risks against potential benefits<br>• How to factor in any unquantified benefits or costs<br>• Which option to decide when the differences in net benefits between different options is marginal. |
| What should determine the preferred option? | This step involves selecting a preferred option from the shortlisted options.<br><br>The preferred option should be a balanced judgement based on:<br><br>• Net Present Social Value (NPSV)<br><br>• Benefit Cost Ratio (BCR)<br><br>• Level of risk and the extent to which these risks can be controlled for and mitigated.<br><br>Alternatively, the preferred option may have the lowest Net Present Social Cost (NPSC). The decision may also be informed by any unvalued costs, risks and non-monetised benefits. Where this is the case, it is essential to involve stakeholders in the decision-making process about whether the unaccounted costs are worth paying for.<br><br>Often the choice will remain between high cost/high benefit options and low cost/low benefit options. In these circumstances, a decision is required on the extent the higher benefits are worth paying for. Risk can play a part in that a high cost/high benefit option may be considered too risky to undertake, and an intermediate option might show a more optimal balance of risk. |
| How should the selection process be recorded? | The results of shortlist options appraisal should be presented in an appraisal summary table.[53] |
| Who should be involved in the workshop and who selects the preferred option? | The final choice is with those “accountable”[54] on the advice on those “responsible” and “supportive”. “Consulted” parties, such as affected stakeholders, may also be given an opportunity to state their preference, which could ultimately inform the decision taken by those “accountable”.<br><br>It may also be necessary to appoint a facilitator for the workshop to ensure the key steps in the workshop are completed systematically and all individuals get an equal opportunity to comment. |

[53] Ref. Example 5: Template for selecting the preferred option.

[54] Ref. Appendix 1. RASCI Framework.

***Example 6. Quantifying the benefits and costs of option 5: major regional rail upgrades.***

The officials have captured the different types of costs and benefits in the following table. They have also applied a social discount rate and applied sensitivity analysis to generate best case and worst case scenarios to test whether the option would still produce net benefits under different scenarios. The officials have also factored in optimism bias and calculated the estimated cost of the identified risks materialising.

| | | Undiscounted | Discount rate (5%) applied | Worst case scenario | Best case scenario |
|---|---|---|---|---|---|
| **Costs (EUR millions)** | | | | | |
| Total direct public costs (to originating organization) | Capital | 100 | 80.95 | 125 | 75 |
| | Revenue | 0 | 0 | 0 | 0 |
| Total indirect public costs (to wider public sector) | Capital | 50 | 40.47 | 62.5 | 37.5 |
| | Revenue | 0 | 0 | 0 | 0 |
| Wider social costs | Capital | 10 | 8.09 | 12.5 | 7.5 |
| | Revenue | 10 | 8.09 | 12.5 | 7.5 |
| Total risks costs | Optimism bias (revised) | 34 | 34 | 59.90 | 35.94 |
| | Estimated or measured risk | 15 | 15 | 18.75 | 11.25 |
| Total of costs | | 219 | 186.6 | 266.15 | 159.69 |
| **Benefits (EUR millions)** | | | | | |
| Total direct public sector benefits | Cash releasing benefits | 25 | 20.23 | 18.75 | 37.5 |
| | Non-cash releasing benefits | 50 | 40.48 | 37.5 | 62.5 |
| Total indirect public sector benefits | Cash releasing benefits | 0 | 0 | 0 | 0 |
| | Non-cash releasing benefits | 50 | 40.48 | 37.5 | 62.5 |
| Total wider social benefits | Cash releasing benefits | 0 | 0 | 0 | 0 |
| | Non-cash releasing benefits | 100 | 80.95 | 75 | 125 |
| Total value of benefits | | 225 | 182.14 | 168.75 | 287.5 |
| **Net public value (total benefits minus total costs)** | | **6** | **-4.46** | **-97.4** | **127.81** |
| **Benefit cost ratio (total benefits divided by total costs)** | | **1.02** | **0.97** | **0.63** | **1.80** |

The officials now have a net present value (NPV) and benefit cost ratio (BCR) under different scenarios, which will help them to form a recommendation for the Council of Ministers on the best option to proceed with.

Let us assume that option 5 (regional rail upgrades) was the shortlisted option with the most favourable NPV and BCR. The findings show that option 5 is unlikely to deliver net benefits, unless the best case scenario materializes. From here, the officials can recommend the following options:

- To not recommend any new investment, instead proceeding with the status quo
- Explore scaling down the capital, operations and maintenance costs of option 5, in order to reduce costs overall and achieve sufficient net benefits
- Undertake more analysis of the short-listed options to better understand the benefits, costs and impacts, in order to refine the NPV and BCR
- Return to the longlisting stage and redoing all the steps that follow, to ensure that the widest possible range of options have been considered for shortlisting.

## 24. Ascertain the preferred option's affordability and the funding required

| Question | Answer |
|---|---|
| What is affordability? | Affordability is about determining whether a project is financially feasible within the context of the resources that are available for capital investment within the Medium-Term Expenditure Framework.<br><br>Projects which are selected for implementation must provide not only value for money but must be affordable within a multi-annual expenditure framework |
| Why is determining affordability important? | There is no point in pursuing a project that cannot be funded even if that project offers good value for money. There is an opportunity cost for every project, where opportunity cost is the value of the funding in its most productive alternative use. That must be considered before the project gets approved. |
| Calculating affordability is not just a one-off exercise. | The affordability of a proposed project must be regularly assessed. The authorities should take account of new cost information and timing of payments which may emerge during the tendering process, as well as the up-to-date position regarding the Medium-Term Expenditure Framework. |
| The importance of risk in financial appraisal | Manage risk and uncertainty should be given significant attention in the financial appraisal process. The risk of adverse conditions emerging should be considered. |
| How is affordability different from value for money? | Value for money is the primary focus of an economic appraisal but affordability is the primary focus of a financial appraisal. They are two different exercises. |

# 6 Develop the Deal

## 25. Complete a procurement strategy

| Question | Answer |
|---|---|
| What are the key features of a procurement strategy? | The purpose of a procurement strategy[55] is to address the following considerations as the first step of the procurement stage of any public investment:<br>• type of contract/s to be procured e.g. separate or bundled design and build contracts<br>• delivery model (based on the objectives of the project e.g. speed of delivery, time, budget, innovation potential, complexity of project)<br>• types of public procurement procedures to be used (e.g. traditional procurement, PPP, concession contracts, etc). |
| Why is it important to have a procurement strategy? | The Procurement strategy assures that public money is well spent and project risks minimized, thus avoiding ineffective budget use and provides for successful project implementation within the available time and resources available to the implementing authority. |
| How can a procurement strategy help manage risk? | The decision regarding the procurement type needs to be based on the risk assessment as well other considerations.[56]<br><br>When considering risk management in the context of a procurement strategy, the key points to consider are:<br>- Has the responsible organisation achieved optimal risk allocation and risk mitigation?<br>- For PPPs, has it been established that the private sector is best placed to manage certain risks associated with the programme or project?<br>- Also for PPPs, have service demand and income risks been fully assessed in the context of proposed contract length? |
| When is having a procurement strategy particularly useful? | A procurement strategy, which provides an informed and evidence-based approach for why a particular procurement type is being pursued, is useful for all procurements of any type, scale and risk profile.<br><br>A procurement strategy is particularly useful for complex infrastructure projects of high value, with many risks and where a large number of stakeholders are potentially affected. In these cases, procurement strategy is an important tool to secure timely and efficient project implementation. |

[55] Ref. The Support Tool for Effective Public Procurement (STEPS), OECD, 2022.

[56] Ref. Section 7: *Developing a plan for managing operational risks*

| | |
|---|---|
| When should a procurement strategy be prepared? | It should be prepared during the project structuring phase, based on the concept phase of the design stage being completed. |
| What information is needed to inform a procurement strategy? | Two preceding decisions must be taken before defining the concrete steps of the procurement strategy:[57]<br>• make or buy – what shall be outsourced and what resources shall be used from within the project developers' organization<br>• contract scoping – what exactly is the scope of the project. |
| Who needs to be involved in developing a procurement strategy? | Project management and technical experts in project design and engineering identified as "responsible" (ref. RASCI Framework) must ensure that a thorough analysis of procurement strategy options has taken place and an appropriate strategy has been chosen. "Accountable" parties must be informed of the outcome of this process, with an explanation of why a particular procurement strategy was chosen.<br><br>The relevant funding agency should at least be consulted on the procurement strategy, and is likely to take a close interest in how the procurement strategy is chosen. |
| At what stage(s) should the procurement strategy be reviewed? | The procurement strategy shall be reviewed and updated during the kick-off phase of the project and, if needed, during project implementation. |

**Box 4. STEPS – Support Tool for Effective Procurement Strategies (OECD)**

Queensland University of Technology (Australia) (QUT) has been working on a tool to address the procurement strategy for any project. After several pilots, the OECD collaborated with QUT to further develop and trial the new approach outside Australia. STEPS integrates an economic approach to procurement strategy development via 6 steps of analysis which lead to an optimal procurement solution. It is applicable for large infrastructure projects (above EUR 50 million) and aims to maximise the use of public funds for procurement. The first three steps prepare the inputs for the analysis, while the last three address a different layer of the procurement strategy in each step. It was implemented on two major road projects in Norway – E18 and E6 evaluating their procurement strategies.

[57] The Green Book, HM Treasury (United Kingdom), 2022.

## 26. Undertake a risk transfer assessment

| Question | Answer |
|---|---|
| What is risk transfer?[58] | Risks are specific uncertainties that arise from activities such as forecasting or implementation, the costs of which have been estimated. They are specific to an intervention and may be quantified and managed.<br><br>Risk transfer is the process of deciding which party involved with delivering an investment is best placed to manage a particular project risk effectively.<br><br>The objective is to ensure that risks are allocated to parties that are best placed to manage particular risks to ultimately deliver value for money. The purpose of risk transfer is not for governments to offload as much risk as possible to private parties.[59] |
| What are the principles underpinning a risk transfer assessment?[60] | 1. **All projects need to be individually assessed for the transfer of risks**. There is no one-size approach to transferring risk. The key considerations when considering who should take responsibilities for individual risks are:<br>a. The nature of the project and to which stakeholders its value will accrue<br>b. The capabilities of the parties (e.g. public sector, private sector) to manage particular risks.<br><br>2. **Risk should be quantified and costed in a proportionate way**. Where relevant this should include the costs of mitigating risks and the expected costs if risks materialise. As an appraisal develops, the cost of risks should be estimated and included in the estimated project cost. Officials need to apply judgement regarding the extent to which relevant risks can and have been identified and quantified.<br><br>3. **The precautionary principle should be applied**. The precautionary principle states that because some outcomes are so undesirable, even though they may be very unlikely, precautionary action is justified. Precautionary action is often applied when the effects of an action are uncertain, such as the impacts on health, safety and the environment from an infrastructure development. Precautionary action involves proceeding forward cautiously while avoiding or minimizing harm, reviewing and amending future actions if required as new information about an activity's impacts are revealed. In cases where such risks have been identified, they should be drawn to the attention of senior management and expert advice sought. Use of proven, rather than leading edge, technology is also good international practice and should be preferred if it reduces risk significantly while providing a proportion of the benefits of higher risk alternatives. |

[58] The Green Book, HM Treasury (United Kingdom), 2022.

[59] Ref. Section 7: *Developing a plan for managing operational risks.*

[60] For further information: Ref. A5: Uncertainty, Optimism Bias and Risk, The Green Book, HM Treasury (United Kingdom), 2022. For guidance using particular tools for calculating risk, ref. 13.4 Risk Quantification, The Green Book, HM Treasury (United Kingdom), 2022.

| | |
|---|---|
| What types of risks should be considered as part of a risk assessment? (e.g construction, demand risk, etc) | Risks can be assigned to 3 main categories which are not mutually exclusive – business, service and external risks.[61]<br>1. Business risks (ability of the organization to perform its business activities, reputation risks) remain with the public sector and cannot be transferred. These include the loss of opportunity and poor Value for Money that occurs when schemes under-deliver or fail completely.<br>2. Service-related risks may be shared between the public and private sectors. The following risks fall into this category:<br>• Operational risks;<br>• Financial risks;<br>• Demand risks (demand and volume);<br>• Contractual risk;<br>• Timeline risks;<br>• Risks, related to construction (delivery of materials, omissions/unclarities in the designs, permissions, labour force, decant, etc.)<br>• Performance;<br>• Technology;<br>• Residual value;<br>• Maintenance.<br>• External risks (catastrophe, regulatory risk) arise from the wider environment, not the intervention being appraised. |
| What information is needed? | Initial information about the project is needed as to its objectives, scope, main activities and the involved parties. Then a risk analysis and risk mitigation strategy in order to identify risks and establish how they can be best mitigated, which helps to identify which party would be best placed to manage them.[62] |
| Who needs to be involved? | Stakeholders identified as ''accountable'' and ''responsible'' need to prepare and confirm plans for allocating risk to different parties and the rationale for why certain parties are best placed to carry those risks.[63]<br><br>All parties identified as being responsible for risks must also be in agreement on the duration and terms of the risk transfer. |
| When should arrangements for the transfer of risk be made? | These considerations should be negotiated as part of the project structuring and contract design. To attract suppliers who have the experience and appetite to carry risk, it is important to set out at a high-level during the market engagement stage that there may be potential for risk transfer arrangements, such as through a PPP or concession contract. Discussing the potential risk transfer arrangements with suppliers during the market engagement phase can also help the public procurer ensure their early proposals for risk transfer are informed by the latest information from the private sector. |
| Does a risk transfer assessment need to be reviewed? | Risk transfer can be reviewed during project implementation and it would be good practice to include possibilities for risk transfer decisions taken during structuring of the contract with the supplier especially if some PPP option or concession is chosen by the Public authority. |

61 The Orange Book Management of Risk – Principles and Concepts

Risk Analysis and Management for Projects (RAMP), HM Treasury (United Kingdom), 2004.

62 Ref. Section 7: *Developing a plan for managing operational risks.*

63 Ref. Appendix 1: RASCI Framework.

## 27. Design and manage the contract

| Question | Answer |
|---|---|
| Why is this an important step in risk management? | Proper contract design and effective contract management can ensure the terms and obligations of an engagement on an investment are understood by all parties and that there are penalties in place for non-compliance. This helps avoid time-consuming and costly procedures at later stages clarifying redress in the event that expectations have not been met. |
| When should this step take place? | Contract management arrangements and key contractual issues should be considered and recorded in the project preparation and structuring phase. As part of a public procurement procedure, the law requires that contractual agreement be included in the tender dossier.[64] |
| For what types of projects is this step most applicable? | It is applicable for all types of projects. For smaller, "standard" projects some standardized contract models can be used and for complex projects effort must be invested in bespoke contracts that are tailored to the complexities of the investment. |
| What information is needed? | Outline the contractual arrangements for the project, including the use of a particular contract, the key contractual issues for the Deal and its accountancy treatment and personnel implications (if any).[65]<br><br>State the form of contract to be used. In the case of a standard contract, state the title of the model contract to be used. In the case of a bespoke contract, state why this is more advantageous than using a standard contract.<br><br>The main matters that a contract must address are as follows:<br>• the duration of the contract(s) and any break clauses<br>• the service provider's and procuring authority's respective roles and responsibilities in relation to the proposed project<br>• the payment/charging mechanism, including prices, tariffs and incentive payments.<br>• change control (for new requirements and updated services) e.g. define how new requirements and service updates are agreed, who is responsible for implementing new requirements, how new requirements are communicated between the parties (periodically or upon request), how they are documented and validated.<br>• the organisation's remedies in the event of failure on the part of the service provider to deliver the contracted services – on time, to specification and price the treatment of intellectual property rights compliance with appropriate regulations.<br>• the operational and contract administration elements of the terms and conditions of service.<br>• arrangements for the resolution of disputes and disagreements between the parties<br>• the agreed allocation of risk.<br>• any options at the end of the contract, if any e.g. options to prolong the services, warranty provisions for a period extending beyond the contract validity period, confidentiality obligations extending beyond the contract validity period. |

[64] Public Procurement Act 2016, Republic of Bulgaria.

[65] Contract Management, Professional Standards Version 2.0, Government Commercial Function, United Kingdom:

| | |
|---|---|
| Who needs to be involved? | Stakeholders identified as ''responsible''[66] must be closely involved in the contract design and negotiating its terms. This will likely include management, financial, legal and project management.<br><br>Those "accountable" should at least have a broad understanding of the key aspects of the contract, including risk transfer arrangements, cost, key deliverables, timeframes and risk management. |

## 28. Undertake market engagement

| Question | Answer |
|---|---|
| Why is this an important step in risk management? | Early market engagement (EME), also known as soft market testing, is the process of engaging with potential suppliers on a procurement process. It gives suppliers the opportunity to both inform the specification and to get ready to meet the requirements. EME enables public procurers to ask suppliers questions on important issues or decisions which helps to refine the requirements. EME can help public procurers gain a better understanding from the market about what is possible, for example what resources (such as staff, services or skills) are available to help fulfil a contract. EME also increases awareness and interest from the market in a potential procurement and encourages competition, giving public procurers the option of more suppliers, products and services to choose from at the tender phase. |
| When should this step take place? | EME may take place during the planning of the procurement procedure, provided that it does not have the effect of distorting competition. To be most effective, market engagement activities should begin at the concept stage. EME must also be conducted in line with legal requirements.[67] |
| For what types of projects is this step most applicable? | Taking the time to carry out EME and gather market intelligence is regarded as 'best practice' and recommended as part of the preparation process for any future contract, especially where procurements are complex or of significant value. |
| What information do potential suppliers need from the procuring entity? | The more detail public procuring entities can give to suppliers about their requirements, the easier it will be for suppliers to provide a thorough response. As a minimum, suppliers would expect to know:<br>• the background to your organisation and project<br>• what you want to achieve from the contract<br>• the location of the proposed investment activities and an indication of timescales / duration<br>• the dates for the conclusion of the market engagement process and for the submission of any information by suppliers.<br><br>A provision shall be made clear that companies participating in the market engagement process are not required to share any type of commercially sensitive information at this stage. |

[66] Ref. Appendix 1: RASCI Framework.

[67] Article 44, Public Procurement Act 2016, Republic of Bulgaria.

| | |
|---|---|
| What information does the procuring entity need from the potential supplier? | Processes that can be used to engage with the market vary from the transactional, such as emailed questionnaires, surveys or meetings, through to more complex and collaborative supplier webinars, conferences or workshops.<br><br>Finally, following the market engagement process it's important for the procuring entity to let potential suppliers know that their feedback has been taken on board and responded to. Not only will this improve the market interest in the procurement process for the specific project, but it will also encourage higher levels of engagement in future market engagement processes. |
| Who needs to be involved? | The public procuring entity should aim to speak to a wide range and mix of suppliers to represent a reasonable sample of the sector. |

## 29. Run a competitive tender

| Question | Answer |
|---|---|
| Why is this an important step in risk management? | Competitive tender procedures give access for optimal involvement of market participants in the tender procedures and thus ensure effective use of public money as well as non-distorted competition and proper functioning of the free market.[68] |
| When should this step take place? | The competitive tender procedure shall be adhered to in all stages of procurement – preparation phase, award of contract, conclusion and implementation of the contract. |
| For what types of projects is this step most applicable? | All projects procured through public procurement. Although due to different reasons (such as intellectual property rights, matters of utmost urgency, availability of certain technologies, very small size of the project etc.) there may be exclusions from the competitive tendering, which shall and are listed explicitly in law. |
| What information is needed by all parties to run a successful competitive tender? | The requirements and criteria relating to the procurement exercise must be set in advance, be fair, and be publicly available. The evaluation procedure and evaluation process should be made public with enforcement options available when standards are not met.[69] |
| Who needs to be involved? | Public procurement officials from different central and local level authorities. Participants in the tender, administrative and legislative control bodies also need to be involved in the competitive tender rules monitoring and control processes. |

68 General Guide on the Public Procurement Legislative Environment in Bulgaria, OECD, 2016.

69 Compendium of Good Practices for Integrity in Public Procurement, OECD, 2014; Public Procurement in the European Union: practical guide on remedies, European Commission, n.d.

## 30. Monitor standards of integrity and corruption as part of bid evaluation

| Question | Answer |
|---|---|
| Why is this an important step in risk management? | Integrity and anti-corruption monitoring is a cornerstone of good governance and critical for maintaining trust in government. A sound management of procurement contracts is critical for transparent and accountable spending of taxpayer's money.[70]<br><br>Specific standards for procurement officials, such as, codes of conduct, conflict-of-interest policies, mitigate the risks related to the specificities of the public procurement process, in addition to wider standards and procedures applicable in the whole public service, such as clear whistle-blowing reporting procedures and effective protection for whistle-blowers. Integrity in procurement also depends on mechanisms and capacity that ensure effective internal and external control as well as guidance or trainings on integrity issues for public procurement officials.<br><br>The aim of the Directives 89/665/EEC and 92/13/EEC[71] are to allow irregularities occurring in contract award procedures to be challenged and corrected as soon as they occur, therefore to increase the lawfulness and transparency, build confidence among businesses and facilitate the opening of local public contracts markets to competition from all over Europe. Directives coordinate national review systems by imposing some common standards intended to ensure that rapid and effective means of redress is available in all EU countries in cases where bidders consider that contracts have been awarded unfairly. |
| When should this step take place? | The integrity and anti-corruption standards of conduct shall govern the preparation of each tender procedure and be followed throughout its implementation – from publication of tender documents, process of application, bid evaluation and up to contract signature with the selected tenderer and then subsequent contract management and implementation. |
| For what types of projects is this step most applicable? | All projects procured through public procurement. |
| Who needs to be involved? | The bid evaluation team must involve those identified as "responsible" (ref. RASCI Framework) and who have relevant technical skills in engineering, design, economics, finance, planning and other skills that are necessary to assess the technical aspects of the bid. Those "accountable" will need to be informed of the outcome of the bid evaluation process and made aware of the steps taken to assess the various bidders and the reasons why the preferred supplier was chosen. |

[70] Compendium of Good Practices for Integrity in Public Procurement, OECD, 2014.

[71] The legal framework on remedies is found in the following Remedies Directives: Directive 89/665/EEC regulates remedies available to economic operators during public sector contract award procedures. Directive 92/13/EEC regulates remedies available to economic operators during utilities contract award procedures. Note: Both Directives were amended by Directive.

# 7 Develop a plan for managing operational risks

| Question | Answer |
|---|---|
| What is a risk?[72] | A risk is an uncertain future condition or circumstance that could impact the achievement of objectives, and one that is often characterised by reference to potential events or consequences.<br><br>Objectives can have different aspects (such as financial, health and safety, gender inequality, or environmental) and can apply at different levels (such as strategic or project levels). Risks can therefore be conceptualised in terms of their component causes, events, and consequences:<br><br>• Risk factors are characteristics of an organisation's environment, policies, procedures or activities that are associated with risk.<br>• A cause is a fact or occurrence which alone or in combination has the potential to create risk.<br>• An event is an occurrence or change in circumstances. Events are usually thought of as something unexpected but can also be something expected which does not happen.<br>• Consequences are the outcome of an event affecting objectives and can be certain or uncertain. |
| Why does risk management matter for public investment? | Public investments such as infrastructure are particularly complex, making successful risk management critical to effective delivery. For infrastructure projects, governments often want to minimise upfront costs in order to be seen as being responsible with public money. People's natural tendency to optimism bias can result in incorrect forecasts and assumptions and an underestimation of risks, while often overestimating user uptake, revenue and growth potential. This commonly results in projects exceeding their time and budget commitments. |
| What stages of the investment lifecycle does risk management apply to? | Risk management cycle is applicable to all phases of the investment lifecycle. Risk management should be a continuous process, with the steps of the risk management cycle regularly revisited through the procurement process to adapt to new circumstances and unforeseen events.<br><br>A whole-of-lifecycle approach to risk management is important because risks can materialize in later stages that have actually been caused in earlier stages. This makes it important to have a strong risk-management processes from the outset of an investment proposal, which must be applied and continuously developed throughout the life of the project.<br><br>For more information on monitoring risks throughout the investment lifecycle, see 'Develop a plan for |

[72] For further information: *Risk management - Guidelines (ISO Standard No. 31000)*, International Organization for Standardization, 2018; *The Orange Book: Mangement of Risk - Principles and Concepts*, HM Treasury (United Kingdom), 2020.

| | |
|---|---|
| | controlling or mitigating the identified risks' below. |
| What are the different types of risks? | Figure 7 provides examples of public procurement risk categories. While not comprehensive, these categories provide an indication of the breadth of the risk management challenges across the investment lifecycle. |
| What are the different roles and responsibilities of risk management? | There are different roles and responsibilities associated with risk management. While senior representatives are likely to be "accountable"[73] for risks, those responsible for managing risks on a day-to-day basis are more likely to be at the working level reporting to senior management.<br><br>Other stakeholders will not be directly accountable or responsible for risks, but it may be important for their business operations that they are consulted or informed about risks. Other individuals may support the delivery of a project but are not directly impacted by risks posed to the investment.<br><br>To identify the type of ownership that different parties will take in risk management, Appendix 10 provides more detail on the explanation of what it means to be responsible, accountable, a supporting individual and to be consulted and informed.<br><br>Each risk needs to be individually assessed to identify the levels of "ownership" that different stakeholders will have. When doing this, it is critical to identify responsible individuals, such as Chief Executive and Director, rather than identify organisations, such as the Ministry of Finance. When risk management is assigned to organisations, risk ownership becomes too diffuse and there is a chance to risks will go unaddressed.<br><br>While certain individuals will be specifically accountable and responsible for risks, all individuals involved in planning and delivering an investment are responsible for identifying, communicating and managing risks. It is important that senior leaders create a "culture of risk management", where staff know what the risks are, who to discuss with when a risk arises, and what steps are needed to control for risk. To encourage staff to identify and come forward with information about risks, it is important to create a culture where staff feel empowered and encouraged to raise information about risks when necessary.<br><br>A risk transfer assessment[74] is an important step in allocating ownership of risks. A risk transfer assessment ensures the parties who are best placed to own certain risks are allocated responsibility for them. |

[73] Ref. Appendix 1: RASCI Framework.

[74] Ref. Section 7.2: *Undertake a risk transfer assessment.*

## Figure 7. Examples of different categories of risk

| Regulatory and Compliance | Sustainability | Operational | Economic and contextual |
|---|---|---|---|
| • Compliance with public procurement regulatory framework<br>• Compliance with relevant regulatory frameworks<br>• Integrity risks (fraud, corruption, collusion, etc.) | • Environmental risks (e.g. procured goods have negative environmental impacts)<br>• Socials risks (e.g. labour rights abuses in supply chains)<br>• Resilience risks (e.g. inadequate specifications lead to infrastructure failures over the asset lifecycle) | • Digital risks (e.g. failure of e-procurement system)<br>• Capacity risks (e.g. lack of procurement staff with necessary technical skills)<br>• Supply chain risks (e.g. supplier disruptions, labour rights violations)<br>• Project and contract management risks (e.g. failing to meet time and quality targets) | • Budgetary risks (e.g. insufficient funding allocation)<br>• Ability to meet intended strategic objectives and deliver value for money<br>• Market risks (e.g. low number of bidders) |

## 31. Identify the relevant risks

| Question | Answer |
|---|---|
| What are the different types of risks? | There are three common types of risks:<br>• Inherent risk is the level of risk before the application of any risk management activities or control measures to reduce its likelihood or severity<br>• Net risk is the level of risk following the application of any existing control measures or actions<br>• Residual risk is the level of remaining risk following the application of new control measures or actions that may be under consideration.<br><br>Distinguishing between inherent, net and residual risk allows for an appropriate assessment of risk on an ongoing basis, as well as an evaluation of the appropriateness and value of control measures.<br><br>When identifying risks, it can be useful to draw a distinction between risks whose causes and/or consequences are internal or external to the responsible authority. For example, risks associated with global commodity prices are outside the control of the responsible authority, while risks associated with selecting, for example, an inappropriate procurement method are internal.<br><br>It can also be important to distinguish between risk, where the probability of a risk event is known, and uncertainty, where the probability of the event is unknown. Generating probability information around uncertainty can be an important part of risk identification and assessment. |

| | |
|---|---|
| How are risks identified?[75] | To identify risks for public investments, those responsible for delivering the project must consider how the following could impact the investment at all stages of its lifecycle [IPA, Risk Potential Assessment Form, 2021]:<br><br>• Political e.g. the degree of political commitment and/or interest<br>• Public and stakeholders e.g. the degree of public interest and impact<br>• Financial e.g. the financial scale of the project, including the amount of public funds and complexity of funding arrangements<br>• Organisational e.g. impact to the operations of the organisation delivering the project, such as whether or not the project is needed to meet legislative requirements<br>• Dependencies e.g. whether the investment is dependent on other initiatives, programmes, projects or policies<br>• Policy and legislative e.g. degree of legal and policy complexity and extent to which these implications are understood<br>• Security e.g. potential risks to national security<br>• Technology e.g. extent to which new, novel technologies are required<br>• Commercial and supplier delivery e.g. complexity of contract frameworks, commercial environment and availability of suppliers<br>• Governance e.g. whether there is a standard governance arrangement or multi-faceted governance arrangements with multiple parties<br>• Implementation e.g. locations of staff and labour, complexities in the operating environment, achievable implementation budget and timeframes.<br><br>Assessing a proposed investment against these criteria helps identify potential risk areas. More specificity on risks must then be obtained, which can be gathered using a range of methods, including analysis of historical data, surveys and questionnaires, interviews and focus groups, discussions with key stakeholders and research of relevant publications.<br><br>As a starting point, it can be helpful to consider two fundamental questions:<br><br>(1) What could happen?<br>(2) How and why could it happen?<br><br>For instance, the European Commission's Public Procurement Guidance for Practitioners recommends using two methods to identify risks: first, conducting a critical analysis of the relevant documentation relating to the investment and its technical specifications, while asking the question 'what could go wrong?' Secondly, the Commission recommends gathering feedback and 'lessons-learned' from the implementation of previous similar projects, including engagement with other authorities responsible for delivering similar projects in the past.<br><br>This can be supplemented by the '5 Whys' method to understand the underlying or root causes of risks. It consists of iteratively asking the question 'why' until the final controllable cause is |

[75] For further information: Risk Potential Assessment Form, Infrastructure and Projects Authority (United Kingdom), 2021; *Public Procurement Guidance for Practioners*, European Commission, 2018;
*Guide de management des risques dans les marchés publics en Tunisie*, OECD and HAICOP, 2020 ;
*Checklist for Supporting the Implementation of OECD Recommendation of the Council on Public Procurement*, OECD, 2016

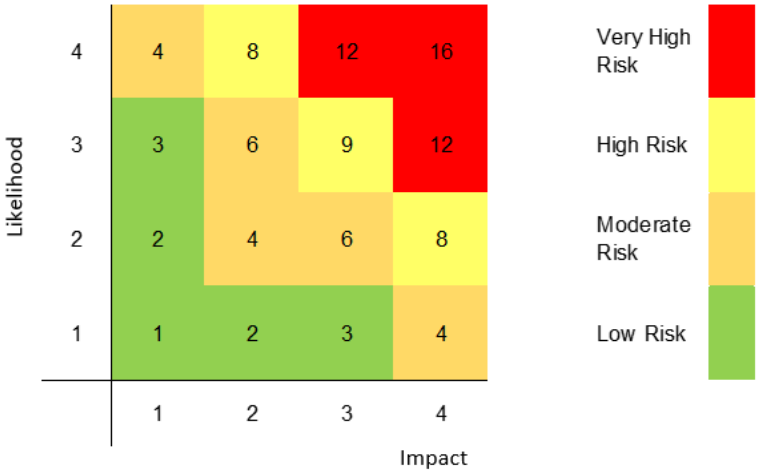
| | |
|---|---|
| | uncovered, with the number of iterations depending on the complexity of the risk. For example, a failure to carry out an appropriate needs analysis could be caused by the absence of an appropriate methodology, which can be the result of a lack of capacity in responsible authority, and ultimately gaps in the training of officials with responsibility for needs analysis. Implementing this method requires working with those directly involved, including appropriate stakeholders, and confining the analysis to addressable causes.<br><br>At certain stages of the investment lifecycle, red flag systems can be used to indicate when risks should be further investigated or escalated to decision makers. For example, at the procurement stage, red flags can include complaints from bidders, unusual bid patterns, repeated awards to the same contractor, multiple contract change orders, poor quality goods, works, or services, or contracts that are significantly higher or lower than estimated. |
| When should risks be identified? | The identification of risks should start as early as possible and be revisited on a regular basis throughout the full life of the investment i.e. construction, maintenance, operations, decommissioning. A meeting every quarter should take place to revisit the risk register an update the risk ratings applied to different risks. These meetings need to include those identified as being responsible for risk and reported to the stakeholders accountable for the risks. |

## 32. Assess the identified risks

| Question | Answer |
|---|---|
| How do risks need to be assessed? | An important step of the risk management process is to assess risks by evaluating their likelihood and severity. An assessment of risk should ask the following questions:<br>• What is the likelihood the risk will occur? Depending on the risk, this likelihood may be defined or measured qualitatively or quantitatively and expressed mathematically or descriptively.<br>• If the risk occurs, how severe will the consequences be? Similarly, the severity of the risk can be expressed qualitatively or quantitatively.<br>• How do existing control measures affect the likelihood and the severity of the risk?<br><br>The risk heat map shown in Figure 8 has been developed by the OECD to assess the criticality of risks at all stages of the infrastructure lifecycle. The likelihood (L) and the severity (S) estimate a risk's criticality (C) as the following formular depicts:<br><br>(C = L x S).<br><br>For example, if the likelihood is 4 and the severity is 3, then the overall criticality is (4 x 3) = 12. A risk's criticality rating can then be plotted on a risk matrix tool, which helps to compare between risks and track their criticality over time. Risk matrices should be regularly reviewed and updated to reflect the impact of the risk control and mitigation measures put in place.<br><br>These questions can be answered using internal knowledge and experience, external resources such as audit reports, or by consulting qualified and experienced outside experts. In determining both likelihood and severity, assessments should account for existing risk management measures and distinguish between inherent and net risk (defined under 'Identify the relevant risks' above). |

## Figure 8. Measuring likelihood and severity (risk heat map)

| Likelihood | Likelihood scale examples |
|---|---|
| Very High (4) | • Probability of 76-100%<br>• Will occur more than 20 times per year |
| High (3) | • Probability of 51-75%<br>• Will occur 11 to 20 times per year |
| Moderate (2) | • Probability of 26-50%<br>• Will occur 4 to 10 times per year |
| Low (1) | • Probability of up to 25%<br>• Will occur 0 to 3 times per year |




| Impact | Impact scale examples |
|---|---|
| Very High (4) | • Budget exceeded by 50%<br>• Unacceptable performance failure<br>• Key milestone delayed by more than 6 months |
| High (4) | • Budget exceeded by 25%<br>• Performance failure in area of critical importance<br>• Key milestone delayed by 3 to 6 months |
| Moderate (2) | • Budget exceeded by 10%<br>• Performance failure in area of minor importance<br>• Key milestone delayed by 1 to 3 months |
| Low (1) | • Cost changes can be accommodated within budget<br>• Schedule adjustments can be accommodated within plan |

## 33. Develop a plan for addressing risks[76]

| Question | Answer |
|---|---|
| How should risks be treated? | The appropriate treatment measures will depend on the results of the risk assessment, the public entity's risk appetite, and the cost of treatment options. The results of the risk assessment should be used to support decision making for the most appropriate treatment option for each risk depending on the risk appetite of the organisation in relation to its public procurement objectives. Effective risk management requires balancing the costs of different treatment strategies, the acceptability of residual risks, and the benefits of the action generating the risk.<br><br>Broadly, organisations face four options or paths for any risk:<br><br>1. Accepting the risk. This may be appropriate when the inherent or net risk is of suitably low likelihood or severity, when the cost of the expected outcome is relatively low, or when the cost of mitigating the risk is very high. Even when deciding to accept a risk, it may still be necessary to develop plans to monitor the risk and respond if it is realised. |

[76] For further information : *Guide de management des risques dans les marchés publics en Tunisie*, OECD and HAICOP, 2020.

| | |
|---|---|
| | 2. Transferring some or all of the risk to another party. For example, risk can be transferred through the purchase of insurance or the inclusion of indemnification clauses in contracts.[77]<br>3. Mitigating or controlling the risk by reducing its likelihood and/or severity through a variety of treatments. For example, a public entity may mitigate the risk that specifications may not meet users' needs by putting in place formal processes to involve users in the development of technical specifications. Risk control involves devoting additional resources to reduce the criticality of risks, and public entities should ensure that they are efficiently allocating resources such that the costs of reducing a risk's likelihood and severity are balanced against the benefits.<br>4. Avoiding the risk entirely by changing the procurement plan or abandoning the project. For example, a procurement might be cancelled if market analysis found that there were no or very few potential bidders who could meet the requirements.<br><br>Other techniques organisations can consider when managing risks include:<br>1. avoidance of irreversible decisions and a full assessment of costs, including the potential to delay decisions, allowing more time for the investigation of risks or alternative options<br>2. pilot studies – acquiring more information about risks affecting a project through pilots allows steps to be taken to mitigate risk or increase the benefits<br>3. design flexibility – where future demand and relative prices are uncertain, it may be worth choosing a flexible design. Breaking a project into stages, with reviews at points when it could be stopped or changed, can increase flexibility<br>4. reinstating or developing different options – following the risk analysis, it may be desirable to reinstate options, or develop alternatives that are either less inherently risky or which deal with the risks more efficiently.<br><br>Figure 9 shows a process for deciding how to treat risk. Available treatment options will depend on the risks being managed. In all cases, interventions and control measures should be evaluated based on their impact in reducing risk relative to their costs. Note that to the residual risk should be evaluated against the net risk, rather than the inherent risk. |
| What level of risk is acceptable? | Some level of risk is acceptable because risk management also has costs, particularly around control measures. The costs, both direct and indirect, of implementing risk controls must be carefully assessed to ensure they are proportional to and commensurate with the reduction in the likelihood and severity of the risks being mitigated. It is often impossible to completely eliminate risk, and there will generally be an acceptable level of risk beyond which the costs of risk control outweigh the potential harms.<br><br>The level of risk an organisation is willing to accept in the pursuit of its objectives is also known as its risk appetite or risk tolerance. Risk appetite varies between organisations and depends on a variety of factors, including its mission, the requirements of its stakeholders, its experience in the field in question and its organisational maturity. The level of acceptable risk should be determined by the capacity of an organization to continue meeting its obligations even with the risk being present. |
| What monitoring requirements are needed for mitigating and controlling risks? | Risk management should be a continuous process, with the steps of the risk management cycle regularly revisited through the investment lifecycle to adapt to new circumstances and unforeseen events. This key step aims at:<br>• Identifying new risks<br>• Tracking the criticality of risks within an evolving internal and external context<br>• Tracking the criticality of risks after the implementation of control measures, and helping prioritise any residual risk |

[77] Ref. Section 7.2. *Undertake a risk transfer assessment*.

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| | • Providing assurance to internal and external stakeholders that risks are being monitored<br>See Figure 10 below for how to monitor existing and identify new risks on an ongoing process throughout the lifecycle of an investment. |
| How should information about risks be recorded? | Risk registers are a commonly used risk identification tool. They fulfil a number of functions, including developing and maintaining a shared understanding of risks between stakeholders, ensuring the tracking and assessment of risks, recording decisions of how risks will be treated, verifying that responsibilities for risks have been assigned to the most appropriate risk owner, and providing a holistic view of risks that can be evaluated against the entity's overall risk appetite and risk management thresholds.<br>Using a risk register, each risk should be assigned to a single owner, clarifying accountability, while also identifying others associated with the risk and/or contributing to control measures. Risk registers often require each risk owner to set out the treatment measures that have been put in place. To maintain their effectiveness, risk registers should be updated on a set frequency and regularly reviewed with senior decision makers. |

## Figure 9. Risk treatment decision chart

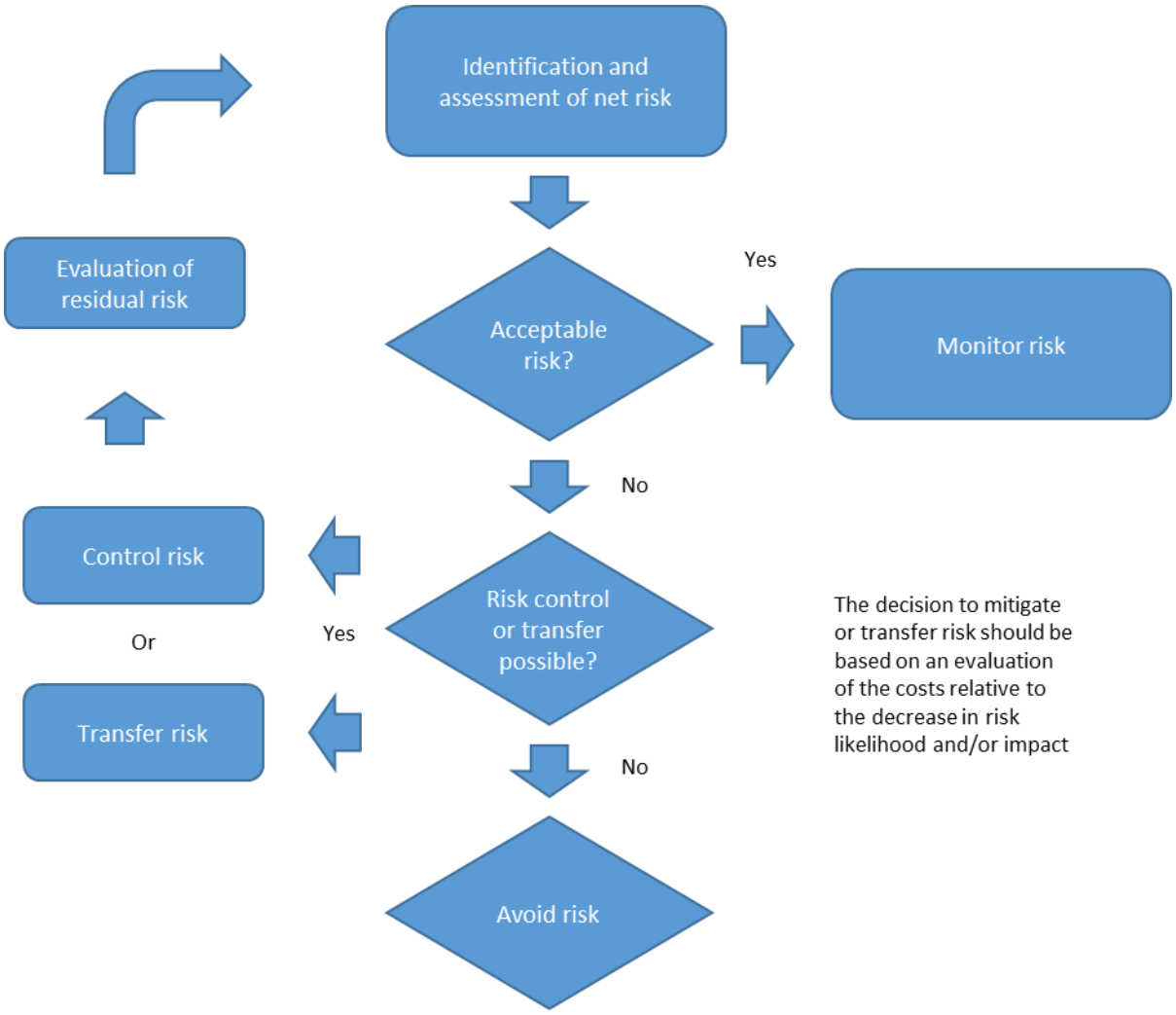

**Figure 10. Mitigation of inherent risk to residual risk**


**Figure 11. Process for the ongoing monitoring of risks (risk management cycle)**


## 34. Communicate the risks, and the plan for mitigating and controlling for them to the relevant stakeholders

| Question | Answer |
|---|---|
| Why is it important to communicate information about risks? | Communication on risks is critical to successful risk management, and organisations should put in place processes to supply, share and obtain risk information in an iterative and continuous way. Communication should reflect stakeholders' expectations and needs, be carried out in a timely and regular fashion throughout the risk management process and ensure that relevant information is collected, consolidated and shared with multiple target audiences. |
| How should information about risks be communicated? | There should be structured communication channels to ensure effective risk reporting within the organisation and, where necessary, with external stakeholders.[78] |

[78] *Risk Culture, Risk Governance, and Balanced Incentives*, International Finance Corporation, 2015.

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| | • Complete: All required information should be included in risk communication to ensure that the audience is able to make decisions as soon as they get the information.<br>• Concise: The risk communication should only include relevant information. Communication should avoid unnecessary information that might confuse the audience or detract from the core message.<br>• Accurate: All risk communication should only include accurate facts to enable the audience to gauge the importance of the required actions.<br>• Credible: All communication should originate from people and/or institutions with sufficient influence and authority.<br><br>Organisations can employ the following communication tools :<br><br>• Charts and narratives linked to the organisation's risk appetite that show the current risk profile in relation to objectives.<br>• Dashboards of key risk indicators that provide a simple pictorial snapshot of major risks, the treatment actions, and the risk owners. Dashboards are useful when updated regularly and can be drawn from or linked to the organisation's risk register.<br>• Flowcharts and maps of processes with key controls to provide a pictorial representation. |
| Who needs to be informed about risks? | Refer to *'What are the different roles and responsibilities of risk management?'* for identifying who needs to be informed about risks. |

# 8 Appendices

## Appendix 1. Clearly defining roles and responsibilities (RASCI Framework)

| | |
|---|---|
| **Responsible** | The individual who carries out the work. Includes:<br>• Senior responsible officer (e.g. project director or manager)<br>• Project team members |
| **Accountable** | The individual who holds the ultimate accountability for the work being carried out and/or decision making. Includes:<br>• Governance entity (e.g. senior management board members) |
| **Supporting** | Individuals who can support the planning, investment and delivery of a public investment. Includes:<br>• Technical advisors<br>• Financial advisors<br>• Specialist consultants |
| **Consulted** | Individuals who should be informed and referred to prior to decision making or task completion. Includes:<br>• External stakeholders (interest groups, community group, municipalities, affected stakeholders, etc) |
| **Informed** | Individuals who should be informed once decisions are made or upon work completion.<br>• External stakeholders who are impacted to less of a degree than consultees. |

## Appendix 2. Investment decision-makers' Checklist

| Confirm the strategic context | Establish the case for change | Identify and assess the options | Determine potential value for money | Develop the deal | Manage the risks (at all lifecycle stages) |
|---|---|---|---|---|---|
| 1. Have you identified the relevant key performance indicators? | 5. Have you established that the proposed investment is a good strategic fit? | 9. Have you revisited and confirmed the "case for change"? | 13. Have you revisited and reconfirmed the "case for change" and "identified and assessed the options" stage? | 25. Have you completed a procurement strategy? | Have you identified the relevant risks? |
| Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No |
| 2. Have you identified and involved the appropriate stakeholders? | 6. Have you determined the problem being solved and the expected benefits? | 10. Have you agreed the critical success factors? | 14. Have you confirmed the social discount rate? | 26. Have you undertaken a risk transfer assessment? | Have you assessed the relevant risks? |
| Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No |
| 3. Have you undertaken a foresight analysis? | 7. Have you determined the risks, constraints and dependencies? | 11. Have you established a longlist of options? | 15. Have you identified the benefits, costs and impacts? | 27. Have you developed a plan for designing and managing the contract? | Have you developed a plan for addressing the risks? |
| Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No | Yes Partial No |
| 4. Have you assessed the | 8. Have you held a workshop to confirm | 12. Have you held a workshop to confirm | 16. Have you identified the wider | 28. Do you have a plan for market | Do you have a plan for communicating to your |

| public investment needs? | | | the “case for change”? | | | the shortlist? | | | (or indirect) effects? | | | engagement? | | | stakeholders how you will mitigate and control for risk? | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | Partial | No | Yes | Partial | No | Yes | Partial | No | Yes | Partial | No | Yes | Partial | No | Yes | Partial | No |
| | | | | | | | | | 17. Have you set the valuations (market and non-market)? | | | 29. Do you have a plan for running a competitive tender process? | | | | | |
| | | | | | | | | | Yes | Partial | No | Yes | Partial | No | | | |
| | | | | | | | | | 18. Have you undertaken distributional analysis? | | | 30. Do you have a plan for monitoring standards of integrity during bid evaluation? | | | | | |
| | | | | | | | | | Yes | Partial | No | Yes | Partial | No | | | |
| | | | | | | | | | 19. Have you ranked the shortlisted options? | | | | | | | | |
| | | | | | | | | | Yes | Partial | No | | | | | | |
| | | | | | | | | | 20. Have you quantified the risk of each option? | | | | | | | | |
| | | | | | | | | | Yes | Partial | No | | | | | | |
| | | | | | | | | | 21. Have you revisited (and aimed to reduce) optimism bias? | | | | | | | | |

| | | |
|---|---|---|
| | Yes Partial No<br>22. Have you assessed the short-listed options under different scenarios?<br><br>Yes Partial No<br>23. Have you held a workshop to select the preferred option?<br><br>Yes Partial No<br>24. Have you ascertained the preferred option's affordability and the funding required?<br><br>Yes Partial No | |