



**An Roinn Caiteachais
Phoiblí agus Athchóirithe**
Department of Public
Expenditure and Reform

Public Spending Code

Carrying out a financial analysis

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Document Summary

This document provides a guide to carrying out a financial analysis as part of the Public Spending Code.

It provides supplementary guidance for public sector bodies conducting the financial appraisal element of the Preliminary and Detailed Business Case stages of a public investment proposal.

Financial analysis is an important element of overall appraisal. It provides an understanding of the cash implications of expenditure proposals. Well-planned and well-executed public capital investment offers a wide range of social and economic benefits. However, for it to be truly effective, public investment projects and programmes must be delivered with maximum value for money. It is not enough for a proposal to be a good use of funds, in the context of limited public resources and significant public requirements, it must also be the *best* means to a particular policy goal. Financial analysis is a crucial component in understanding the implications of a spending proposal.

Every spending proposal must include a separate financial analysis with the level of detail proportionate to the level of expenditure involved. A financial analysis is usually undertaken from the perspective of the Sponsoring Agency, and should also take account of the impact of the project on the Exchequer.

This guide sets out the principles for conducting a financial analysis and provides supporting templates designed in the main for the conduct of projects under €1m and over €1m. Larger and more complex projects may require more complex financial analysis building upon the principles set out here. The templates are available at this [link](#). The user guide for the templates is contained in Appendix B.

Although the main application of this guide is for public capital investment projects, the general principles also apply to other programmes of expenditure.

This guidance has been informed by international best practice and has been developed with the assistance of the National Development Finance Agency (NDFA) with input from the Department of Tourism, Culture, Arts, Gaeltacht, Sport, and Media.

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1. Introduction

1.1 Scope of this Guide

This guide sets out the requirements for financial analysis as part of the Preliminary Business Case and Final Business Case stages in the project lifecycle of a proposed public capital investment. It is a companion to the Public Spending Code *A Guide to Evaluating, Planning, and Managing Public Investment* and provides additional guidance to facilitate compliance with the Code. Well-planned and well-managed public capital investment offers a wide range of social and economic benefits, including enhanced quality of life and well-being. It also improves productivity and enables more environmentally sustainable development. Financial analysis is crucial to understanding the financial impact of an expenditure proposal. It not only informs the assessment of value for money in the options appraisal but also the consideration of affordability. There is little point in pursuing a worthy project if it cannot be paid for.

A financial analysis, and indeed overall business case, should never be considered an ‘obstacle to be overcome’ before a project can proceed. The analysis should provide an evidence base to support the identification of the most efficient and effective way of achieving the desired outcome.

This document sets out the principles for conducting a financial analysis and provides supporting templates designed, in the main, for the conduct of projects under €1m and over €1m. Larger and more complex projects may require more complex, bespoke financial analysis building upon the principles set out in this guide.

1.2 Who Should Read this Guide

The following groups may find this guide useful.

- Public officials developing capital projects and programmes to be funded by public monies;
- Public officials reviewing and approving capital projects and programmes to be funded by public monies;
- Anyone delivering capital projects and programmes funded by public monies;
- Public officials monitoring capital projects and programmes funded by public monies;
- Public officials overseeing the performance of capital projects and programmes funded by public monies;
- Specialists contracted to appraise, plan or deliver a project or programme which will be funded through public monies;
- Academics working in the area of public investment appraisal and management; and
- Members of the public who wish to be informed of the requirements in place for evaluating, planning and managing public capital investment in Ireland.

The National Development Finance Agency (NDFA) is the financial advisor to State Authorities, agencies and departments. The NDFA's advice should, in general, be sought at an early stage on a) all PPP projects and b) all projects with a capital value exceeding €75m. The NDFA's functions include advising public bodies on the optimum means of financing the cost of public investment projects to achieve value for money and providing advice in relation to all aspects of financing, as well as the provision of technical, design and construction advice. The NDFA is also available to provide financial advice on projects below €75m as appropriate.

1.3 Introduction to Financial Analysis

A financial analysis is an important building block in the overall appraisal process. As the State has limited resources, a financial analysis is required in order to understand the financial impacts of a given proposal. All projects, irrespective of scale or cost, must be subject to financial analysis. This is part of the options analysis element within the Preliminary Business Case for public investment projects.

While an economic appraisal considers the broad social impacts of a proposal, the financial analysis is critical in understanding direct financial impacts, including affordability. A financial analysis considers financial cashflows only, whereas an economic analysis examines all costs and benefits for society as well as direct financial flows arising from a project. Because an economic analysis considers wider societal impacts on top of financial flows, an economic analysis cannot be completed without first completing a financial analysis. In Ireland and internationally, the nature of public investment by government bodies means that many public capital projects generate a large negative financial "return" that involves significant costs without subsequently earning commercial revenues, for example a school building. This does not necessarily mean a proposal is undesirable or unaffordable. The economic or societal benefits of the project may significantly outweigh the negative financial impacts. Nonetheless, financial analysis is critical to understand the financial impact of a project on the public finances.

A financial appraisal incorporating an analysis of cashflows, even at a simple level, should be carried out for all spending proposals regardless of scale or cost, because an understanding and quantification of financial flows is critical to the approval decision. The level of detail involved should be proportionate to the scale of expenditure.

The financial analysis begins as a consideration of the potential range of costs and an assessment of affordability in the Strategic Assessment Report. The financial analysis as detailed in this guidance is conducted as part of the Preliminary Business Case and is then revisited and updated as the project moves through the project lifecycle and more information is available. Updating the financial analysis, as investment proposals mature over the course of the project lifecycle, better informs decision making.

1.4 Structure

This document sets out the requirements and steps involved in a financial analysis. It is structured as follows:

- Section 1 sets out the structure and scope of the Guide and provides an introduction to the financial analysis.
- Section 2 explains the principles of the financial analysis and sets out the difference between a financial and economic analysis.
- Section 3 outlines the main steps involved in conducting a financial analysis for proposals under €1m.
- Section 4 outlines the main steps involved in conducting a financial analysis for proposals over €1m.
- The appendices in Section 5 of this document set out a number of common mistakes to be aware of when preparing a financial analysis, provide guidance on the use of the financial analysis templates and provide a short guide to Exchequer cashflow analysis.

2. Financial Analysis

2.1 What is a Financial Analysis?

All projects – irrespective of scale or cost - must be subject to a financial analysis.

Financial analysis is a method used to evaluate the financial impact and affordability of a proposed project by assessing the value of net cashflows resulting from its implementation.

Financial analysis is a key element of the options analysis to assess the impact and affordability of the different options being considered. Within the options analysis, it is important to identify a base case or counterfactual (with minimum or no intervention) and assess the different options relative to this on an incremental basis, in addition to clearly showing the overall gross cost of a spending proposal.

Sponsors of projects which involve cash inflows in the form of fares, user charges or tariffs will be familiar with the process of financial analysis. However, such analysis is also important where there are no or minimal revenue streams associated with an investment.

As noted in Section 1, the nature of public investment by the government bodies means that many public capital projects generate a large negative financial “return”. Of course, this does not necessarily mean a proposal is undesirable or unaffordable. The economic or societal benefits of the project may significantly outweigh the negative financial impact. Nonetheless, financial analysis is critical to understand the financial impact of a project on the public finances.

Sponsoring Agencies and Approving Authorities are required to consider both value for money and affordability. In some cases, the strategic assessment and the economic appraisal may show a strong case for change on account of the wider economic and social benefits. The financial analysis informs consideration of the financial impact including affordability.

A financial analysis and the assumptions, parameters, inputs, and contingency costs that underpin it should also be informed by past similar projects (domestically and/or internationally). It is important to note that no project is truly unique in all its elements and so should be informed by the past successes and mistakes of others. Techniques such as reference class forecasting and benchmarking should be considered for use in the financial analysis where this is proportionate to the estimated cost and complexity of the project. Box 4.1 provides more information on these and other useful techniques.

The variants of financial analysis used for appraisal purposes and covered in this document are:

- Simplified cashflow analysis;
- Detailed discounted cashflow analysis; and
- Exchequer cashflow analysis.

In addition to one or more of these types, all financial appraisals must also set out a detailed list of sources of funding for all options, not just the preferred option, to inform the understanding of the gross impact of the proposal.

2.2 Purpose of a Financial Analysis

A financial analysis focuses on financial cashflows as opposed to economic flows and in particular considers financial impact, affordability, and in some cases profitability. It is a key component of the options analysis when assessing affordability of different options relative to the base case.

The objectives of a financial analysis include:

- Identifying, estimating, and comparing the financial cashflows for different options against a counterfactual or base case.
- Assessing the funding sources (public, private, and EU) for the different options being considered.
- Assessing the financial impact of each option relative to costs. Do the available sources of funding consistently match disbursements year by year?
- Examining the return on capital for different sources of funds where appropriate.
- Calculating performance indicators such as the Financial Net Present Value (FNPV) and Financial Internal Rate of Return (FIRR) where applicable.

2.3 What Type of Financial Analysis should be carried out?

Box 2.1	Simplified Cashflow Analysis	Detailed Discounted Cashflow Analysis	Exchequer Cashflow Analysis
From whose point of view should it be?	The Sponsoring Agency	The Sponsoring Agency	The Exchequer
Which Expenditure Proposals?	All projects under €1 million.	All projects over €1 million. Proposals under but close to €1 million may also be considered.	Only when it adds significantly to the project, such as when there are significant income streams/ tax impacts/ multiple sources of funding.
Is the Gross Impact Calculation Required?	Yes	Yes	Yes
Is the Incremental Impact Calculation Required?	No	Yes	Yes

The type of financial analysis plan used as part of the appraisal plan may vary depending on the project. In the case of complex and large projects, this plan should be agreed with the Approving Authority as part of the Strategic Assessment Report.

2.4 What is the difference between a Financial Analysis and an Economic Analysis?

Financial and Economic analysis are two types of analysis which complement each other in the business case to inform the options analysis. While financial analyses are prepared using many of the same principles which apply to economic analysis techniques such as CBA, the two are different.

A financial analysis is used to assess affordability and determine financial impact while an economic analysis typically considers all the social and economic impacts on society. An economic analysis considers costs and benefits for which market values are not readily available whereas a financial analysis focuses only on cashflows. As an economic analysis considers both cashflows and wider societal impacts, a financial analysis is a necessary

starting point on which the economic analysis, either cost-benefit analysis or cost-effectiveness analysis, builds.

Box 2.2: Differences Between a Financial and Economic Analysis	
Financial Analysis	Economic analysis
• Considers only financial cashflows • Used by the public and private sectors • Focuses on financial flows directly affecting project sponsor and/or Exchequer	• Considers economic costs and benefits • Used mainly by the public sector due to the focus on net benefit for society • Focuses on economic and financial flows affecting society • Uses parameters such as the shadow prices of carbon, public funds, labour and an economic discount rate which is different to the financial discount rate

2.5 Types of Financial Analysis

Financial cashflow analysis is used to inform the options analysis. Templates are provided to assist in this exercise.

2.5.1 SIMPLIFIED CASHFLOW ANALYSIS

For projects under €1m, a simplified cashflow analysis should be conducted, as outlined in the template. In this case, discounting is not required. More guidance is available in Section 3.

2.5.2 DETAILED DISCOUNTED CASHFLOW ANALYSIS

For larger projects, the detailed discounted cashflow analysis template should be used. Steps to complete this type of analysis are outlined in Section 4. For larger projects, a more detailed analysis may be required than that outlined in the template. However, the fundamental principles and steps outlined in this guidance and detailed template should be followed.

2.5.3 SOURCES OF CAPITAL

A detailed list of sources of capital, such as Exchequer funding, loans, EU grants etc. should always be included as part of the financial analysis. This is to inform gross impact on budgets.

The sources of capital must be presented in gross terms as an assessment of affordability capturing the total investment required (irrespective of the investment counterfactual), the timing of costs, and the impact on the general government balance.

2.5.4 EXCHEQUER CASHFLOW ANALYSIS

Exchequer cashflow analyses are only required where there are wider revenue implications or where there are multiple Exchequer funders. Steps on how to carry out an Exchequer cashflow analysis are contained in Appendix C.

3. Steps in Carrying Out a Financial Analysis for Proposals Under €1 Million

This section outlines the steps for completing a simplified cashflow analysis for proposals under €1m. The template for proposals under €1m should be used. As with all aspects of project analysis, the principle of proportionality should be applied to all financial analyses.

3.1 Identify and Measure Cashflows

For proposals under €1m, cashflows are only required to be calculated in gross terms and discounting is not required. Further guidance is contained within the relevant template.

3.1.1 EFFECTS TO BE CONSIDERED IN A FINANCIAL ANALYSIS

Financial analysis should incorporate a cashflow analysis of the short-listed project options showing inflows and outflows. Cashflows should contain all annualised inflows and outflows, in nominal terms (i.e. adjusted for expected inflation), including but not limited to:

- Capital costs/expenditure (CAPEX) including design team and other labour fees, enabling works, land acquisition costs (when not already owned), construction costs, contingencies;
- Operating costs/expenditure (OPEX) including administrative costs, utilities and electricity, insurance costs, labour costs;
- Maintenance costs;
- Adaptation and decommissioning costs as appropriate. These are especially relevant for climate-related projects;
- Tax;
- Revenue losses from existing operations due to the proposed projects. This may include costs of disruption, for example, during construction of the project;
- Income generated by the project where relevant;
- Subsidies from outside parties such as EU structural funds;
- Residual/Terminal Value.

3.1.1.1 Cost Savings

Cost savings that may accrue from a project such as reduced maintenance costs or energy efficiency savings should be considered in all financial analyses. For proposals under €1m, these cost savings can be included in the revenue section of the template. It is vital that cost savings are not included as both a benefit and a reduction in costs as this will lead to double counting.

This exception is **only for very small projects** (as accounted for in the template for proposals under €1m) where calculating the full cost of the counterfactual case is not practical. This is in line with the principle of proportionality.

3.1.2 FINANCIAL ANALYSIS EFFECTS TO BE EXCLUDED

Certain values should be excluded from the financial analysis as they do not impact on the viability of the project. They include:

- Sunk costs – any money that has already been spent. While these should not be included in the financial analysis, ***they should be detailed in the business case***. In cases where land or other significant resources are already owned by the Sponsoring Agency or Approving Authority, selling these resources should be included as an option in the options analysis. In the case where land must be purchased, this must be included in the construction cost as it is not a sunk cost.
- Accounting Depreciation.

3.1.3 TREATMENT OF TAX

Given that the financial analysis is from the perspective of the Sponsoring Agency, VAT should be included in the cashflows to assess affordability where the Sponsoring Agency pays VAT.

3.1.4 TREATMENT OF INFLATION

In general, inflation for projects under €1m will simply be included in the nominal cashflow analysis and will not require separate assumptions. Inflation will be more relevant if large benefits or costs occur in the distant future.

3.2 Calculate the Financial Net Impact

As discounting is not required for proposals less than €1m, the calculation of financial net present value is not required. In its place, the template simply calculates the net financial impact (Benefits – Costs). This is called **total project cashflows** in the template. This is also the value that is varied as a result of sensitivity tests.

3.3 Incorporating Bias, Risk, and Uncertainty

Project appraisal involves forecasting the values of costs and benefits using the best information available. The estimated values of costs, benefits, or delivery schedules may not materialise as expected due to uncertainty, risk, and certain biases. Examples of prevalent

sources of risk are unforeseen developments during planning, procurement and construction which have an impact on costs.

There are four main steps that can be taken to manage the practical application of financial analysis. They are:

- Accounting for optimism bias;
- Including a contingency cost;
- Risk Assessment; and
- Conducting sensitivity tests.

Truly unique projects are exceptionally rare so the considerations above should be informed by similar past projects. As with other elements of project appraisal, the principle of proportionality should apply.

3.3.1 OPTIMISM BIAS

A wealth of evidence shows that people tend to overestimate the likelihood of positive events. In the case of capital projects, this bias can lead to an underestimation of cost, underestimation of timelines, overestimation of benefits, and inadequate consideration of potential risk. It is important therefore to consider these biases and adjust the analysis accordingly¹. This can be done by adjusting the forecasting of cashflows under each option, including an optimism bias adjustment, or considering these biases in robust sensitivity testing and scenario analysis.

3.3.2 RISK ASSESSMENT

The assessment of risk should be developed and form an integral part of the financial analysis as it moves through the project lifecycle. There are a number of key steps which should be taken in the Preliminary Business Case:

- Ensuring the data and assumptions underlying the estimation of cashflows are reliable and realistic;
- Developing the identification of risks, e.g. examining each variable to assess the likelihood of the risk materialising;
- Developing a risk management strategy including measures to contain, avoid and mitigate risks as appropriate;
- Communicating the risk management strategy to relevant stakeholders.

3.3.3 CONTINGENCY COSTS

The estimated values of costs, benefits, or delivery schedules may not materialise as expected due to uncertainty, risk, and biases. As a result, costings should include a reasonable

¹ Information on additional biases is given in Chapter 4 of the Public Spending Code: A Guide to Evaluating, Planning, and Managing Public Investment (December 2019) found at <https://www.gov.ie/en/publication/public-spending-code/>

contingency based on previous similar projects. Rather than using blanket contingencies across the board, it may be useful to apply different contingency costs to different cost categories or potentially to address some element of the contingency at the programme level. For example, labour costs may receive a lower contingency cost than costs related to IT equipment. The amount of rigour and resources put into calculating this contingency should be proportionate to the project's overall cost and complexity.

3.3.4 SENSITIVITY TESTS

Sensitivity tests determine how different values of particular variables affect the viability of a project. They can be described as 'what if' analyses. The parameters used in the template are:

- What if the capital expenditure increases/decreases by w percent?
- What if operating costs increase/decrease by x percent?
- What if maintenance costs increase/decrease by y percent?
- What if revenue increases/decreases by z percent?
- What happens if we remove the residual value or increase it/ decrease it by a percentage?

The sensitivity analysis should consider the outturn costs and benefits of similar completed projects and use that to inform sensitivity tests. The analysis should make use of scenario analysis combining a number of changes to assess the impact on project costs. For example, a scenario could combine an increase in capital costs, a fall in revenue, and removing the residual value. The inputs chosen and the extent of the change tested in the scenario analysis should be informed by the most likely increases and decreases in input factors.

Sensitivity testing should show switching values for key parameters. This is the value that the analysed variable would have to take in order for the Net Present Value (NPV) to become zero, or more generally, for the outcome of the project to fall below the minimum level of acceptability. The use of switching values in sensitivity analysis allows for the making of some judgements on the risk of the project and the opportunity of undertaking risk-preventing actions.

4. Steps in Carrying Out a Financial Analysis for Proposals over €1 Million

Before a financial analysis is conducted, it is important to note the requirements in the Public Spending Code regarding project rationale, objectives, and project options. This section outlines the steps for conducting a detailed financial analysis for proposals over €1m. As with all aspects of project appraisal, the principle of proportionality should be used for all financial analyses. The template for proposals over €1m should be used. Steps to carry out an Exchequer cashflow analysis, where appropriate, are set out in Appendix C.

All financial appraisals must also set out a detailed list of sources of capital/funding for all options, not just the preferred option, to inform the understanding of the gross impact of the proposal.

4.1 Identify a Counterfactual

The first step in conducting a financial analysis is to establish a realistic counterfactual against which all other options are compared. The counterfactual includes 'do-nothing' or 'do-minimum' options. In many cases, counterfactuals based on the 'do-nothing' option are unrealistic as there are generally certain costs or risks associated with current arrangements (See Box 4.2 of the *Public Spending Code: A Guide to Evaluating, Planning, and Managing Public Investment (December 2019)*). However, the impact of the 'do-nothing' option must always be understood and interrogated as part of the analysis.

Please note that ***it is vital that the absolute financial cost of each option is also presented in the business case.***

4.2 Identify and Measure Cashflows

For proposals over €1m, cashflows must be calculated both in gross terms and incrementally relative to the established counterfactual.

4.2.1 EFFECTS TO BE CONSIDERED IN A FINANCIAL ANALYSIS

Financial analysis should incorporate a cashflow analysis of the short-listed project options based on an incremental approach showing inflows and outflows over and above those set out in the investment counterfactual. Cashflows should contain all annualised inflows and outflows including but not limited to:

- Capital costs/expenditure (CAPEX) including design team and other labour fees, enabling works, land acquisition costs (when not already owned), construction costs, and contingencies;

- Operating costs/expenditure (OPEX) including administrative costs, utilities and electricity, insurance costs, labour costs;
- Maintenance costs;
- Adaptation and decommissioning costs as appropriate. These are especially relevant for climate-related projects;
- Tax, added as a separate item in the template;
- Revenue losses from existing operations due to the proposed projects. This may include costs of disruption, for example, during construction of the project;
- Income generated by the project such as ticket sales, restaurant/café receipts etc.;
- Subsidies from outside parties such as EU structural funds;
- Residual/Terminal Value.

4.2.1.1 Approaches to Costing

Particular care should be taken to ensure the accuracy of cost estimates. Estimates should adequately account for risks to the scope and delivery programme and inflation insofar as possible. To the maximum extent possible, estimates should be based on outturn costs of comparable projects. Box 4.1 discusses this in further detail.

Box 4.1 Considerations in forecasting project costs

The cost of a proposal should be forecast throughout the project lifecycle. At strategic assessment stage, this is a high-level range of costs based on what is known about the long-list of options to meet the stated objectives. As the scope of the project and the assumptions underpinning it become clearer through the business case, project brief development and preparation for tender, the forecasts of costs should become more definitive. Costing information should be based on market costs, the most recent costs from similar projects, and informed by estimates of inflation and risks that have manifested in similar projects in the past. A number of tools should be considered and used throughout the project lifecycle, as appropriate, to improve the accuracy of estimated costs for capital projects. These tools include independent peer review, benchmarking and reference class forecasting. Deployment of these approaches can assist in mitigating the risks of optimism bias and other pitfalls. At various points in the process, project sponsors should indicate the confidence attached to estimates by using a probabilistic cost forecast.

Independent Peer Review

Independent peer review involves an objective independent review of the project by an appropriately qualified expert. The extent of independent peer review can range from an expert checking one element of the project to a range of experts working together to replicate the business case prepared for the project as part of a project challenge function to ensure that the assumptions, data and methodologies used in project appraisal and implementation are robust and independent. The principle of proportionality should apply when considering the extent of independent peer review.

Benchmarking

Benchmarking is the process of comparing projected or actual project cost and performance information against information from similar projects. Two types of benchmarking can be undertaken – top down and bottom up. Different types of benchmarks can be used throughout the project lifecycle. Top down benchmarking starts with an estimated cost for a project which is broken down into its components and which are then compared with similar components in other projects. It is useful for strategic decision-making and looking at the overall benefit of the project. Bottom up benchmarking uses information which references units or elements of the project such as labour costs, materials costing, etc. An existing design is needed to provide a bottom up benchmark. Top down and bottom up benchmarks can be used in a complementary way at later stages in the project lifecycle to quality assure cost estimates.

Reference Class Forecasting

Reference class forecasting is a methodology to estimate project costs which attempts to mitigate optimism bias. It forecasts the range of possible outcomes of a planned action based on actual outcomes in a reference class of similar interventions (projects?). It involves identifying a reference class of past similar projects, establishing a probability distribution for the selected reference class for the parameter that is being forecast, and then comparing the specific project with the reference class distribution. It is increasingly used in estimating costs for large scale capital projects.

4.2.1.2 Cost Savings

Cost savings that may accrue from a project such as reduced maintenance costs or energy efficiency savings should be considered in all financial analyses. For proposals over €1m, do not include cost savings directly as a benefit/revenue stream in the project cost. This may cause double counting of benefits.

4.2.1.3 Residual/Terminal Value

Residual Value should be included in the discounted cashflow, discounted from the **end year** of the appraisal period. Estimating residual values can be difficult and is greatly assisted by familiarity with the asset class. While some sectors, such as roads, have their own methods of calculating residual value, examples of general methods used for estimating residual values include:

- Observation of a traded market.

- Where the asset being considered has an active second-hand market, the appraiser may be able to easily observe the market residual value of assets of a similar age.
- Professional residual value appraisal
 - For certain asset classes there are professional appraisers/valuers who can be engaged to estimate a residual value for a particular asset. These appraisers are usually specialists in a particular asset class and have knowledge of the second-hand market for those assets.
- Valuation of an annuity
 - For a very long life project, it may be impractical to estimate all cashflows (revenues and expenses) for the entire project life beyond 20 years. It may, however, be possible to forecast an annuity stream representing the net cashflow of the project. After 20 years a project may achieve a 'steady state' with net cashflows estimated to continue in line with the expected trend at the end of the 20 years. In this case the net cashflows beyond the 20 years and for the remainder of the project life can be calculated as an annuity. The present value of this annuity stream can then be included as a cash inflow in the final year of the appraisal period (and discounted along with other cashflows accordingly). If there is additional uncertainty surrounding the estimation of the annuity stream, the appraiser may like to use a higher discount rate in calculating the value of the annuity.

4.2.2 FINANCIAL ANALYSIS EFFECTS TO BE EXCLUDED

Certain values should be excluded from the financial analysis as they do not impact on the viability of the project. They include:

- Sunk costs – any money that has already been spent. While these should not be included in the financial analysis, **they should be detailed in the business case**. In cases where land or other significant resources are already owned by the Sponsoring Agency or Approving Authority, selling these resources should be included as an option in the options analysis. In the case where land must be purchased, **this must be included in the construction cost**.
- Accounting Depreciation.

4.2.3 TREATMENT OF TAX

Given that the financial analysis is from the perspective of the Sponsoring Agency, VAT should be included in the cashflows to assess affordability where the Sponsoring Agency pays VAT.

4.2.4 TREATMENT OF INFLATION

The financial analysis of proposals over €1m should be completed in nominal terms. As such, inflation should be added onto all future cash inflows and outflows. There are two main types of inflation to be used and applied to different areas. They are:

- General inflation (HICP)
- Construction cost inflation

Inflation measures are included in the analysis automatically in the template for proposals over €1m and are updated annually. The general inflation figures come from the HICP while the construction inflation measure comes from various sources of information. It is important to note that there are limits to the construction cost inflation and lessons should be incorporated from previous projects where relevant. Varying inflation parameters should be included in scenario analysis as part of the sensitivity tests, as discussed in Section 4.5.4.

4.3 Discount Cashflows

To assess and compare estimated project cashflows and options, all cashflow components should be discounted by the rate set quarterly by the Department of Public Expenditure and Reform in consultation with the National Development Finance Agency².

The time horizon used to discount cashflows will vary depending on the type of project being considered. For illustrative purposes, the table below sets out the EU Commission's proposed time horizons or reference periods by sector. When the financial analysis is followed by an economic analysis, longer time horizons may be considered to incorporate the long-term impacts and costs of particular projects, for example to reflect climate impacts.

Care should be taken with capital expenditure costs, which are not necessarily all incurred at time zero, particularly where capital expenditure/construction costs are incurred over a long period of time or are delayed for a period of time. Much of these costs and benefits will only be included in the economic analysis but it is important that the financial and economic analyses consider the same time period given that the financial analysis forms the basis of the economic analysis.

² <https://www.gov.ie/en/policy-information/1a0dcb-project-discount-inflation-rates/>

Box 4.2 European Commission's reference periods by sector	
Sector	Reference period (years)
Railways	30
Roads	25-30
Ports and airports	25
Urban Transport	25-30
Water supply/sanitation	30
Waste management	25-30
Energy	15-25
Broadband	15-20
Research and innovation	15-25
Business Infrastructure	10-15
Other sectors	10-15

4.4 Calculate the Financial Net Present Value for each option

The results of the Financial Analysis should be presented through the Financial Net Present Value (FNPV). This is calculated by summing together the discounted project cashflows.

Other Key Performance Indicators (KPIs) that can be used alongside the FNPV include:

- Financial Benefit Cost Ratio.
- Financial Internal Rate of Return (FIRR).

While a positive financial net present value is desirable, FNPVs are often negative for public projects given that the wider societal benefits are not included in the financial analysis. The FNPV can be used as an input into the broader economic analysis, should one be required. However, care needs to be taken to translate the nominal financial analysis into real values (excluding inflation) which are used in economic analysis. Financial Net Present Values are calculated automatically in the template for proposals greater than €1m. For small projects that may not require an economic analysis, details should be given in the business case of the wider societal benefits and costs that may result from the project. This will help in choosing between options and determining whether an intervention is cost effective.

4.5 Incorporating Bias, Risk, and Uncertainty

Project appraisal involves forecasting the values of costs and benefits using the best information available. The estimated values of costs, benefits, or delivery schedules may not materialise as expected due to uncertainty, risk, and certain biases. Examples of prevalent sources of risk are developments during planning, procurement and construction which have an impact on costs.

In the practical application of financial analysis, there are four main steps that can be taken to manage this within the analysis. They are:

- Accounting for optimism bias;
- Risk Assessment;
- Including a contingency cost and
- Conducting sensitivity tests.

Truly unique projects are exceptionally rare so the considerations above should be informed by similar past projects. As with other elements of project appraisal, the principle of proportionality should apply.

4.5.1 OPTIMISM BIAS

A wealth of evidence shows that people tend to overestimate the likelihood of positive events. In the case of capital projects, this bias can lead to an underestimation of cost, underestimation of timelines, overestimation of benefits, and inadequate consideration of potential risk. It is important therefore to consider these biases and adjust the analysis accordingly³. This can be done by adjusting the forecasting of cashflows, including an optimism bias adjustment, or considering these biases in robust sensitivity testing and scenario analysis.

4.5.2 RISK ASSESSMENT

Risks should be initially identified at the Strategic Assessment Report stage of the project lifecycle. The assessment of risk should be developed and form an integral part of the proposed intervention as it moves through the project lifecycle. There are a number of key steps which should be taken in the Preliminary Business Case:

- Ensuring the data and assumptions underlying the estimation of cashflows are reliable and realistic;
- Developing the identification of risks, e.g. examining each variable to assess the likelihood of the risk materialising;
- Using risk assessment techniques to assess the level of risk and the impact of risk on project performance including, as appropriate, such techniques as -

³ Information on additional biases is given in Chapter 4 of the Public Spending Code: A Guide to Evaluating, Planning, and Managing Public Investment (December 2019) found at <https://www.gov.ie/en/publication/public-spending-code/>

- Expected values
- Monte Carlo Analysis.
- Developing a risk management strategy including measures to contain, avoid and mitigate risks as appropriate.
- Communicating the risk management strategy to relevant stakeholders.
- In particular, the use of reference class forecasting has been clearly demonstrated as an effective risk management technique.

To support the consideration of risk in the financial analysis, the template for projects greater than €1m includes a risk assessment tab.

Risks should be scored on the likelihood of them occurring and this should be based on lessons learned from similar past projects. The weights used in the risk assessment are based on the proportion of cashflows for each cost category listed and are completed automatically when cashflows are entered in the cashflow tab. The resultant score provides a measure of the level of riskiness of the project.

4.5.3 CONTINGENCY COSTS

4.5.3.1 Measuring Contingencies

The estimated values of costs, benefits, or delivery schedules may not materialise as expected due to uncertainty, risk, and biases. As a result, costings should include a reasonable contingency based on previous similar projects. Rather than using blanket contingencies across the board, it may be useful to apply different contingency costs to different cost categories or potentially to address some element of the contingency at the programme level. For example, labour costs may receive a lower contingency cost than costs related to IT equipment. The amount of rigour and resources put into calculating this contingency should be proportionate to the project's overall cost and complexity.

To reflect uncertainty in costing, project cost ranges should be used where appropriate.

4.5.3.2 Tiered Contingencies

Experience within major projects has shown that a tiered approach to contingency can be beneficial. Under this approach, contingencies are retained by different bodies within the project delivery system. For example, the project team could be allocated the P50 budget with which to deliver a spending proposal while the overall sponsoring agency will work to a P80 budget and retain the difference as contingency. Sponsoring agencies dealing with major capital projects should engage with the National Investment Office in DPERS for guidance on the use of tiered contingencies.

4.5.4 SENSITIVITY TESTS

Sensitivity tests determine how different values of particular variables affect the viability of a project. They can be described as ‘what if’ analyses. The parameters used in the template are:

- What if the capital expenditure increases/decreases by w percent?
- What if operating costs increase/decrease by x percent?
- What if maintenance costs increase/decrease by y percent?
- What if the revenue increases/decreases by z percent?
- What happens if we remove the residual value or increase / decrease it by a percentage?

The sensitivity analysis should consider the outturn costs and benefits of similar completed projects and use that to inform sensitivity tests. The analysis should make use of scenario analysis combining a number of changes to assess the impact on project costs. For example, a scenario could combine an increase in capital costs, a fall in revenue, and removing the residual value. The inputs chosen and the extent of the change tested in the scenario analysis should be informed by the most likely increases and decreases in input factors.

Sensitivity testing should show switching values for key parameters. This is the value that the analysed variable would have to take in order for the NPV to become zero, or more generally, for the outcome of the project to fall below the minimum level of acceptability. The use of switching values in sensitivity analysis allows for the making of some judgements on the risk of the project and the opportunity of undertaking risk-preventing actions.

5. Appendices

Appendix A: Common Mistakes in Financial Appraisal

1. Mismatching Real and Nominal Values

For a financial appraisal, it is important to include inflation in all costs and benefits as appropriate for each year. A particularly misleading potential mistake is to use nominal benefits and real costs. In this case, it is not a fair comparison as costs will be set in year 0 prices while benefits will be set in (higher) future prices. This will falsely increase measures such as the net present value or the benefit-cost ratio.

2. Double Counting of Benefits or Costs

The mistake of counting benefits or costs twice must be avoided. One possibility, as mentioned in Section 3.1.1.1, is to subtract revenues from total costs and at the same time add revenues to total benefits. In this case, revenues would appear on both sides of the benefit-cost ratio which would be highly misleading for decision makers. This must be avoided.

3. Not including VAT

While the use of the provided templates should help mitigate the risk of excluding important factors in the analysis, it is important to be aware of the potential pitfalls. Because VAT is excluded from the *economic* appraisal, it is sometimes excluded from the financial appraisal in error. Because it is important to assess affordability from the point of view of the Sponsoring Agency and VAT is usually paid by the Sponsoring Agency, VAT should always be included in the *financial* appraisal.

4. Using the Incorrect Discount Rate

It is important to use the correct discount rate when conducting a financial appraisal. As outlined earlier in this document, **the financial discount rate⁴ is different to the economic discount rate** (See Section 3.2 for a brief discussion). The financial discount rate is set quarterly by the National Development Finance Agency (NDFA) and can vary significantly over time⁵. When the financial appraisals are being updated as more information becomes available as a project passes through decision gates, the financial discount rate should be updated in line with the NDFA changes.

⁴ <https://www.gov.ie/en/policy-information/1a0dcb-project-discount-inflation-rates/>

⁵ The economic discount rate however is changed quite rarely and is usually set at either 4% or 5%.

5. Other Issues to Avoid

Other issues to avoid include:

- Not including residual values or decommissioning costs;
- Incorrect valuation of residual values, e.g. overly optimistic assessment of residual values given that residual values are difficult to predict;
- Underestimation of costs;
- Cost estimates must include all initial capital costs and lifecycle costs (in detail). Increases in costs from initial project conception to final delivery are common. Cost increases must be reconciled back to show or explain the reasons for the cost increases;
- Errors in the timing of cash inflows and outflows;
- Including sunk costs;
- Not including cashflows which may affect other Exchequer components (if appropriate); and
- Overestimating the income tax receipts/benefits and social protection payments savings of projects⁶ (if appropriate).

⁶ These indirect flows must always be calculated net of deadweight, and care is required.

Appendix B: Template User Guidance

Model Scope

The user guide for the financial analysis template for proposals under €1m is contained within that template. This appendix sets out the user guide for the financial analysis **template for proposals greater than €1m**.

The purpose of the template is to calculate the nominal, VAT-inclusive cashflows for the project under consideration. Given the expected real costs and assumptions around inflation and applicable VAT, total project cashflows and funding needs are demonstrated, in a total and Net Present Value ("NPV") basis. Additionally, a series of sensitivities and an overall risk assessment is presented.

General Guidance for populating the template

1. Tabs with a light blue colour will need to be populated by the user. These tabs include:
 - Inputs: Contains key assumptions including the project start date, the discount rate, inflation assumptions and scenario sensitivities.
 - Cost & Revenue Assumptions: The user is required to add all project outflows and inflows in this tab, along with the appropriate assumptions for VAT and inflation. Both outflows and inflows should be added as positive numbers and exclusive of VAT or inflation, as this will be applied automatically.
 - Counterfactual Assumptions: The user needs to add all project outflows and inflows for the counterfactual case, along with the appropriate assumptions for VAT and inflation in this tab. Both outflows and inflows should be added as positive numbers and exclusive of inflation or VAT, as this will be applied automatically.
 - Sources of Capital: The user will need to manually populate the Funding Sources assumptions that will cover the nominal cashflows of the project. The counterfactual cashflows are not taken into account for this analysis.
 - Risk Assessment: Based on the certainty around the project's assumptions, the user will need to update the risk score associated with various cashflow levels of the project.

All cells with a light blue fill in these tabs will need to be populated, if applicable. Cells in a black font should not be amended.

2. All figures should be in Euro thousands (EUR '000s) and added as positive numbers in the Cost & Revenue Assumptions, Counterfactual Assumptions and Sources of Capital tabs.

3. All costs and revenues should be added in the period they are expected to be paid/received.
4. The template includes some supporting tabs that are used for calculation purposes. These tabs should not be amended by the user:
 - Gross Calculations, Gross Calculations – Counterfactual: The real costs added in the Cost and Revenue Assumptions and Counterfactual Assumptions tabs are inflated; VAT is also applied.
 - Gross Incremental Calculations: The nominal costs calculated in the Gross Calculations – Counterfactual tab are subtracted from those in the Gross Calculations Tab.
 - Scenario analysis and incremental scenario analysis: These use the sensitivities entered in the inputs tab to calculate the results for the scenario analysis in both gross and incremental terms.
 - Summary: Presents a summary of the project cashflows and the sensitivity analysis based on the user scenario assumptions.
 - Inflation & Discounting: Calculates the inflation factors for the different inflation scenarios and the discount factors for each period.
5. Users can add worksheets to capture additional information as necessary, which will need to be linked to the template tabs. Rows in the template sheets cannot be added.
6. Any password protection included in the model should be removed or the password disclosed.
7. There should be no password protected macros, or hidden rows, columns, cells or sheets.
8. There must be no circular references.

Detailed steps for populating the model

A. Inputs Sheet

1. Please populate Cell C24 in the Inputs Sheet tab with the year the project is expected to commence. This year should be the base year for the real cashflows.
2. The number of months per period can be amended in cell C25. For example, if the number of months is set to 12 (default), the model will be set as an annual model. Similarly, the number of months should be set to 6 if the user requires the cashflows to be shown in a semi-annual basis.
3. In cell C26, update the date that the Construction/Delivery phase of the project ends. Construction will end in the following period end date. If the cell is left blank, it will be assumed that construction ends on the last period that there is a Capital Expense in the Cost & Revenue Assumptions tab (shown in cell C27).
4. The Authority Discount Rate should be updated in cell C30. In cell C31, please populate the NPV base date. If left blank, the NPV will be calculated as at January of the Period Start Year (set in cell C24).
5. The inflation rates should be updated in rows 40-44 below. Please note that the inflation years (row 39) will need to be updated if necessary.
6. For inflation to be applied correctly, all costs need to be as at the period start date. Inflation is not applied on the cashflows of the first period.
7. For additional information and guidance on inflation and discount rate assumptions, please refer to the appropriate guidance: <https://www.gov.ie/en/policy-information/1a0dcb-project-discount-inflation-rates/>
8. Please update the sensitivities for the 5 alternative scenarios provided in rows 55-69. Rows 55-61 correspond to the sensitivities for the Project cashflows, while rows 63-69 contain the scenario assumptions for the Counterfactual cashflows.
9. Please also update the target NPVs in row 76 for scenarios 6 and 7.

B. Cost & Revenue and Counterfactual Assumptions Sheets

1. Please populate all inflow and outflow assumptions for the project in these tabs, in Column G onwards.
2. All figures should be in Euro thousands (EUR '000s) and added as positive numbers.
3. Costs and Revenues should be in real terms as at the model start year, excluding VAT.
4. All costs and revenues should be added in the period they are expected to be paid/received

5. All Staff costs should be inclusive of employer PRSI and other employer-related costs.
6. Please also include the project's expected terminal value at the end of the project, i.e. the expected value of the project at that time, excluding expected inflation.
7. The titles of subcategories for costs and revenues (Column C) can be updated as appropriate, but should be the same for the project and counterfactual cashflows.
8. Please update Columns D and E to reflect the appropriate inflation option and VAT rate for each cost/revenue category. Note that each inflation option (0-4) relates to one of the scenarios in the inputs tab, in line with cells C40-C44 of the Inputs tab.

C. Sources of Capital Sheet

1. After adding all costs and revenues in the Cost & Revenue Assumptions tab, the nominal VAT-inclusive cashflows will be automatically calculated. These cashflows will be shown in rows 11-20 of the Sources of Capital tab.
2. Based on the project cashflows, please populate the Sources of Capital assumptions. All figures should be in Euro thousands (EUR '000s) and added as positive numbers.
3. Row 61 calculates the Funding Surplus / (Gap) per period, comparing the project cashflows per period with the expected Funding. If the amount is negative, there is a funding gap for this period.
4. The Cumulative Funding Surplus / (Gap) is calculated in row 63. This row compares the available funding from the first period up until each period with the cumulative project cashflows during the same period.

D. Risk Assessment Sheet

1. Please populate the Risk Scores in the Risk tab, based on the expected risk profile/level of uncertainty of the project in cells F5:F10.
2. The weighting of each risk score for the weighted project score is based on the level of the discounted cashflows for each cost/revenue category.

E. Summary Sheet

1. The Summary tab summarises the total project cashflows and incremental cashflows, including inflation and VAT.
2. Cashflows are broken down in Construction/Delivery phase and Operations phase. They are shown on a nominal basis (added up), as well as on an NPV basis (discounted).
3. The tab also includes a summary of the Sources of Capital inputs, as well as the results of the Scenario analysis, Target NPV/switching values analysis and Risk assessment.

Appendix C: Exchequer Cashflow Analysis

The main steps in carrying out an Exchequer cashflow analysis are set out below. The same basic steps also apply to a financial analysis from the perspective of the Sponsoring Agency with the exception that broader Exchequer cashflows are excluded.

1. Identify the time horizon (usually the same as the economic analysis time horizon) based on the economic useful life of the asset.
2. The incremental inflows and outflows should be identified for each of the main options. Table 1 sets out some typical types of inflows and outflows.

Table 1 - Main types of cashflows in a Exchequer cashflow analysis

	Description
Outflows	
Investment Cost	The initial capital outlay, usually a once-off cost incurred at the outset of a project.
Operating Costs	The recurring costs incurred (OPEX) including administrative costs, utilities and electricity, insurance costs, and labour costs.
Start-up costs	Preparatory studies, consulting, training, R&D, design, planning.
Decommissioning Cost	Costs associated with removing an asset from use.
Inflows	
Operating Revenues	Revenue from charges or tolls/ dividends
Residual Value	The value of an asset at the end of its useful life or at a point in time, usually a once-off value. The residual value of an asset should usually be the discounted value of net future revenue after the end year of the appraisal period. It can also be considered as the value of the asset in its best alternative use e.g. scrap
Savings on unemployment payments (indirect)	These can be relevant but are not amenable to reliable costing. They should always be directly attributable to the project i.e. savings on welfare payments are not included if these savings occur regardless of the project going ahead

Additional tax revenue	These can include income tax, VAT and corporation tax but should be included only to the extent that these are net of deadweight, i.e. the revenue is additional revenue which would not be received in the absence of the project
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The analysis should take into account flows both directly and indirectly associated with proposals. Additional expenditure for which the Sponsoring Agency is not responsible but which are project related should be included. The costing of indirect flows should be strictly net of deadweight and displacement. Often, only a low proportion of social protection savings or additional tax revenue can be directly attributed to the project.

There are different ways of categorising costs. In addition to the direct/indirect categorisation, it may also be useful to categorise costs into variable, fixed and semi-fixed groupings. Exchequer cashflows should be separately identified.

It is important to note that the following flows should not be included as part of a financial analysis.

- Depreciation is an accounting transaction and not a cashflow; it should be excluded from the financial analysis
- Reserves are also not cashflows
- Other accounting items should be ignored, such as:
 - Sunk costs - costs which have already been spent or committed and cannot be changed by the decision under consideration. They should be ignored. However, the quantum of sunk costs to date is a noteworthy point of information in terms of progress under the project to date and should be noted separately.
 - VAT⁷

For a commercial semi-state organisation carrying out a financial analysis, the profit and loss projections should also be included. This would show the impact of a project on the main revenues and costs of the organisation. Similarly, the balance sheet projections should also be shown by illustrating the impact of the project on the finances of the organisation with particular emphasis on its working capital, debt and resources. Commentary should be included where necessary.

⁷ To the extent that additional VAT revenue is generated as a result of the scheme, this revenue can be included but only if it is strictly additional and net of deadweight. In general however, VAT on inputs can be excluded as it is a transfer payment unless there are differences in tax treatment between options.

3. Quantify the costs: cost estimation is difficult and often requires the input of accountants, economists and other specialists. Costs should be set out in constant prices to be consistent with the application of the real discount rate.
4. Identify the pattern of these flows i.e. in what years do these flows arise?
5. Discount the value of these flows to take account of the time value of money using the official Department of Public Expenditure and Reform discount rate available [here](#)
6. Carry out a sensitivity analysis of the most critical cost and revenue variables
7. Report the results

There should be a clear link between the financial analysis and the economic analysis to allow private and social costs and benefits to be separately identified.

Table 2 – Example of template for Exchequer cashflow analysis

	2021	2022	2023
Revenue from charges			
Residual value			
Dividends			
Total inflows			
Equity participation			
Subsidies/ grants			
Operating costs			
Materials			
Labour			
Other maintenance			
Administrative			
Investment costs			
Plant			
Machinery			
Planning and design			
Decommissioning costs			
PPP payments			
Total outflows			
Indirect taxes			
VRT			
Carbon levy			
Customs and excise			
Income tax			
Corporation tax			
Total tax impact			
EU Finance passing through the Exchequer			
Fines			
Other flows			
Net cashflow			
Discounted net cashflow			

Appendix D: Glossary of Terms

Additionality

The project/ programme outcomes above and beyond what would have happened anyway.

Affordability

Affordability refers to the extent to which the budget is available to fund the proposed intervention in the context of competing and overall priorities.

Appraisal

Appraisal is the analysis conducted before a spending proposal is approved. It usually refers to a financial, economic, and sensitivity analysis of options designed to inform the selection of the most efficient option to achieve the stated objectives and desired outcomes.

Approval in Principle

Approval from the Approving Authority after consideration of the Preliminary Business Case for the proposal to move to Design, Planning & Procurement Strategy as part of the Final Business Case stage of the project lifecycle.

Approving Authority

The Approving Authority has ultimate responsibility for the project or programme. It is responsible for granting approval for a project or programme to proceed under the management and oversight of another body. It assesses the proposal at the key decision gates in the project lifecycle. It is responsible for funding and ensuring the project or programme is delivered as approved.

Behavioural bias

Research from psychology, economics and other disciplines showing that peoples' decisions are strongly influenced by mental shortcuts and habitual, often automatic, responses to their immediate environment. These shortcuts and habits allow people to interact more efficiently with their environment but, in some contexts, they can create 'biases' where people make decisions which they later regret – or which create problems for others or society in general. This has implications for policy, e.g. optimism bias where people overestimate the likelihood of positive events and underestimate the likelihood of negative events.

Benchmarking

Benchmarking is a process of 'self-evaluation' - of comparing your processes and your performance against good practice or benchmarks in similar organisations.

Business Case - Preliminary

Formal assessment of a spending proposal after the concept has been approved at Decision Gate 0. It is an aid to decision making setting out the evidence base and analysis conducted to inform the selection of the most efficient delivery option to achieve the desired outcome. It should include: consideration of strategic alignment, objectives, demand analysis, options appraisal (financial, economic, sensitivity), assessment of affordability, risk assessment, procurement strategy, proposed approach to implementation, monitoring & evaluation plan, and a recommendation.

Business Case – Final

The Final Business Case is more detailed than the Preliminary Business Case given that more information should be available at this later stage in the project. It is conducted after approval at Decision Gate 2. It must include the final confirmation of the strategic relevance of the proposal, project objectives, a detailed project brief, full economic and financial appraisal

including demand analysis, re-examination of affordability, full risk assessment, detailed delivery schedule, benefits realisation plan, and an evaluation plan.

Capital Expenditure

Capital expenditure relates to the acquisition, construction or enhancement of significant fixed assets including land, buildings, and equipment that will be of use or benefit for more than one financial year.

Capital Works Management Framework

The Capital Works Management Framework is the national framework for procuring capital works in Ireland. It consists of a suite of best practice guidance, standard contracts, and generic templates documents.

Contingency

Contingency is an integral part of the total estimated costs of a project. It is specific provision for unforeseeable elements of cost within the defined project scope.

Cost Benefit Analysis (CBA)

An economic appraisal methodology used to assess whether or not the social and economic benefits associated with a project are greater than its social or economic costs. CBA attempts to put monetary values on as many of the project impacts (positive and negative) as possible.

Cost Effectiveness Analysis (CEA)

An economic appraisal methodology used to compare the alternative approaches to delivering the same or similar policy outcomes. CEA is often undertaken when benefits associated with a proposal cannot be quantified.

Counterfactual

An assessment of the likely developments which would occur in the absence of a policy intervention. A well-defined and supported counterfactual is required in order to assess the additionality of a project proposal.

Deadweight

The outcomes that would have occurred anyway, in absence of the intervention.

Decision Gate

The formal milestones at which the Approving Authority must decide whether or not to approve the project to progress to the next stage, seek refinement or abandon the proposal. There are four Decision Gates (0-3).

Demand Analysis

An assessment of the forecast use of a new asset, defined against the backdrop of the quality and capacity of existing public infrastructure and informed by the main drivers of future demand including demographics.

Discounted Cashflow Analysis

Discounted cashflow is a valuation method used to estimate the value of an investment based on its future cashflows.

Discounting

Discounting allows benefits and costs that occur in different time periods to be compared by expressing their values in present terms.

Displacement

Displacement occurs when the creation of new output in one area leads to the loss of output in another.

Double Counting

Double counting occurs where a cost or benefit has been included more than once in the analysis.

Economic Benefit: Cost Ratio (EBCR)

The ratio of economic benefits to economic costs calculated in a cost benefit analysis. If the benefit: cost ratio is greater than one, then the project has more benefits than costs. The formula used is: sum of present value of benefits divided by sum of present value of costs. The EBCR is a useful measure for ranking projects.

Economic Net Present Value (ENPV)

The Economic Net Present Value is the sum of discounted cashflows over the appraisal period.

Economic Payback Period (EPP)

The payback period refers to the amount of time it takes to recover the cost of an investment. The payback period is the length of time until an investment reaches a breakeven point.

Economic Rate of Return (ERR)

The economic rate of return is the discount rate at which the cost and benefits of a project, discounted over its life, are equal.

Evaluation

The process of systematically assessing an intervention (ex ante or ex post) to determine efficiency and effectiveness in achieving a stated objective.

External Assurance Process (EAP)

An External Assurance Process (EAP) for major public capital projects valued in excess of €100m involving independent expert reviews at two key decision gates (1 and 2) in the project lifecycle focused on cost, risk, and ability to deliver.

Financial Benefit Cost Ratio (FBCR)

A benefit-cost ratio (BCR) is an indicator used in financial analysis to show the relationship between the relative costs and benefits of a proposed project. A financial benefit cost ratio uses the costs and benefits calculated as part of the financial analysis.

Financial Internal Rate of Return (FIRR)

The financial internal rate of return is the discount rate at which the cost and benefits of a project, discounted over its life, are equal. This refers to the costs and benefits calculated in the financial analysis.

Financial Net Present Value (FNPV)

The Net Present Value is calculated by summing the total discounted financial benefits and subtracting the total discounted financial costs. The NPV can be compared to assess options.

General Government

General Government is defined by Eurostat⁸ as consisting of institutional units which are non-market producers whose output is intended for individual and collective consumption, and are financed by compulsory payments made by units belonging to other sectors, and institutional units principally engaged in the redistribution of national income and wealth. It consists of four subsectors – central government, state government, local government and social security funds.

Implementation

Implementation is the process that turns strategies and plans into actions in order to accomplish strategic objectives and goals.

Key Performance Indicators (KPIs)

A Key Performance Indicator is a measurable value that demonstrates how effectively an intervention is achieving key objectives.

Logic Path Model

Logic models map out the shape and logical linkages of a programme or project and provides a systematic and visual way to present and share understanding of the cause-effect relationships between inputs, activities, outputs and outcomes (results and impacts).

Major Projects Advisory Group (MPAG)

Supports the Department of Public Expenditure and Reform (DPER) to be a better client in managing the External Assurance Process (EAP). The Group supports the Minister for PER in overseeing efficient and effective public investment. Membership consists of experts in major projects, governance and design who consider the completed Reviews, support assimilation of the outputs from the Reviews, advising the Minister for PER.

Medium Term Exchequer Capital Envelopes

These are rolling multi-annual capital allocations which provide government departments and public bodies with greater certainty in regard to their medium term budget and enable them to improve planning and management of capital programmes and projects. The envelopes are determined by Government and set out the commitment of Exchequer capital allocations for each Ministerial Group of Votes for each of the years over the period of the envelope.

Monte Carlo Analysis

Monte Carlo simulations are used to model the probability of different outcomes in a process that cannot easily be predicted due to the intervention of random variables. It is a technique used to understand the impact of risk and uncertainty in prediction and forecasting models.

Multi Criteria Analysis (MCA)

An economic appraisal methodology used to compare a set of options. This method establishes preferences between project options by reference to an explicit set of criteria, weightings, and objectives. It is useful for comparing quantitative and qualitative costs and benefits.

Non Voted Public Expenditure

Non-voted expenditure represents expenditure which the Oireachtas has declared by law is to be paid from the Central Fund without annual reference to the Dáil.

Opportunity Cost

The value of a resource in its most productive alternative use.

⁸

Optimism Bias

The tendency to underestimate adverse outcomes (such as cost overruns) and overestimate favourable outcomes (such as benefits attributable to projects and programmes).

Project Lifecycle

The project lifecycle describes the stages a project goes through as it progresses from start to finish. A well-defined lifecycle brings order and structure to the project.

Proportionality

The complexity of the appraisal or evaluation of a project or programme and the methods used will depend on the size and nature of the project or programme and should be proportionate to its scale. The resources to be spent on appraisal or evaluation should be commensurate with the likely range of cost, the nature of the project or programme and with the degree of complexity of the issues involved.

Public Private Partnership (PPP)

A PPP is a long-term contract between a public sector contracting authority and a private sector company based on the delivery of public services, not assets. It involves the transfer of certain project risks to the private sector, typically with whole life asset management and service provision, and uses private finance (project finance) to underpin the transferred risks in an SPV. In a PPP, payments reflect the services delivered either by users or the contracting authority or a combination of both.

Public Spending Code (PSC)

The PSC sets out the value for money requirements for the evaluation, planning, and management of public expenditure in Ireland.

Reference Class Forecasting

Reference class forecasting is a methodology to estimate project costs which attempts to mitigate optimism bias. It assesses the outcome of a planned action based on actual outcomes in a reference class of similar interventions to that being forecast.

Risk

The likelihood, measured by its probability that a particular event will occur.

Risk Management Strategy

The Risk Management Strategy consists of a series of management actions designed to mitigate risks. The actions should be assigned to an action owner and have specific completion dates assigned for each management action.

Sensitivity analysis

An analytical technique to assess the impact of changes in critical variables on the project outcomes.

Sponsoring Agency

The Sponsoring Agency is responsible for proposing and implementing a project or programme. It has primary responsibility for evaluating, planning and managing public investment projects and engaging at the decision gates with the Approving Authority for approval to proceed to the next stage of the project lifecycle.

State Body

State body as set out in the Code of Practice for the Governance of State Bodies⁹.

Strategic Assessment Report (SAR)

The Strategic Assessment Report is the first phase of the project lifecycle and is critical for early scrutiny of rationale and objectives, consideration of options and identification of risks associated with a potential investment proposal.

Switching value

The required change in a given input to render the project NPV-neutral (or some other stated result).

Uncertainty

The situation when it is not possible to attach probabilities to the range of potential outcomes.

Virement

The use, with the approval of the Department of Public Expenditure and Reform, of savings on one or more subheads to meet excess expenditure on another subhead or subheads within the same Vote.

Voted Expenditure

Voted expenditure refers to the ordinary services of Government Departments and Offices, both capital and non-capital, the money for which is voted by the Dáil on an annual basis. Expenditure is provided for under Votes, one or more covering the functions of each Department or Office.

⁹ <https://govacc.per.gov.ie/wp-content/uploads/Code-of-Practice-for-the-Governance-of-State-Bodies.pdf>



**An Roinn Caiteachais
Phoiblí agus Athchóirithe**
Department of Public
Expenditure and Reform