



Guidance on Planning for and Undertaking the Post Completion Review and Benefits Realisation Phase (PAGs Phase 7) *(Transport Planning & Investment / Capital Programme Office)*

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1. Introduction

This document is intended to provide guidance to the Sponsoring Agencies for the final stage of the project lifecycle; Phase 7: Close out and Review of the NTA Project Approval Guidelines (PAGs) and equivalent to Infrastructure Guidelines (IGs) stage 5: Post Completion Review and Benefits Realisation. The purpose of this stage is to ensure that the project has been delivered as specified, determine if the intended benefits and outcomes materialised and to judge the impact of the intervention. The wider purpose of the stage is to draw out lessons learnt from the project and apply them in the development of future schemes as well as using them to improve sectoral and national guidance. Cost and risk profiling may also be undertaken to improve the accuracy of cost estimation for future projects.

Although benefits realisation and ex-post evaluation is the final step in a projects lifecycle it is critical that the process is planned for alongside the intervention itself, and that the process is embedded in delivery. For example, it is essential that scheme objectives are designed in such a way as to provide a base line against which the success of the project can be adequately assessed, and it is critical that the counterfactual situation is sufficiently specified to allow the baseline data to be collected in advance of project implementation. This guidance therefore covers planning of the phase as well as implementation and reporting.

As per the IGs and the PAGs project completion reports should be prepared for all projects regardless of size/value. Ex-post evaluation reports should be prepared for all projects with an estimated cost greater than €20 million. For projects with an estimated cost between €5 million and €20 million they should be prepared on a sample basis using a sample rate of one in five projects. The NTA reserves the right to decide the appropriate projects to sample and to require an Ex-Post Evaluation Report for specific individual projects.

Project Completion and Ex-post Evaluation reports should be submitted to the approving authority for review and the approving authority is then responsible for ensuring the report is published and findings disseminated so as to support a culture of continuous improvement in evaluating, planning and managing public investment. For projects over €50 million the reports should also be sent to DPENDR for dissemination and the findings and lessons learned may be incorporated into future iterations of the Infrastructure Guidelines and Transport Appraisal Framework as appropriate.

2. Purpose of the Post Completion Review and Benefits Realisation Stage

Evaluation is a learning process, determining what works, what does not work, and under what circumstances. It should therefore be a key component in policy development and decision-making processes. Lessons learnt from evaluation exercises should drive a process of continuous improvement in how public bodies manage public investment. It is therefore crucial that evaluation data and findings are disseminated effectively.

In order to learn from investment decisions, the ex-post evaluation should aim to understand how a project or programme has met its strategic objectives, whether the expected outcomes and benefits have materialised and whether a good return on investment was achieved.

The evaluation should establish:

- If the outcomes, operational performance and benefits as identified in the business case documentation and Benefits Realisation Plan were achieved.
- If the benefits management process assisted in the deliverance of the realised benefits effectively and was proportionate to the scale and complexity of the scheme.
- The accuracy and appropriateness of the assumptions and appraisal models used to evaluate the scheme.
- If the appropriate KPIs and metrics were identified.
- If risks were managed effectively.
- If there are any medium/long term impacts arising from the scheme.
- If the project provided an effective and proportionate solution to the issues and/or opportunities originally identified and whether the planned outcomes were appropriate to public need.
- If there are any lessons learned for other schemes.

Post-mortem evaluations should be undertaken on projects which are abandoned, using a similar approach to that detailed in the following sections. Undertaking post-mortem evaluations will help to better understand what went wrong (as well as what was successful) and discover insights to prevent issues being repeated in other projects.

3. Ex-Post Evaluation Planning

Key Points

In order for Ex-Post Evaluation to be successful it is essential that evaluation planning is embedded at scheme design stage (IGs approval gate 1 and 3). This ensures that there is clarity from the outset of the project in terms of what the project is aiming to achieve in terms of project objectives and how success will be measured. The evaluation exercise should reflect the focus of the business case in terms of the expected benefits occurring as a result of the scheme, and the SMART objectives identified.

Evaluation efforts should be proportional to interventions scale and complexity and should be undertaken independently from the delivery of the project with ultimate responsibility for the exercise lying with the sponsoring agency.

Depending on the nature of the scheme, and the benefits which are expected to materialise the ex-post evaluation should generally be undertaken within 3-5 years of the completion of a project or programme. It should follow the proposed evaluation methodology originally set out in the Preliminary Business Case (PBC) and refined in the Final Business Case (FBC). That methodology should typically involve:

- Assessing if the scheme appraisal including economic and financial appraisals of the scheme were prepared in an appropriate manner and adequately anticipated the materialised benefits and costs.
- Use of value for money review methodologies to assess the effectiveness and efficiency of the scheme in terms of delivering positive impacts.
- Consultation with the key project or programme stakeholders.
- An assessment of whether the scheme was successful in meeting its objectives.

Figure 1 outlines the initial decisions which are required when planning an evaluation exercise, these and other considerations are outlined in more detail below.

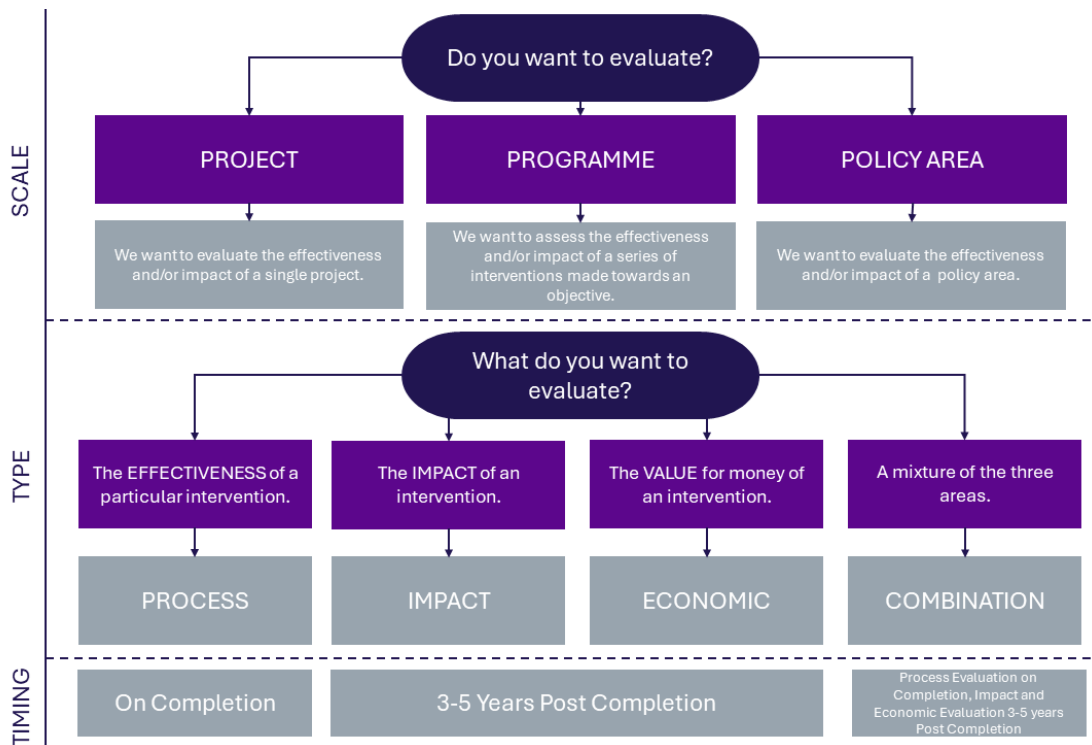


Figure 1 Evaluation Decision Flow Chart¹

Scale of Evaluation

The concept of proportionality should be kept in mind when planning an evaluation with the scale

¹ Adapted from the West Yorkshire Evaluation Strategy 01-wyca-evaluation-strategy.pdf (westyorks-ca.gov.uk)

and complexity of the scheme combined with the level of innovation shaping the level of evaluation effort. Where a scheme is low cost and delivers interventions for which there is a lot of existing experience a lighter touch evaluation is appropriate, whilst for higher cost or more innovative schemes a more in-depth evaluation should be undertaken to maximise learning. For the lowest cost schemes complicated and sophisticated evaluation methods are not generally required. A lighter touch might mean a greater reliance on qualitative rather than quantitative assessment, for example relying on user surveys to judge a schemes impact. Lighter touch could also mean the absence of a full economic evaluation, particularly for schemes with a cost under €30 million where a benefit cost ratio was not required to be calculated at FBC.

A common approach is to take a top-down approach to evaluation budgeting whereby the evaluation budget is set by reference to the overall cost of the intervention. Some international comparison helps. For instance, UK based agencies use allowances ranging between 0.5% to 5% of intervention budgets for evaluation. While these are not appropriate in all cases, particularly for large programmes or schemes which represent a new approach, the principle of relating evaluation cost to total intervention spend is generally sensible.

The ex-post evaluation plan should be sufficiently developed by FBC that it can be fully costed. The cost of the exercise should be included in the project costs presented at FBC and will represent the final payment relating to the project at the end of the project lifecycle.

Programmatic Approach to Evaluation

Where an investment proposal has been carried out as a programme of works, it is recommended that a single ex-post evaluation be conducted for the overall programme which incorporates assessments of each of the constituent projects. In addition, it is important that an ex-post evaluation of a programme examines the selection and structuring of the constituent projects and how this impacted the realised benefits and outcomes of the programme to date.

A programmatic approach to evaluation is particularly important when assessing the impact of small-scale interventions whose success is reliant on the implementation of similar small scale interventions elsewhere, for example a single cycle lane on its own would not be expected to evoke behavioural change in terms of active travel take up. However, if that single cycle lane was implemented as part of a programme of cycle lanes and interventions to promote cycle use then behavioural change would be more likely to occur. It is therefore the combined impact of the programme which should be evaluated so as to understand the level of behavioural change which is achieved. It is also important for programmes which contain projects whose benefits alone are likely to be marginal, but which are an essential or important contributor to the programme or provides for 'network effects'².

Logic Mapping and KPIs

An important first step to ex-post evaluation planning is the development of a Logic Path Model identifying the context/investment rationale, objectives, inputs, activities, outputs, results/outcomes and impacts which are expected to come about as a result of the intervention. The logic path model sets out how the objectives are intended to materialise by identifying relationships between the

² Further information on network effects is available here
<https://core.ac.uk/download/pdf/206631727.pdf>

tangible outputs being delivered under the intervention and the key performance indicators (KPIs) which are expected to be achieved. Measuring success in achieving the KPIs is the ultimate goal of the ex-post evaluation.

Evaluation type

There are three main types of evaluation, all aiming to answer slightly different but complementary questions. An ex-post evaluation exercise will typically combine features from all three evaluation types.

- Process evaluation seeks to understand whether the delivery of the intervention was successful, what worked well and less well, for whom and why, together with whether changes to the context influenced the delivery process. Process evaluation aims to understand what can be learnt from how the intervention was delivered and what could be improved in the delivery of similar interventions in the future. Process evaluation is particularly useful for complex or innovative interventions where lessons learnt can influence future delivery of similar schemes. Process evaluation is less likely to be required for projects involving the delivery of schemes for which there are already many similar examples.
- Impact evaluation seeks to understand what difference the intervention made and whether, and to what extent, it delivered what was expected. Impact evaluation is usually the focus of evaluation exercises. Appraisal undertaken as part of business case development are subject to many assumptions and it is therefore only by collecting and analysing data before, during and after an intervention that robust conclusions can be drawn about the actual impact the intervention had. Impact evaluation should include an assessment of whether the changes seen can be attributed to the intervention by considering how the intervention caused the observed impact. It should also assess whether there were any unintended consequences resulting from the intervention, both good and bad.

A good impact evaluation will seek to understand whether the impact of the intervention varied across different areas or impacted different groups of people differently. It will also aim to understand whether specific factors influenced the strength of the impact with the goal of understanding which aspects of the intervention are essential for obtaining the same impact in the future.

If the intended impacts were not achieved the impact evaluation should also aim to explain why, so lessons can be learnt for future delivery of similar policies. It should explore whether variations or alternatives might have been more effective in achieving the schemes objectives.

- Economic evaluation builds on and complements impact evaluation by seeking to understand whether value for money was achieved and whether the intervention was a good use of resource compared with alternative interventions or doing nothing. The ex-post evaluation value for money position (as well as the component benefits and costs) should be compared with those reported at the appraisal stage and a discussion of why the position is different should be included. This can provide valuable insight to help refine appraisal processes and the modelling of different scenarios for use when preparing future business cases.

The Concept of Additionality, the Counterfactual and Approaches to Evaluation

The concept of additionality is an important one in ex-post evaluation planning and is used to determine whether an intervention has produced some “extra good” in the future relative to a

reference scenario, referred to as the counterfactual. In order to understand what has happened as a result of the intervention it is vital to understand the counterfactual, in other words what would have happened without the intervention.

Outcomes and impacts that would have been expected to occur in the absence of the intervention are described as deadweight. Deducting deadweight from the overall estimated impact will produce the net additional impact of the intervention (referred to as additionality). Counterfactual analysis is a robust way to produce evidence of additionality.

When choosing the right counterfactual approach and data sources, it is important to consider whether the desired impact might also be felt beyond the target group/ area or whether any unintended consequences can be expected. These impacts are referred to as spillovers. It is also important to consider whether an improved outcome for the target group or area may result in a corresponding deterioration somewhere else, this is known as displacement. Other effects that should be considered when estimating the net impact of an intervention through counterfactual analysis include agglomeration (benefits that may arise through close location of businesses and/ or people), multipliers (e.g. further economic activity associated with additional local income), and positive and negative externalities (unintended or indirect consequences)

Common counterfactual and comparative approaches to ex-post evaluation include:

- **Randomised Controlled Trials (RCTs):** This is generally regarded as the most robust method of impact evaluation, and involves randomly allocating individuals, or locations, into two groups – one who received the intervention and another who does not. Provided the sample is large enough, and correct randomisation procedures are used, the difference in outcomes between the two groups can be attributed to the intervention. Unfortunately, this approach is rare for transport interventions due to challenges of randomisation in particular the difficulty of deciding, at random, who or where receives an intervention and who/where does not.
- **Staggered rollout, pipeline or stepped-wedge trial:** This approach is possible when an intervention is rolled out in waves/steps over time, allowing for the comparison of the outcomes of the group that receives the intervention early to be compared with the one receiving the intervention later.
- **Regression discontinuity design (RDD):** This is a quasi-experimental method which can be used where RCT is not possible and involves use of a control based on conditions before a cut-off point representing the point of intervention.
- **Difference in differences:** This approach involves the comparison of before/after intervention differences in the intervention group (eg location) being compared to the before/after difference in the comparison group (an otherwise similar location), with any difference between the two differences being attributed to the intervention effect. The major difficulty with this approach is ensuring that the two areas are sufficiently similar in that they would respond similarly to the intervention as well as to factors unrelated to the intervention e.g. the weather or a policy change.
- **Matched comparison at individual level:** This is similar approach and can be used in conjunction with the difference in differences approach but is much more granular by zooming in on individual participants within the intervention and comparison group.
- **Before/after comparisons:** This approach is regularly used in ex-post evaluations where a

suitable control or comparison cannot be identified and involves a simple comparison of data collected before and after the intervention. When taking this approach sponsoring agencies should be mindful of the impact of external influences which may also have resulted in change. One way to strengthen the approach is to add more data points. If an outcome measure of interest follows a stable trajectory for some time only to change after the intervention has been introduced, this may indicate an effect of the intervention on that specific outcome measure. However, even considering additional data points analyses can be significantly affected by major changes occurring between relevant data collection points. Two recent examples include the 2008 recession and the COVID-19 pandemic, both of which caused significant changes in transport use and therefore affected the validity of analytical comparisons over the relevant periods.

- **Interrupted time series:** This is a type of before/ after comparison that is useful when a large amount of data can be collected consistently over a period of time to capture any fluctuations in the outcome of interest after the introduction (and the end) of an intervention.

Data Sources

Ex-Post Evaluation Planning should consider data requirements and the sources for that data. Sources of data should be quantitative where possible and may include both published data and survey data. Qualitative data can also add value, for example information collected as part of stakeholder engagement exercises. This data can be especially useful to aid the narrative where a scheme is expected to lead to behavioural change as it captures peoples lived experiences.

For process evaluation the data requirements will focus on:

- **Management data** relating to management of the project including financial data on scheme spend, data relating to risk mapping and mitigation.
- **Monitoring data** collected to monitor progress during the implementation phase for example data relating to delivery of agreed outputs.

For Impact and value for money evaluation the following data requirements should be considered:

- **Direct beneficiary data** relating to known individuals who are expected to benefit from intervention. At the planning stage it should be specified who and where the direct beneficiaries are.
- **Indirect beneficiary data** attempts to understand those who might indirectly benefit from intervention e.g. those living in the locality who may or may not engage with the intervention.
- **New data** requirements including survey data and qualitative data collected from stakeholders.

Evaluation timescales

The ex-post evaluation should be conducted once sufficient time has elapsed for the benefits, outcomes and impacts to materialise. The evaluation plan should include a programme for the ex-post evaluation exercise including as appropriate, base line data collection, project completion review, interim reviews and a final exercise. The final exercise should usually be undertaken within 3 years of completion, this time frame should allow most benefits to have materialised. In some instances, benefits may be expected to take longer to materialise, for example if a scheme is expected to result in increased development. In such cases a longer time frame should be justified,

and, in all cases, the final exercise should be undertaken within 5 years of completion. It should be kept in mind that a longer time frame increases the risk of other factors complicating the evaluation exercise, for example another land use or transport scheme being delivered in the vicinity making it difficult to understand which impacts are fully attributable to the scheme being evaluated. The programme should clearly outline when the Ex-Post Evaluation report should be expected.

Dissemination of findings

The evaluation plan should outline the process for dissemination of findings to ensure that lessons learnt as a result of the exercise are efficiently shared sectorally, such as through TAF or NTA PAGs, and in the wider public service to inform future decision making.

4. The Project Completion Review Report

The Project Completion Review Report should include the following elements. Individual NTA investment teams may also have their own additional requirements:

- Project Background including:
 - Summary of intervention
 - Rationale
 - Objectives
- Final Cost of the Scheme
- Relevant Metrics regarding what has been delivered and identification of any outstanding work
- Before and After Scheme Photos
- An assessment of whether the basis on which the project was undertaken was correct, this should answer the following:
 - Were the rationale, scope, identified need and objectives correctly identified?
 - Was the delivered project strategically aligned with current government policy?
 - Were the identified Key Performance Indicator (KPI) metrics appropriate and sufficient to measure implementation and performance to date?
- A review of project/programme documentation, including a quality assessment of the various business cases. This should include:
 - A review of scheme economic and financial appraisals including accuracy of cost profiling
 - Explanation of differences between actual and estimated costs
 - An assessment of the accuracy of project assumptions
 - A review of the effectiveness of scenario analysis in anticipating potential changes to project conditions
- An assessment of whether the requirements set out in the Infrastructure Guidelines, TAF and PAGs were met.

- An assessment of the success of the design and planning stage considering:
 - Was the scope set out in the detailed business case fully implemented?
 - Were statutory requirements complied with?
 - Were design requirements fully met?
 - Was the procurement strategy appropriate?
- An analysis and commentary of the implementation stage:
 - Was delivery in line with the time and cost milestones set out in the Project execution plan (PEP)?
 - Were budget contingencies used and why?
 - Were governance and management structures efficient?
 - Were monitoring reports timely, comprehensive and forward looking?
- A review of management procedures including risk analysis and risk management considering:
 - Was the contract actively managed?
 - Were all contract obligations met?
 - How effective was project cost control?
 - Were project risks and opportunities fully identified in a timely manner during the project lifecycle and was there active management of risk?
 - Were dispute management procedures effective?
- Summary of feedback provided by key stakeholders including contractors and the project management team.
- An assessment of operational performance and whether initial benefits have been realised:
 - Is the final output fit for purpose?
 - Were the outputs identified achieved?
 - What is the short term impact on project beneficiaries?
 - How successful is the delivered solution in addressing the identified need?
- Conclusions which can be drawn on the success of the project/programme at this stage and a summary of lessons learned which can inform the development of similar schemes, the ongoing use of the asset developed, and future guidance. It may be appropriate for a lessons learned log to be used as part of this reporting.

5. Ex-Post Evaluation Reporting

The NTA have developed a template which may be used for reporting the Ex-Post Evaluation exercise. Briefly the report should include:

- A summary of the intervention, including the rationale and objectives.
- The logic path model and KPIs
- An assessment of whether the strategic fit of the intervention is still valid including whether the project is still strategically aligned with government policy.
- A summary of the evaluation exercise including the type and purpose of the evaluation. This should be in line with the ex-post evaluation plan included in the final business case.
- A detailed description of the evaluation methodology including quantitative and qualitative approaches adopted and data sources. This should be aligned with the ex-post evaluation plan, any deviation from that plan should be highlighted and explained.
- The results of the ex-post evaluation:
 - Process evaluations should answer the following:
 - Was the intervention implemented as intended?
 - Has the design worked?
 - Is the operational performance successful?
 - What has worked more or less well and why?
 - Impact evaluation should utilise data collected on the identified KPIs and should answer:
 - Have the outcomes and impacts been achieved?
 - Were the outcomes, operational performance and benefits as identified in the Final Business Case achieved?
 - How accurate was the assessment of benefits at FBC, including assessment of assumptions used?
 - Did the management of risk have an impact on expected benefits and outcomes?
 - What is the scale of change as a result of the intervention?
 - What were the medium to long term impacts for the targeted beneficiaries and were there any secondary effects?
 - Can the change seen be attributed to the intervention ie is it truly additional?
 - Economic evaluation should answer:
 - Has value for money been achieved? I.e. do the benefits attributable exceed the cost associated with delivery?
 - How does the value for money position (benefit cost ratio) compare with that forecast at FBC?
- An assessment of the successfulness of the project planning including:
 - Whether the assumptions were correct.
 - Whether the optioneering outcome was correct.

- Whether the economic and financial appraisal methodology was suitable.
- Whether the procurement and governance arrangements were successful.
- Lessons learnt including:
 - Strengths and weaknesses of concept, design and implementation
 - Whether the type of intervention chosen was effective, efficient and the appropriate response to public need
 - Whether the objectives and scope were correctly defined
 - Whether the KPIs were appropriate metrics and if they were sufficient to measure the performance of the intervention in respect of outcomes and impacts
 - Lessons which can be transferred to aide future decision making
 - Strengths and weaknesses of the ex-post evaluation approach. Lessons learnt should then be used in future evaluation planning, and eventually enable some standardisation of the ex-post evaluation approach for similar sectoral projects, contributing to the development of common performance metrics and benchmarking tools.

It may be appropriate for a lessons learned log to be used as part of this reporting.

- Conclusions summarising the main findings and insights generated through the evaluation, whether or not the intervention has delivered its objectives, whether the intervention was the appropriate response to identified need, and actions which can be taken to ensure lessons are learnt

6. Resources

NTA EPE Report Template v1.0

NTA PCR Report Template

Sources for this guidance:

- [Infrastructure Guidelines: A Guide to the Post Completion Review and Benefits Realisation](#)
- [Transport Appraisal Framework Module 9: Project Implementation, Review and Ex-Post Evaluation](#)
- [NTA Project Approval Guidelines](#)
- [Organisation for Economic Cooperation and Development Evaluation Framework](#)
- [World Bank Impact Evaluation in Practice](#)
- [UK Department for Transport. Transport Analysis Guidance Unit E.1: Evaluation](#)
- [English Partnerships Additionality Guide](#)
- [TII Project Appraisal Guidelines Unit 9.0 Ex-Post Evaluation](#)

- [TII Project Appraisal Guidelines Unit 2.3 Logic Path Modelling](#)

7. Contact

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