

# Economic Case: Best Practice Guidance

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# 1. INTRODUCTION

# Purpose of this document

**This guidance is relevant for assisting Towns in developing compliant and effective Business Cases.**

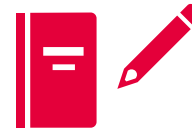
**The document will provide Towns with general guidance for producing the Economic Case, from the approach to the Economic Case, to the Value for Money assessment.**

**Accompanying this guidance, TFDP will be issuing separate supplementary annexes on how to quantify benefits by project types. The supplementary guidance will outline the potential benefits to consider, the relevant Green Book or appraisal guidance to comply with, quantification of benefits methodology, data requirements and more.**

## Objectives



Provide practitioners with limited experience and knowledge of business cases with better understanding of the purpose and requirements of the economic case.



Enable practitioners to become more comfortable to write and contribute to the economic case.



Ensure the economic case delivered is compliant with Government guidelines, such as those set out in HM Treasury's Green Book.

# How to use this guidance

- **Towns should use this guidance note to provoke thinking around project benefits (and costs) and associated methodology to monetise these.**
- **Use of this guidance is optional. Towns may choose to use it to support their project and Business Case development.**
- **Towns should consider the level of detail required for the business case, as well the associated economic modelling required, ensuring it's proportional to the size of the project and allocated funding. For further details on proportionality, please refer to TFDP's Business Case Template.**

## From TIP to Business Cases

Users should reflect on the Town Investment Plans (TIPs) and the strategic case and objectives for projects to stimulate thinking on the benefits. This stage will likely require logic mapping to link opportunities to benefits, for more details, please refer to page 20 of this guidance.

Towns should remember to also consider disbenefits and costs to present the most accurate picture of the economic viability of the projects.

# How to use this guidance

## Audience

This guidance is suitable for practitioners who are developing or managing Towns Fund Business Cases.

It is aimed at those with some prior knowledge and experience with business cases.

## Structure of the guidance

The structure of this guidance is designed to broadly mirror the economic case structure set out in the [TFDP's Business Case Template](#).

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# Key concepts

Please take a moment to review some key concepts set out below before proceeding with the rest of the document.

**Real prices** – all prices are expressed in relation to the first year with inflation removed. Note that the Financial Case uses values in nominal prices (with inflation).

**Discounting** – process of converting costs and benefits into present values by discounting with the social time preference rate to allow comparison of future values in terms of their value in the present. Based on the theory of society's preference for now compared with the future. In the UK, the recommended discounting rate is 3.5% for the first 30 years.

**Net Present Value (NPV)** – the difference between benefits and costs. The NPV is another form of assessing value for money. This varies depending on the size of the project while the BCR can be used to compare projects of different sizes.

**Benefit-Cost Ratio (BCR)** – the ratio between benefits and costs which indicates the value for money of the investment. A BCR over 1 indicates value for money, typically schemes with a BCR over 2 are considered to have a good value for money.

**Optimism Bias (OB)** – adjustment factor applied to costs to reflect the fact that actual costs often tend to be higher than planned costs. OB for large projects can typically be up to 66%. OB should go down as the project develops and there is more certainty around costs.

**Place-based impacts** – “where proposals have a focus on a specific part of the UK, place based analysis should be performed and be central to appraisal advice” (Green Book). This has been introduced in the latest Green Book. These impacts refer mostly to employment changes in the area under consideration. Annex A2 of the new Green Book provides an example on how to calculate these.

**Additionality** – isolating impacts that are strictly additional. In the case of employment impacts, these should be adjusted for deadweight, leakage, substitution and displacement.

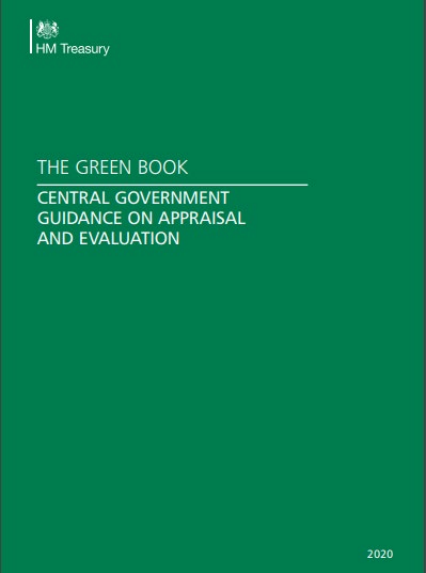
**Sensitivity tests** – tests performed to explore the sensitivity of expected outcomes to potential variations in key input variables

## 2. GUIDANCE AND RESOURCES



# Guidance and resources

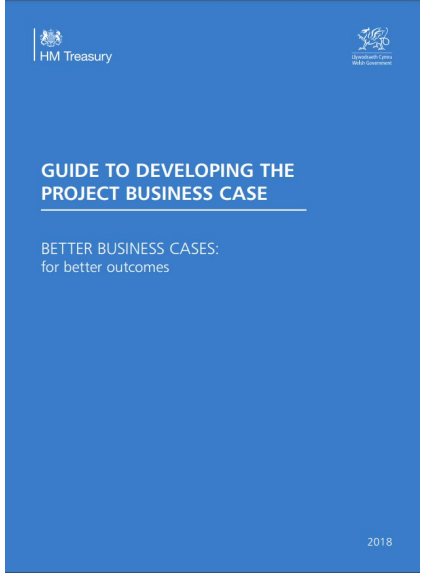
The following key guidance and resources (but not limited to) are available online to support the Economic case. Please note, all TFDP-produced resources are optional to use.



Government Guidance

## HM Treasury The Green Book

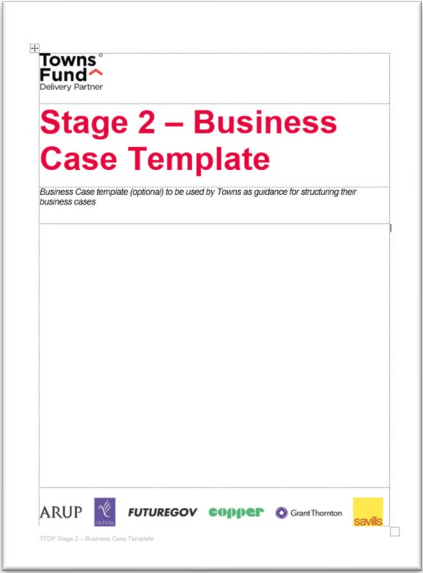
Guidance on how to appraise policies, programmes and projects



Government Guidance

## Guide to developing the business case

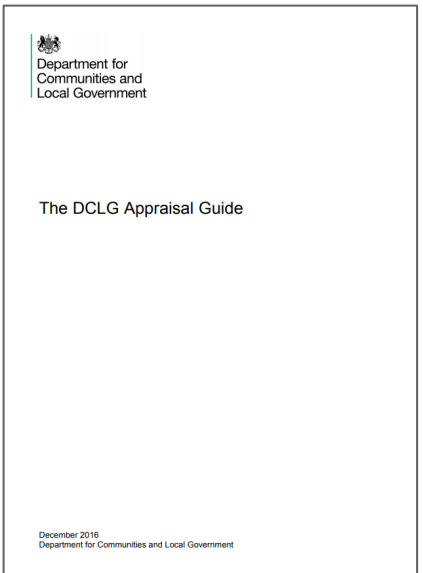
Guidance on how to appraise policies, programmes and projects



TFDP resource

## TFDP Business Case Template

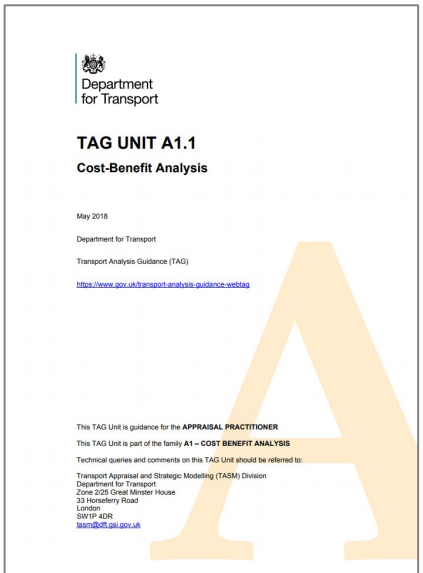
Optional business case template and proportionality guide



Government Guidance

## MHCLG Appraisal Guidance

Provides method and assumptions for scheme appraisal, with a focus on development

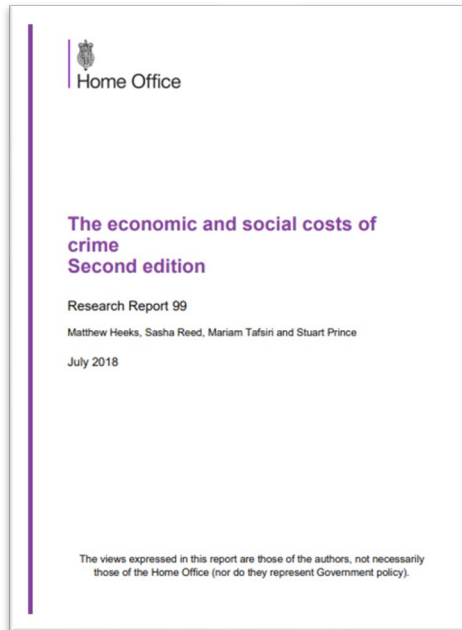


Government Guidance

## DfT TAG

Provides method and assumptions for scheme appraisal, with a focus on transport

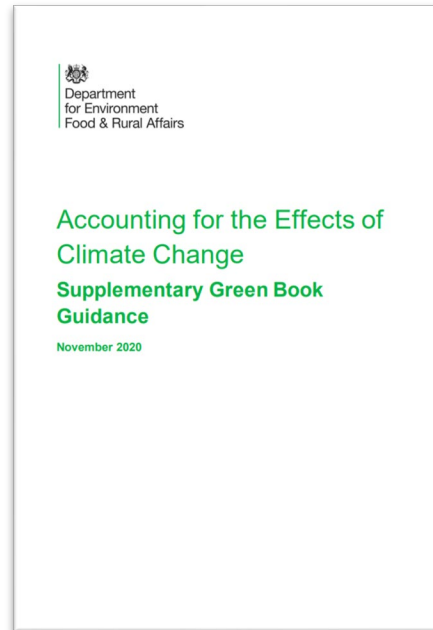
# Guidance and resources



Government guidance

## The economic and social costs of crime

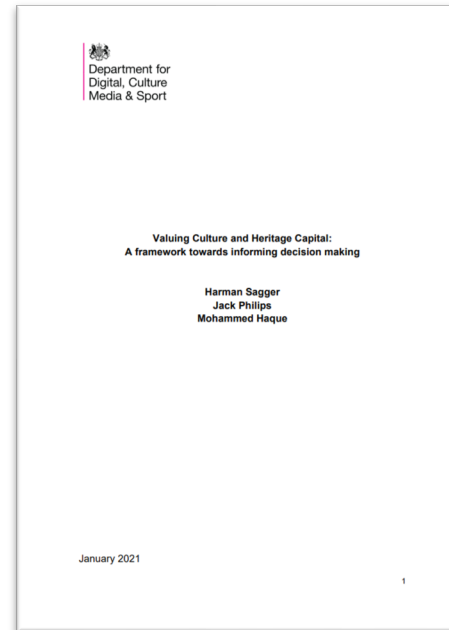
Report considering the economic and social costs of crime estimates



Government guidance

## Accounting for the Effects of Climate Change

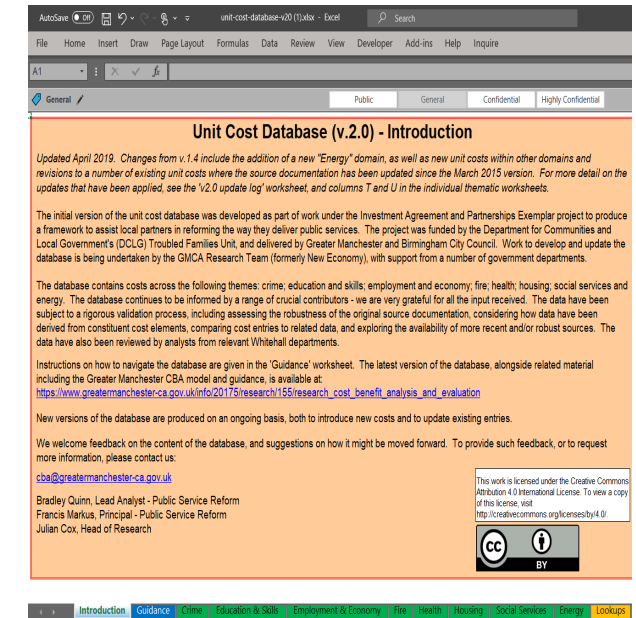
Supplementary guidance on how to account for the effects of climate change when appraising projects and programmes.



Government guidance

## Valuing Culture and Heritage Capital

Guidance setting out DCMS's development on formalising an approach to valuing culture and heritage assets.



Government guidance

## Greater Manchester CBA model and Unit Cost Database

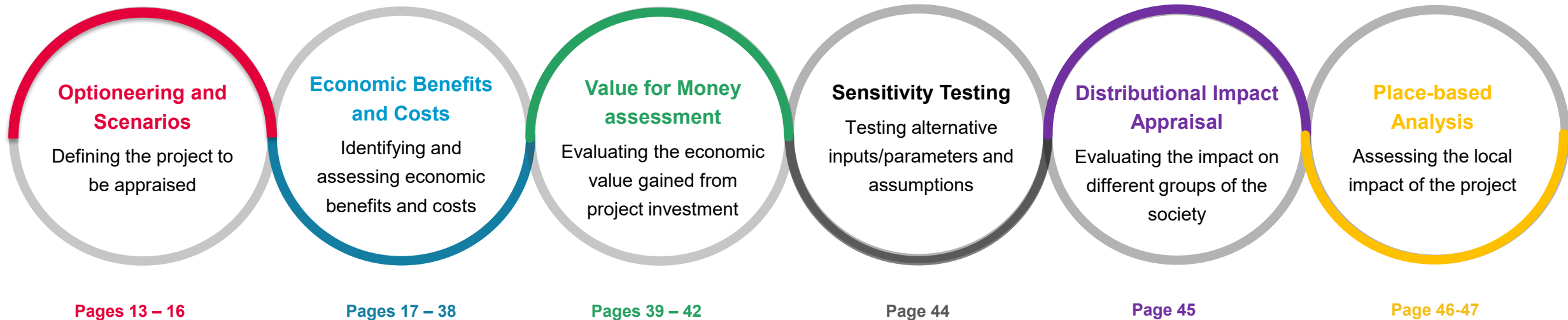
A tool used to understand the value for money provided by an intervention. The unit cost database provides over 800 cost estimates covering thematic areas, for e.g. crime, education, housing and health.

# 3. APPROACH TO ECONOMIC CASE

# Approach to Economic Case

## Writing the Economic Case – where do I start?

Before you carry out the economic appraisal of your project, you will need to set out your approach in the economic case. Below illustrates the main components of the approach you will need to consider:



# Proportionality

## What is the level of detail required?

Determining the level of detail required for the Economic Case (and overall business case) will depend on a number of factors, including the scale of the project. **Ultimately, you should follow any guidance on the level of detail required for business cases based on your local assurance processes.**

The [TFDP Proportionality Guide](#) can help you consider the level of detail the economic case will go into. Figure 1 illustrates the spectrum between 'low' level of detail, to 'high' level of detail.

Economic case			
Risk and novelty of project	Low	↔	High
Scenario definition	Simple	↔	Complex, including Covid-19 impacts
Certainty around costs and benefits	High certainty	↔	Low certainty
Disbenefits	No disbenefits	↔	Potential Disbenefits
Monetising benefits	Easy to monetise	↔	Difficult to monetise
Distributional impacts across groups	simple impacts, less relevant to project	↔	Complex distributional impacts

**Figure 1:** Economic Case – proportionality tool  
Source: [TFDP Business Case Template](#)

### Key questions when considering the level of detail and effort required for your Economic Case:

- Is the project in any way high risk or/and new and novel? Are the benefits of this type of project well understood and is there evidence that they are likely to be achieved?
- Is the “Do something” well articulated – or does it need further refinement? Are the scenarios easily defined?
- What is the level of certainty around the costs and benefits? Is the BCR or NPV calculation particularly sensitive to any of the variables or assumptions?
- Is there any interrelationship or complexity between costs, benefits etc.? For instance, prices or costs impacting on demand?
- Are the costs and benefits dependent on the commercial or financial deal?
- Are there any significant disbenefits?
- Is the case dependent on significant benefits which are difficult to monetise?
- Is the project likely to have a different impact on different demographic groups (e.g. age, income)?

# Optioneering and scenarios

## What is optioneering?

### Definition

Optioneering is an evaluation process to identify and assess different options to deliver your project.

Once you've identified the project intervention (as set out in the Strategic Case), you may need to consider how the project can be shaped.

Typically, optioneering is a two-step process:

1. Long-list of options considers how to best achieve the SMART (*specific, measurable, achievable, realistic, time-bound*) objectives
2. Short-list of options involves estimation of benefits and costs

The aim of the process is for the 'preferred way forward' for the project to emerge from the appraisal of the long-list, and the 'preferred option' for the project to be chosen from the appraisal of the short-list.

## Defining your scenarios

Optioneering is a useful exercise to help appraisers to define the scenarios for the purpose of the Economic Case.

When assessing the economic benefits and costs associated with the project, the following scenarios will need to be defined:

- **Do Nothing / Do Minimum:** scenario without project intervention ("business-as-usual")
- **Do Something:** scenario with the project intervention

# Optioneering and scenarios

## Towns Fund context

Whether you'll need to set out the optioneering process and outcomes in your Towns Fund project Business Case is dependent on the following two factors:

### How developed your project is at the time of Business Case development

If your project is still in the early development stage, it's likely you'll need to outline your optioneering process and provide greater detail. However, if your project is well developed and the optioneering has already taken place, less detail is required.

### Proportionality

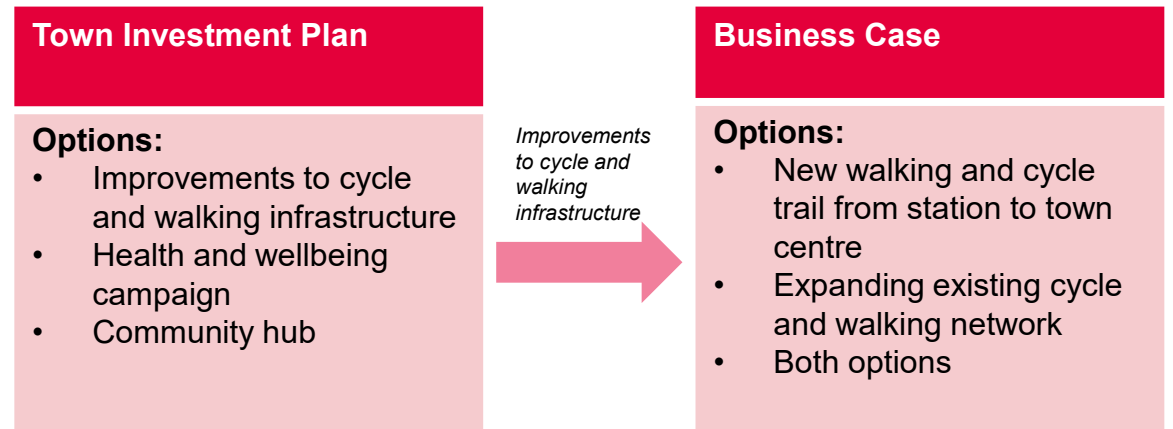
The size of the project needs to be considered. Smaller scale projects may not need the full two-step optioneering process; instead, it may be streamlined into a simpler optioneering exercise.

## TIP vs Business Case

It's important to distinguish what optioneering refers to between the TIP and Business Cases.

Assessment of options carried out at TIP stage likely refers to assessing the different types of projects considered to address the case for change. Whereas for the Business Case, optioneering assesses different options of delivering the project.

The below table illustrates the difference between how options are assessed (*e.g., Town XYZ wants to improve physical and mental wellbeing...*)



# Approach to analysis

**There are many different ways to show benefits and Value for Money in the Economic Case. It is important to distinguish and show these different types of analysis in order to show the full Value for Money picture of a proposal.**

Different types of analysis in the Economic Case:

- **Cost Benefit Analysis** to calculate the National Benefit-Cost Ratio (BCR): The net present value of (monetised) benefits and costs to UK society
- **Sensitivity analysis:** analysis of the sensitivity of expected outcomes to potential variations in key input variables
- **Quantified and non-monetised benefits:** analysis of benefits for which there are no market values or that cannot be monetised
- **Unquantified and non-monetised benefits:** analysis of benefits which are not possible to quantify or for which it would not be proportionate to do so
- **Place based analysis:** analysis of local impacts
- **Distributional appraisal:** how benefits and costs accrue to different parts of UK society and income groups



# How to present the approach

**When outlining the economic appraisal approach, the following parameters need to be defined:**

- **Scenarios** – what options have been appraised?
- **Use of relevant guidance** – which guidance and resources are used to inform the analysis?
- **Price year** – which price year will the monetised economic benefits and costs be presented?
- **Appraisal period** – how long is the appraisal period?
- **General economic assumptions** – e.g. discount rate, inflation series, annualisation factor
- **Models** – if applicable, which models were used to inform the appraisal?
- **Modelling years** – if applicable, which year(s) were modelled?

# 4. ECONOMIC BENEFITS

# Economic benefits

## Introduction

This section of the guidance focuses on how to identify, estimate, and articulate the economics benefits of your project, through the following types of analyses:

### 4.1 Quantifying Benefits

### 4.2 Evidencing non-quantified benefits

Accompanying this guidance document, supplementary step-by-step guidance on quantifying benefits of different types of projects will be made available on the Towns Fund Delivery Partner website. Types of projects include active travel, development and land-based interventions, culture & heritage, and more.

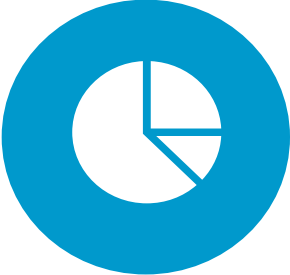


# Economic benefits – where do I start?

There are three fundamental factors to consider when assessing the types of economic benefits which can be demonstrated in your Economic Case; these are as follows:



**IDENTIFICATION**



**ANALYSIS**



**OUTPUTS**

**IDENTIFICATION**

What are the economic benefits, or disbenefits, of the project?

**ANALYSIS**

How do we assess the economic benefits? Can the benefits be quantified and monetised? Can the differential impact be assessed?

**OUTPUTS**

How do we present the benefits? Which economic benefits feeds into the BCR? Do we need to evidence non-quantified benefits?

# Identifying economic benefits

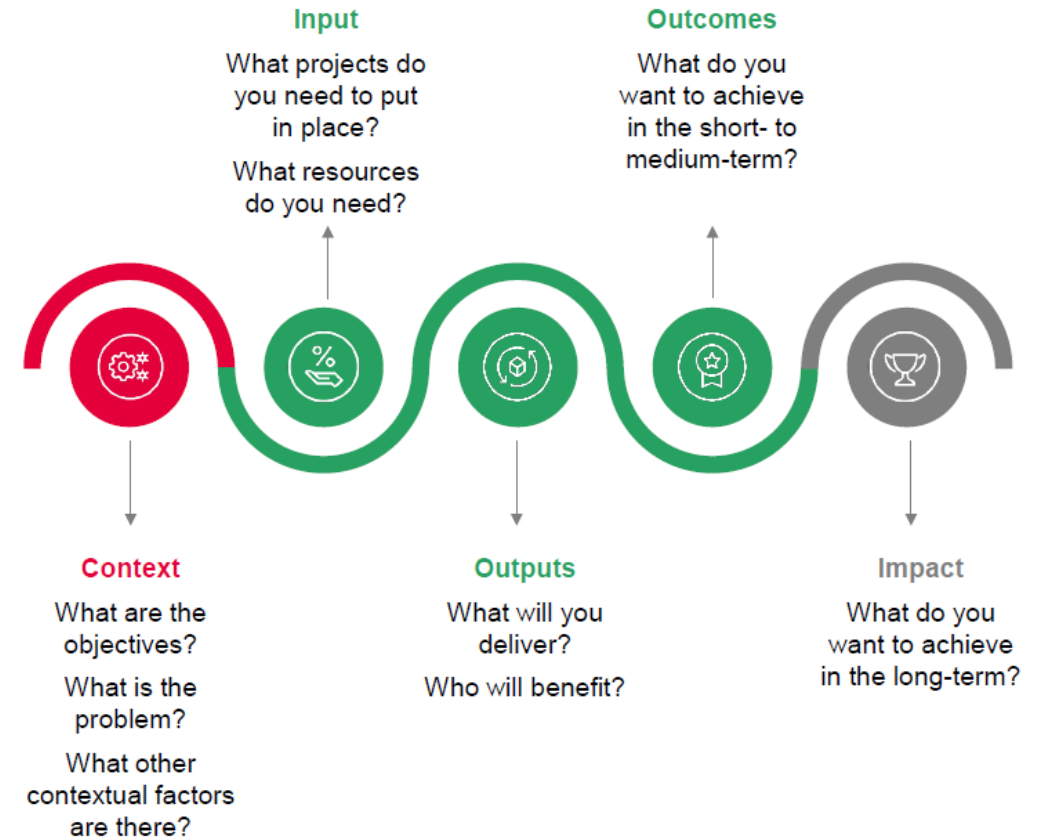
## Benefit logic mapping



To ensure project benefits included in the economic appraisal are correctly attributed to the project (i.e., benefits are not overstated), **benefit logic mapping** between the challenges and opportunities in the TIP, and the project definition should be undertaken (aided by the optioneering process). Within the context of Towns Fund, benefit logic mapping is somewhat already completed through the demonstration of the **Theory of Change** in the TIP.

For more information on the Theory of Change and Business Cases, please refer to our [blog](#) and the [Introduction to Theory of Change presentation](#).

**Identifying benefits through logic mapping helps ensure that the Strategic and Economic Cases are aligned.**



**Figure 2:** Theory of Change: logic mapping

Source: *TFDP, "Introduction Theory of Change", 2020*

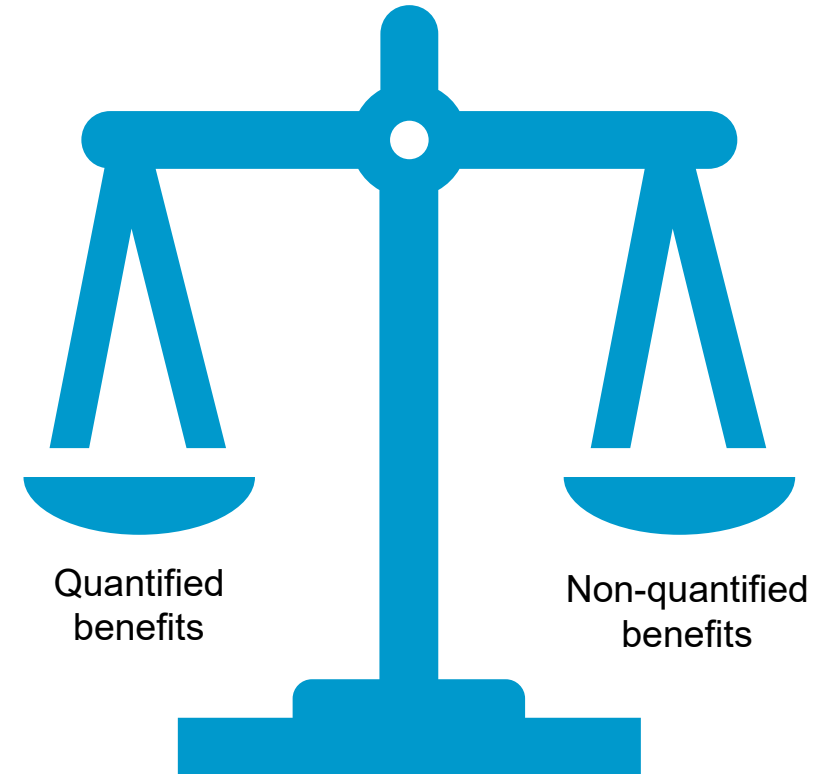
# Analysis of economic benefits

## How to assess the economic benefits



There are a number of factors to consider when deciding which economic benefits can be assessed quantitatively or qualitatively, including:

- Is the required data/input available?
- How robust is your data/input?
- If you need to apply assumptions, how robust are they? Can they be supported by evidence/benchmark case studies?
- Which methodologies are available? How robust/established is the methodology?
- Is the methodology to be adopted recommended by the Green Book and supplementary guidance?



# Economic benefits - outputs

## Articulating the economic benefits



Once you've gathered both quantified and non-quantified benefits, it's imperative to articulate them coherently to form a conclusion. Furthermore, summarising the economic benefits should link back to the Strategic Case and the Theory of Change, as both cases are closely aligned.

The economic benefits is one of the key components, along with the economic costs, which informs the Value for Money assessment.

**For more details on the Value for Money Assessment please refer to [Section 6](#).**

# 4.1 QUANTIFYING BENEFITS



# Key steps to quantify economic impacts

For those benefits that can be quantified, the key steps in calculating monetised benefits are typically:

- **Define scenarios** – this involves defining both “A Business as Usual Scenario” as well as “Do Something scenarios” (assuming the investment is implemented). More than one “Do Something scenario” may be considered.
- **Assess impacts of each scenario** – this involves assessing the outputs, outcomes and impacts in each scenario. These are typically on an annual basis.
- **Estimate the impact of the investment** – to isolate the impact or benefit of the investment, we subtract the impacts in the “Do Something” – “Do Minimum” scenario (and or “Do Nothing” scenario).
- **Monetise benefits** – impacts are monetised based on government guidance.
- **Calculate Present Value (PV) of benefits** – benefits are streamed and discounted over an appraisal period. The PV of benefits feeds into the value for money assessment.

*Simplified example: Time savings from investing in a new cycle lane*

Scenario	Business as Usual	Option 1 – 50km of cycle lane	Difference
Impacts	Annual demand of 100 cyclists with an average journey of 20 min	Annual demand of 200 cyclists with an average journey of 18 min	+100 cyclists  Time savings of 2 minutes for existing cyclists
Monetised impacts	£20k annual benefits in 2021 prices and values (estimated based on change on demand and Value of Time)		
Present value of benefits	£172,154 PV of benefits over a 10-yr appraisal period (2021 prices and values)		

# Additionality

## What is additionality?

Additionality is the “extent to which something happens as a result of an intervention that would not have occurred in the absence of the intervention” ([English Partnerships, 2008](#)).

When quantifying economic benefits, it’s imperative the additional net gain of the project, to avoid overestimation of economic benefits. Hence, for all project types, we recommend the benefits to be isolated by subtracting the impacts in the “Do Something” scenario – “Do Minimum” scenario (and/or “Do Nothing” scenario). Please refer to page 24 for the key steps on quantifying benefits. The “Do Nothing” scenario is also known as **deadweight**.

For **regeneration and regional development projects**, further adjustments are needed to calculate the additionality:

- Leakage
- Displacement
- Substitution
- Multiplier effects

Additionality adjustments	Definition
Leakage effects	The number or proportion of outputs that benefit from those outside of the intervention’s target area or group should be deducted.
Displacement	The number or proportion of intervention outputs accounted for by reduced outputs elsewhere in the target area should be deducted.
Substitution	This effect arises where a firm substitutes one activity for a similar one (such as recruiting a jobless person while another employee loses a job) to take advantage of public sector intervention. This too needs to be deducted.
Multiplier effects	Further economic activity (jobs, expenditure or income) associated with additional local income, local supplier purchases, and longer term development effects then need to be added.

Source: *Additionality Guide (English Partnerships, 2008, pg. 4)*

For further details on how to calculate additionality, as well benchmark assumptions, please refer to the [Additionality Guide \(English Partnerships, 2008\)](#).

# Estimating the present value of economic benefits

## General economic parameters

The table below outlines the general economic parameters to estimate the Present Value of economic benefits. These also apply to costs and the value for money assessment.

Category	Description and recommended values	Source
Appraisal period	Recommended defaults should be 10, 30 or 60 years depending on the intervention being considered. Users should consider the life time of the asset. 60 years is typically used for major transport projects for example.	P46 DCLG Appraisal guidance
Discount rates	The discount rate should be Green Book consistent. Discount rate of 3.5% for years 0-30 and 3.0% for years 31-60.	HMT Green Book Table 7
Present value year	Discount impacts back to the earliest of the following: current year, year in which the first public investment is made, year in which the project opens or year in which the policy takes effect	HMT Green Book
Inflation	Utilise GDP deflator in line with latest TAG Databook values.	TAG Data Book

# Overview of quantifiable benefits

Example benefits for each Towns Fund intervention theme

Towns Fund investment theme	Key benefits	Wider social and economic benefits (note adding all benefits may lead to double counting)	Key guidance to model and monetise benefits
<b>Local transport</b>	<ul style="list-style-type: none"> <li>- User benefits (time savings, cost savings)</li> <li>- Reduction in accidents</li> <li>- Environmental benefits</li> <li>- Amenity benefits</li> </ul>	<ul style="list-style-type: none"> <li>- Health benefits (from increased physical activity and improved air quality)</li> <li>- Productivity benefits (e.g. agglomeration)</li> <li>- Employment impacts</li> <li>- Attraction of investment</li> <li>- Social inclusion</li> </ul>	<a href="#">DfT's Transport Appraisal Guidance (TAG)</a>
<b>Digital connectivity</b>	<ul style="list-style-type: none"> <li>- User benefits</li> </ul>	<ul style="list-style-type: none"> <li>- Productivity benefits for businesses which experience higher efficiencies</li> <li>- Attraction of investment</li> <li>- Social benefits from improved access to communication</li> </ul>	<a href="#">Department for Digital, Culture, Media &amp; Sport</a>
<b>Urban regeneration, planning and land use</b>	<ul style="list-style-type: none"> <li>- Land value uplift</li> </ul>	<ul style="list-style-type: none"> <li>- Increases in local employment and GVA</li> <li>- Community cohesion</li> <li>- Health benefits from increased active travel or use of new public / green spaces</li> <li>- Social benefits (e.g. improved personal security)</li> </ul>	<a href="#">MHCLG guidance</a>
<b>Arts, culture and heritage</b>	<ul style="list-style-type: none"> <li>- Increased retail revenue from increased footfall</li> <li>- Amenity benefits</li> </ul>	<ul style="list-style-type: none"> <li>- Social benefits from improved access to culture</li> </ul>	<a href="#">Department for Digital, Culture, Media &amp; Sport</a>
<b>Skills infrastructure</b>	<ul style="list-style-type: none"> <li>- Land value uplift</li> </ul>	<ul style="list-style-type: none"> <li>- Increased employment and income</li> <li>- Attraction of businesses interested in the skills offered by the new infrastructure</li> </ul>	<a href="#">MHCLG guidance</a>
<b>Enterprise infrastructure</b>	<ul style="list-style-type: none"> <li>- Land value uplift</li> </ul>	<ul style="list-style-type: none"> <li>- Increased employment and income</li> <li>- Attraction of more businesses in the long term</li> </ul>	<a href="#">MHCLG guidance</a>

# Quantification of benefits by project type

## Further guidance

Accompanying this guidance document, supplementary guidance on how to quantify benefits by project type will become readily available on the Towns Fund website. Project types includes (but not limited to):

- Local Transport (Active Travel)
- Development and Land-based Intervention
- Arts, Culture & Heritage
- Skills Infrastructure

We will continue to monitor the level of demand for detailed guidance for other project types. If there is a specific project type you are seeking further guidance on, please contact your Town Coordinator and/or your regional business case specialist.

# Top tips when quantifying benefits

There are a number of key considerations that you must take into account when quantifying economic benefits (applicable to all types of projects).

## Additionality

When quantifying economic benefits, it is important to ensure that only the **additional net gain** of benefits are taken into consideration, i.e., the incremental economic gain (or loss) compared to the counterfactual. Benefits adjustment such as deadweight, displacement, leakage and substitution will need to be considered. Hence, defining the 'Do Nothing' scenario is critical for the economic appraisal to provide a baseline to compare the 'Do Something' scenario against.

## Avoid double counting and overclaiming

Continuing from the previous point, we need to avoid double-counting benefits. For example, **Figure 3** illustrates the benefits captured via Land Value Uplift and, conversely, the benefits excluded.

## Don't exclude the disbenefits

As well as the positive benefits, the economic appraisal must also include any negative impacts, or disbenefits, accrued as a result of the project implementation.

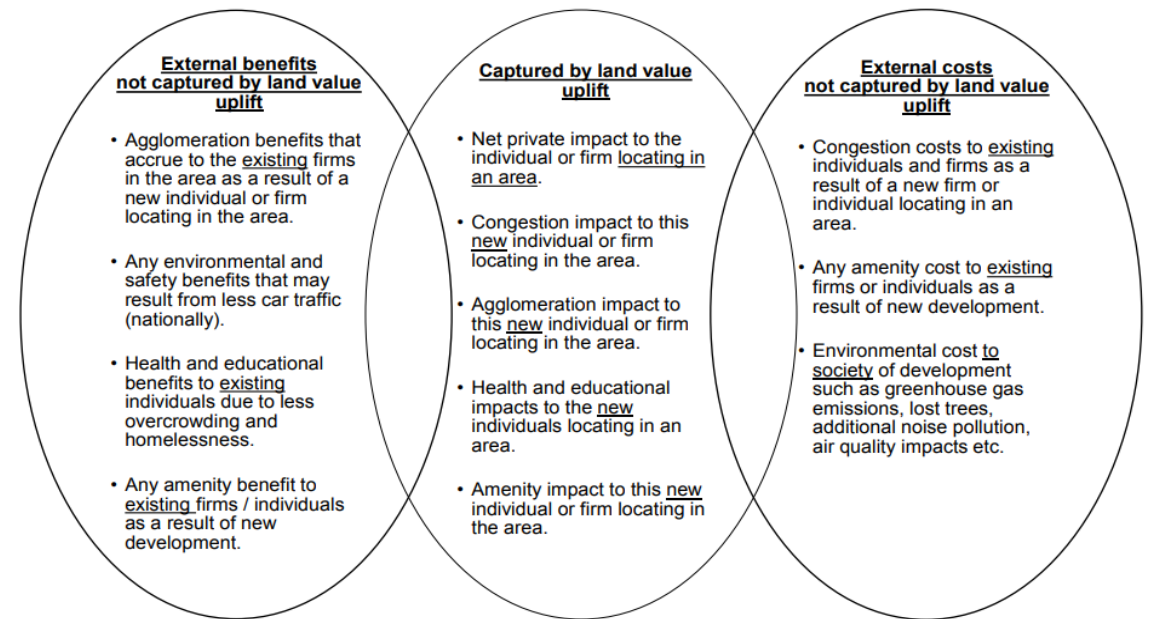


Figure 3: Framework for externalities

Source: MHCLG (formerly known as DCLG), 2016, DCLG appraisal guide (pg. 83)

# Top tips when quantifying benefits

## Timing and benefits “ramp up/down”

Towns should consider when the benefits are anticipated to be realised and whether a benefits ‘ramp up’ should be applied (e.g. 50% of annual benefits is accrued in the opening year, full benefits accrued by third year of operation). This is particularly applicable when a project is partially implemented in the first year of operation.

### Worked example:

- A new rail service will be 30% operational by the opening year, only reaching full service by the third year of operation.
- On average, travel time saving benefits equates to £10m per annum when 100% operational.

Operating year	Opening year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year
% passenger demand	30%	60%	100%	100%
Annual benefits (£m)	£3m	£6m	£10m	£10m

## Accounting for COVID-19 in your baseline

In the Economic Case, the assessment of benefits needs to reflect the different conditions brought about by COVID-19. For example, will a new business centre or shared workspace achieve the same levels of occupancy as previously forecast?

Recognising the majority of the available data/inputs typically used to inform the economic appraisal does not take into account the impacts of COVID-19, sensitivity testing provides the opportunity to test alternative scenarios, particularly given the uncertainty of the short and long-term impact of COVID-19.

Furthermore, some baseline data is released on a frequent basis, reflecting the impact of COVID-19. For more details, please refer to TFDP’s [How to account for COVID-19 in your baseline databank](#).

For more information on reflecting the impacts of COVID-19 in your economic case, please refer to our [blog](#).

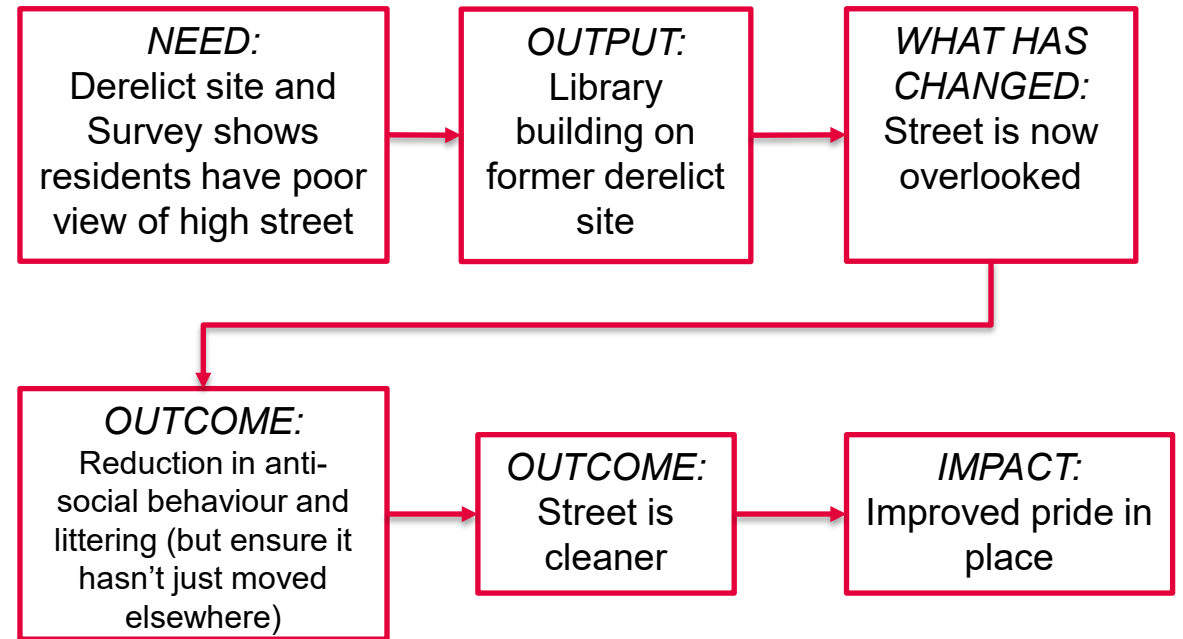
# 4.2 EVIDENCING NON-QUANTIFIED BENEFITS



# Non-quantified benefits

Unquantified benefits are an important part of the Economic Case. It may not always be proportionate (effort or cost required) or possible to quantify all benefits. No specific format or method is required by MHCLG, but there are steps that can be taken to show that these benefits are robust and evidenced:

- Show a **benefits map/logic model/detailed theory of change** for the project benefits and disbenefits. See **Figure 4**
- Identify any **additional activities which need to happen in order to achieve the benefit** (i.e just because a new arts centre is built, does not necessarily mean that this will increase cultural participation). Ensure these are included in the project scope and plan if they are going to be claimed as direct benefits, otherwise they should be claimed as indirect or enabled benefits which require a further project or works to be delivered
- Identify **beneficiaries** for further robustness
- Specify the **magnitude and certainty** of the benefit
- A **benefits register** should be provided as part of the Management Case



**Figure 4:** Detailed benefits map/theory of change for a project

# 5. ECONOMIC COSTS

# Treatment of costs

## ECONOMIC CASE

*“Economic appraisals focus on public value from the perspective of society and take into account all social, economic, environmental costs and all effects on public welfare. Financial appraisals focus on affordability from the perspective of the public purse, often expressed in terms of the public funding the project.”*

- HM Treasury, 2018

Costs are treated differently in the Economic Case compared to the Financial Case. The table summarises these differences.

In the rest of this section, we focus on two key issues for costs in the economic appraisal: converting to real prices and including optimism bias.

Economic Appraisals	Financial Appraisals
<p><b>Focus:</b></p> <ul style="list-style-type: none"> <li>• Net Present Social Value (NPSV) for money</li> </ul>	<p><b>Focus:</b></p> <ul style="list-style-type: none"> <li>• Funding and affordability – cash flow and stock</li> </ul>
<p><b>Coverage:</b></p> <ul style="list-style-type: none"> <li>• UK Society as a whole and distributional analysis where relevant</li> </ul>	<p><b>Coverage:</b></p> <ul style="list-style-type: none"> <li>• Relevant public organisation(s) budget</li> </ul>
<p><b>Relevant standards:</b></p> <ul style="list-style-type: none"> <li>• HM Treasury Green Book and supplementary guidance</li> <li>• Discount rate applied</li> </ul>	<p><b>Relevant standards:</b></p> <ul style="list-style-type: none"> <li>• Public sector accounting rules and standing orders</li> </ul>
<p><b>Analysis:</b></p> <ul style="list-style-type: none"> <li>• Real (relative base year) prices</li> <li>• Use of opportunity costs</li> <li>• Includes quantifiable welfare costs and benefits to society</li> <li>• Excludes Exchequer ‘transfer’ payments – for example, VAT</li> <li>• Excludes general inflation</li> <li>• Excludes sunk costs</li> <li>• Excludes depreciation, impairment and capital charges</li> </ul>	<p><b>Analysis:</b></p> <ul style="list-style-type: none"> <li>• Current (nominal) prices</li> <li>• Benefits – cash releasing only</li> <li>• Includes capital and revenue costs</li> <li>• Includes transfer payments (for example, VAT)</li> <li>• Includes inflation</li> </ul>

(source: HM Treasury, 2018, “HM Treasury Guide to Developing the Project Business Case, pg. 58)

# Real prices

## Introduction

In a financial appraisal, costs are expressed in ‘current’ or ‘nominal’ prices. For example, any costs incurred in 2022/23 will be expressed in 2022/23 prices, any costs incurred in 2023/24 will be expressed in 2023/24 prices, and so on.

In an economic appraisal, all costs should be expressed in ‘real’ prices. This means that all costs across the whole appraisal period should be expressed in the prices of a single base year. This should be consistent with the base year that is used for valuing the benefits.

This means that if you have a set of costs in current prices, these will need to be converted to real prices for the chosen base year for the purposes of the economic appraisal. An example is shown on the next page.

## Which inflation rate to use to estimate real prices?

The Green Book recommends using whole economy inflation (the “GDP deflator”) from the most recent forecasts by the Office for Budget Responsibility (OBR) for short time horizons

For long time horizons, forecasts of the GDP deflator published in the OBR Fiscal Sustainability Report are used.

# Real prices

## Worked example

- Suppose there is a project with capital costs of £1m in 2021/22, £1m in 2022/23, £2m in 2023/24 and £2m in 2024/25. These are expressed in nominal prices.
- If we want to convert these to real prices, using 2021/22 as the base year, then the inflation rate for future years is required. These are sourced from OBR forecasts.
- We can then estimate the factor that is required to convert nominal prices for any given year into real prices. This uses the inflation rate cumulatively – for instance, the factor to convert from 2023/24 to 2021/22 prices uses the inflation rate for both 2022/23 and 2023/24.
- The table below shows how the calculations work. Thus a total capital cost of £6.00m in nominal prices is equivalent to a total of £5.89m in real (2021/22) prices.

		2021/22	2022/23	2023/24	2024/25	TOTAL
A	Cost (£m, nominal prices)	1.0000	1.0000	2.0000	2.0000	6.0000
	Inflation rate from OBR		-0.14%	2.03%	2.09%	
B	Factor to convert to 2021/22 prices	1.0000	0.9986	1.0188	1.0401	
		(no change required as already in 2021/22 prices)	(i.e. 1.0000 reduced by 0.14%)	(i.e. 0.9986 increased by 2.03%)	(i.e. 1.0188 increased by 2.09%)	
C	Cost (£m, 2021/22 prices) – calculated using A divided by B	1.0000	1.0014	1.9630	1.9229	5.8874

# Optimism bias

## Introduction

According to the Green Book:

*There is a demonstrated, systematic, tendency for project appraisers to be overly optimistic. To redress this tendency appraisers should make explicit, empirically based adjustments to the estimates of a project's costs, benefits, and duration.*

This means that for the purposes of the Economic Case, the estimate of costs should have an uplift applied to it to reflect potential optimism in its estimate.

The correct level of optimism bias to apply depends on the type of project and what stage of development it is at. For projects that are well developed, the level of optimism bias is likely to be lower than for projects that are at an early stage.

## Sources for optimism bias

- Green Book [supplementary guidance](#) provides ranges of optimism bias for different types of project. It also lists the different factors that influence optimism bias – so if evidence can be provided that a particular factor has been dealt with robustly, the level of optimism bias for that factor can be reduced from the upper value in the range.
- For transport projects, there is also advice on optimism bias in [TAG Unit A1.2](#)

# Optimism bias

## Worked example

Suppose there is a project that falls under the category of ‘standard buildings’, with a real capital cost of £6m.

According to the Green Book, the optimism bias for this project is likely to be in the range of 2-24%. Thus the cost to include in the economic appraisal would be:

- Using the lowest end of the range:  $6 * 1.02 = £6.12m$
- Using the upper end of the range:  $6 * 1.24 = £7.44m$
- In most cases, the level of optimism bias will be somewhere within that range. This table shows the different factors that contribute to optimism bias for standard buildings.
- If we are not confident that we have evidence to mitigate any of these, then the level of optimism bias to apply is  $2\% + (22\% * 100\%) = 24\%$ , the upper end of the range. But suppose we can show evidence justifying the removal of some factors entirely, and mitigation of others, leading to the values shown in the final column. Then, we should apply optimism bias of  $2\% + (22 * 57\%) = 14.5\%$ . So we include a capital cost of  $6 * 1.145 = £6.87m$  in the economic appraisal.

		Green Book values	Example values
A	Lowest value of optimism bias:	2%	2%
B	Highest value of optimism bias:	24%	24%
C	Difference between A and B:	22%	22%
	<b>Proportion of C accounted for by different factors according to Green Book:</b>		<b>Possible values for a project where some factors can be removed or mitigated</b>
	Late contractor involvement in design	2%	2%
	Poor contractor capabilities	9%	3%
	Dispute and claims occurred	29%	20%
	Design complexity	1%	1%
	Degree of innovation	4%	0%
	Inadequacy of the business case	34%	10%
	Project management team	1%	1%
	Poor project intelligence	2%	2%
	Public relations	2%	2%
	Site characteristics	2%	2%
	Economic	11%	11%
	Legislation/regulations	3%	3%
D	TOTAL	100%	57%
	Level of optimism bias to apply: $A + (C * D)$	24%	14.5%

# 6. VALUE FOR MONEY ASSESSMENT



# General principles

**The general principles that should be applied to estimate a Benefit-Cost Ratio for an investment are set out here; this guidance document provides further information about how to estimate impacts for different types of investment.**

- Define the 'without scheme' scenario – also known as the 'Do Nothing' or 'Do Minimum' scenario
- Define the 'with scheme' scenario – also known as the 'Do Something'
- Estimate the annual value of benefits and costs (using the difference between the with and without scheme scenarios), ensuring that a consistent price base is used for everything
- Apply a discount rate to the annual figures to estimate the Present Value of Benefits (PVB) and Present Value of Costs (PVC) as a total for the whole appraisal period – this process is called **discounting**.
- Compare the PVB and PVC to estimate the Benefit/Cost Ratio (BCR)
- Undertake a set sensitivity tests to demonstrate the impact of changing key assumptions

# Discounting

**Discounting is the process of obtaining a “Present Value” (PV) of benefits or costs over an appraisal period.**

## HM Green Book description (p. 10, Green Book 2020)

“Discounting is based on the concept of time preference, which is that generally people prefer value now rather than later. This has nothing to do with inflation, because it is true even at constant prices. Discounting converts costs and benefits into present values by allowing for society’s preference for now compared with the future. It is used to allow comparison of future values in terms of their value in the present which is always assumed to be the base year of the proposal. “

## Formula

To obtain the present values (PVs) of benefits and costs, a discount factor for each year in the appraisal period needs to be obtained, which is then multiplied by the annual cost or benefit in that same year. A discount factor is obtained using the formula

$$1/(1+d)^{yr}$$

where d is discount rate and yr is discount year. The Green Book provides discount factors already estimated (Table 7 of Appendix A6).

## Green Book rates

The Green Book sets out the discount rates to be used in economic appraisals, these are:

- 3.5% for years 1-30
- 3% for years 31-60

Note that appraisal periods are typically 10-60 years.

## Further guidance

- HMT Green Book section A6. Discounting. Table 7 provides discount factors already calculated. [\[link\]](#)

## Inputs required to obtain the PV of benefits and costs:

- Annual value of benefit / cost over appraisal period
- Discount rate
- Discount year
- Appraisal period

## Example:

Discount rate	3.50%	} Inputs
Discount year	2021	
Appraisal period (years)	10	
Annual benefit	£1,000	

## Discounting

Year	Annual benefit (undiscounted)	Discount factor	Annual benefit (discounted)
2021	£1,000	1	£1,000
2022	£1,000	0.966	£966
2023	£1,000	0.934	£934
2024	£1,000	0.902	£902
2025	£1,000	0.871	£871
2026	£1,000	0.842	£842
2027	£1,000	0.814	£814
2028	£1,000	0.786	£786
2029	£1,000	0.759	£759
2030	£1,000	0.734	£734
<b>Present value</b>			<b>£8,608</b>

Annual benefit (discounted) \* discount factor

# How to present the results

## Cost-benefit analysis

The optional TFDP Business Case Template sets out the summary table of economic benefits and costs.

Benefits included in the BCR needs a strong underlying evidence base where they have been monetised consistently within published government guidance (i.e. Green Book, Green Book Supplementary and relevant Departmental guidance). Benefits should be presented in net present values (i.e. discounted) and in real terms (2021 prices).

The costs by source of funding (Towns Fund, co-funding and private sector funding) should be presented in the summary table. The costs should include optimism bias. Costs should be presented in net present values (i.e. discounted), and in real terms (2021 prices).

Summary of economic benefits and costs (£m, discounted, 2021 prices)		Core scenario	Sensitivity test 1	Sensitivity test 2
<b>Economic benefits</b>				
Benefit 1 e.g. Land value uplift		£XXXm	£XXXm	£XXXm
Benefit 2 e.g. Transport benefits		£XXXm	£XXXm	£XXXm
...		£XXXm	£XXXm	£XXXm
<i>Total economic benefits</i>	(A)	£XXXm	£XXXm	£XXXm
<b>Economic costs</b>				
Towns fund cost/funding	(B)	£XXXm	£XXXm	£XXXm
Co-funding	(C)	£XXXm	£XXXm	£XXXm
Total public sector funding	(D) = (B)+(C)	£XXXm	£XXXm	£XXXm
Private sector funding	(E)	£XXXm	£XXXm	£XXXm
<i>Total economic costs</i>	(D)+(E)	£XXXm	£XXXm	£XXXm
<b>Benefit-Cost Ratio (BCR)</b>	<b>(A)-(E) / (D)</b>	<b>X.X</b>	<b>X.X</b>	<b>X.X</b>

Summary of economic benefits and costs (source: TFDP Business Case Template)

# Value for money assessment

The BCR calculations enable us to assess the value for money, estimating the return per £ invested.

Value for money is often classified based on the BCR as follows:

BCR	Value for money category*
BCR less than or equal to 0	Very poor
BCR between 0 and 1	Poor
BCR between 1 and 1.5	Low
BCR between 1.5 and 2	Medium
BCR between 2 and 4	High
BCR greater than 4	Very high

Note that if a BCR is below 1, a strong strategic narrative and assessment of non-monetised and non-quantified should be presented. There is no BCR threshold as part of the assessment of Towns Fund Business Cases.

\*Department for Transport (2015), Value for money framework

# Sensitivity testing

**According to the Green Book, “Sensitivity analysis explores the sensitivity of the expected outcomes of an intervention to potential variations in key input variables. It can demonstrate, for example, the changes in key assumptions required to change the preferred option on an NPSV or BCR basis or to turn the NPSV of an option positive.”**

Essentially, sensitivity tests allow us to test how robust the value for money assessment is in case key impacts change.

Examples of outcomes that can be varied to undertake sensitivity analysis include:

- Demand for a new transport project (including demand growth over time)
- Different changes to land values
- Additional wider benefits (e.g., crime)

Sensitivity testing can be helpful to test the impacts from COVID-19 given the uncertainty it generates around future forecasts. See existing TFDP resources related to COVID-19, such as our tool [How to account for COVID-19 in your baseline](#) and blog [Known unknowns, unknown unknowns](#)

# Distributional appraisal

Distributional analysis shows how costs and benefits accrue to different parts of society. Distributional analysis is important where there may be significant redistributive effects between different groups. The BCR alone does not demonstrate this.

The different groups for the analysis can be defined by protected characteristics, income, types of business or geography.

TFDP's forthcoming **Distributional and place-based analysis guidance** provides advice on distribution analysis and how to apply it proportionately in the Economic Case.

Where there is likely to be a large beneficial impact for lower income groups, it is possible to apply weightings to reflect this in the cost benefit analysis and show an adjusted BCR that takes this into account. The Green Book provides guidance on how to apply these weightings in Annex A3.

## Public Sector Equality Duty (PSED)

For Towns Fund, as a condition set out in the Town Deal Offers, PSED must be considered and, more crucially, is mandated. When assessing the differential impact on the protected characteristics groups in line with the Equality Act, we recommend completing both the PSED assessment and differential impact in parallel.

For more information on how to undertake a PSED assessment, please refer to TFDP's [PSED guidance](#).

## Further guidance

- [HMT Green Book](#) (Annex A3: Distributional Appraisal)
- [Department for Transport - Transport Analysis Guidance Unit A4.2](#)
- TFDP's [Public Sector Equality Duty \(PSED\) guidance](#)

# Place-based analysis

## Introduction

Place-based analysis links closely with distributional analysis, as it involves assessing the impacts to particular geographies.

The HMT Green Book now requires that place-based analysis be carried out for two broad proposals

1. Proposals with an objective that is specific to a particular place or area. **The nature of the Towns Fund means that this applies to all Towns Fund projects.**
2. proposals which do not have geographically defined objectives but which appear likely to have different implications either positive or negative for parts of the UK that decision makers will need to understand and may need to take into account.

Similar to benefits in the BCR, place-based analysis should also take into account deadweight, displacement, leakage, substitution, additionality, as well as discounting, timing, ramp-up and drop-off if they are being presented for multiple years.

Types of place-based local employment and productivity effects include:

- **Jobs created** (Net direct and indirect permanent jobs and temporary construction jobs)
- **Local productivity impacts** presented as Gross Value Added (GVA) impacts to the local economy by multiplying the net jobs by the regional or local GVA per job

Place-based effects should be adjusted to calculate additionality (refer to page 25 for further details), including substitution, leakage and displacement. The adjustments needs to be based upon objective evidence.

Where appropriate, employment multipliers can be applied following the adjustment of substitution, leakage and displacement.

For more details on the place-based employment multipliers recommended by HM Treasury, please refer to the [Green Book](#) (pg. 94, box 26).

# Place-based analysis

The 2020 HMT Green Book contains updated guidance and new multipliers for calculating place based employment effects, as well as a worked example. For calculating indirect employment effects, the new guidance makes a distinction between tradable (which sell mostly outside of the economy, such as tech) and non-tradable sectors (which sell mostly within the local economy, such as restaurants and construction).

These place based local employment and productivity effects are not counted in the NPV or BCR (Benefit Cost Ratio) for the UK to avoid double counting with the benefits to society as a whole. Also one intervention on its own is unlikely to change the macro-economic outlook of the wider country (ie national GDP).

If a project is likely to benefit one place, but cause a disbenefit in another, this should also be factored into the place-based analysis. For example, if the proposal attracts jobs from one area to another.

## Note:

It may be helpful to identify and/or quantify other local impacts to help communicate the benefits and disbenefits of the project to stakeholders. Examples of these include apprenticeships created, training courses supported, wellbeing etc.

Some of these may already be captured by land value uplift or transport benefit calculations, particularly if they accrue to the users of the proposal. However, these calculations can be difficult for most people to understand. Including further information on the local benefits in the place based analysis can help better communicate the costs and benefits of project to all stakeholders.

***If these impacts are already captured in the BCR, ensure it is clear that these are already captured in the BCR to avoid double counting.***

## Further guidance

- [TFDP's Maximising your project Value for Money through Social Value](#)
- [HMT Green Book](#) (Annex A2: Place Based Analysis)
- What Works Centre for Local Economic Growth Toolkit: Local Multipliers <https://whatworksgrowth.org/resources/toolkit-local-multipliers/>
- Employment Densities Guide [https://www.kirklees.gov.uk/beta/planning-policy/pdf/examination/national-evidence/NE48\\_employment\\_density\\_guide\\_3rd\\_edition.pdf](https://www.kirklees.gov.uk/beta/planning-policy/pdf/examination/national-evidence/NE48_employment_density_guide_3rd_edition.pdf)
- HACT Social Value Bank: <https://www.hact.org.uk/social-value-bank>



# 7. HOW TFDP CAN ASSIST YOU

# TFDP offerings

Below we have listed some examples of what TFDP can offer:

- **Economic benefits and modelling workshops** – advice and guidance on how to estimate economic benefits
- Advice on **economic scenarios and COVID-19 sensitivities**
- **Advice on economic assumptions and parameters** such as discounting, appraisal periods, optimism bias, and other key issues
- Advice on the **assessment of non-monetised benefits** such as social value and health and wellbeing
- Advice on **shaping a strong narrative** around the economic case, particularly maintaining a strong link with the strategic case

Check the [Business Case Resources](#) page for regular updates of new content. Please speak to your Town Coordinator if you have an immediate need for any of these services.

# Topic Resources

As of 19.05.21

Topic area	Existing resources	Forthcoming resources
<b>Social value</b>	<ul style="list-style-type: none"> <li>• <a href="#">Social Value 101</a></li> <li>• <a href="#">Social Value in Procurement (Crown Commercial Service)</a></li> <li>• <a href="#">Maximising Value for Money through Social Value</a></li> </ul>	TBC
<b>Health and wellbeing</b>	<ul style="list-style-type: none"> <li>• <a href="#">Including Health and Wellbeing in your TIP</a></li> <li>• <a href="#">Health and Wellbeing Dashboard</a></li> <li>• <a href="#">Mitigating the impacts of COVID-19</a></li> <li>• <a href="#">Evidence in your TIP: Health and Wellbeing</a></li> <li>• <a href="#">Successfully Partnering for Health and Wellbeing Projects</a></li> </ul>	Estimating health and wellbeing benefits in your economic case
<b>Climate Change / Net Zero</b>	<ul style="list-style-type: none"> <li>• <a href="#">You've declared a Climate Emergency – What next?</a></li> <li>• <a href="#">You've declared a Climate Emergency... Next steps: Transport</a></li> <li>• <a href="#">Taking account of Net Zero in your TIP</a></li> <li>• <a href="#">National Strategic Brief: Climate Change</a></li> </ul>	Further resources linking to strategic and economic case
<b>Education and training</b>	<ul style="list-style-type: none"> <li>• <a href="#">Introduction to Education, Skills &amp; Enterprise</a></li> </ul>	TBC
<b>Planning &amp; EIA</b>	<ul style="list-style-type: none"> <li>• <a href="#">Addressing your Planning, EIA and HRA needs in your business case</a></li> <li>• <a href="#">Road to Delivery: Planning &amp; EIA requirements</a></li> <li>• <a href="#">Introduction to Planning, EIA and HRA</a></li> <li>• <a href="#">Introduction to Environmental Monitoring &amp; Impact Analysis</a></li> <li>• <a href="#">EIA Screening Guidance</a></li> <li>• <a href="#">Biodiversity Net Gain Webinar</a></li> </ul>	Guidance on Public Sector Equalities Duty

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