2 Project success

Terry M. Williams

2.1 The nature of project success

This book concerns the development, management and delivery of large public projects, with the acknowledgement that, often, this is not as successful as we would wish. Before we can investigate the issues around this, however, we need to consider what makes a 'successful' project? What are we trying to achieve by carrying out all these projects? This is important not just for an academic discussion of the projects but because any party trying to make a project 'successful' will be aiming for whatever is their definition of 'success'. This chapter will therefore first look at the academic background to this question, dividing the idea of success into strategic and tactical success. It will then look at the various paradoxes that accompany major public projects as criteria for success are developed.

Project management was originally developed to achieve the successful delivery of large, complicated projects where the definition of what needed to be done, and why, was fairly clear. The so-called bodies of knowledge, the best known of which is the PMBOK (Project Management Institute 2017), were developed with the accumulated knowledge from successfully achieving well-defined projects that were large, complicated and demanding. Barnes (1988) famously said (of construction projects) that "the client's objectives are always a combination of the objectives for performance of the completed scheme, for achieving this performance within a named cost or budgetary limit and for getting the project into use by a target date" (p. 69). The threefold criterion of success – meeting cost, schedule and performance targets – has, in the last 50 years, been widely used as a standard project management success criterion, often called the 'iron triangle'. Project managers are commissioned to go and work on their projects, and come back with them delivered to the specified iron triangle targets.

As projects in the real world have developed, certain problems have been encountered with this definition. Some projects deemed successful according to this criterion did not seem, on the face of it, to be successful. The Zwentendorf Nuclear Power Plant (EVN 2020) was the first commercial nuclear electric-generation plant, built in Austria. Construction began in April 1972

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and was completed in four years; however, a referendum was held on 5 November 1978, in which a slim majority voted against starting the reactor up, so it has never operated as a nuclear reactor. An "on-shore torpedo battery built in rock on the northern coast of Norway in 2004" – huge and complex, accommodating 150 military personnel – was "officially opened as planned and without cost overrun. However just one week later it was closed down by Parliamentary resolution" since the concept of permanent torpedo batteries was obsolete (Samset 2010, p. 13). On the other hand, projects such as the Sydney Opera House or the Scottish Parliament, famously over-budget and late, but producing iconic buildings, might be considered unsuccessful according to the 'iron triangle' definition, but are successful in other, perhaps more important ways.

Projects are not set up simply to achieve the project itself – they are set up for a purpose. Morris, in much of his work (e.g. Morris 2009), shows how corporate and business strategy is implementation by the use of projects. This is particularly true in the domain of public projects, the subject of this book. Tony Meggs, then chief executive of the UK's Infrastructure and Projects Authority (which oversees all UK major government projects), wrote in his blog that

> The vast majority of government policies are delivered through the implementation of a project or programme of some description. These projects and programmes span a wide range … [but] have one thing in common: if the projects are not successfully implemented, then the policy objectives are not delivered.
>
> (Meggs 2018)

Clearly the definition of success therefore needed to broaden out to include the underlying strategic aim of a project. Is it useful? Does it do what we set out to do? Over time, therefore, many authors have come to distinguish between what might be termed the tactical success ('project management success' or 'efficiency' success of a project: did it fulfil the immediate specification as set out at the start of the project?) and the strategic success ('project success' or 'effectiveness success': did it provide the outcome and benefits envisaged?). This recognition of the twofold nature of the concept of project success is becoming widely recognised and will be used in this chapter.

Even then, this idea of 'strategic success' is not necessarily well-defined, for a number of reasons, and we will look at six particular issues, all of which will be touched upon later in the chapter.

First, major public projects have a long lifespan, so 'success' can be regarded with a shorter or longer-term view. Perhaps the most influential definition of project success looking specifically at this was developed through work with the U.S. Agency for International Development, then the United Nations,

and OECD (Samset 2010, Chapter 2). This characterised project success as having five dimensions, starting with the immediate project, working through its immediate benefits, and through to the wider and longer-term aspects (see Table 2.1).

This definition has proved useful for looking at major public projects. Zwikael and Meredith (2020) came up with a similar, three-stage definition, but focusing on different viewpoints: project management success, the performance of the project manager in achieving the project plan; project ownership success, the project owner's performance in realising the business case; and project investment success, the investment performance of the project for the funder.

One curious feature of taking a shorter or longer-term view is that stakeholders' view of 'project failure' is not a simple inverse of their view of 'project success'. Chipulu et al. (2019) found that stakeholders' assessment of project 'success' appeared more focused on project effectiveness, but when assessing project 'failure', they appeared more focused on efficiency. A cursory reading of the newspapers reflects this in the public discourse: reports of 'project failure' often focus on projects running out of control in terms of budget and time, whereas reports of 'project success' rarely talk about budgets or timescales, but rather the project output (e.g. the building or system produced). This is in the public view – discussions of, say, National Audit Office assessments in this chapter show a more balanced view.

Particularly in public projects, there is a wide range of different stakeholders, all of whom will have quite different perceptions of what constitutes project success, so our second point is the need to recognise these. There is a plethora of literature on stakeholders, but it is, perhaps, particularly within public projects that the range of stakeholders and heterogeneity of their views on project success is so clear. Politicians, public opinion, local residents, business, regulators, NGOs – the list of influential stakeholders can be considerable. The literature also shows the importance of recognising

Table 2.1 Successive success criteria (Samset 2010)

The Project				*Short-Term*
	1	Efficiency	Was the project well managed?	
	2	Effectiveness	Were the goals achieved?	
	3	Relevance	How useful was the output to the organisation?	
	4	Impact	Was the goal appropriate to the organisation's purpose?	
	5	Sustainability	Are the benefits sustainable in the longer term?	
Wider concerns				*Longer-term*

and bringing together these views: a poor common understanding across the range of project stakeholders can impact upon benefit realisation (O'Leary 2012) in any project. In complex infrastructure projects, Wahab (2011) shows the importance of reconciling perceptions of benefits across often disparate stakeholder groups during the design process. Having said that, a comprehensive literature survey in Davis (2014) shows little commonality between the definitions of success among senior management, project teams and project recipient stakeholders. We will look at some examples of stakeholder views in this chapter.

Much of the literature covers the idea of comparing the costs of a project, and the benefits that accrue from that project – the simplest view being a straightforward 'cost-benefit analysis'. For some straightforward projects, this might be quite appropriate, but, as our third point, for most major public projects, the different types of benefits (or disbenefits) that might result from a project will not be easily quantifiable. Even where a benefit may be measurable, it might be difficult to turn that metric into a financial figure. For this reason, in many domains, governments suggest standard financial values for particular measurable benefits – transportation departments, for example, will often give financial value to reducing journey times by x minutes, or even a value for loss of life. Williams et al. (2020a) describe how countries such as the UK, Australia, Canada and Norway, and bodies such as the EU have detailed rules for quantifying benefits, generally emanating from their finance ministries.

The combination of disparate measures calculated in terms of finance raises a number of issues, such as the accounting conventions used, interest rates, how to evaluate through-the-life impact of a project and so on. Moreover, for important public projects, some of the benefits or disbenefits might be simply subjective and unmeasurable – such as 'social cohesion', 'visual amenity' or even 'national security'. Here attempts to measure the effect, let alone monetise it, might have little prospect of giving helpful advice. However, the idea of 'social impact bonds' is a useful development where a desired outcome is clear and measurable, but not obviously monetisable, for example reducing recidivism (see UK Government 2017). But for many projects, these might be some of the most important aspects. It is here that the differing views between different stakeholders discussed above can particularly become an issue. We will explore some examples in this chapter.

We need to decide where the 'impact' of a project finishes. Our fourth point is that often a project has little effect until it goes into an operational delivery phase, and it is only then that benefits can be 'harvested'. This could be citizens using a system, or a piece of infrastructure. A road project might facilitate local development – but only if the local authority or local business takes up those opportunities. Sometimes, in itself, a project might not be providing a benefit, but enabling others to achieve a benefit – in this sense, the 'success' of projects will be dependent upon changes in the behaviour

of citizens, business, government agencies, civil servants or other relevant stakeholders.

Fifth, projects in a typical management environment can often be said to be "complex, ambiguous, confusing phenomena wherein the idea of a single, clear goal is at odds with the reality" (Linehan & Kavanagh, 2006). We have already pointed to the multiplicity of stakeholders, who might hold different views on what constitutes project 'success'. Also, we have pointed to the multiplicity of different success criteria, some of which might be measurable on the same scale, particularly if they can be expressed in some (perhaps proxy) financial terms – many of which will be incommensurable, or perhaps even unquantifiable. A project may be aiming for a number of targets. Furthermore, these are often not separate goals but a complex web of causally related factors. A simple example is shown in Williams (2016), which, for a small set of projects in a small company, shows how success factors contributing to project performance combine in complex interactions, demonstrating causal paths from root causes to different but related success criteria. Even for this small example, final project success criteria, including, as well as the 'iron triangle' parameters about the final product (defects on building handover and in use and life cycle performance), stakeholder satisfaction (customers, users, community and subcontractors), project management success (health and safety) and the production of a legacy rather than just a building – and the causal chains leading to these – were complex and interlinked.

Finally, for public projects, the surrounding environment can be turbulent and changing. The conventional approach to managing projects assumes that a project is defined, and then carried out according to its original target and specification. 'Project management' is difficult to envisage with constantly changing targets. This has long been recognised for projects in general:

> The Cartesian clarity of inner structures clashes with the increasing porosity of projects to complex contexts that they seek to deny.… The risk, in short, is that the idealistic 'island of order' may suddenly turn into a more realistic, very classic, 'iron cage'.
>
> (Malgrati & Damiani 2002)

For public projects, this turbulence is especially noticeable. Political landscapes change. Major projects, particularly military or infrastructure, can take many years, whereas election cycles might only be four or five years, with a new government having quite different goals. Even if the government stays the same, in the UK, strategic spending reviews, which define the objectives and thus the scale and nature of public service investments, take place every two to five years. Public opinion can be very fickle, and can influence the political motivations behind a project. Sometimes requirements change because technology has moved on (e.g. greater use of driverless cars may have a significant impact on the benefits expected by some transport infrastructure projects – but again this is subject to the vagaries of public acceptability).

Sometimes, initial assumptions are simply wrong as decision-makers model how the world might change over the course of a project.

In these circumstances, the idea of specifying a set of well-defined project goals which remain constant is not practical. Cicmil et al. (2006, p. 679) contrast "traditional approaches based on rational, objective, and universal representations of the project with a phronetic [practical wisdom] analysis of the ambiguous, fragmented and political reality of project situations". Chapter 4 discusses the conceptual implications of undertaking a project front-end and show the development, over time, of circumstances and project work. Indeed, one of the current authors has written of "project organizations, as imperfect and fragile representations that chase a shifting nexus of intractable human, social, technical, and material processes" (Floricel et al. 2016).

Given this academic introduction to the idea of 'project success', this chapter will explore how these ideas actually turn out in practice in some major public projects, touching on many of the reasons why defining project success criteria is not clear-cut.

The chapter will look at the various stages of a project. We first explore what strategic success means and how targets are developed, then consider tactical success, taking a look at how this all evolves during project execution; we then look at the issues of success definition and project assessment after the project. As we explore the examples of projects, we will be looking at the realities of public projects and the environments in which they are born, developed and executed.

2.2 Strategic success in public projects

This section will take these considerations and look at what 'strategic' benefits mean in major public sector projects – what do we want out of our public projects, how is this defined, and how do projects arise out of these considerations?

2.2.1 What should happen

As discussed in the previous section, the starting point is not the project, but the policy purpose set out by the government – as described in the Tony Meggs quote above (Meggs 2018). In the same blog, Meggs talks about the search for "a seamless flow and inter-connectivity between policy conception, policy development, and policy delivery", this last increasingly through the medium of the project, as the public sector becomes increasingly projectified (e.g. Godenhjelm et al. 2015, in the EU). So how does this work out in practice?

In the UK (this author's home country), each government department sets out a 'single departmental plan', in which the Department sets out objectives and how they will be achieved. We are shortly to look at a transport case-study, so as an example, the UK Department of Transport sets out its plan

as a public document (Department of Transport 2019) with six overarching objectives (supporting the creation of a stronger, cleaner, more productive economy; helping to connect people and places; balancing investment across the country; making journeys easier, and so on). Some of these objectives are easier to quantify than others – some being more contested than others, and we shall see some examples. These departmental plans are supposed to set the foundation for the department's programme portfolio – its individual programmes and the desired outcomes from projects – and the project outputs that should provide those outcomes. This is laid out in the UK's 'Green Book' (HM Treasury 2020), the 'bible' for appraising and evaluating major UK projects. Of course, it is not practical that all projects are proactively prompted by the departmental strategic objectives – some will be initiated by practical events or political motivations – but this does give a basis by which we can see how projects fit into the overall strategy. This type of process is explored in more detail (from an Australian viewpoint) in Chapter 3.

Practically, governments are gradually developing systems by which the outputs likely to accrue from projects are identified, quantified and linked to these strategic priorities. This is sometimes badged as 'benefits management'. A major PMI study looked at these systems in eight countries/intergovernmental organisations (IGOs) and found developments in all but one. Indeed, all of the other seven countries had explicit discussion in their documentation linking project and national/government departmental goals – so at least the methods espoused and encouraged by the governments recognise this link. Schemes differed because of the nature of the countries/IGOs. The World Bank could be more integrated and focused. The physical size and federal structures of Canada and the US possibly explain the limited mandatory federal direction: perhaps benefits are better determined at the state/province/local level. Australian state jurisdictions similarly have autonomy. Norway has a centralised method, but its size allows some informality, since people in the profession often know each other. The UK has traditionally had a separation between policy and delivery (although this is now decreasing). The EU is not one state, but a collection of states, so some parts of the process are carried out at state level. Work in four of these countries is reported in Williams et al. (2020a), showing Benefits Management frameworks being used throughout, sometimes tailored to particular sectors (the transport and civil infrastructure sectors seemed particularly advanced). Some of these were advisory, except where they were mandated for the specific purpose of preparing business cases for final approval. It was noticeable that as projects progressed from approval through execution, the focus on benefits declined, as we will discuss below.

However, as discussed in Section 2.1 above, 'identifying and quantifying benefits' is too simplistic. There is a high degree of heterogeneity in public project benefits. Simple financial or economic benefits are more straightforward to recognise. A starting point is a classification system for benefits, since public projects in particular are undertaken to achieve a wide range of

financial and social benefits; the PMI Benefits study found many of these in practice (financial/non-financial; direct/indirect; a UK quadrant system; a Canadian five-stream system), but it was not clear how well-used these were (again, unless mandated for project approval). However, when we seek to improve the lives of the citizens of a country, we are in territory that is subjective and contested. Identifying benefits is therefore a process that needs to engage a wide range of stakeholders – which we will discuss below. The PMI study also showed that while some saw stakeholder engagement as an essential ingredient in benefits identification, for others it was more of a cosmetic process, as it was unclear whether it affected project decision-making.

Methods for quantifying benefits – an important ingredient for making out a business case for a project – appeared in the PMI study to lack standardisation. Methods, sophistication of the processes and the degree to which the different methods were mandated all varied widely between different parts of government, although these again seemed particularly well developed in the transportation sector. Many benefits of public projects are difficult to define, let alone to quantify, or monetise; certainly a complete financial measurement of expected benefits is not usually a sensible aim. Current government systems seem unlikely to be sufficient to measure many of these different types of benefits. Not surprisingly, the PMI study showed that a strong emphasis was put on easy-to-measure benefits, and those clearly and unambiguously linked to departmental strategic benefits. However, government projects span many types of project for which the main benefits are not quantifiable or monetisable, and it is not yet clear how these should be incorporated into a coherent government decision-making process.

2.2.2 An example: the A303 project

An example shows some of the different types of benefits, and some of the stakeholders involved. Stonehenge is a 4,000-year-old monument in the south of the UK, consisting of a ring of standing stones, each around 13 feet high and weighing around 25 tons. It is an iconic symbol of ancient Britain, a UNESCO World Heritage Site, and attracts many thousands of visitors, particularly at pagan festival times of year such as the summer solstice. There is a major road from the main part of England towards the holiday destinations of the south-west passing near Stonehenge, the A303. This has just one lane in each direction, and has long been recognised as a traffic problem, exacerbated by sightseers within their cars. It is generally felt to be a road that does not work, either for drivers, or for local residents, nor for travellers and holidaymakers.

So there is a clearly recognised road-transportation problem. But equally clearly, this is not matter of a simple road upgrade. The nature of the World Heritage Site makes this a sensitive project, with many from across the UK seeing the site as part of their essential cultural heritage. The local villages, communities and groups also have strong views about the amenity and travel

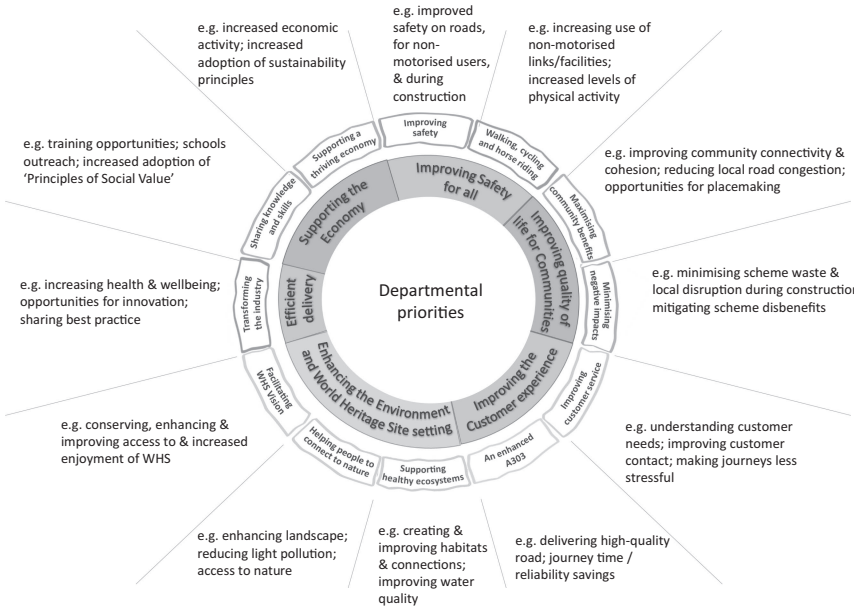

Figure 2.1 Benefits of the 'A303 project'. A summary of a map provided by Highways England (private correspondence with the author).

around the locality. Moreover, it is a sensitive environmental area in terms of biodiversity, wildlife populations and movements (including a very rare UK bird, the stone curlew), air quality and noise.

After much consultation and options analysis by Highways England (the agency responsible to the Department of Transport), a scheme including a 2-mile tunnel to remove traffic on the A303 from the Stonehenge landscape was finally approved by the UK Secretary of State on 12 November 2020. More details can be found in their booklet (Highways England 2019).

As can be seen from the description above, the benefits of this project and the criteria by which its success will be judged are wide and heterogeneous – indeed, the priority attributed to each is expected to evolve at different points of the project lifecycle. A sophisticated analysis was carried out by Highways England to identify, and where possible start to quantify these criteria. As well as identifying benefits, this will enable a robust scheme evaluation plan to consider the impacts of the scheme beyond its traditional transport and safety benefits.

Figure 2.1 gives a map showing a much simplified version of this analysis, displaying the diversity of benefits. Here we can see, in the innermost part of the map, the fundamental Highways England departmental priorities leading to six diverse domains of benefit. Consideration of these domains leads to 12 more specific areas in which those benefits will be realised. Each of these

areas is specified by multiple specific goals, each of which needs to be measured: some might be straightforward to measure, such as road reliability or travel times; some will require customer surveys, such as enjoyment of the World Heritage Site (WHS); some might require considerable thought to measure, such as community cohesion. However, having this map accepted as part of the scheme gives an important basis to considering what the scheme is there for, and how successful it is.

2.2.3 Some conceptual issues

While the A303 project is a fine example of good practice in defining and starting to metricise benefits, there are a number of conceptual problems in this area which come up, as well as the problems that arise because we are dealing with individuals, stakeholders, companies and politics. Some of these conceptual issues are straightforward to contemplate, although that does not make the questions any easier to answer.

One problem noted in Section 2.1 comes when the organisation responsible for executing the project is not the same as the organisation responsible for realising or 'harvesting' the benefits from the project. We will re-visit this issue, and the problems of accountability this raises in practice in Sections 2.4/2.5.

Another conceptual issue comes when we look at the set of different 'benefits'. Generally these are considered individually and then put into a list. However, it is clear that often they are interlinked, and achievement of one will help (or hinder) achievement of the others. You only need to look at Figure 2.1 to see some interlinkages. Samset and Volden's 'Paradoxes' paper notes an analysis of 17 Norwegian projects:

> A project strategy will always be a hierarchy of goals that are interlinked in cause-and-effect chains that illustrate the ambition levels for a project, as well as their realism. Objectives were analysed in terms of their internal causality, and ambition.
>
> (p. 305)

This helps to show both the interrelationship and also sometimes the distance between the project and the mooted benefit. Perhaps the most well-known structured method to bring these relationships out is the World Bank's Logframe methodology; their Results Framework (Roberts & Khattri 2012) develops causal links from strategic objectives to project outcomes.

A further issue was noted in Section 2.1: when would be an appropriate time to establish expected benefits? Benefits and disbenefits during the project period can be assessed during and at the end of that period. However, what about (to take the A303 example) economic activity, or health and wellbeing? Some of these might not be known for some considerable time after the project – others might have an immediate increase but then decline

back into life-as-usual (perhaps 'the increased use of non-motorised transport' mechanisms). There might be immediate requirements to assess the 'success' of the project, but time needed to properly assess the longer-term benefits (this also plays into Samset and Volden's Paradox 10, 'the paradox of myopic decisions', as discussed below).

Another danger in assessing the benefit of a project is that it can ignore the wider portfolio of the government department. Programmes and projects rarely sit on their own, but contribute to the overall portfolio of programme activity in a Department, as stated in the Green Book discussed above. The UK has been building two aircraft carriers as a major element of their military defence. When the UK National Audit Office (2020b) reviewed the project, it found that the two carriers had been built, jets to go on the carriers received to schedule, and most of the surrounding infrastructure completed. However, an aircraft carrier does not act in isolation, and the report stated that the Ministry of Defence was,

> … making slower progress in developing the crucial supporting activities that are needed to make full use of a carrier strike group, such as …. In addition, it has not established a clear view on the future cost of enhancing, operating and supporting Carrier Strike, which creates the risk of future affordability pressures. The Department will not achieve value for money from its investment to date unless it … ensures cross-command coherence and collaboration to develop the full capabilities of Carrier Strike.
>
> National Audit Office (2020b, p. 11)

We cannot evaluate the usefulness of an individual project without considering its place in the portfolio of the Department's programmes.

2.2.4 A more fundamental conceptual issue

But there is a more fundamental conceptual issue, which is that often a 'benefit' is not a well-established, black-and-white concept. The meaning of a benefit can be variable, and it can change over time. Impact can be multiple and equivocal, since it is valued in different (and often conflicting) ways. A continuation of the PMI study (Williams et al. 2020b) looked at case studies of three UK public projects, to consider the meanings of 'benefit', benefit changes, the effects of changes and tools for capturing change: the A303 project above, transformation in the Department for Work and Pensions, and Digital Health. This led to a number of recommendations to capture the sometimes elusive nature of 'benefits', including: defining processes to define 'benefits' terms; communicating with stakeholders in terms to which they can relate, particularly for societal benefits; developing tools that recognise the impossibility of capturing a 'true' permanent benefit and create a communicative space for discussion; processes to recognise changes to benefits;

the use of narratives as a useful means of expressing benefits; and avoiding over-reliance on quantifiable benefits. The work for the A303 project, in particular, showed the wide variety of ways in which stakeholders benefit, the wide definition of benefits, the communicating of benefits (see below), and also the change over time of the benefits, as understanding of what can be achieved evolved, together with the perception of benefits, while the 'core' benefits remained fairly stable.

2.2.5 Estimating

While there is not time to explore this in detail, it needs to be noted that the identification and quantification of likely project outcomes is undertaken by individuals, with their natural biases. Flyvbjerg (notably Flyvbjerg et al. 2003) has written extensively about the tendency towards 'optimism bias' and also the less savoury deliberate 'strategic misrepresentation' or 'gaming': over-estimation of project benefits (and under-estimation of costs) for the sake of achieving project approval. This will be covered more in Chapters 5 and 6, and in the next sub-section, as we look at setting tactical success criteria. However, it is worth noting that in the study of many countries' systems by Williams et al. (2020a), all governments' guidance recognised the issue, practitioners saying they considered the tendency when putting project proposals together. It seemed that only the UK required a specific approach to quantifying optimism bias, the Green Book requiring a contingency to be placed on estimates, calculated using Reference Class Forecasting.

While there has been considerable analysis of project databases to try to detect 'optimism bias', one clear problem with looking at individual cases is the natural change in circumstances between making estimates when devising a project, and the realisation of the project. For example, the UK Home Office undertook a major project moving to a new headquarters (described in Klakegg et al. 2009). While the building process was generally a success, the subsequent parliamentary enquiry concluded that "There is evidence of optimism bias in PFI projects for departmental accommodation …. The Home Office assumed that staff numbers would be reduced due to outsourcing, efficiency gains, and changes to working practices. Instead, numbers increased dramatically" but then adds "numbers increased dramatically … as the Home Office took on new responsibilities, although the total increase is not fully explained by these new functions". So it is often difficult to compare planned benefits with the actual outcome.

2.2.6 Stakeholders

A practical problem is the number and range of stakeholders in public projects, who should be consulted to identify the diverse project outcomes and benefits – some of which might be unknown to the government department at the outset. The PMI study (Williams et al. 2020a) showed that stakeholder

engagement and discourse were increasingly used in benefits identification, drawing attention to methods such as 'benefits workshops' to capture some of this discourse. This was generally seen as vital for ensuring buy-in for projects, but some warnings were raised: questions about whether this was seen as 'public relations' – perhaps a way of legitimising a project – or whether the results were acted on; concerns about delaying projects; conflicts between stakeholders, particularly where there are different 'tribes' who might not understand each other.

The public communication that contributed to Figure 2.1 in the A303 project above was widespread, both for communicating the project benefits and for gathering stakeholder input. It was clear that stakeholders benefited in a wide variety of ways, since the project created a large spectrum of opportunity for both human and non-human actors. It is to be hoped that this will continue, as the perception of wider and societal benefits changes over time, as cultural attitudes change, along with technology changes.

Another example is given in the vignette "Ensuring the train arrives on time! Resolving some of the uncertainty" in Eden et al. (2005). This was an airport passenger transport system, a driverless train (innovative then) planned to move passengers both between terminals and the city at a major airport. Stakeholder analysis for this project, which was about to start, showed important aspects to consider included (for example) the views of the immediately local community, who had already experienced considerable construction disruption (and were unlikely to benefit significantly from the longer-term use of the airport); safety of local drivers, as the permanent way was built on stilts above roads that continued to operate; the views of local politicians and their relationship to the authority which owned the airport; the views of users who would transit into the city, and so on – aspects which should have been uncovered during the strategic development of the project.

The nature and involvement of stakeholders will be explored further in Chapters 3–6.

2.2.7 Contractors

It is worth noting briefly that public projects are generally executed using the private sector. This can be simply by defining a project and then passing it over to the public sector to carry out. In this case, the private sector company acts according to the expectations laid out in the project contract with the government department. This will be touched on again in Section 2.4, but it is worth noting at this point that striving to achieve project outputs might not be – indeed, probably will not be – the same as striving to achieve the strategic success objectives of government departments. It is here that the delivery mechanism becomes important, to align the motivations of the contractor with the public sector partner. This is particularly relevant when, as discussed above, the success criteria of the public sector changes. When the Channel Tunnel shuttle wagons were being built (Eden et al. 2005), a major fire in

London (as well as the sinking of a ferry) meant that the priorities of the government focused much more on fire safety, and the legislation was changed. This occurred in the middle of the project, meaning that the contractor – at that point aiming for the project outputs as defined in the original contract – had to make major changes to the product.

2.2.8 Politics

A major effect limiting clarity on 'project success' and causing benefit definitions to be variable is the political nature of the environment which produces the projects.

There are many, many examples that could be discussed – perhaps in one sense any public sector project. There are many projects in many countries that have started as (sometimes vanity) projects for individual politicians, or announced by a politician unexpectedly leaving his/her Department suddenly to initiate a new project. On the other hand, many other projects which are seemingly part of normal government business can be motivated or changed by political effects. One example might be the UK C-NOMIS system, an ambitious project planned to be a single offender management IT system across the prison and probation service. This is described in Klakegg et al. (2010, pp. 118–125), looking back to the project initiation and stating,

> this pressure on the prison system may have led to a 'political' agenda and thus political pressure to implement some kind of a solution, and then later on overlook warning signs. Furthermore, in this sort of environment, often individual characters can become important in starting the project off.

We will return to this example below.

As the 'Paradoxes' paper drily puts it, "While the analytical process is largely within the realm of the professional constituency … the decision still remains with the political level. And the processes and decisions at this level are not always rational" (p. 303). This can clearly be seen when the project is a significant investment (and particularly if it is high-visibility and high-reputation): Cicmil and Braddon (2012) refer to such projects as 'glory' projects: "… surrounded by an aura of glory through the rhetoric used to describe them – a narrated promise of extreme prosperity. They are often born out of vanity of human ambition …" (p. 221). They analyse one particularly large (and largely unsuccessful) IT project in the UK National Health Service, whose size and particularly advanced technological nature gave it a 'glory' aura, concluding (among many useful conclusions) that "On reflection, the project was approved without a rational reason or, perhaps, with seemingly irrational reasons".

Politics means that the view of project success criteria can change as public perceptions, or ministers, change. Perhaps more notably, the timescale over

which projects are viewed can be quite different for a minister, looking to public opinion and perhaps the budgetary cycle, or even the next election, or a government department which might be looking at the very long-term. Samset and Volden's Paradox 10, 'the paradox of myopic decisions', describes how short-term planning horizons are thus naturally brought to bear upon projects whose lifetime is likely to be decades. Processes within government departments, which have a long lifetime, should be designed to take the long view – but politicians who might have a short-term view have power over these decisions.

2.3 Developing tactical success criteria

Once the fundamental purpose of a project has been decided – what it is setting out to achieve – and quantified, the more immediate parameters of the project need to be settled. That is, we now need to consider the traditional 'iron triangle' tactical success criteria – timescale, project outputs, and crucially, in the public world, budget. This section will introduce the subject, which will be explored in its different aspects in more detail in Chapters 3–6.

2.3.1 Methods

Unlike the process of defining project benefits discussed in Section 2.2, there is a longer history of developing processes for outlining well-defined quantified project proposals when seeking approval from government funders. These need at the very minimum to define the quantified project outputs, the way these will be achieved, the expected cost and timescale, and risks. Expected cost is, of course, essential in forming the basis of any cost-benefit conclusions.

A good example of what is needed when developing a business proposal is the UK's mandated model, the UK Treasury '5-case model', which is defined in the Green Book and supporting guides (HM Treasury 2018a, 2018b). This defines five dimensions of the case that needs to be made for the programme or self-standing project, starting with the view from the permanent organisation (the government department), gradually getting into the temporary project, then at the end stepping back to the permanent organisation level – see Table 2.2.

Clearly, this information is not available at the very start of project development, and Chapters 3 and 4 will look in detail at the logic and underlying theory of this process. There are generally now well-defined and mandated procedures in different countries to try to formalise the process. Klakegg et al. (2016) give some history of the project governance process in the UK, Norway and the Netherlands. Two examples show the current formal gradual refinement of the project idea.

Table 2.2 The UK five-case model (from the Green Book)

Strategic case	Defining why this development or change is needed	See Section 2.2
Economic case	Choosing the best option of how to proceed and its potential Value for Money	See Chapter 3
Commercial case	The potential commercial arrangement to make the proposed project happen: procurement strategy, defined outputs, risk allocation and contractual issues	
Financial case	Within the proposed project/programme, affordability and funding	
Management case	Linking back to the permanent organisation: arrangements for delivery and monitoring; this should also include post-project evaluation	See Chapter 7

a The UK has a three-stage process (e.g. HM Treasury 2018b), covering:
   - the Strategic Outline Case, justifying the project, filling in part of the Economic Case and a start of the last three cases;
   - the Outline Business Case, which identifies the best project option and fills in most of the Cases, ready to move on to procurement;
   - the Full Business Case following commercial negotiations ready for formal signing of a contract.

b Norway has a two-stage process known as the 'QA' process, briefly described in Samset and Volden's 'Paradoxes' paper. Its two steps are: QA1, an externally reviewed project outline required before the Cabinet approves the pro-project process, then a fully worked-up externally reviewed proposal at QA2 required for parliamentary approval.

This is the formally mandated process. We will explore how this process works out in practice in the following four chapters, but we can note four issues that are already clear.

2.3.2 Estimation

We have already noted the tendency for humans to be over-optimistic in their estimates both of the benefits of a project and in the cost/time, as discussed extensively by Flyvbjerg. For him, "The root cause of cost overrun is human bias, psychological and political" (Flyvbjerg et al. 2018, p. 183). His conclusions are therefore that "Cost overrun is best avoided by (a) Getting the front-end of capital investments right, including using reference class forecasting or similar methods to establish reliable, de-biased estimates of cost that fit the client's risk appetite…" as well as (perhaps more unarguable) "(b) Establishing an incentive structure … and (c) Hiring a delivery team with a

proven track record …" (p. 186). Much of this paper is one step in a heated exchange of papers with authors led by Love (specifically, Love & Ahiaga-Dagbui 2018), who strongly question the basis of Flyvbjerg's conclusions. One key issue here is where the 'original budget' is specified, as this is needed to consider whether there has been 'cost overrun': the long gestation period of public projects means that estimates can rise (or fall) during this period – we will look further at this in a few paragraphs. Another key issue is the role of the 'Hiding Hand' in projects, an idea, due to Hirschman, discussed at length in Ika et al. (2021) (with Love again and Pinto) pointing to "projects such as the Danish Great Bell Toll Bridge, the German Karlsruhe-Bretten Light Rail Line, the Sydney Opera House in Australia and the US Hoosac Tunnel, which all experienced significant cost overruns and yet exceeded benefit expectations". For them, "the Hiding Hand assumes we should not presume we already know what success is and how to measure it".

A pragmatic view notes the existence of both optimism bias, 'Strategic Misrepresentation' and the 'Hiding Hand', with candid and transparent conversations to ensure that these are looked out for and taken into account. As noted above, in Williams et al.'s (2020a) study of a number of countries, apart from the UK with its formal use of Reference class forecasting, there was recognition across countries of the issues, and clear attempts to take them into account, plus sensitivity analysis on cost and benefits.

Estimation is crucially dependent upon good data – but as Chapter 5's 'Conundrum 2' states, rarely does this exist upfront in a project. However, Samset would regard it as often a benefit rather than a problem, and Samset and Volden's Paradox 3, 'the paradox of early information overflow', shows how the over-abundance of information can be detrimental rather than helpful to making a mature project estimate (this is expanded upon in Williams & Samset 2010).

While estimation of time and cost is complex, a further complication in projects is the need to recognise the trade-off between these. Projects that need to be carried out quickly generally incur higher costs – and much more so if a project is accelerated mid-project. While this has been known for some time in the project world (e.g. Eden et al. 2005 and their 'amoebic' growth of project costs), it is becoming increasingly recognised in major public projects. Looking back on a number of projects, but specifically the UK's roll-out of Broadband, the National Audit Office (2020a) reported that "attempting to adhere to a fixed timeline, which later proves unachievable, can contribute to delays and cost overruns" (p. 39), pointing to similar effects in the UK project to roll out smart meters and the huge Crossrail infrastructure project.

2.3.3 Uncertainties and the nature of budgets

As Chapter 5 notes in 'Conundrum 3', these large public projects are a complex undertaking, but budgets, particularly in public discourse, are presented as single, deterministic values. There are a number of problems with this.

First, making an estimate is a probabilistic exercise. The (epistemic) uncertainty is greatest at the start of the project front-end, when least is known about what is required and how the problem might be solved. The project definition is a gradual process of reducing the uncertainty in the estimate (see Figure 3 of the 'Paradoxes' paper) – but there still remains considerable uncertainty on the estimate even as the project starts. The Norwegian QA system referred to above requires explicit uncertainty statements to be formulated: at the QA2 point,

> budgets are based on formal uncertainty analyses and stochastic cost estimation. The recommended budget will commonly be close to the P85 level, and the recommended target cost for the responsible agency is normally lower and close to the P50 level.
>
> (Volden & Samset 2017, p. 97)

However, in most regimes, the public statement of budgets does appear to be generally deterministic.

Project budgets include contingency funds to cover uncertainties and risks, but the calculation and allocation of these funds has in the past been specific to any one project. This means that comparing cost overruns between projects is difficult. To take perhaps the most well-known example: the Apollo moon-shot programme, which "came in at $21 billion, only $1 billion over its initial estimate. Few know that the initial estimate included $8 billion of contingencies, a thing rare in itself. Very few public projects have even semiformal contingency budgets …" (Morris & Hough, writing in 1987). While contingencies are more formally calculated nowadays, there are different treatments in different systems. In the UK, for example, "Contingency provision … should be used to inform the approving authority of its potential liabilities. Government is self-insured and contingency should not be credited to the approved proposal" (HM Treasury 2020).

As well as being more informed as the process of estimation proceeds throughout the project front-end, the purpose of the cost estimates subtly changes. To put it crudely, the purpose of the very first estimate is to get approval for the project development process to be initiated. Once politicians have committed to a project, as Chapter 6 points out, it is sometimes difficult for them to change their mind without the risk of appearing inconsistent. The purpose of the final pre-project estimate is to get approval for the project to go ahead, but by becoming the project budget, it is also a target by which the project will be judged at the end – hence Paradox 6, 'the cost estimation paradox', which shows a focus on the final estimate while forgetting about the early cost estimates.

In a public project, where it is sometimes difficult to draw a boundary around the project to define what is 'in' and 'out', some growth in project estimates can be due to elements being included that it was not clear should be included at the start. A UK example was the 2012 London Olympics: bid at £2.4 billion in 2005 (apparently including considerable contingency,

Table 2.3 Cost of Scottish Parliament building project

	Up to £40 million	Early thoughts
July 1998	£50–£55 million	Design chosen although site unclear. Figure excludes, e.g. VAT and site acquisition costs
June 1999	£109 million	Estimate at start of construction. Includes, e.g. fees, site costs, VAT, risk/ contingencies
November 2001	£241 million	Official announcement taking into account increases in space and major design changes and fast working
February 2007	£414.4 million	Final cost announcement

perhaps aiming to win both the bid and public acceptance); a parliamentary announcement in 2006 set the budget at £3.3 billion, which by the following year had risen to £5.3 billion, including regeneration and infrastructure; then later the final budget, including contingency, security and tax, was set up to £9.3 billion. A final spent of £8.8 billion allowed a BBC headline to proclaim that the London 2012 Olympics was £500 million under budget(!).

Looking back at early cost estimates, their increase during the project front-end can be shocking. The 'Paradoxes' paper (Samset & Volden 2016, p. 306) gave an analysis of 12 Norwegian projects, where the first cost estimate of the project was compared to the final budget approved by parliament before the start of the project: the best of these showed an increase of 70%, while the worst increased by 14 times, and the average increase was 650%.

A well-known example in the UK is the Scottish Parliament building, a highly political project to bring a parliament to a devolved Scotland. The cost is summarised in Table 2.3. There are a number of different effects at play here: perhaps a deliberate playing down of the costs at the start to gain public acceptance for this political project; considerable uncertainty about what the project entailed – even its location; a perhaps more reasonable estimate at the start of the project, which included all relevant costs; considerable changes to the scope, which increased the project; and an undoubted lack of governance which enabled changes to get out of hand and for costs to overrun (a BBC report of evidence given to the official enquiry said that "The design of the [Scottish Parliament] building has been changed 15,000 times since the project began"). Some of this history is given in the report of the official 2004 Holyrood Enquiry (Fraser 2004).

It is important to disentangle these different types of effect as we look at project budget growth and overspend.

2.3.4 Strategic and tactical success

We have looked at strategic and tactical success criteria separately. In a logical process, the strategic criteria will be considered first, as the 'project' gradually

takes shape (although in practice, a logical process is not always followed, and sometimes a solution is announced, and then a logic formulated around that solution – see Chapter 4). But even in a properly run project, front-end, strategic and tactical success criteria should be honed together as the front-end proceeds. Of course, the two are generally intimately related, and it is a trite observation that generally more output can be achieved with more time and a higher budget.

If a long-term rational view is taken of a project, it could be argued that the strategic achievements of the project are the more important aspect, particularly as public projects tend to have long timescales, sometimes many decades. However, in the public arena, in a democracy, a short-term – or even an immediate – timescale becomes more important. Hence Samset and Volden's Paradox 10, 'the paradox of myopic decisions': while the long term of the project is the more important, evaluations of projects happen, with opinions formed in a shorter timescale. The shortest term for an ex post project evaluation is immediately on project completion, where often the benefits of the project cannot be seen, indeed might not have yet been realised, whereas the cost and timescale are immediately visible. Also, remember our point in Section 2.1, that public opinion concentrates more on short-term efficiency metrics when looking at 'failure' (as compared to longer-term effectiveness metrics when looking at 'success'). In a slightly different context, a UK civil servant said, "You have to have a long-term strategy but unless it delivers short-term results no one will believe you" (Sir Michael Barber, head of the Prime Minister's Delivery Unit) (Barber 2007, p. 75). This effect will follow us as we move on through the project.

2.4 During the project

While this book is concentrating on planning and developing major public projects, it is important to consider how these ideas of 'success' permeate a project as it moves into execution – and indeed post-project evaluation – since good efforts at the start of the project might be nugatory if the execution of the project pulls in a different direction. We have to plan in good practice at the start of the project.

2.4.1 Concentration on the tactical

Much study has shown one effect very clearly. During the start-up and development of a well-formed public project, there should be a lot of attention on the strategic aims of the project: what need it is fulfilling, why it is good for the country to try to gain the project outcomes. As discussed in the previous sections, increasingly formalised project approval procedures within countries have developed processes that require project sponsors to justify the project in terms that are in line with the strategic aims of the government or department. Finance departments or treasuries will not agree to projects being funded unless they are justified in terms of the (financial or

non-financial) gains that will be achieved. Projects should now be started with a clear vision of what the project is setting out to do and why.

However, the emphasis on the strategic aims of the project often dissipates once funding has been granted and eyes external to the department have been taken off the project. A multi-country study by Williams et al. (2020a) discusses the emphasis on benefits identification "as a means of getting the project through the approvals process" and continues, "Consideration of benefits tended to fade once funding was achieved … there seemed to be a skew toward project delivery (particularly project-management success) rather than benefits after project sanction, excepting occasionally there was an increased focus on benefits at project closure as benefits were evaluated and reported" – although they do note exceptions (see below). As a UK parliamentary report quotes more informally,

> We also have the impression now where the emphasis … is on the delivery of the project as defined: getting it on time, on cost, as defined at the beginning, and the actual benefits that the project is there to deliver sometimes get – I will not say lost but there is less priority put on that than the actual delivery of the project.
>
> (House of Commons PACAC 2019)

Governance processes should try to minimise this effect, for example using formal reviews of projects. However, a detailed review of a major database of reviews of the biggest public projects in the UK, described in Vo et al. (2021), showed that of all the recommendations made, 70% addressed delivery issues and only 30% concentrated on the higher-level effectiveness success criteria. In keeping with Williams et al.'s findings,

> PVRs [independent reviews supporting project initiation] and project closure reviews had a slightly higher percentage of recommendations focusing on benefits, perhaps implying a skewed emphasis on benefits towards project initiation (to get projects started) and closure (to get projects signed off).

Vo et al. (2021) continued, "recommendations were much more linked to what was directly needed to get to the next stage of the project cycle, rather than project benefits". Chapter 4 will re-visit this tendency of assurance to focus on the process of completion against arbitrary budgets rather than the strategic aims of the project. Of course, we are again echoing Samset and Volden's first Paradox: the danger of measuring success in terms of tactical performance rather than achievement of the strategic aims of the project.

These dangers are there, even if the strategic benefits have been assessed thoroughly at the start of the project. If, however, the initial project logic itself is weak, it leaves the project in even more danger of not delivering a useful output. Returning to the UK C-NOMIS prison/probation IT

system described above (Klakegg et al. 2010), this was a project with ambitious strategic objectives to "Improve positive offender outcomes (i.e. reduce re-offending) … introduce more assertive case management … Integrate IT support … [and] improve means of monitoring compliance". Clearly, a major project, developing a major business change to end-to-end supervision of the individual offender. However, as reported by the National Audit Office (2009), the team "treated C-NOMIS as an IT project rather than a major IT-enabled business change programme" – which meant that they "did not get to grips with the business changes required to design and implement a single offender database across both services". Furthermore, even within the narrow confines of an IT project, as a good example of Samset and Volden's Paradox 4, 'opportunity space',

> there were …. Other possible solutions not explored fully …. There is no evidence of the team considering factors such as the nature of supporting infrastructure and the existence of common levels of service, which should have informed the selection of the technical solution.

Initially, the project had an approved lifetime cost of £234 million to 2020. By six months before the original planned completion date, £155 million had been spent, the project was two years late, and estimated lifetime project costs had risen to £690 million. The project was then halted.

To give a balanced view, we should remember the issues discussed towards the end of Section 2.1: public projects live in a world of turbulence, and if they reacted to every change in government viewpoint or public opinion or whim, then management of the project would be impossible. The discipline of project management is there to try to bring order within the chaos, but a project impervious to the strategic aims of its owner risks losing its way and becoming one of those projects successful in 'efficiency' terms, but useless, like the on-shore torpedo battery or Zwentendorf Nuclear Power Plant, discussed at the start of the chapter.

2.4.2 Organisation and roles within the project

Within the project, there is an increasing emphasis on the use of methods to maintain attention on the strategic aims of the project, generally coming under the heading 'Benefits Management'. Williams et al. (2020a) sets out these ideas in various countries and shows the increasing interest as attention shifts from 'project management' to the strategic aims of projects. This study also identifies common barriers to this approach, such as lack of senior management buy-in, lack of a benefits culture and the lack of any requirement for benefits oriented ex post analysis, as well some enablers to the approach such as increasing stakeholder engagement and clarity in accountability.

Of course, many national project structures now generally include some system of in-project reviews, designed to bring an 'outside view' to the

project. In the original UK system, there is a clear system of 'Gateways 1–5' during the project; however, this is overlaid by the ability to carry out a 'Gateway 0' at points during the project, designed to take a step back and consider the continuing relevance of the business need and alignment of the project with that need (see the comparison in Klakegg et al. (2016) of the UK, Norway and Netherlands systems). Interestingly, the 'exceptions' to the phenomenon of fading interest in strategic success during a project noted earlier included, among others, "projects that had to go through the NSW's ICT gateway process or the UK IPA assurance process …" (Williams et al. 2020a).

At the highest level, in many jurisdictions, projects are undertaken by a separate body to the government department. In the UK,

> Major government infrastructure projects in the UK are most commonly started, approved, funded and overseen by a sponsoring Department of State ….They are normally delivered through arms-length bodies (ALBs) of a range of forms …. It is the delivery organisation's job to take the requirements of the sponsor, turn them into specifications, contract for their delivery and secure the intended outcomes to time, quality and cost through their private sector supply chain.
>
> (Department of Transport and IPA 2019)

Further,

> This separation of functions allows Departments to specialise in government policy and legislation whilst the delivery organisation focuses on project delivery through its contracted supply chain and advisors. This division has significant advantages but can also create boundary issues and sometimes cultural challenges between the organisations. …. Different sorts of issues can arise through the project lifecycle.

The report goes on to identify 24 lessons drawn from a number of case studies on how to sponsor such projects.

One straightforward method which seems to have worked well within one of these arms-length bodies, Highways England, is for a project to have two directors reporting to the officer accountable for the project: a project director responsible for the delivery of the project in traditional terms and a sponsorship director (Highways England 2018) responsible for realising the benefits of the project. The creative tension between these two appears to lead to a concentration on *both* aspects of success. Our statement of this sponsorship director role actually downplays it. For Highways England, sponsorship directors,

> act as a conscience and guide to delivery teams. While operating outside direct day-to-day delivery activities, they provide strategic oversight and retain accountability for the business case and outcomes, whilst ensuring

> assurance throughout the project lifecycle …. Above all, a sponsor must always maintain an unremitting independent focus on the true reasons and benefits for which the project is being undertaken and how these can be achieved.
>
> (Highways England 2018, p. 6)

The effective analysis of the A303 project above is an example coming from this organisational structure.

2.4.3 Other actors

A project does not sit in a vacuum, looked after by the government department, with no influence from the outside.

First, a project is generally prosecuted through a private sector partner. As mentioned in Section 2.2, in terms of tactical success, the contractor will be aiming for the success criteria laid out in the contract for the work. At a strategic level, the company will not have the same aims as the government department. On the other hand, a company will not be subject in the same way as the government department or arms-length body to the vagaries of public opinion or politics.

The difference in lack of strategic alignment is illustrated by two examples. The first is the long and sorry story of the NHS IT project analysed by Cicmil and Braddon (2012) (see Section 2.2), concentrating on the "small number of key suppliers, each of whom had a different business agenda to be pursued and objectives to be gained from their involvement in the project". The second is the Acela programme in the US: Amtrak was going through fundamental financial issues with questions about their strategic direction during the Acela programme, causing huge disruption to the programme, and eventually the train manufacturer sued Amtrak,

> seeking to recover $200 million in damages …. Designs have been modified literally thousands of times …. Amtrak scheduled multiple public relations visits to a test track; those visits disrupted operations in a quest to hype Amtrak's bright future and minimize public recognition of deficiencies in train design and program administration.
>
> (Vranich et al. 2002)

Understanding these differences in strategic aims is even more important in larger projects where consortia of companies are involved, or where companies interact, since projects do not exist in a vacuum. Gil and Pinto's (2018) analysis of four major UK projects (HS2, London Crossrail, London 2012 Olympics and Heathrow T2) talks about the projects being set within "London's megaproject ecology".

Second, the public will often have a crucial role, particularly for a public project ultimately reporting to politicians. Their involvement will depend

upon the type of project. Any infrastructure project will involve local and other interested people: the A303 project described above consulted with a wide range of interests. There is a general move within democracies to consult and involve the public. Gil and Pinto (2018) continue by saying that large infrastructure projects, in contrast to more technologically complex settings such as aeronautical projects,

> are socially complex but not so technologically complex that planning choices cannot be comprehended by multiple heterogeneous stakeholders. The fact that many actors can grasp what the issues are and what is at stake exacerbates the interdependency with the environment. Hence, a choice to set up a polycentric system responds to growing calls in the environment for organizations to adopt more collaborative and inclusive decision-making processes.

Public opinion can be fickle, and the mood on particular investments is affected by media reporting. More fundamentally, public attitudes to criteria can change over time, such as to the environment, climate change, air pollution, crime, social cohesion or (remembering the A303 example) heritage: even a good decision-making process at the start of a project can become out of date if the public opinion weightings of these criteria change over time. In addition, as Chapter 5's 'Conundrum number 4' will discuss, during a project the public sometimes focus on efficiency measures, particularly cost, rather than the benefits of the project, so the pressure we have discussed to meet efficiency targets is to some extent driven by the public through parliamentary processes.

This is overlaid by the temporal cycles of government: four-yearly elections, annual budgets and regular spending reviews. These are asynchronous with the sometimes long project lifecycle, adding to the turbulence around the project as strategic and spending priorities frequently change.

All of these effects mean that an important role for project sponsors is to keep the public 'on side' during a project, particularly as the environment changes, and there is a constant need to re-translate the project in terms the public will understand – assuming, of course, that it is still relevant to the needs of the country, as discussed above.

2.4.4 A final note: accountability

We have discussed at length the various parties who take some degree of responsibility for a project – but who at the end is accountable for delivering the outcome that caused the project to be set up in the first place? In the UK system, it is the 'senior responsible owner', a clearly defined role (Infrastructure and Projects Authority 2019) who "is accountable for ensuring a programme or project meets its objectives, delivers the projected outcomes and

realises the required benefits", and for the most major projects (i.e. those in the Government Major Projects Portfolio),

> as well as being accountable to their own organisation's management, also has personal accountability to Parliament for the implementation of the government's policies as assigned to them by the relevant accounting officer. This accountability is recorded in the senior responsible owner's letter of appointment.

This seems very clear. However, while a project manager's efficiency targets are generally explicit and unambiguous, we have seen over this chapter that there are a number of issues that make the achievement of strategic objectives much less clear and more contested. As we look in the next section about reviewing the project ex post, we shall see how difficult it often is to be able to say definitively "this project did (or did not) achieve its aims".

2.5 Post project

Just as we turn at the end of a project to look back to the original definitions of success, to judge how well we have done, so we must look back at our original definitions of success in the earlier sections to consider what a post-project evaluation of success means.

Having said that, the evidence suggests that there is a lack of ex post evaluation in practice. The review of Williams et al. (2020a) suggests less activity than might have been hoped for, for various reasons. 'Lessons learned' or post-project reviews looking at the project management and efficiency measures are becoming at least not unusual, but this is not the same as an evaluation which considers the effectiveness or benefits of the project. However, Williams et al. (2020a) do note some exceptions: National Audit Offices certainly look at the value of projects, and public scrutiny of public expenditure is perhaps increasing the appetite for such reviews.

That said, as we commented at the end of the last section, there are a number of issues that need to be taken into account when taking a view on a delivered project.

First and most simply, public projects often have long lifespans, and the world – particularly the political world – will change during the lifetime of the project. This means that the value of the project objectives laid out at the start of the project might have changed. There might be governance questions – why did we not halt or change this project mid-stream? – but it will not be unusual for a simple comparison of planned outcomes and actual outcomes to founder on the passage of time.

A second point particularly applies to projects in IT, transformation or the military. At the point that an IT or transformation project finishes, the project output (say, an IT system) generally has reaped no benefits at all: it

passes to the department and gets used, entering 'business as usual'. For our purpose of looking at project 'success', this raises two issues. First, if a senior responsible owner has passed an output over to the sponsoring department, how can he/she be responsible for the use that is made of the system? Indeed, second, if it is just part of 'business as usual', where is the need to monitor it? A review by the National Audit Office (2018) of projects which had left the Government Major Projects Portfolio said,

> There is a varied picture as to whether projects have delivered successfully after they leave the Portfolio. Once projects leave the Portfolio, the Authority is no longer responsible for monitoring progress in delivering benefits, it is up to sponsoring Departments to provide this oversight.

Indeed, for four projects,

> it was unclear what had been delivered because Departments had stopped monitoring them, due to either a change of policy or because the Department had decided to deliver them in different ways, which resulted in project teams being disbanded and so Departments were unable to answer … questions.

Whyte and Nussbaum (2020) looking at mega-projects such as Heathrow Terminal 5, the London 2012 Olympics, and London's Crossrail, focus on this boundary between 'the project' and 'operations', and see an array of problems which can occur, proposing for example "strategies for mobilizing artifacts, procedures, soft landings, and tests" (p. 506).

Moving beyond this question of project handover, our third point is that sometimes it is not even fully in the Department's hands to realise the benefits of a project.

Some projects, such as new public-facing IT systems, will depend upon public take-up. This chapter, for example, is being written in the UK during the Covid-19 pandemic. The government decided to offer its citizens a 'phone app' for contact tracing, local area alerts and venue check-ins. A first version was abandoned in May 2020 due to technical failings; the trial of a second app (based on Apple and Google's technology) started in August 2020 and was launched across England and Wales on 24 September. There was widespread scepticism about whether it would be used, but the government was able to announce by late December 2020 that the app had been downloaded 20.9 million times (UK Government 2020) – an apparent success (although it does not necessarily show whether citizens actually use the app).

Some projects facilitate access to benefits, but these will not be realised unless other bodies take them up. Transport infrastructure is a clear example of this. An ambitious plan was devised in the UK to develop infrastructure to link the cities of Oxford and Cambridge. While essentially an infrastructure development plan, a report by the National Infrastructure Commission (2017) describes essential development and governance proposals to facilitate

bodies getting together from Oxford and Cambridge and towns in between, such as Milton Keynes, to build on the development; however, any nationally commissioned infrastructure work would not achieve its planned benefits if the local authorities did not take up the opportunities provided.

Benefits can be even further from the immediate purview of the 'project'. In the example in Chapter 5, the UK Ministry of Justice has as its main strategic aim 'A prison and probation system that reforms offenders'. Part of this development is a 'Prison Estate Transformation Programme'. A key aim of the programme will therefore be to develop the prison estate in such a way as to reform offenders and reduce re-offending. The logical inference would be that when re-building an old prison, a strategic project target would be a reduction in eventual reoffending rates. But in this, as in all of the cases described here, the 'success' of the project will be dependent upon changes in the behaviour of citizens, business, government agencies, civil servants and other relevant stakeholders (see the discussion on social bonds above).

Fourth, a key difficulty in evaluating a public project with a long life cycle aiming to bring economic benefits is the challenge of distinguishing benefits that arose from the specific project being considered from macroeconomic and other trends. The question of what improvements arose from the existence of the project, and what would have happened had the project not been undertaken (let alone if the project had not been undertaken, but the money spent elsewhere), is often impossible to answer convincingly. Some jurisdictions we have surveyed do not generally try to do this, because of the contested nature of any answer that might arise. The project business case should have tackled this to some extent, but this disentanglement is clearly difficult. The problem is made more complex by raising the issue of when post-project benefits should be assessed: the quicker the assessment, the easier it will be to see the immediate effects of the project, but a longer-term is needed to understand whether the project was worthwhile. This is reflected in Samset and Volden's Paradox 10: "projects that are meant to last for decades and sometimes centuries may have significant impact on economic, environmental, and social development, yet they are still assessed in a short-term and static perspective" (p. 309) – because the public sector wants to know whether the project was worthwhile, without waiting for the long-term perspective that history provides.

So, fifth, it is historical reflection and public opinion that provides the long-term judgement on projects, particularly as the emergent and fluid nature of benefits diverge from the pre-defined project. Projects that are seen as a failure at the time in almost every way, such as the London Millennium Dome, can be seen later to be a success (with, as always, the focus on longer-term success criteria while the 'iron triangle' fades into history).

2.6 Conclusion

As we go on to explore the development of major public projects in practice, this chapter has tried to set the scene by considering what we mean by 'project success'.

At the most basic level, we have distinguished between tactical project management efficiency success and strategic project output effectiveness (and longer-term) success. We have seen Samset and Volden's paradox that, in practice, minds tend to be focused more on efficiency targets than the effectiveness targets that were the reason for the project – also when the public thinks about 'failure' rather than 'success'. Particularly once a project has been approved and is underway, attention drifts away from the strategic aims to the delivery of the pre-defined output, sometimes only drifting back when the project is near completion.

As we try to define a project's strategic aims, we have seen that many are contested and difficult to quantify. In public projects, there is often an array of different stakeholders, with different objectives and different ways of talking about aims and objectives. Even for quantifiable outcomes, we have seen different reasons for drawing up budgets and the effects of human bias, politics and interests in drawing up estimates, which will be discussed further in Chapter 5. We have seen how the very idea of a project 'benefit' is fluid, so we need to take a more fundamental look at the project front-end; Chapter 4 will re-visit this.

We have seen how projects, designed to be self-contained with clear targets, sit in an environment which is inescapably turbulent, subject to political influences and often working on different (shorter) timescales than the project. Chapter 6 will look further at politics and incentives. We have seen some of the difficulties in comparing ex-ante estimates with ex post out-turns, and we have noted Samset and Volden's paradox about looking at very long-term projects in terms of their immediate value; this will be considered further in Chapter 7.

The following chapter will now look at the logic of the front-end and describe an effective front-end process.

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