

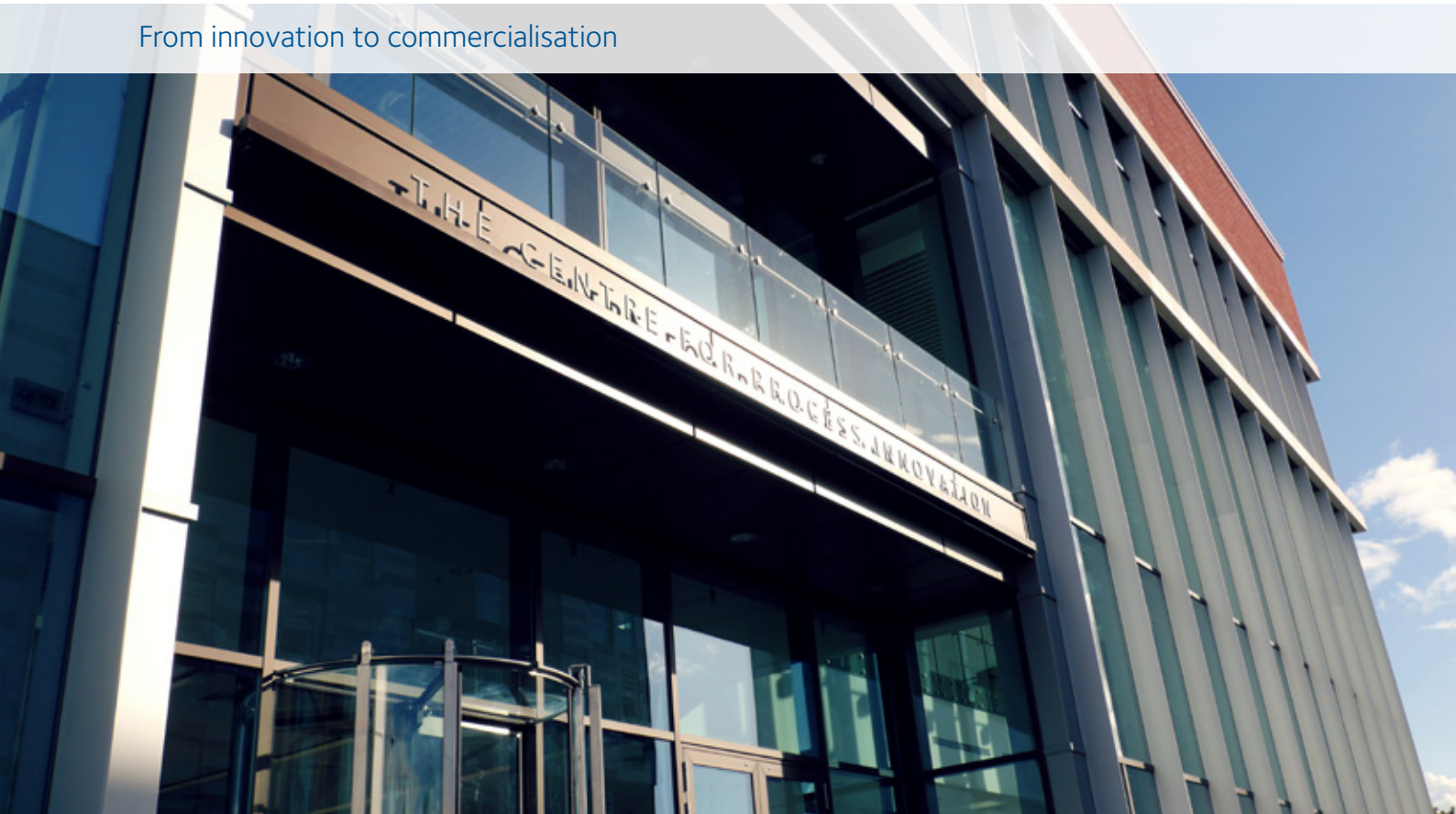
How to Guide 1
First Edition



A Guide to Setting up a National Technology and Innovation Centre

The Centre for Process Innovation

From innovation to commercialisation



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1. Introduction

The Centre for Process Innovation (CPI) is the UK's leading technology and innovation centre for the process industries which span across several industries including health care, automotive, chemical, aerospace etc. It was created in April 2004 and has been supplying innovation support services to partners that are scaling and proving their technology ever since.

In creating these centres for over more than eleven years, CPI has developed a huge amount of knowledge and expertise in the creation of National Technology and Innovation Centres from the initial concept through to the scoping, planning, procurement, delivery, opening and operation of those centres. CPI works in a public-private partnership with government to deliver a programme of knowledge transfer and innovation that helps drive partnership and innovation best practice in the chemical and process industries.

To this end, CPI has created this guide 'setting up a National Technology and Innovation Centre' which draws together CPI's extensive knowledge, learning and experience combined with best practices in a form that can be used by anyone who is looking to create a National Centre in the future. Its knowledge is applicable across a much wider range of industries and services.

This guide also draws on current public procurement models such as the Five Case Model¹ and consolidates other reference sources and is based on the best practice approach advised by HM Treasury's Green Book Guidance on Appraisal of Policies, programmes and Projects³. It guides the user through the process from concept to operation, determining the strategic content; scoping out the work and making a case for change; planning and ascertaining funding requirements; and finally the full Business Case. It ensures there is a clear understanding of the work that needs to be undertaken, with template documents provided which provides support to create a case for investment and the ability to demonstrate evidence-based decision-making to obtain approvals.

It is hoped that it can provide tips, speed-up processes and reduce risk for those setting up technology and innovation Centres in the future. It is applicable to those setting up Catapult Centres, creating Centres within Catapult Centres and those creating stand-alone innovation Centres.

The CPI model is to work with partners of all sizes from university spin-outs through micro enterprises to medium sized companies and on to major multi-nationals. CPI creates collaborative partnerships to allow companies to realise their process manufacturing aspirations. It is a founding member of the High Value Manufacturing Catapult and is recognised to have a leading open-access asset and knowledge based innovation model. As it has grown CPI has set-up four major national innovation Centres

- CPI National Industrial Biotechnology Facilities 1 and 2 – For companies in the industrial biotechnology and biorefining sector;
- CPI National Printable Electronics Centre – For companies in the printable and emerging electronics sector;
- CPI National Biologics Manufacturing Centre – For companies operating in the biopharmaceutical sector and;
- CPI National Formulation Centre – For the huge range of companies that rely on formulated products to deliver benefit across UK industry.

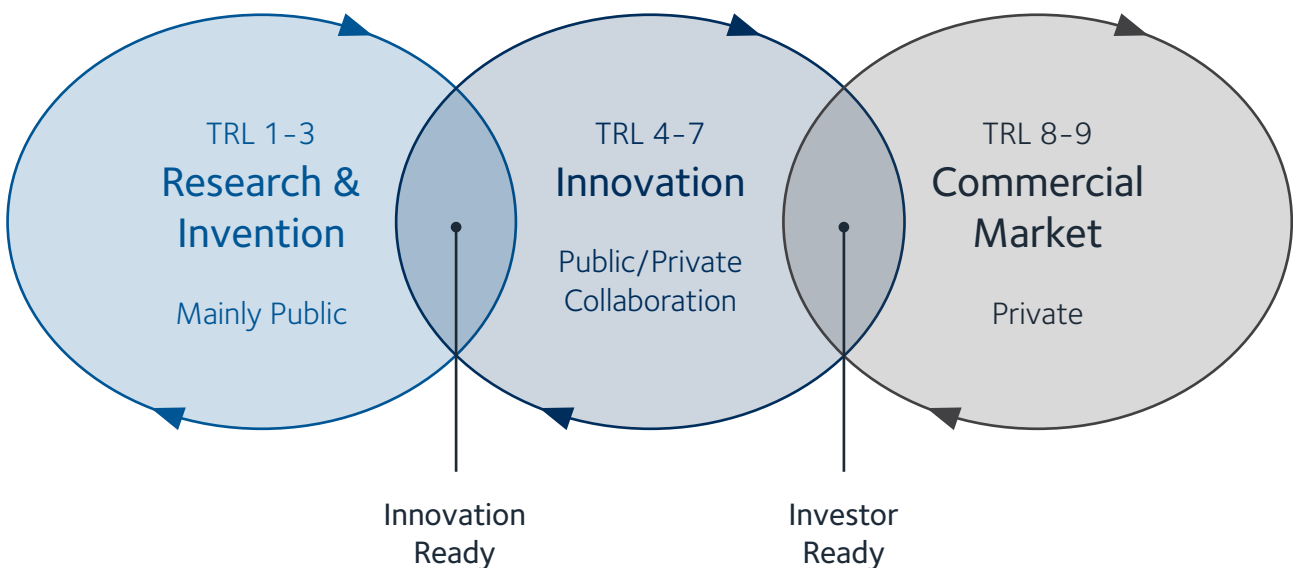
The chemical and chemistry using industries as well as the process industries are the UK's largest manufacturing sectors. These industries also underpin the majority of the UK's manufacturing capability and the segments often face similar innovation challenges.

UK Research is strong across the sector, but overall the innovation that is an essential element for delivering the growth potential requires better integration and collaboration across the industry. This is now recognised by key industry players who are becoming increasingly aware of the opportunities available through collaboration and the exchange of best practice.

In many industrial sectors the UK is developing the science and early stage technology that can support major industry trends. This research needs to be complemented by collaborative partnerships and industry-wide approaches to knowledge transfer, and innovation that allow the UK to create value from its technology development. The diagram in Figure 1 shows the journey from invention to commercialisation which is supported in this guide.

CPI has also created the CPI Innovation Integrator™. This innovation assessment process provides an assessment and scoring methodology to help businesses understand their position on the innovation continuum and to identify the factors that enables a business needs to address to move from research to innovation and ultimately to commercialisation. The model approach builds collaborative partnerships across disciplines and supply chains and helps CPI’s partners to develop value-creating businesses within the UK. It also provides help in developing a pathway for the assessment of a business case.

Figure 1: Schematic Diagram showing the Journey from Invention to Commercialisation



Implementing this integrated model and the tools, techniques and experience that support its delivery is a strength of CPI’s approach to innovation. It underpins its ability to create National Technology and Innovation Centres. The approach can be applied more widely across a range of industries to develop major projects, to disseminate innovation approaches and to create case studies that can inspire partners from all industries to work more effectively to create value for the UK. Use of the CPI Innovation Integrator™ can be discussed with CPI.

This guide is intended to enable others to rapidly develop innovation Centres that can ensure manufacturing remains at the heart of the UK economy. However, the highly experienced, knowledgeable and successful CPI team can help provide much more depth with the process, being able to support businesses from concept to finished innovation Centre. CPI’s unique knowledge and expertise is proven and the organisation would be delighted to work side by side with any company requiring the necessary support. <http://www.uk-cpi.com/services/>

¹ Public Sector Business Cases using the Five Case Model https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/277345/green_book_guidance_on_public_sector_business_cases_using_the_five_case_model_2013_update.pdf

³ HM Treasury The Green Book Appraisal and evaluation in Central Government https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

2. A systematic approach to preparing the Business Case for a National Technology and Innovation Centre from Concept through to Full Business Case

2.1 What is Innovation?

Innovation is about helping to translate or convert research findings into investable products, businesses or services i.e. into the clarity of a commercial business proposition.

2.2 What does an Innovation Centre do?

National Technology and Innovation Centres, which should be open access, should integrate science, technology and business development capability to enable businesses, universities and public sector partners to develop, scale-up and prove new products and processes for market adoption.

National Technology and Innovation Centres are ideally placed to work with industry to drive private sector investment into applied research and innovation, this is because they can demonstrate scale-up and market demonstration. National Technology and Innovation Centres can work closely with academia to achieve a seamless translation from lab based research into pre-production market demonstration activities and have an integral role in bridging the gap between academia, industry and other stakeholders to accelerate innovation.

2.3 Creating a National Technology and Innovation Centre

Detailed below are some case studies where CPI has created National Technology and Innovation Centres:

CPI National Industrial Biotechnology Facility 1 – For companies in the industrial biotechnology and biorefining sector;

CPI launched the National Industrial Biotechnology Facility 1 (NIBF 1) £12 million centre, set up in former ICI labs, in Teesside, UK in September 2007. This centre is an open access facility and its objective is to help turn bright biotech ideas into commercial success. The centre is a not-for-profit facility that aims to allow academics and companies to assess whether their new ideas will work as well on a commercial scale as they do on the bench and it aims to reduce the potentially prohibitive costs of commercialising biotechnology. Companies can use the facility, which has scale-up capability, to collect the necessary data to prove to potential financial backers that their ideas are commercially viable.



The Centre's open access service is unique in the world; it is able to provide strong research capability and strong scale-up facilities, which cannot often be found outside of the private industry. NIBF Facility 1 is also integrally linked with the Centre of Excellence for Biocatalysis, Biotransformations and Biocatalytic Manufacture (CoEBio3) in Manchester.

CPI National Industrial Biotechnology Facility 2- For companies in the industrial biotechnology and biorefining sector;

Two years later, in May 2011, a £12 million expansion of CPI's National Industrial Biotechnology Facility was officially opened by Minister for Universities and Science, David Willetts. The expansion was commissioned with the intention to stimulate the use of Industrial Biotechnology in the development and demonstration of cleaner, more sustainable manufacturing processes in the delivery of vital products. The expansion boasts upstream biomass processing



and a 10,000-litre fermentation capacity, this open access unit is of a scale that is again unique to the UK putting CPI at the forefront of Industrial Biotechnology development.

Since the Facility opened in 2011 CPI has worked with 10 companies equating to almost £3.5million in total revenue. Projects carried out in the facility cover a multitude of areas of Industrial Biotechnology but generally follow the same concept; assisting companies of all sizes to develop bioprocesses quickly and cost effectively, this is achieved through the use of applied knowledge in science and engineering combined with state of the art facilities to enable our clients to develop, prove, prototype and scale up the next generation of products and processes.

CPI National Printable Electronics Centre – For companies in the printable and emerging electronics sector;

CPI launched the UK's national Printable Electronics Technology Centre (PETEC), in March 2009. The Centre specialises in process and application development and connects innovators in research with commercial activity using proof of concept devices and pilot scale manufacture, enabling scale up of the volume of the devices to pilot-production scale volumes whilst substantially reducing the risks and costs associated with new product development. It helps clients identify the materials, industrial steps and investments required to bring products to market quickly.



Although the UK has a well established competence in research in printable electronics, PETEC's focus is in accelerating the commercialisation of these products through the production processes and solving technology issues that companies face in developing new products. PETEC offers experience, knowledge, and the appropriate infrastructure to support customers in this emerging global market.

The Centre is also geared to help companies address the various materials performance and processing challenges in emerging markets such as Solid State Lighting and Organic Photovoltaics. With a strong internationally recognised team of experts, PETEC is already gaining a reputation for its creative approach and ability to break new ground in prototype production.

CPI National Biologics Manufacturing Centre – For companies operating in the biopharmaceutical sector and;

CPI officially launched the £38m National Biologics Manufacturing Centre in Darlington, Co. Durham in September 2015. The Centre was opened by Jo Johnson, Minister of State for Universities and Science and Steve Bagshaw, CEO of Fujifilm Diosynth Biotechnologies.

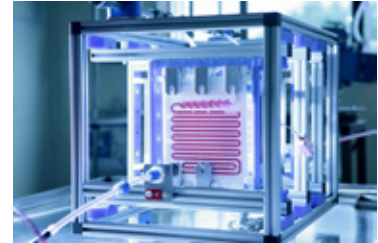


The new Centre will significantly increase the UK's manufacturing capability in biologics and strengthen the UK's position as the location of choice for life science companies. The Centre provides companies with open access facilities and expertise which will enable companies to develop, test, trial and prove new ideas cheaply and quickly with minimised risk and commercialising new and improved processes and technologies for biologics manufacture, enabling them to reach the market faster and provide improved care for patients and better opportunities for businesses.

Biopharmaceuticals are medicines produced through biotechnology which represent the cutting-edge of biomedical research. They are delivering significant advances in healthcare with completely new medicines being developed for serious illnesses, including cancer, blood conditions, auto-immune disorders such as rheumatoid arthritis, and neurological disorders like multiple sclerosis. The use of biotechnology can also facilitate the development of the next generation of personalised medicines for specific diseases and patient groups.

CPI National Formulation Centre – For the huge range of companies that rely on formulated products to deliver benefit across UK industry.

CPI will soon be going live with the National Formulation Centre (NFC), open access facility, to be based in Netpark, Sedgefield. Working with a collaborative network a gap in the UK market was identified. The not-for-profit NFC will support this vital underpinning technology competence that is essential for success in many industries across the UK manufacturing sector. The centre will build world class capability and deliver unique collaborative innovation projects to UK industry partners from multiple formulating sectors. It facilitates an open-innovation environment enabling cross-sector knowledge and technology transfer, and identification and co-development of shared future needs and solutions, providing partners with access to the best people and technologies so they can accelerate high value products and processes to market.

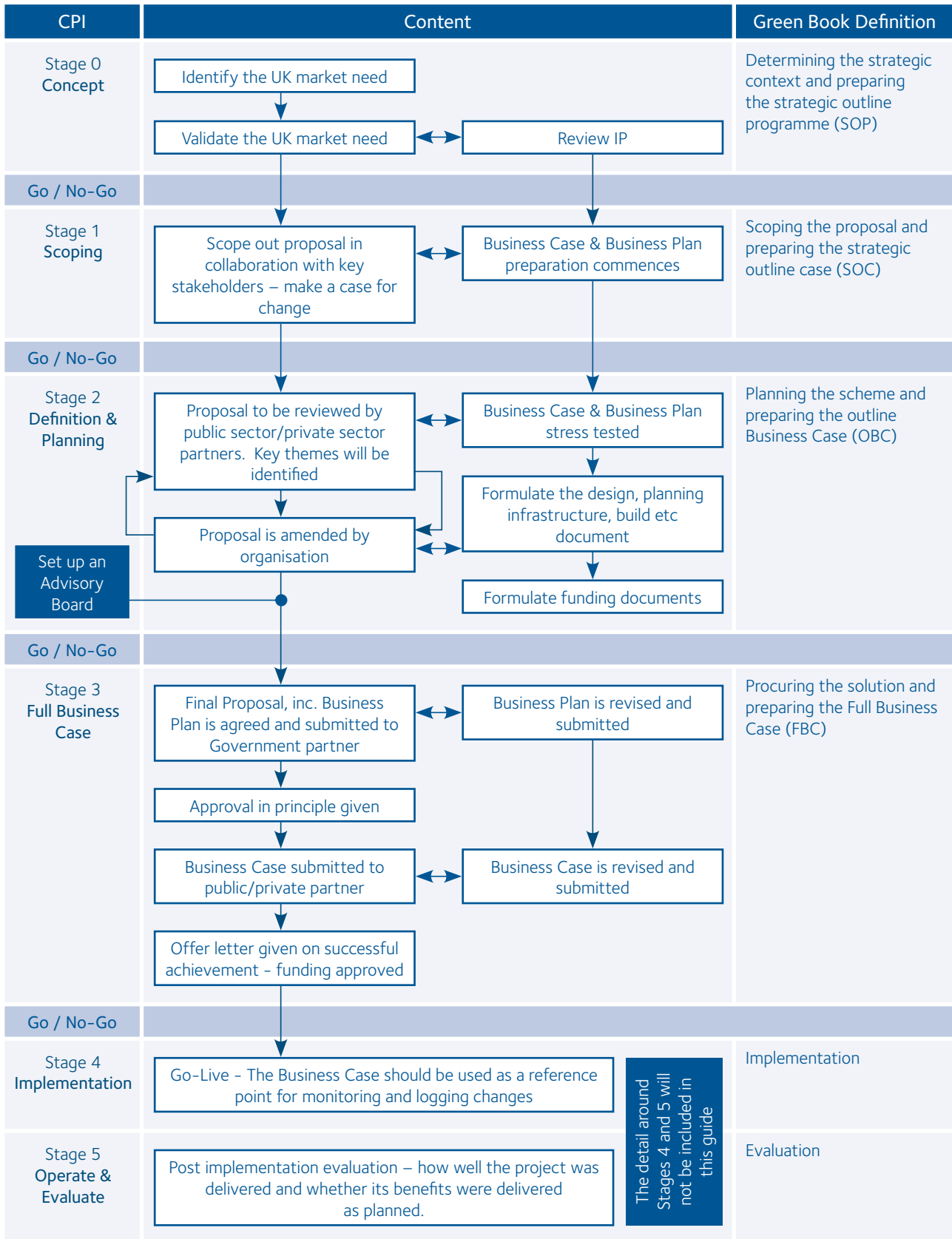


Formulation is fundamentally about making new products by combining different gases, solids or liquids. Through intricate microstructure and powerful ingredient synergies, the resulting properties far exceed the sum of the parts. They are frequently the end result of a concerted design process that encompasses a complex ingredient set; the interaction of multiple phases and microstructure to deliver consistent manufactured products that satisfy a set of performance, economic and environmental parameters.

2.4 The systematic approach in creating a National Innovation Centre

The process of developing a National Technology and Innovation Centre should follow a systematic approach. This guide specifically relates to public-private partnerships, however, the systematic approach equally applies to other funding mechanisms. Figure 2 below summarises the main steps in creating a National Technology and Innovation Centre from identifying the need through to delivery.

Figure 2: Flow Chart identifying the route from concept to Full Business Case submission



Go/No-Go Decision Points:

Decision Point	Go	No-Go	If No-Go
Stage 0 Concept	<ul style="list-style-type: none"> Idea has been researched and validated by the stakeholders and meets a UK need. Relevance to developing and delivering an innovation service to support the UK market 	<ul style="list-style-type: none"> Idea already exists or a similar Centre already exists. A technology change is on the horizon that negates the need for the Centre. Cost to provide the assets or service is too high. Unclear whether it meets UK need. Unclear if there is support from the private or public sector. 	<p>If the need has not been met and has been validated by key stakeholders it would be advisable not to proceed. It may be worth investigating if there is an option to extend the competency of an existing Centre to cover this innovation space.</p>
Stage 1 Scoping	<ul style="list-style-type: none"> Proposal has been scoped out and alignment has been sought with stakeholders and prospective customers/users with regards to the case for change and proposed way forward. SWOT analysis on a wider range of options/costs is agreed. 	<ul style="list-style-type: none"> Key stakeholders, prospective customers/ users do not align with the proposal (including case for change and costs involved). SWOT analysis does not provide confidence the idea has enough strength to go ahead. 	<p>If the case for change has not been agreed and validated by key stakeholders it would be advisable not to proceed. It may be worth investigating if there are any other options, but tread with caution at this stage.</p>
Stage 2 Definition & Planning	<ul style="list-style-type: none"> Themes are agreed and further validation that the idea meets UK need. Support given from key stakeholders. Cost to develop is supported by funding/ investors. 	<ul style="list-style-type: none"> Cost to provide the assets or service is too high. Lack of funding/ investment available. Lack of support by stakeholders. The service is already provided by another Centre. 	<p>If the initial need has been validated but after further market research the idea now is not required stop the process or spend more time on market research and/or involve other stakeholders to redefine this concept. The option to extend an existing Centre should be investigated if there is a market need.</p>
Stage 3 Full Business Case	<ul style="list-style-type: none"> Idea/proposal is agreed. Funding to develop the case and build the Centre is available. Stakeholders aligned and supportive. Timings are in-line with Government policy and strategy. 	<ul style="list-style-type: none"> Approval not given – reasons will be provided. Potential to re-apply (follow government timelines). 	<p>If no approval is given an explanation is usually provided. It may be that the idea is good, but the time is not right. In which case continue to develop the idea and resubmit at an appropriate time.</p>

2.4.1 Key Stages of the Business Case development framework

The key stages summarised in figure 3 below correspond with the flow chart in figure 2, which summarises the main steps in creating a National Technology and Innovation Centre and it also aligns with the gateway process³. The iterative approach for creating a Business Case means further detail will be required at the various stages which results in the creation of the following:

- The Strategic Outline Programme (SOP).
- The Strategic Outline Case (SOC).
- The Outline Business Case (OBC).
- The Full Business Case (FBC).

It is also advisable to refer to the Five Case Model⁴, which is the Office of Government Commerce's (OGC) recommended standard for the preparation of Business Cases and aligns with the HM Treasury's 'Green Book'⁵. *Appendix A shows the Five Case Model and the key elements of good practice Business Cases.*

The Five Case Model is a structured and disciplined approach to systematically consider and evidence a Business Case from five different perspectives. It provides a practical "step by step" guide to the development process of creating a Business Case from identifying the need all the way through to the creation of the Full Business Case encompassing the following:

- A framework for thinking and a process for approval that is flexible and scalable.
- A range of tools that can be applied proportionately to give clarity in the decision support process.
- Each key aspect of a robust investment proposal is explicitly and systematically addressed which ensures that important aspects of the analysis are less likely to be omitted or underweighted.
- A clear audit trail for purposes of public accountability.

The Business Case should enable key stakeholders to ascertain that they:

- Are supported by a robust Case for Change – **the Strategic Case**;
- Optimise Value for Money – **the Economic Case**;
- Are commercially viable – **the Commercial Case**;
- Are financially affordable – **the Financial Case**; and,
- Can be delivered successfully – **the Management Case**.

All of these aspects are important; however, their size will vary from proposal to proposal depending upon its nature and complexity. Some less complex Business Cases, particularly those not involving significant new procurement, new systems or new building construction, may need little or nothing by way of a commercial case and require a less complex management case.

KEY POINT

It is important to remember that to create the final Full Business Case there will be many stages of iteration. It is advisable to sequentially go through each stage detailed in figure 3, where each stage builds on the stage before i.e. the Strategic Outline Programme will be reviewed and subject to iterations will form the creation of the Strategic Outline Case and so on and so forth, with reference being made to the Strategic, Economic, Commercial, Financial and Management cases within each of those stages. It is also important to bear in mind that although the completion of each stage is essential the order in which the stages are completed can sometimes differ.

³ https://www.gov.uk/.../Gateway_2_Workbook_Word_Template_v2.0.doc

⁴ Public Sector Business Cases using the Five Case Model https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/277345/green_book_guidance_on_public_sector_business_cases_using_the_five_case_model_2013_update.pdf

⁵ HM Treasury The Green Book Appraisal and evaluation in Central Government https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

Figure 3: A summary of key stages of the Business Case development framework

Stage	Detail
<p>Stage 0 Concept</p>	<p>Strategic Outline programme (SOP) Prior to the commencement of a project and putting in place the necessary management arrangements, an initial assessment of the proposal should be undertaken to verify the fit and synergy with overarching policies, strategies, other programmes and projects. To ensure that the proposal makes sense in terms of the wider context, a Strategic Outline Programme (SOP) should be considered at this stage. The preparation of the SOP:</p> <ul style="list-style-type: none"> • Revisits the strategic context of the proposal; • Verifies the potential need and scope for the programme; • Confirms the critical path, priority and indicative costs, benefits and risks (net present values) of the fundamental projects. • Prepares the programme for any review required. • Provides an essential source of information for the project. • Defines the initial value creation opportunity.
<p>Stage 1 Scoping</p>	<p>Strategic Outline Case (SOC) At the scoping stage a Strategic Outline Case (SOC) should be completed. The purpose of the SOC is to confirm the strategic context of the investment, it is the scoping stage. It is where you will need to make a robust case for change and provide stakeholders and prospective customers or users with an early indication of the proposed way forward. You will also need to have undertaken a SWOT analysis on a wide range of options together with some indicative costs. At this stage, you might expect:</p> <ul style="list-style-type: none"> • The Strategic Case – There should be clear understanding of the strategic context and how it fits with the strategic aims, business need and project objectives. • The Economic Case – Determine spending objectives, existing arrangements and business needs to explore the preferred way forward. How the Centre will create impact and value. How much value will be created and the timescale. • The Commercial Case – determine potential business scope i.e. attractiveness to potential service providers including key service requirements. • The Financial Case – determine costs, benefits, risks and funding affordability (including capital and revenue constraints). • The Management Case – Outline of who is involved in the project, achievability of the project and other key managerial considerations including change management.

<p>Stage 2 Definition & Planning</p>	<p>Outline Business Case (OBC) At the defining and planning stages an Outline Business Case (OBC) is created. The purpose of the OBC is to revisit the SOC in more detail and to identify a preferred option which determines the potential Value for Money, whilst being conscious of the value and impact the new Centre will have for the UK economy, welfare, social impact etc It also sets out the potential deal; ascertains its affordability and funding requirements; and details the supporting Procurement Strategy, together with management arrangements for the planning of the successful delivery and rollout of the Centre. At this stage, you might expect:</p> <ul style="list-style-type: none"> • The Strategic Case – revisited; • The Economic Case – completed according to the HM Treasury Green Book ; • The Commercial Case – outlines envisaged deal structure/s and key contractual clauses and payment mechanisms; • The Financial Case – contains a detailed analysis of affordability and any funding gaps; • The Management Case –develops in more detail how the scheme will be delivered with an outline of the proposed programme/project management plan (Prince 2 methodology is recommended).
<p>Stage 3 Full Business Case</p>	<p>Full Business Case (FBC) This takes place within the final phase of the project, following detailed negotiations with potential service providers/suppliers to procure value for money solutions, which should include how the Centre will provide benefit to the UK, in particular job creation, investments, exports, reduced foreign imports etc thereafter contracting for the deal once agreement has been sought. This is usually the stage at which final Treasury/board approval is required. The purpose of the FBC is to revisit the OBC and record the findings of the subsequent procurement activities; together with the recommendation for an affordable solution which continues to optimise value for money, and detailed arrangements ensuring successful delivery of required goods and implementation of services from the recommended supplier/s. At this stage, you might expect:</p> <ul style="list-style-type: none"> • The Strategic Case – revisited and revised if required. • The Economic Case –the findings of the procurement included in the analysis and recorded; • The Commercial Case – the recommended deal written-up; • The Financial Case – affordability and funding issues resolved; • The Management Case – the detailed plans for delivery and arrangements for the realisation of benefits, management of risk; and post evaluation are recorded. <p>Following Full Business Case approval It is essential to ensure that the Business Case continues as a live document even when the full Business Case is approved. It will continue to play a major role in the life span of the project including the following:</p> <ul style="list-style-type: none"> • Audit (Both internal and external). • Risk management. • Benefits realisation. • Post project evaluation. • Public Records Act and Freedom of Information Act.
<p>Stage 4 Implementation</p>	<p>'Go Live' This stage is where preferred suppliers are recommended and approval is gained from decision-makers to enter into commercial contracts for the preferred option.</p>
<p>Stage 5 Evaluation</p>	<p>Benefits realisation As the project becomes live, the arrangement for the realisation of benefits is created and reviewed and continuous evaluation is given. The Business Case should be referred to as a living document during this stage. This effectively continues through the life of the project with the key focus being continuous improvement. This section is not included in this guide.</p>

3 Stage 0 – Concept

Typical time to complete: 6-12 months

Typical cost: £50k – 100k

Summary

Prior to the commencement of a project and putting in place the necessary management arrangements, an initial assessment of the proposal should be undertaken to verify the fit and synergy with overarching policies, strategies, other programmes and projects.

To ensure that the proposal makes sense in terms of the wider context, a strategic outline programme (SOP) should be considered at this stage.

The preparation of the SOP:

- Revisits the strategic context of the proposal;
- Verifies the potential need and scope for the programme;
- Confirms the critical path, priority and indicative costs, benefits and risks (net present values) of the fundamental projects.
- Prepares the programme for any review required.
- Provides an essential source of information for the project.
- Define the initial value creation opportunity.

3.1 Identify the UK market need

Initial Idea

A need can be identified from a genesis of different sources:

- The organisation itself;
- From a government partner;
- Academia;
- Research partners/consortiums/advisory boards;
- Potential customers of a Centre;
- A company;
- An industry leadership group, institution or trade body;
- Size and scope of the potential market to be served along with its expected growth rates.

The question you need to answer is ‘how would the creation of a public/private funded facility support the UK market to overcome the gap, create value and have a positive impact on the UK.’

Once the need has been identified and qualitatively described the outline of the core elements of a National Technology and Innovation Centre should be identified.

Initial discussions should take place with the key partners and sponsors, both within the organisation (those creating the concept) as well as external key stakeholders. Identifying the right key stakeholders is essential. *Appendix B shows a guide to identifying key stakeholders and managing workshops.* This process could take some time, depending on the partners involved and the size of the project.

It is invaluable to do plenty of research, identifying and analysing the size of the problem or gap and devising the solutions to resolve it. It is critical to demonstrate the Centres benefit to the UK and to provide detail on how the gaps identified create value and has a positive impact, for example:

- Creating economic growth, whether that be local or national economic impact.
- Creating employment.

- Acquisition of knowledge, skills and expertise.
- Improved welfare (as a result of the above).
- Addressing social challenges:

As the world population continues to rise and people live longer, there are other challenges that need meeting such as energy supply and food security.

It is also critical to have clarity around the public sectors strategy (i.e. government strategy), both locally and nationally; industry knowledge as well as industry 'wants' i.e. what is on their agenda; current research within universities and other professionals is key to giving you a better understanding of the need and where the gaps are.

When conducting a review, it is advisable to think about the business strategy and think about questions such as:

- What is the nature and scope of my collaborators or partners needs?
- How do my collaborators or partners needs differ between public sector and private sector (i.e. SME vs blue-chip)?
- How might my collaborators or partners needs change and evolve over time?
- Who might be my current and potential competitors?
- What are the opportunities for growth?
- How much positive impact can be delivered to the UK economy, how much value created and the timescale to positive impact?

KEY POINT

There is a clear requirement by public/private partners for a Centre to demonstrate their benefit to the UK i.e. the value and impact of the Centre. Evidence needs to be provided including its sustainability in the longer term to maintain and increase the impacts and levels of value described. It is also advisable to fully understand industry and market thinking, industry policies and government policies. It is important to bear in mind that if the idea and subsequent proposal requires significant public sector investment it will be subject to Government timelines. At each stage it is advisable to carefully review the strategy and timescales. If targeting public funding the proposal must fit the budget or Autumn statement timescales. If the proposal is not approved and the requirement is to re-submit the proposal it is advisable to understand the timings for re-submission.

3.2 Validate the UK market need - research how Centre can address the need.

Market Research

A lot of research and preparation is required to create a viable proposal. It is critical to establish the market (UK) need for the project. It is important to identify the needs of the potential users and understand what the partners will need in the longer term as state-of-the-art innovation and technology changes quickly. However, market research should include an external perspective as those working outside the target industry/sector may see opportunities to benefit from the specific service or product. A clear accurate insight into the UK and the collaborators/partners needs will give any innovation the best chance of success. Once the need has been identified it is advisable to gain understanding of how it can be brought to life with innovation and technology by answering these questions:

- What is the problem/gap?
- How are you going to fix it?
- Why are you going to fix it?
- What is the best way to fix it?
- How can you be confident that the benefits of a Centre will be realised?
- Is your proposition unique? i.e. does it already exist in the market (National or international)? Verify that the Centre doesn't infringe on existing designs/patents i.e. IP.
- Why is the Centre needed? - Can the proposition be done at an existing Centre or by extending an existing Centre?
- How widespread is this need - national or international?
- What sector is the need for? Where are the opportunities?

- What existing solutions might meet this need?
- What is missing with this need? And does this solution really not exist?
- What will change as a result of having a National Technology and Innovation Centre? – How will it ‘plug the gap’?
- How does it differ from what’s been done before?
- What do you need to be more successful?
- How will it be funded?
- Is it a need which will be subject to specific strict regulations?
- What are the safety regulations?
- How will it have a positive impact and create value for the UK economy and the partners?
- Initial risk analysis?

KEY POINT

A concise competitor analysis, market analysis and impact assessment will help in the review process and also help to answer these questions. Spending time and effort at this stage is worth it in the long term. Revisiting the concept until this is clear saves considerable time and effort in the later stages.

3.3 Assessment of risk

It is important to assess and measure the scale of risk involved in a proposal at the early stage as well as assessing whether the level of effort is fit for purpose and matches the scale and type of decision required. Scalability is not just a function of size, a small proposal can still expose the stakeholders and organisation to risk. If a proposal is deemed as high risk, using a Risk Profile Assessment (RPA) tool provides an indicative risk rating for the investment proposal. *Appendix C shows a risk profile assessment tool.*

3.4 Assessment of the Value Creation and Impact Potential

When identifying the market need and verifying that need, it is also essential to ensure that an assessment of the value creation and impact potential is completed as part of the verification.

Value is created as a result of research being translated into a commercial manufacturing business. Benefits result from elements such as:

- Capital investment in plant and equipment.
- Jobs created in the manufacturing process and associated activities.
- Margin on sales and income from exports.
- Operation costs such as purchases of raw materials, utilities and services.
- Value from intellectual property including know-how.
- Development of people with the skills to repeat innovation.
- Value from integrated upstream and downstream supply chain.
- Social or financial benefit from the use of the product or service.
- Value of floated businesses on AIM or other stock markets.
- Taxes paid.

Measuring and assessing the impact of the value creation should be a framework for discussion and the people involved will need to seek to define and record the data to capture quantitative and qualitative data, such as:

- Have you invested capital in plant and equipment in the UK?
- Have you created or retained jobs in the UK?
- Does the business have a turnover in the UK?

- Does your company export from the UK?
- How much of your purchases are from UK supply chains?
- Do you create value from intellectual property and know-how?
- Do you develop people with the skills to drive and repeat Innovation?
- How much of the total supply chain from raw materials to downstream product is located in the UK?
- Does your company deliver social benefit?
- Have you created value from a stock market floatation or attracted private investment to the innovation
- Do the company and the people working on your innovation pay taxes in the UK?
- Have you helped deliver investment in the UK by companies that could have placed their innovation activities elsewhere?

When making the value and impact assessments it is advisable to also incorporate into the proposal and Business Case, the industry size (that the Centre will be focused around) the scale and how much it could grow as a consequence of the value created.

3.5 Intellectual Property

What is IP

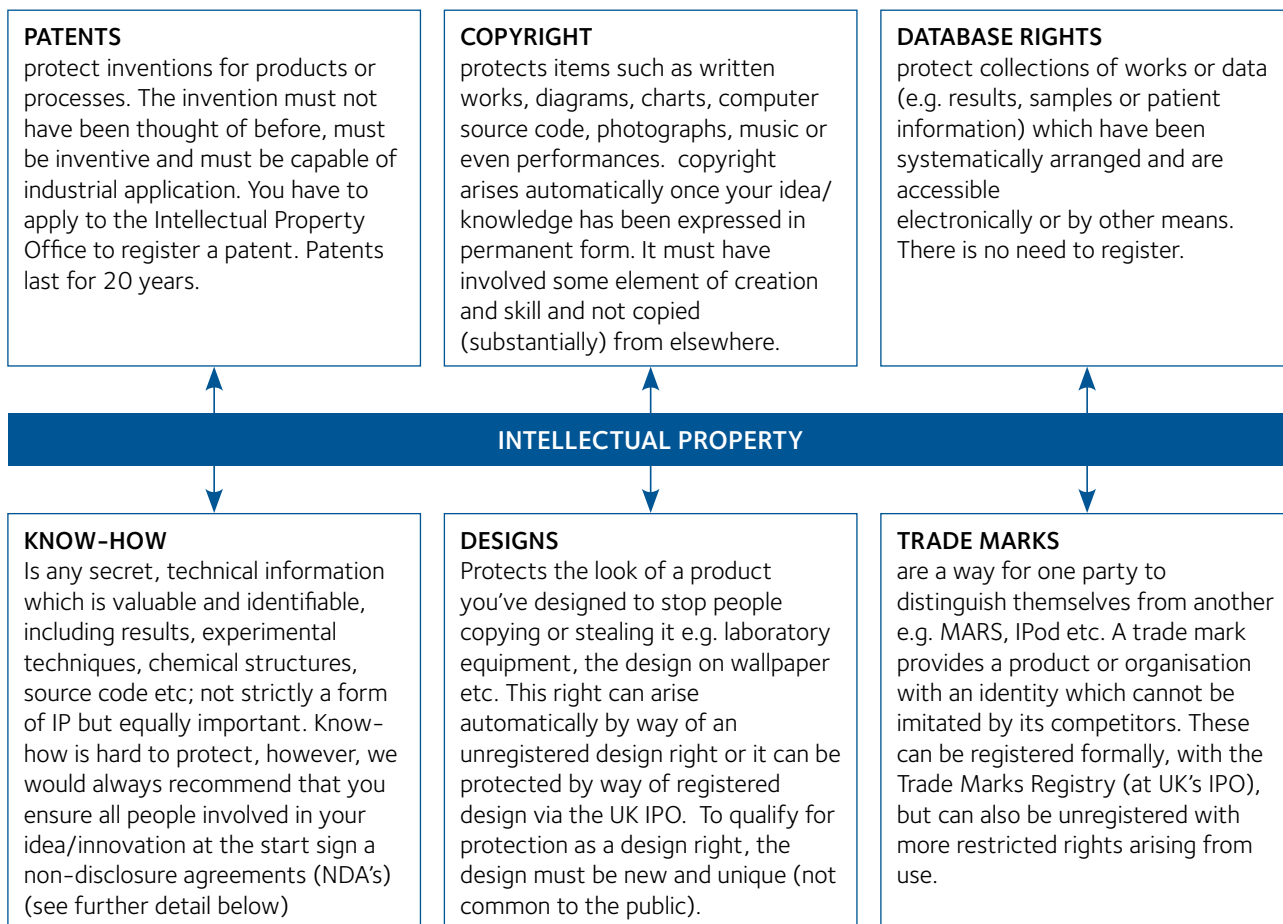
Intellectual Property (IP) is creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce. It can arise 'automatically' where there is no requirement to register it, for example copyright; or it can be protected by registration, examples being patent or trade mark protection. IP, other than process know-how and trademarks, will generally be held by the partners of the Centre. The types of intellectual property that may be considered are illustrated in figure 4 below.

IP requirements for setting up a Centre:

This section provides guidance to both managing IP during the initial stages of setting up a Centre i.e. when collaborating with stakeholders and also managing the IP of prospective customers/users of the Centre. It is advised that the following elements should be addressed:

- Ensure stakeholders are aware about what 'open access' Centres are and offer.
- During the initial stage of setting up the Centre and whilst working with various stakeholders, it is important to ensure the IP is protected. It is recommended to use a Non-disclosure Agreement (NDA)/Confidentiality Agreement.
- Ensure the legal structure and approach is considered at the start.
- Check the strategic IP positioning in terms of how the Centre will be operating and also how the partners/users will be operating (IP varies for each technology areas and sector) - it is the Centres responsibility to protect the IP of its partners/users.
- Identify and manage properly the IP rights/positioning when working with academia, R&D specialists, service users, partners etc as well as industry as a whole.
- Ensure the IP and state aid model is fit for purpose – a model where a centre wants to keeps IP will not work.
- Ensure specialist advice is sought with reference to State Aid law and funding.
- The Centre will need protection and exploitation processes in place, especially if partners are intending to release protectable IP.
- A Centre should have its own intellectual property policy and should include the following:
 - a. Coverage of intellectual property policy;
 - b. Ownership of intellectual property;
 - c. Disclosure of intellectual property;
 - d. Marketing, commercialisation and licensing of patents;
 - e. Distribution of income;
 - f. Rights and obligations of an inventor and the institution;

Figure 4



KEY POINT

IP rights need to be established before engaging with any public/private partner and the Centres users. It cannot be stressed enough that building trust will help diminish the barriers between National Technology and Innovation Centres and business collaborators. It is also advisable to review the UK and EU Intellectual Property Office and any publications in that area.

4 Stage 1 – Scoping

Typical time to complete: 6-12 months

Typical cost: £100k – 150k

Summary

At the scoping stage a Strategic Outline Case (SOC) should be completed. The purpose of the SOC is to confirm the strategic context of the investment, it is the scoping stage. It is where you will need to make a robust case for change and provide stakeholders and prospective customers or users with an early indication of the proposed way forward. You will also need to have undertaken a SWOT analysis on a wide range of options together with some indicative costs. At this stage, you might expect:

- The Strategic Case – There should be clear understanding of the strategic context and how it fits with the strategic aims, business need and project objectives.
- The Economic Case – Determine spending objectives, existing arrangements and business needs to explore the preferred way forward. How the Centre will create impact and value. How much value will be created and the timescale.
- The Commercial Case – determine potential business scope i.e. attractiveness to potential service providers including key service requirements.
- The Financial Case – determine costs, benefits, risks and funding affordability (including capital and revenue constraints).
- The Management Case – Outline of who is involved in the project, achievability of the project and other key managerial considerations including change management.

Validate the viability and value of the solution (proposal scoped out and submitted (in collaboration with key stakeholders)). To progress with developing the National Technology and Innovation Centre, it is essential to demonstrate the value, impact and viability of meeting the Market (UK) need.

There are 3 documents that are produced at this stage. They are;

1. The Proposal.
2. The Business Plan.
3. The Business Case.

4.1 The Proposal

This summarises the case for the proposed Centre to be created. This is defined as a result of a number of workshops with partners, one to one meetings and the key internal stakeholders. The structure of this activity is crucial. *Appendix D shows How to assess whether the proposal is for a Portfolio a Programme or a Project.*

KEY POINT

It is essential to review the results of the earlier activities: Why is the centre needed? How will it be funded? What will change as a result of the centre? How can you be confident that the benefits of the centre will be realised? etc and add more detail. It is quite normal to use the same questions throughout the process and go through various iterations.

One of the outcomes of this stage is the definition of the Centres themes. There are usually 4 to 7 core activities that the Centre will focus its work on over a 10 year period to make sure innovation conditions are created to allow any

innovations to succeed. The key themes are one of the main outcomes from the workshops and discussions with the public/private partners.

An approach that has proven to be successful is to start with a “quick look workshop” bringing together a small informed group. Whilst this will not provide all the answers it is a good starting point and structure. Prior to these workshops it is important to have inputs from market research that include: market analysis, assessment of current status vs. industry trends and competitor landscape. This can be used to provide evidence that the Centre has potential to make a positive impact. It is also where a robust case for innovative change is made and provides stakeholders and prospective partners with an early indication of the way forward. A SWOT analysis should be done at this stage together with an initial estimate of indicative costs. *Appendix E shows a SWOT Analysis.*

The questions below are also a good guide for how to approach the market research and Centre activities:

- What is the need? A Centre, albeit should be focused around the UK need, should have the ability to provide services nationally and internationally. Do not only focus on local problems.
- What are the benefits of the Centre in terms of value creation and positive impact? This will include measures such as: creating or retaining jobs in the UK; developing people with the skills to drive and repeat innovation; delivering social benefit; delivering investment in the UK by companies that could have placed their innovation activities elsewhere etc.
- Data about the scope, size and growth of the market itself combined with the nature of the industry or social need? This is an iterative process and should be added and amended as the process continues.
- Views of the stakeholders and Advisory Board.
- What will make any Centre effective – it’s ‘Unique Selling Proposition’ (USP) – and why would partners work with this Centre rather than others? Be as constructively critical as possible. It is often beneficial to get outside advice and input to get a different perspective.
- How will income be generated and what are the costs likely to be?

Appendix F shows a template of a proposal.

4.2 The Business Plan

The Business Plan is the document that describes what the Centre will do, how it will do it and how it will be funded. The Business Plan describes the business opportunity for the creation of a National Technology and Innovation Centre

A sound Business Plan will encourage others to invest (time, money etc) into the Centre being proposed. It is essential that the Business Plan incorporates the following:

- A formal requirements specification and project plan with timelines and milestones (e.g. producing first design, producing first prototype (where relevant)), and an estimate of the cost required to reach them.
- The main stages of development.
- A management review.
- Verification and validation activities.
- Resource requirements and availability.
- Project milestones.
- Areas of risk and responsibility – Develop a risk assessment based on economic hazards and create a contingency plan.
- Costings.

It is also advisable to consider the following (this isn’t relevant in all situations):

- Setting up a registered company or other legal entity to receive external funding.
- Plan for researching and preparing patents. Check relevant contracts and/or collaboration agreements early to identify who has the rights to exploit the IP (intellectual property).
- For medical related services/products consider regulations and classification.
- Consider forming a strategic partnership to access skills that cannot be sourced internally.

- Protect the new Centre with insurance and appropriate legal expertise.

Although the Business Plan is not essential until the route to delivery is defined it is very useful in the planning and phasing of understanding how quickly and at what cost the Centre can be created. It may be prepared before or after approval is secured from the public sector partner. The framework is required as soon as the themes have been developed to discuss with key stakeholders (public and/or private sector partners).

KEY POINT

The Business Plan is critical and should be revised continuously throughout the process once it has been created. It can enable refinement of what is being targeted and to help develop a strategy. Ensure key stakeholders, such as influential leader, industry experts etc are on board with the Business Plan.

Appendix G shows a template of Business Plan.

4.3 The Business Case

The Business Case is a key document if public sector funding is required. It is an examination of the potential opportunity to create benefit and positive impact in the UK. It is vital to the Go/No-Go decision for Centre creation. The Business Case must be grounded in the strategy or the Business Plan. It links strategic planning and implementation of decisions for change.

The Business Case summarises the research and analysis and supports the decision making in a transparent way. In its final form it becomes the key document of record for the proposal. It summarises the themes, objectives, benefits and impacts. It also includes the key elements of implementation management and arrangements for post implementation evaluation. *Appendix H shows a template of a Business Case*

The Process of Delivering the Business Case

All public sector Business Cases are assessed via the Investment Gateway process. The decisions and final summary papers are likely to be presented to the Secretary of State depending on the nature of the Centre proposals. Proposals that come through Innovate UK go into The Department for Business Innovation and Skills (BIS), whilst those that are developed with a Local Enterprise Partnership go to the Department for Communities and Local Government.

The pathway through writing a Business Case will vary depending on the funding mechanism and the partner groups. *It is important to remember:*

- It is an iterative process – at each iteration, further detail will be provided. Business Cases are a living document.
- Establish a plan as early as possible; Getting something down on paper enables collaboration/feedback from an early stage.
- Develop strong collaborative relationships with key people in the funding groups, supporting partners, sponsors and key influencers. These partners will have at least as much influence over the development of the scope and case as the proposal writers.
- Ensure there are enough resources to undertake the development of the Business Case, including people, time, and finance throughout the process.
- Set up a logical filing system and get protection protocols in place early.
- Involve group analysts, economists and finance business partners – from the outset.

⁶ OGC Gateway Process https://www.gov.uk/.../Gateway_2_Workbook_Word_Template_v2.0.doc

- Business Cases should be tightly drafted and kept as succinct as possible. This will help internal scrutiny.
- It should be one document – It is essential that the Business Case can be read as a coherent piece.
- It should be proportionate – depending on the planned scale of spend and whether the proposal is novel or contentious. There needs to be enough information for the funders to make an informed decision quickly and effectively.
- Always be ready to answer questions and queries from partners and funders.
- It should be well communicated so that it can be easily understood by all i.e. not just technical experts or specialists.
- Have a clear delivery plan and be able to show it with Gantt charts, risk analysis, milestones and objectives.
- Analysis and quality assurance should be fit for purpose.

Appendix I shows a checklist for the assessment of a Business Case using the Five Case Model

5 Stage 2 – Definition & Planning

Typical time to complete: 6-12 months

Typical cost: £150k – £300k

Summary

At the defining and planning stages an Outline Business Case (OBC) is created. The purpose of the OBC is to revisit the SOC in more detail and to identify a preferred option which determines the potential Value for Money, whilst being conscious of the value and impact the new Centre will have for the UK economy, welfare, social impact etc It also sets out the potential deal; ascertains its affordability and funding requirements; and details the supporting Procurement Strategy, together with management arrangements for the planning of the successful delivery and rollout of the Centre. At this stage, you might expect:

- The Strategic Case – revisited;
- The Economic Case – completed according to the HM Treasury Green Book ;
- The Commercial Case – outlines envisaged deal structure/s and key contractual clauses and payment mechanisms;
- The Financial Case – contains a detailed analysis of affordability and any funding gaps;
- The Management Case –develops in more detail how the scheme will be delivered with an outline of the proposed programme/project management plan (Prince 2 methodology is recommended).

5.1 Alignment of Will and Determination

It is advisable to get sponsors on side at this stage, involving them early in the process and in refining the proposal/ Business Case will be essential to the Centres success. It is also advisable to be clear about how this should be achieved and the route to take. Below are some key considerations:

- Setting up an Advisory Board.
- Setting up a Collaborative Partnership.
- Setting up a Steering Group.

Appendix J shows building relationships with sponsors.

5.2 Review of the proposal and key themes

This stage is an iterative process which could take a number of months to complete. The outcome is the full investment case with all the relevant planning and design steps in place that the Centre can be built, created and opened to a specific timescale and a specific contract. Once the proposal has reached this stage it will be ready for approval by the partners and delivery by the relevant organisation.

It may include further workshops, but also the practical steps that set the Centre up for delivery. These meetings take place over a number of months to help clarify the key themes and clarify the proposal itself.

The key themes are critical to the success of the Centre; they are the heart of the proposal. They are the critical success factors the Centre is proposing they will achieve over the first 10 year period. The meetings/workshops will continue to ensure clarity of the key themes and the key deliverables within them. It is advisable to build good relationships with the public sector partners, finding someone who will be a ‘champion’ of the proposed Centre, as this can really help quicken the process and get early buy-in.

KEY POINT

During the final stages of the proposal it is advisable to try and gain endorsement from key sponsors, such as letters of support or even contracts. This helps develop and market the Centre and provides backing when trying to seek approval.

5.3 Review of the Business Plan and Business Case

In parallel to the proposal, work should continue with the creation of the Business Plan and Outline Business Case and at this stage both should be stress tested. The outputs from the meetings/workshops will inevitably be inputted into the Business Plan and Outline Business Case, but it also provides an opportunity to do more market research/analysis which equally can be fed back into the meetings/workshops, often providing further validity.

5.4 Formulating a Funding document

Finance sources for creating National Technology and Innovation Centres are varied in that it can come from public and/or private partners. There are usually three sources; business-funded R&D contracts; collaborative applied R&D projects, funded jointly by the public and private sectors, also won competitively; and core public funding. Funding requirements also vary, they can be for capital and/or revenue and the way in which funding is provided also varies.

Before seeking funding it is advisable to create a funding formulation document which should detail the following:

- How much funding is required and over what period? Where the funding will come from and the creation of a risk assessment is required.
- The expenditure plan? Shows what the funds will be spent on, when they will be spent and what will be delivered. This needs to include income and expenditure.
- The Centre plans for the first two to three years showing what it will do, what equipment it will have and what markets it will serve, who the partners will be and what the first few major projects will be targeted on.
- Show what the main outputs, milestones, value creation and impacts will be in the early years.
- Demonstrate ability to deliver the proposal and the track record of success.
- Show the timeline and delivery deadline.
- Show funding sources from public and private sectors. Show what is confirmed and what is expected to be secured from other sources or competitions.
- Be clear on the type of funding i.e. match funding or leverage funding and provide a rationale for choosing one or both.

At this stage it is also advisable to demonstrate a wide range of options for delivering the required services and meeting the investment objectives that have been identified. A good way to do this is to create a cost benefit and cost effectiveness analysis, ensuring all monetised information on costs and benefits and qualitative detail is documented as well as all non-monetised costs and benefits.

A preferred option should also be provided with the optimal mix of potential benefits, costs (value for money (VFM)) and risks under varying future scenarios as well as clear evidence detailing the scale of the problem and how the proposal will address this.

5.5 Formulating the design and planning document

During this stage it is also advisable to commence the Centres design, planning, infrastructure and build details. When designing and building a Centre, all builds are required to follow the public procurement regulations. There are certain restrictions which most procurement departments will be aware of, in particular around deadlines relating to funding spends, deadlines around publically procuring, defrayment of the budget and how suppliers are chosen which need to be factored into the Business Case and associated programme timelines. The user requirements should be defined at this stage and the tender process can be scoped out, again, in line with procurement.

In terms of the design process, it is advisable to include the following stages:

- Analysis of the location, site and infrastructure – It is critical to provide options and clear justification for the location and site etc such as new build, leased properties, civil engineering requirements etc.
- Design, planning and development, including exploration of development options and consultation.
- Consulting and engineering design – Including the process specification requirements, equipment and technology specification, infrastructure requirements, manufacturing costs and efficiency.
- Facility services and construction.
- General.
- Benefits and risk analysis.

Costs:

- Spend profile.
- Construction capital.
- Capitalisable revenue to commissioning completion.
- Operating costs.

KEY POINT

During this stage it is essential to engage with industry partners (perhaps the chosen sponsors) and with public partners to scope out what the requirements are for the design and build of the Centre. It is also critical to ensure there is focus on the positive value creation and impact for the UK market.

6 Stage 3 – Full Business Case

Typical time to complete: 2-3 months

Typical cost: less than £50k

Summary

This takes place within the final phase of the project, following detailed negotiations with potential service providers/suppliers to procure value for money solutions, which should include how the Centre will provide benefit to the UK, in particular job creation, investments, exports, reduced foreign imports etc thereafter contracting for the deal once agreement has been sought. This is usually the stage at which final Treasury/board approval is required. The purpose of the FBC is to revisit the OBC and record the findings of the subsequent procurement activities; together with the recommendation for an affordable solution which continues to optimise value for money, and detailed arrangements ensuring successful delivery of required goods and implementation of services from the recommended supplier/s.

At this stage, you might expect:

- The Strategic Case – revisited and revised if required.
- The Economic Case – the findings of the procurement included in the analysis and recorded;
- The Commercial Case – the recommended deal written-up;
- The Financial Case – affordability and funding issues resolved;
- The Management Case – the detailed plans for delivery and arrangements for the realisation of benefits, management of risk; and post evaluation are recorded.

6.1 Submission of the proposal

First is submission of the final proposal, where all key stakeholders have agreed the key themes and are happy with the case of change and value for money. At the same time the Business Plan is also submitted. At this stage the Proposal is either approved in principle or will fail to secure support. What this means is that the centre has approval to go ahead, however, no monies/funding have yet been released, so any works carried out will be done so at risk.

6.2 Submission of the Full Business Case

Once the approval in principle is provided the Full Business Case is submitted to the relevant public/private partners. The Full Business Case should not take long at this stage as it should simply focus on updating the Outline Business Case.

During the Full Business Case stage there are key elements which need to be followed:

1. *Contracting for the deal* – a detailed overview of the deal should be provided which has been negotiated between the public sector organisation and the preferred choice of service provider. In essence it is the commercial transaction that the organisation and approving authority sign up to.
2. *Financial implications of the deal* – the service providers charges should be detailed including capital and revenue implications; the income and expenditure accounts and balance sheets also need to be included as well as the overall affordability and funding arrangements for the deal including any written confirmation from other key private sector financiers, including contingency for overspend;
3. *Finalising project management arrangements and plans* – which should focus on detailed arrangements for the design, build and implementation.
4. *A change management plan, or resource plan should be completed* – this should include reporting lines, roles and responsibilities etc.
5. *Benefits realisation plan and risk register* – this should include the Centres plans for the ongoing management and delivery of the benefits and all financial and non-financial benefits; an ongoing risk and mitigation plan must be included which specifically needs to include all design, build and implementation phases as well as operation phases of the project.
6. *Arrangements for post evaluation* – the FBC should include review arrangements for a necessary health checks; investment decisions; go-live and benefits realisation. These need to be factored for the following stages:

- As soon after the implementation of service.
- Reviewing how well the service is running and delivering the benefits (6-12 months of going live)
- Periodically thereafter for the life of the Centre.

KEY POINT

It is important to include with the full Business Case the latest version of the project plan which reflects the implementation timescales that have been agreed with the service provider for the delivery of the services, including being signed off by ALL relevant stakeholders.

Once the FBC is submitted, and if successful, an offer letter will be provided. At this stage spending can commence without being at risk, i.e. focus can be made on the design and infrastructure of the National Technology and Innovation Centre. Focus will then be on delivering the Centre, 'Go live' and Evaluation.

Following Full Business Case approval

It is essential to ensure that the Business Case continues as a live document even when the full Business Case is approved. It will continue to play a major role in the life span of the project including the following:

- Audit (Both internal and external).
- Risk management.
- Benefits realisation.
- Post project evaluation.
- Public Records Act and Freedom of Information Act.

7. Sources of Information

- The Department for Business, Innovation and Skills (BIS)
<https://www.gov.uk/government/organisations/department-for-business-innovation-skills>
- Office for National Statistics
<http://www.ons.gov.uk/ons/index.html>
- Innovate UK
<https://www.gov.uk/government/organisations/innovate-uk>
- Intellectual Property Office
<https://www.gov.uk/government/organisations/intellectual-property-office>
- Knowledge Transfer Network
<http://www.ktn-uk.co.uk/>
- Knowledge Transfer Partnerships
<http://connect.innovateuk.org/web/ktp>
- Five case model
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/277345/green_book_guidance_on_public_sector_business_cases_using_the_five_case_model_2013_update.pdf
- HM Treasury 'Green Book'
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf
- Small Business Research Initiatives (SBRI)
<http://sbri.innovateuk.org>

8. Acknowledgements

We would like to acknowledge the following individuals for their invaluable guidance and support:

Nigel Perry – CEO, Centre for Process Innovation.

Chris Dowle – Director of NBMC, Centre for Process Innovation.

Andrew Whittaker – Senior Director, Formulations, Centre for Process Innovation.

Tim Saunders – General Counsel and Company Secretary, Centre for Process Innovation.

Tom Taylor – Director of Future Business, Centre for Process Innovation.

Louise Barker – Business Services Manager, Centre for Process Innovation.

Arun Harish – Corporate Business Development Manager, Centre for Process Innovation.

Darren Ragheb – Project Manager, National Formulations Centre, Centre for Process Innovation.

Kris Wadrop – Technical Programme Director, Centre for Process Innovation.

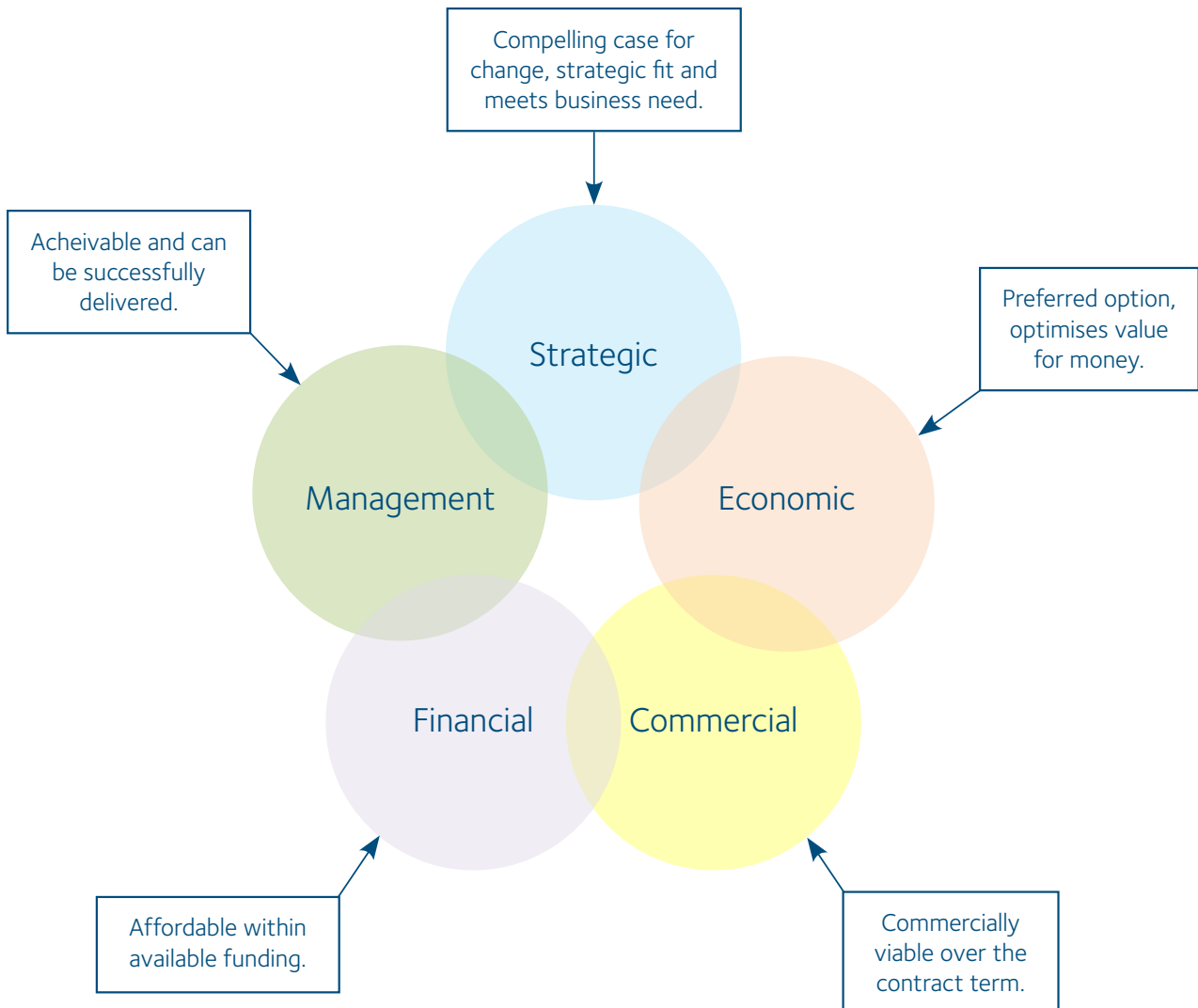
Gerry Thwaites – Management and Resource Consultant, CSQ Ltd.

9. Appendices

Appendix A	The five case model – The key elements of good practice Business Cases
Appendix B	A guide to identifying key stakeholders and managing workshops
Appendix C	Risk Profile Assessment tool
Appendix D	How to assess whether the proposal is for a Portfolio, a Programme or a Project?
Appendix E	SWOT Analysis
Appendix F	Template of a Proposal
Appendix G	Template of a Business Plan
Appendix H	Template of a Business Case
Appendix I	Building relationships with Sponsors
Appendix J	Checklist for the assessment of Business Cases using the Five Case Model

Appendix A

The Five Case Model – The Five key elements of good practice Business Cases



N.B. The 5 dimensions are developed as one integrated set rather than sequentially. However, there may be several iterations.

The five elements addressed within the Business Case development process:

Element	Objective	Overview of requirements
Strategic	To make the case for change, demonstrate policy fit and objectives.	<ul style="list-style-type: none"> • Development of strong rationale for why the intervention is needed based on assessment of needs and existing situation. • Description of intervention required. • The fit with the existing policy/strategy (including wider departmental), including policy review. • Identification of SMART objectives.
Economic	To demonstrate the proposal optimise public value and create positive economic impact for the UK.	<ul style="list-style-type: none"> • Identification of a long list of options against identified objectives and success factors. • Clarity on the scale of the problem/market failure and extent to which this will be addressed. • Cost benefit analysis of a short list of options (in line with the HM Treasury Green Book¹). • Quantitative assessment of options, qualitative impacts and analysis of impact on different groups. • Identification of preferred option. • Sensitivity analysis.
Commercial	To demonstrate that the preferred option is a viable commercial proposition.	<ul style="list-style-type: none"> • Delivery mechanisms. • Planning and management of procurement. • Specification of the output requirements of the proposal. How it will create value and the how much will be created. • Specification of allocation of procurement risks through design, build, funding and operational phases. • Identification of contractual arrangements (issues) and accountancy treatment. • Apportionment of risks between public and private sectors.
Financial	To demonstrate that the preferred option is fundable and affordable and will have positive impact.	<ul style="list-style-type: none"> • Identification of capital and revenue requirements over the lifespan of the proposal. • RDEL/CDEL splits. • Assessment and identification of funding into the future years. • Scalability of proposal. • Financial analysis. • Benefits, impact and value creation.
Management	To demonstrate that the preferred option can be delivered successfully.	<ul style="list-style-type: none"> • Create timetable and milestones. • Identify governance structure (particularly of high risk projects). • Specification of project management arrangements including contract management, delivery of benefits and mitigation of risk. • Plans for evaluation.

¹ HM Treasury The Green Book Appraisal and evaluation in Central Government https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

Appendix B

A guide to identifying key stakeholders and managing workshops

Engage Early with Stakeholders

Early engagement with stakeholders is critical to the success of the Business Case development process. It helps to ensure that there is a common and early understanding of the need for investment, agreement about the timing and process stages and the level of effort required by all involved.

Stakeholders are those individuals or organisations that may have either an interest in the success of the investment proposal or can influence the achievement of the proposal's objectives. Different stakeholder groups can derive different benefits from an investment proposal. Similarly different stakeholders will perceive issues and values from differing perspectives.

Successful stakeholder engagement helps to engage the right people in the right way. Engaging early and at key points in the process will ensure that stakeholders are able to challenge and shape the direction of the proposal, as well as providing specialist judgement and opinions to help develop the investment story. This can help improve the investment proposal and build support to improve the likelihood of success.

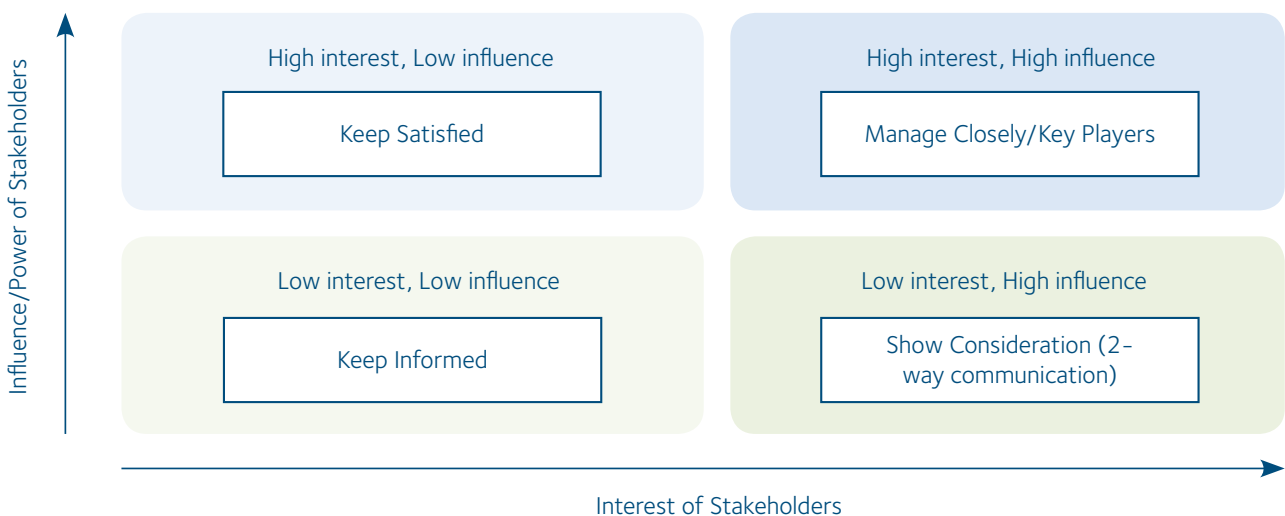
KEY POINT

Set expectations up front with public and private sector partners. Getting early buy-in is key with private sector organisations, however, be clear around timelines, process, funding availability etc. It is always useful to create a stakeholder management strategy so everyone knows what to expect.

A Way of Working Together

Development of the overall Business Case is a collaborative effort that draws upon the various skills and perspectives of a range of interested parties. The approach provides for the use of multi-disciplinary teams to provide all the capabilities required. Creating a stakeholder map can really help to identify who the key stakeholders should be. See figure 3 below:

Figure 3: Stakeholder Map



There are three stages in managing the stakeholder engagement:

1. Identifying stakeholders (Who):

Stakeholders can include business managers, colleagues, governance groups, partners, investors, funders, suppliers, users, customers, the public, the community, industry groups, media and other interest groups. Some of the relevant key stakeholders are named below:

- The Department for Business, Innovation and Skills (BIS)
- Innovate UK
- Academia
- Knowledge Transfer Network
- Advisory Boards
- Trade Associations

2. Analysing stakeholders (Why and What):

- Which stakeholders should you focus your efforts on and why?
- What do they care about?
- What motivates them? i.e. what's in it for them e.g. is it political power – is wanting to solve unemployment critical to them?
- What is their current level of power, interest and influence?
- Where do you want them to be?

3. Planning the stakeholder engagement (How):

- How do you build support?
- How do you win over sceptics or blockers?
- How do you engage and maintain the interest of supporters and advocates?
- How to address emerging concerns?
- Changing levels of interest?
- How do you ensure effective communications (i.e. the right amount of timely information)? Key messages and channels?

The Use of Facilitated Workshops

A critical enabler for effectively engaging with key stakeholders is the use of facilitated workshops. Facilitated workshops are used to expose, challenge and build consensus. The use of a common language supports effective communications with stakeholders and other contributors.

Working collaboratively helps in developing fit for purpose and robust Business Cases that better meet expectations and more fully informed decision-making.

Experience demonstrates that the Business Case is best developed through a managed series of facilitated workshops involving key stakeholders, partners, customers and users etc, at the critical phases of its development to enable early engagement; to help develop a shared understanding; and to reflect a representative mix of specialist judgements and opinions in shaping and directing the investment proposal. This can add immeasurably to the quality of the analysis as well as helping to support the approval and successful delivery of the project or programme.

The number and timing of the workshops will depend on the nature of the investment proposal and the stakeholder management strategy. This process should be agreed and documented early as part of the Scoping Document.

Workshops are recommended for the following 8 initial aspects of the Business Case development, (the number of workshops required within each aspect will depend on the complexity of the project) in most instances they are required to 'close off' the following aspects:

1. Identifying the UK Need (the idea) and consultation with public sector partners – The consultation process with the public sector partners commences at the very beginning of the process. The workshops need to be set up to enable the identification of key themes, from which the Business Case and Business Plan can be created.
2. Identifying and agreeing the investment drivers (problems/opportunities) and the need to Invest i.e. validating how the innovation will address the need – Appointment of the Senior Responsible Owner (SRO) and team are critical at this stage. The workshop required here is often called a ‘Quick look workshop’ or a ‘Tiger Team workshop’ – Whilst this might not provide all the answers at this stage it should provide a good starting point and structure
3. Developing the case for change – Focusing on defining and agreeing SMART business needs, potential scope and the investment objectives as well as desired outcomes and service outputs. It is also good practice to define and agree the critical success factors and a benefits criteria for assessing the options.
4. Scoping out the proposal - Identifying a wide range of potential options (the long-list) – and sift the long list into a short list by identifying and assessing the potential costs, benefits (outlining a benefits realisation plan) and risks associated with the short-listed options including inputs for economic appraisal.
5. Developing the proposal - Assessing options and the preferred way forward (or the preferred solution) by developing the apportionment of risk and underpinning payment mechanisms. Key themes will also be generated at this stage. You will also be developing the Business Plan and Business Case.
6. Final proposal stage - Determining the supporting strategies as well as developing the project plan, funding arrangements as well as finalising the Business Plan and Business Case.
7. Assessing the potential service providers and solutions – the workshop here is generally undertaken as part of the procurement process, in conjunction with the organisation’s procurement department.
8. Implementation or ‘go live’ – the workshop here is to take the Business Case forward and to commence the design and infrastructure work.

The characteristics of each workshop will depend on what is to be achieved, whether it is to build consensus, to communicate, to collect information, to brainstorm ideas or to undertake analysis/evaluation. This in turn will determine the workshop tools to be used, the choice of facilitator, venue, timing and the attendees to invite. The workshop process should be planned in advance as part of the ongoing stakeholder engagement.

The use of work streams is also critical to address different aspects of the project so that ownership is encouraged below the SRO.

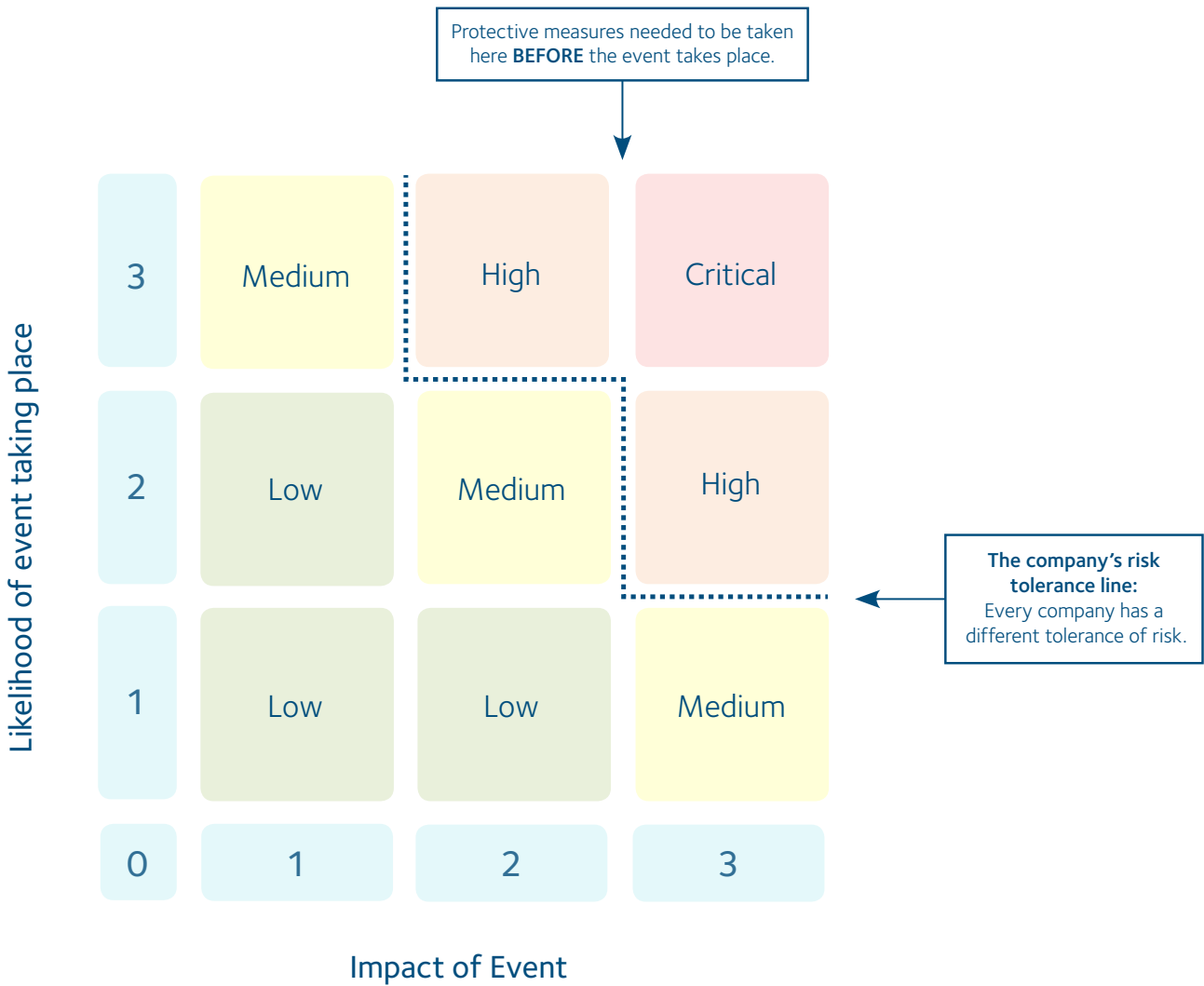
Using experienced facilitators can help to ensure that the right tools are applied in the right way to result in successful outcomes for the workshop. Using external facilitators can help to provide independence and ensure that any assumptions and ideas receive the appropriate level of challenge.

Other Communications to Stakeholders

Different methods of communicating the Business Case analysis and recommendations will be needed, depending on the various information and assurance requirements of the intended audiences. A one page presentation can assist with communication, they are intended to summarise and demonstrate the underlying analysis provided in the Business Case deliverables and supporting documentation. The SRO has a key leadership role in engaging key stakeholders and ensuring the development of any analysis, planning and communication documents.

Appendix C

Risk Profile Assessment Tool



Appendix D

How to assess whether the Proposal is for a Portfolio, a Programme or a Project?

It is important to determine, as early as possible, if the Business Case/Proposal relates to a project, a programme of change, or a portfolio of investment. Managing large projects must be structured and managed well to enable success.

A portfolio is all, or part, of the organisations investment in the changes required to achieve, its strategic objectives. A portfolio may contain a mix of programmes and projects.

Programmes tend to be outcome focused and bring together multiple projects under a single coordinating structure, when it makes sense to do so due to each project's contribution to the programme outcomes. Programmes can include pieces of work that are not projects (for example on-going business as usual work), and can have a variety of structures.

Comparison of the key differences between programmes and projects:

Programme	Project
Creates new capability in order to realise one or more key organisational strategies. It is about delivering outcomes and programme level business benefits.	Creates and delivers products (or services) that will deliver defined project-level business benefits within agreed budget, timeframe and quality standards. It is about delivering outputs.
Business change is transformational. Entirely new business models, capacity and/or activity will transform significant parts, or all, of the organisation.	Business change is incremental. Integration of the product(s) requires adjustment to existing business functions and/or personnel.
Programme leadership has a broad focus across the business and wider organisation in order to achieve the desired change and benefits.	Project leadership primarily focuses on product and task delivery in order to meet agreed success criteria, including delivery of project level business benefits.
Scope evolves over time and change is the norm – only very significant change would be escalated.	Scope is tightly managed and change must be carefully controlled – changes are escalated.
High-level planning provides guidance – but is likely to change as the programme progresses. Project plans are aggregated into the overall programme schedule.	Detailed, stage by stage planning is critical to Managing successful product delivery.
Always big, relative to the size of the organisation.	Can be big or small.
Have a long timeframe – normally several years.	Have a shorter timeframe – normally up to 18 months.
Can initiate new, or alter existing projects and activity to adjust to strategic changes.	Cannot initiate new work and is less likely to be affected by strategic change.

Programmes and projects do have some things in common. They both:

1. Are required to deliver capability to the organisation to allow it to deliver benefits.
2. Require good governance, controls and management disciplines (such as risk, assurance, finance, monitoring and

reporting) to be in place.

3. Require the active involvement of the Senior Responsible Owner (SRO).

Once you have established whether the proposal relates to a project, a programme of change, or a portfolio of investment and have your SRO in place you can then start to work through the Business Case.

Appointing the Senior Responsible Owner (SRO)

This role is key and should be appointed very early in the process. The ownership of the investment, planning and Business Case development processes rests with the organisation. The SRO has overall accountability for the Business Case development process, delivery of the programme or project and the realisation of benefits. The SRO should have the authority to make decisions affecting progress. The accountability for the direction and the production of the Business Case should not be outsourced to an external consultant.

The SRO is responsible in bringing together a range of specialist capabilities and skills at different stages into the project team. Everyone in the project team should be clear of their role, responsibility, accountability and the time requirements. Specialist or technical skills may be required for facilitating stakeholder workshop, economic assessment of the options, quantitative risk analysis, procurement and change and benefits management. Resource planning should be done early so it is clear when and how this expertise will be obtained, along with anticipated costs, particularly for significant, complex or innovative proposals, where it may be necessary to seek external advice and support.

Appendix E

SWOT Analysis Example

Internal	<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> • Strong company profile with experience in several projects. • Various areas of expertise in several engineering projects. • Good project history with governments. 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> • Inability to attract or hire specialised personnel. • Carrying high reliability and risk in many projects. • Complete reliance on computers and systems. The failing of any of these networks or systems could lead to financial losses and reputation loss.
	External	<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> • Renewable energy market in China. • Infrastructure in developing countries or developed countries that are pouring more money to upgrade their deteriorating infrastructure.
		Positive

Appendix F

A template for creating a proposal

Description	Page
1. Background/Summary	
2. Define the market need Market research is essential as part of the proposal. Incorporate the answers the questions below: <ul style="list-style-type: none"> • What is the problem/gap? • How, why and in what way are you going to fix it? • How can you be confident that the benefits of a Centre will be realised? • Is your proposition unique? • Why is the Centre needed? – Can the proposition be done at an existing Centre or by extending an existing Centre? • How widespread is this need – national or international? • What sector is the need for? Where are the opportunities? • What will change as a result of having a National Technology and Innovation Centre? – How will it ‘plug the gap’? • How does it differ from what’s been done before? 	
3. Key Themes identified This is usually about 4 to 7 key objectives that the Centre will need to achieve over a 10 year period to make sure innovation conditions are right for any innovation to stick.	
4. Business model and Governance <ul style="list-style-type: none"> • Detail to be provided on the type of Centre e.g. open access Innovation Centre. • The role of the Centre within the UK innovation ecosystem (within the particular sector being focused on) – think about distinct identity, brand, management team, governance structure etc. and the way it serves its users, members etc. • Offering to clients – services, infrastructure and connections. • Partners and roles – for example Industry advisory board/collaboration partnership – detail of membership and the benefits (including an monetary contribution). • Governance structure defined. • Revenue model (e.g. 1/3 -1/3-1/3 model or largely fee for service model etc). • Options for ownership (JV/Company limited by Guarantee etc). • IP ownership issues. 	
5. Stakeholder and beneficiaries Details of any advisory boards set up and who the stakeholders are, including endorsements such as letters of support/endorsement to affirm they intend to work with the Centre.	
6. Overview of the proposed Centre Manufacturing facility overview (where applicable) and feasibility study (what will it address) and what will the Centre do (the functional analysis).	
7. Performance requirements (what will the Centre achieve?)	

8. Input to date

Provide a summary of significant meetings/collaborations that have taken place, interest expressed from other external partners, other methods of collaborating to reinforce market need.

9. Next Steps

Include items such as workshops that are to go ahead with key stakeholders, other work which is ongoing such to gain additional support and affirmation.

Appendix G

A template for creating a Business Plan

Contents

Section	Description	Page
A	Executive Summary	
B	Context, idea and rationale	
C	Mission statement, goals and Strategic Objectives (inc. strategic rationale)	
D	The business model	
E	Intellectual property	
F	Market Analysis	
G	Competitor Analysis	
H	Marketing and communication Plan (including USP)	
I	Organisational plan – People and operating structure	
J	Options (Structural options) and preferred option inc. Rationale	
K	Operational Plan	
L	Financial Plan	
M	Deliverables, Risk and impact.	

Executive Summary

This should be done at the very end, even if it is the first section of your Business Plan. It should be 1–2 sides and needs to be convincing and well structured.

It needs to answer some key questions:

- What is the idea? (i.e. what is the market need?)
- Why is it a good idea? (i.e. what gap does it fill?)
- What product and services are being offered?
- Who are the key competitors?
- What is the marketing plan?
- What is the organisational plan?

- What are the financial projections?

Context, idea and rationale

- Provide a description to the background of identifying the market need and what the need is including a background of the organisation.
- Provide a rationale – the key reasons why the Centre is a good idea.

Mission statement, goals and objectives

Mission

- Define the purpose and the scope of the Centre.
- Provide long term direction.
- Define the priorities.

Goal

- State what must be done to accomplish the mission.
- Identify targets.
- Serve as a guide for objective setting.

Objectives

- Restate goals into operational terms and quantify what and when results/outcomes will be achieved. Make them SMART objectives.

The Business Model

- Detail to be provided on the type of Centre e.g. open access innovation Centre.
- The role of the Centre within the UK innovation ecosystem (within the particular sector being focused on) – think about distinct identity, brand, management team, governance structure etc. and the way it serves its users, members etc.
- Offering to clients – services, infrastructure and connections.
- Where applicable define the project development models.
- Partners and roles – for example Industry advisory board/collaboration partnership – detail of membership and the benefits (including an monetary contribution).
- Governance structure defined.
- Revenue model (e.g. 1/3 -1/3-1/3 model or largely fee for service model etc).
- Options for ownership (JV/Company limited by Guarantee etc).
- IP ownership issues.

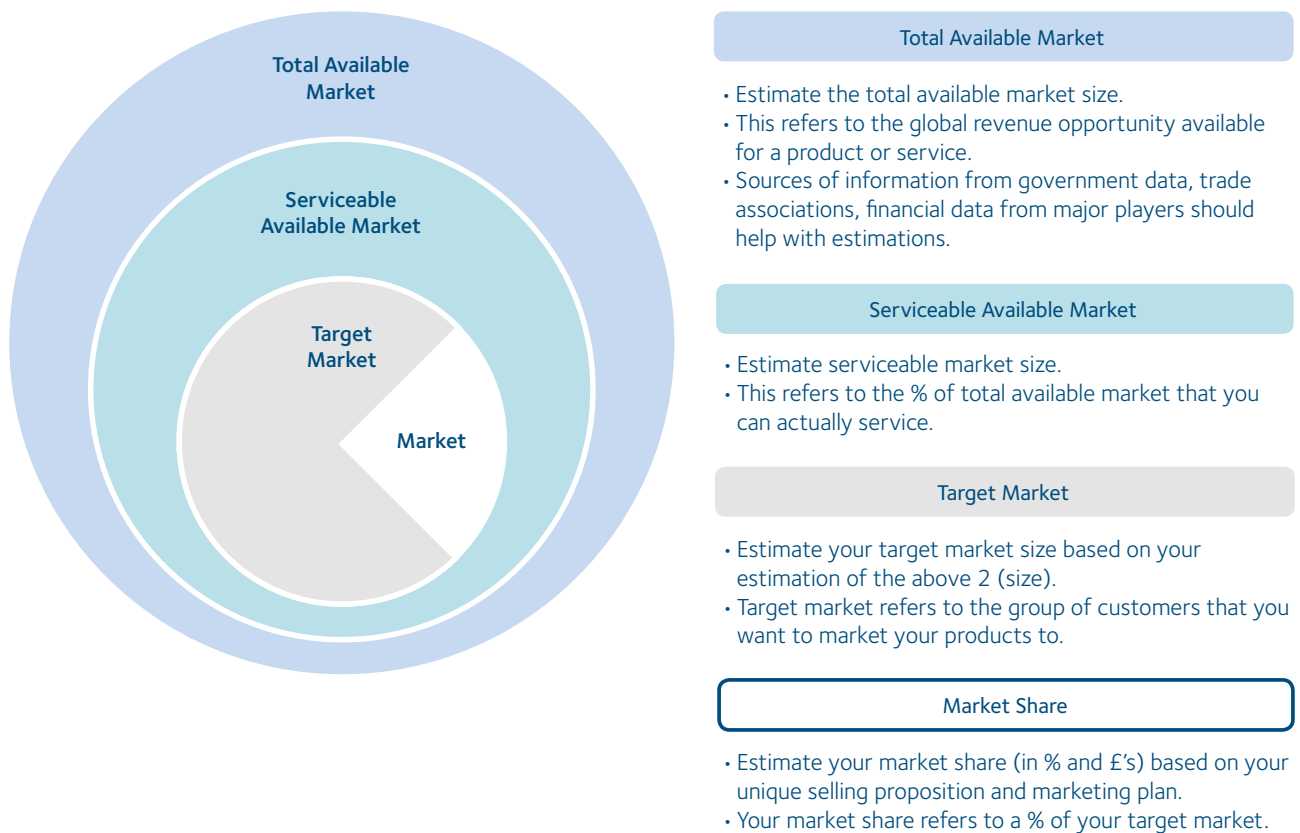
Intellectual property

- Clarity required around ownership of IP.
- How IP will be managed and what types of IP are involved.
- Ownership and exploitation arrangements defined.
- Protecting confidentiality.

Market Analysis

- Unique Selling Proposition – Why will the Centre be unique?
- Market Size – what is the size of the market the Centre will be part of, both in the UK and globally?
- Target Market – Provide a description of the group of users/customers that you want to market your service/product to including market segmentation. See figure 1 identifying the target market.
- Market Growth/trends – What is the future growth in this area? What is the gap and how will the Centre fix this?
- Market profitability – what is the opportunity for the UK Centre and what are the key success factors?

Figure 1: Identifying the target market



Competitor Analysis

- Competitor identification – What are the market failures the Centre will address for the UK and/or Globally?
- Competitor comparison – provide details of those who are in competition, where they are situated and how you will differentiate.
- Competitor positioning and ranking – identify the key players and clarify how the opportunity for the UK Centre will rank along side.
- Key findings.

Marketing and communication Plan

- Overview.
- Marketing activity planned and with which key public/private partners.
- Detail of marketing materials required and the purpose of them.
- Communication plan – details about the Centre, promoting etc.

Organisational Plan

- The directors and management team.
- Key personnel required for the Centre (inc. External contractors) – detail of role, activities, FTE, timescale.
- Project and facilities planning – details required with regards to the facilities required for the Centre and its use, including size, how it will operate etc.
- Office and plant locations – The rationale for the location is required.
- Range of technologies and process that will be explored.

Options

- Structural options with costings (including do nothing).
- Preferred option and reasoning.

Operational Plan

- Gantt Chart and timelines.
- Client engagement plan.
- Stakeholder engagement plan.
- Operations (state aid, compliance, procurement etc – link with commercial case).

Financial plan

- Overview.
- Set up costs.
- Start up capital.
- Distribution of income sources – investment/funding available and when.
- Cash flow forecast (3-5 years).
- Income and expenditure forecast.
- Sustainability plan.

Deliverables, risk & impact

- Risk analysis – RAG status for likelihood and impact.
- Key performance indicators (KPI's).
- Delivery plan – key activities and milestones.

Appendix H

A template for creating a Full Business Case

1. Project Name
2. Project Team details and version history:

Project SRO:	
Team members	<i>Include group analysis, group finance etc.</i>
Version	
Submission Date	
Policy	

3. Summary

- 3.1. Announcement

Be prepared to have an announcement (2 sentences required) should the proposal gain approval.

4. Policy summary

1 paragraph

5. Strategic Case

The purpose of the strategic case is to confirm the strategic context of the proposal and to make a case for change, setting out the particular need for the project. The case for change needs to be compelling and clear to everyone, not just experts and specialists. It also needs to outline the planning context within which the investment will be developed, demonstrating that there is a case for new investment as well as identifying how the project fits with the relevant public sector/government partners aims and objectives as well as the current policy landscape. It provides stakeholders and users/customers with an early indication of the preferred way forward (but not yet the preferred option). A SWOT analysis (Strengths Weaknesses Opportunities Threats) should be undertaken together with indicative costs. *The key question that the strategic case needs to answer is: what is the problem, and why is this the best way to fix it?*

The following points should be considered as part of the strategic case:

- Fit with the relevant public sector/government partners, group and Directorate aims;

Strategic context:

- Organisational overview.
- Current Business Strategies.

The case for change:

- Background to the policy area and to the proposal – where did it originate from (ministers, officials, stakeholders)? What have the timings been so far? Has the policy been proposed previously?
- Explanation of what the problem is and the rationale for the intervention.
- Explanation as to why the same objectives cannot be achieved from existing spends.
- Explanation of the current policy landscape. Why is it not working and/or evidence that additional intervention is needed?

- Reference any evidence from the monitoring and evaluation section.
- List of the options that have been considered to fix the problem.
- What is the market need both current and future?
- What is the proposed intervention?
- Why is this change needed now? What would happen were it to be delayed?
- What will the money be spent on (what are the spending objectives) and what are the policy objectives?
- How does the proposal fit into the policy strategy in this area? How is it different to the current interventions?
- High level description of the main benefits, the associated risks, constraints and dependencies of the proposal, and how they will be managed.
- A brief on the lessons learned from previous experience in this area.

Preferred way forward:

- How does the identified solution address all the areas that are problematic?
- What will constitute success for the proposal?
- Monitoring and evaluation plans – refer to monitoring and evaluation section below.
- What is the potential scope?

6. Economic case

The economic case is intended to demonstrate that a wide range of options for delivering the required services and meeting the investment objectives have been identified and assessed using best practice economic analysis techniques. It is often advisable to produce this section in conjunction with group analysts or economists due to its complexity, albeit it should be understood by all involved.

The preferred option should be provided with the optimal mix of potential benefits, costs (value for money (VFM)) and risks under varying future scenarios as well as clear evidence detailing the scale of the problem and how the proposal will address this.

A full analysis should be undertaken for the value for money with the preferred option maximising the Net Present Value (NPV), with evidence supporting the conclusions. It is important that this analysis is compliant with the HM Treasury Green Book¹.

The following points should be considered as part of the economic case:

- Define the market failure – what are the costs and benefits (including scale)?
- Ensure an appropriate number of options have been considered for the intervention, for example, higher and further education skills, innovation and science. You should identify at least 3 options for intervention. These options will be subjected to cost benefit analysis (CBA) to determine which is the best option in value for money terms. One option should be the ‘do nothing’ case. Your choice of options should take account of: strategic fit with your policy aims; achievability (deadlines); and affordability.
- Ensure additionality has been considered – the extent to which the impact of an intervention exceeds what would have happened without the intervention.
- Identify and quantify all the potential impacts (including risk and uncertainty) including funding.
- Distributional impact – Detail who benefits from the policy and who will pay for it.
- Ensure evidence has been used and referenced.
- Provide evidence on what works in the market or similar policies (including monitoring and evaluation evidence, lessons learned or pilots) and detail how this has been used?
- Set out key underlying assumptions used and undertake a sensitivity analysis.
- Create a cost benefit and cost effectiveness analysis – Ensure all monetised information on costs and benefits and qualitative detail is documented as well as all non-monetised costs and benefits over a 3, 5, 10 and 20 year period

¹ HM Treasury The Green Book Appraisal and evaluation in Central Government
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

including methodology, key assumptions and evidence.

- Provide a detailed summary of the Net present value analysis (or VFM appraisal analysis).

7. Financial case

The financial case provides evidence that the preferred option can be funded and is affordable to both the organisation and external funders under various future scenarios. It is advisable to be aware that an option may offer value for money, yet not be affordable.

The following points should be considered as part of the financial case:

- Full resource and non-resource costs and benefits (inc. VAT and depreciation), by financial year and budget type (programme, admin, capital, financial transactions etc.);
- Detail the scalability of the proposals up and down; estimates of the level at which it would not be feasible to operate the Centre and the extent to which decisions about individual elements of the proposal could be made independently;
- A clear explanation as to why existing lower priority spend cannot be reprioritised before going to the Exchequer;
- Set out the CDEL/RDEL split and split by financial year over the next 5 years;
- Detail required of the key milestones for committing expenditure including the flexibility required to change or reduce the commitment in the next spending review.
- Ensure a clear understanding of the level of uncertainty associated with the funding, documenting the cost drivers, financial risks and mitigations;
- Clear deliverables of the profile of spend particularly in relation to the current or next financial year;
- The level of commitment available from any external sources of funding on which the proposal is dependent including letters of support or contracts made;
- Details of any funding already available, and a progress update in delivering existing budgets (including financial and policy performance); and
- Any tax, devolution or local government issues.
- Clarity around the government timelines for spending (spending review periods).

8. Commercial Case

The purpose of the commercial case is to show that the preferred option will result in a transparent, accountable and sustainable procurement arrangement that provides value for money over the contract term i.e. the commercial viability of the proposal.

The following points should be considered as part of the commercial case:

- Which partners will deliver the Centre?
- Why is the partner chosen the most effective to deliver on the Centre? What other options (procurement, in-house, partner org etc.) have been considered?
- Does the partner have the relevant skills and capacity for delivery?
- If delivery will involve a third party, is there a robust contracting and procurement strategy and how will any third parties be managed?
- If the proposal relies on income generation, how reliable is this income stream likely to be?
- Proposed delivery, and if relevant contractual, timelines.

9. Management Case

The purpose of the management case is to demonstrate that the preferred option can be delivered successfully using available capability and good practice programme and/or project management processes. This includes setting robust processes in place for project, change, risk and contract management, governance, communication as well as managing post implementation reviews and realising expected benefits.

The following points should be considered as part of the management case:

- Milestones and timelines (including critical path);
- Resources – have appropriate and sufficient resources been identified with the right mix of skills and capability to

deliver (inc. Specialist skills, commercial, legal, finance, analytical etc.)?

- People and capital.
- Governance – including overall responsibility for the project or policy, management procedures and accountability structures;
- Risk management – including known risks and mitigations and processes for ongoing management; and State aid.

10. Monitoring and Evaluation

Monitoring and evaluation is a key factor in the Business Case.

The following points should be included in the monitoring and evaluation section:

- Is there any evidence available on what works in this area or similar policies (including monitoring and evaluation evidence, lessons learned or pilots) and how has it been used in planning the intervention?
- What does success look like for the proposal? How will success be measured?
- Include a control group to be set up for monitoring and evaluation purposes.
- Create a monitoring and evaluation plan – this should include the techniques and data sources envisaged for the evaluation of the programme; who will be responsible for overseeing the collection of monitoring data; resources identified to enable the monitoring and evaluation to take place.

Appendix I

Building relationships with sponsors

Setting up an advisory board

Although this is an option, experience would suggest that setting up an external independent advisory board is essential. It is advisable to create an advisory board at the very early stage of a project. Whether a company has 5 employees or 5,000, having a reliable group of advisers who can offer objective analysis can make all the difference. An advisory board serves more of a mentorship role. Its members have no trustee responsibility to the company or its stakeholders. It is good for that independent eye. It helps ask questions you may not have thought about but which are critical to the success of your National Technology and Innovation Centre.

Below are 7 key tips for building an advisory board:

Who should be on the advisory board?

Start with who you know and trust. These may be customers or potential customers, key influencers in industry, government bodies, academia etc (and anyone else who you think may have a good connection in the industry). If the idea/innovation is sensitive it is advisable to get them to sign confidentiality agreements.

How many people should be on an advisory board?

In general, 10-15 advisors are probably about the right number. Being able to make decisions in your meetings is key and also getting diaries together can be a challenge.

Ensure you have some key influencers on your advisory board

One of the greatest assets an adviser provides is credibility with clients, the industry, government and investors. It's advisable to have someone who validates the idea/concept, with a name which has power, influence within the business, credibility and trust. Advisers are people who can open doors. Where possible it is advisable to have people who are a key decision maker within their organisation.

Have a balance of skills/experience

It is important to have a mix of skills. Having smart advisers are good, but having thinkers is key also; experts on technological trends; someone who might keep you honest about financial projections etc. These are not a substitute for others within the business, they are there to add value.

Benefits

Be clear about what the benefits are for the people invited onto an advisory board. What is in it for them? Their advice will cost you - time is money. These associated costs will need to be factored in when setting up an advisory board.

- Building trust and credibility.
- The National Technology and Innovation Centre will fill a gap in the market, which they will benefit from.
- Industry knowledge provides invaluable input in a shorter period of time.
- Creating an opportunity for them to bring other 'radical' ideas to the table.
- Understanding what they think and tuning your idea.
- Quicker turnaround of solutions.
- Endorsement of the innovation with key influencers.
- Potential private revenue investment.

Advisory Board Longevity

Be clear about what everyone wants from the advisory board. Will it be on a short term basis during the set up phase? or will it be for the long term? Once the timeframes are clear expectations need to be set with the group.

Setting expectations for the advisory board.

It is a good idea to have agreement early on with regards to meeting etiquette, not just the usual elements such as turning phones off. Everyone needs to be aware of timings of the meetings, location, who the chair is, to come prepared, trust/confidentiality (signing confidentiality agreements), review of membership status at key stages i.e. at set up stage v's implementation.

Setting up a collaborative partnership (where applicable)

Customer collaborative partnerships, sometimes called consortiums can be strategic as well as an income generating instrument i.e. more tactical or operational in nature.

There are some key questions to answer about the organisation itself:

- Who you are – what are your vision and values?
- What is your aim – what drives you or motivates you?
- Why do you want to extend your operations – including what do you wish to achieve?
- How you will measure your success – what Key Performance Indicators have you set for the expansion activity?
- Answering these basic questions will prepare the business for making a decision about how being involved in a consortium will help the organisation to better achieve its goals.

Why set up a collaborative partnership?

A key reason to form a collaborative partnership may be that it provides an organisation with new opportunities to secure contracts which would not otherwise be available. However, there are other key reasons:

- Extend current activities to include new ones for different client groups;
- Deliver services in another locations;
- Tender for a contract where the specification includes areas of activity you are unable to deliver;
- Respond to another organisation which has approached you with a view to joining a consortium; or
- To ensure your organisation continues to provide services to your particular client group

There is no single route into such a development but be clear about why being in a business relationship with others will help achieve what the organisation wants.

It is important to remember that being involved in a collaborative partnership should not dilute the organisation's existing ethos, vision, or culture and importantly, this should not affect the quality of the services provided. It should provide another vehicle to take services to market.

To ensure your collaborative partnership gets off to a good start an organisation should ensure there is:

- A shared vision;
- Good communication;
- Sound policies and procedures;
- Effective financial, risk and environmental management systems;
- A clear understanding of the practical details including potential risks; and access to regularly updated relevant legislation.

Key considerations before starting a collaborative partnership:

- They are time consuming and have costs attached.
- They require good management over the longer term.
- Both governance and senior management within your organisation need to think through the opportunities and the potential pitfalls involved in choosing this route.
- Your Board members will carry any liability should things go wrong.
- Form a sub-group of Board members who are able to monitor developments as they occur and report back to the full Board as necessary.
- Seek legal advice.

Setting up a Steering Group

A steering group is made up of experts who oversee a research project to ensure that protocol is followed and provide advice and troubleshoot where necessary. It provides executive level commitment and support for a project and should be made up of the project sponsor, the project manager, a supplier representative, if there are external suppliers on the project, and key internal stakeholders. This should include the person who will become the 'owner' of the deliverables once the project passes into business as usual. A finance representative may also be on board, depending on the level of budget for the project and the financial oversight required.

Appendix J

Checklist for the assessment of Business Cases using the five case model

It is essential that the Business Case includes all the elements of the 5 case model: Strategic; Economic; Commercial; Financial; Management. Ensure that the information in each element is complete enough for the stage reached and that each element is Green Book compliant. The checklist below is in-line with the HM Treasury Green Book².

Against each of the five elements the following needs to be covered:

Element	Checklist	✓
Strategic Case (case for change)	Rationale, background, policy context and strategic fit.	
	Are there clear SMART objectives in terms of outcomes and are dependencies, constraints and risks identified?	
Economic Case (Economic Appraisal)	Is ruling out of potential promising options clearly justified?	
	Are all economic costs and benefits clearly calculated for each year covered by the proposal with NPV calculated correctly (see over)?	
	Is distributional analysis needed, who benefits, who pays?	
	Are all costs and benefits quantified, if not is this justified?	
	Are there any decisive unquantified cost/benefits and are they clearly explained?	
	Are there appropriate sensitivity analyses, including worst case scenario?	
	Are results of each option presented clearly including do nothing/minimum option?	
	Are risks, constraints and dependencies identified and managed?	
	Is optimism bias properly included and aligned with risk?	
	Are wider impacts assessed e.g. sustainability, competition, regulatory impact?	

² HM Treasury The Green Book Appraisal and evaluation in Central Government
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

	Is there a benefits register; benefits realisation (delivery) plan?	
	If PFI involved is tax properly treated and is risk transfer clearly achieved?	
	Is best value for money (VFM) = max NPV and if not do unquantified benefits justify the cost?	
	Exchequer impact calculated separately and not included in NPV!	
	Are monitoring and evaluation costs included?	
Commercial Case	Is the proposal commercially feasible / deliverable?	
	What procurement is required; goods, services, land, buildings?	
	What is the procurement strategy?	
	What are the key contractual issues?	
	There must be clear contractual key milestones and delivery dates.	
	There must be clear agreed accounting treatment	
	Is risk identified and managed and allocated?	
	Is there a risk allocation table?	
	What if any are the personnel implications and is TUPE applicable?	
Financial Case (Financial Appraisal)	Focus on affordability; is full budget funding secured and budgeted by all parties?	
	What are the impacts on income/expenditure account and on balance sheet if applicable?	
	Are potential cost over runs provided for are there any contingent liabilities?	
	Any guarantees?	

Management Case (programme or project management)	Is the proposal practically deliverable and what are the delivery plans?	
	Are there clear delivery dates and detailed milestones?	
	Does the proposal require programme or project management techniques?	
	Is there a contract management plan?	
	Change management – make sure there is a change management plan.	
	If in a controlled environment such as ICT use of PRINCE 2 is mandatory.	
	Does the plan include clear arrangements for OGC Gateway peer reviews?	
	Is there a contingency plan with arrangements & provision for risk management?	
	There should be a benefit realisation table and plan.	
	Does the plan include monitoring arrangements (who when how and costs)?	
Does the plan include post implementation evaluation arrangements (including who when how and costs)?		
Notes on NPV calculation key issues	Correct discount rate (3.5% real).	
	Figures in real terms/constant prices at base year, sunk costs excluded.	
	Opportunity costs of already-owned assets included.	
	Residual values included.	
	Double counting avoided.	
	Transfer costs / benefits excluded.	
	Uses only economic resource costs (payment good/service).	
	Financing items/sources excluded.	
	Second round effects included (e.g. only genuine job creation).	
	Tax/subsidy treatment must be non-distorting between options.	

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