

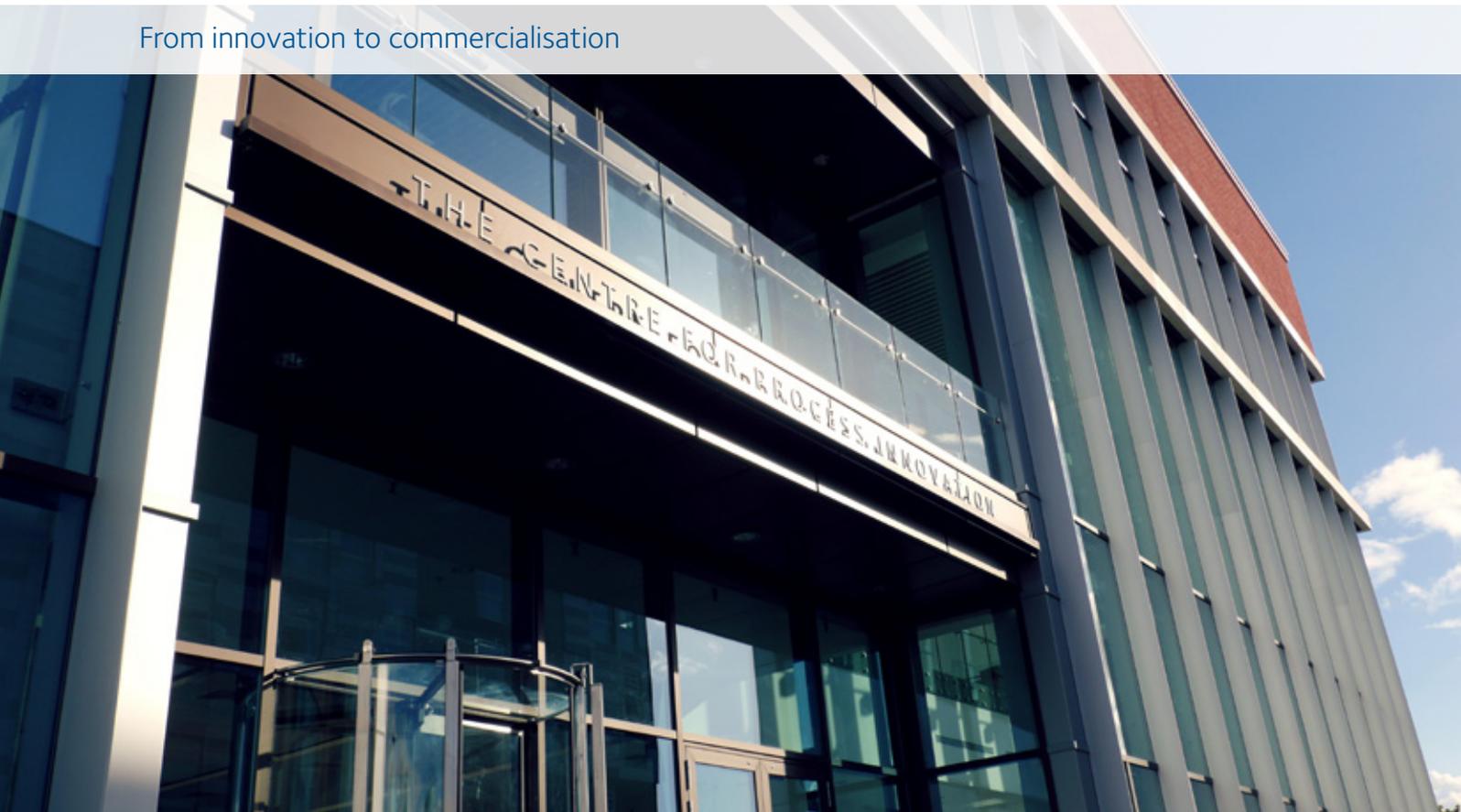
How to Guide 1
First Edition



Executive summary – A guide to setting up a National Technology and Innovation Centre

The Centre for Process Innovation

From innovation to commercialisation



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High Value Manufacturing

Executive Summary

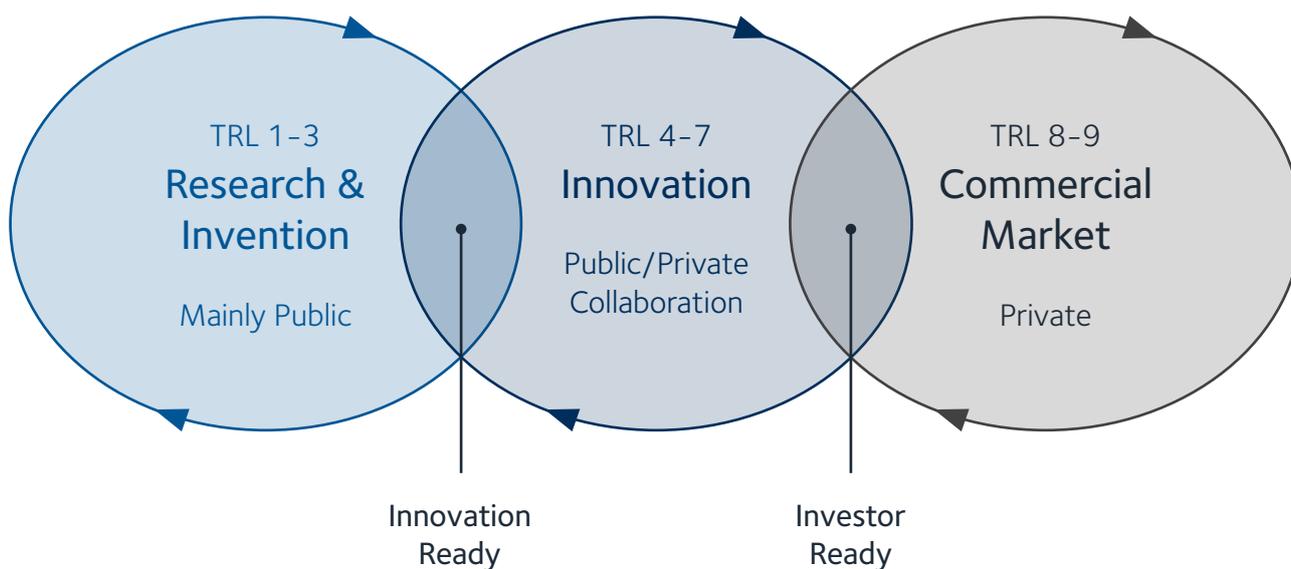
The Department for Business Innovation and Skills (BIS) has engaged the Centre for Process Innovation (CPI) to lead and deliver a programme of knowledge transfer and innovation to help to drive partnership and innovation best practice in the chemical and process industries, which spans across several industries including health care, automotive, chemical, aerospace etc.

In recent years the awareness of the importance of the chemical and process industries has been growing across government and the companies themselves have published an Industrial Strategy “Chemistry at Work” and have established with Government the Chemistry Growth Partnership to drive forward the delivery of the £105bn growth potential identified in the strategy and targeted by 2030. Harnessing innovation is an essential element for delivering that growth potential and achieving that will require better integration and collaboration across the innovation landscape and with 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. However, no individual business or provider across the innovation landscape has a full cross-segment focus. This guide is one of the many ways CPI will address this need.

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 the 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 the 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 what 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.

Creating the guide has required an assessment of both the interrelationship and collaborative partnerships between academia, innovation specialists and companies that drive retention and creation of value in the UK chemical and process industries.

However, what has been fundamental in creating this guide is the assessment of the National Technology and Innovation Centre's CPI has set up over the years, identifying the best practice approaches, alongside the approach recommended by Government, the HM Treasury's Green Book¹, which incorporates the Five Case Model².

Research and analysis has taken place to interpret the available background data, and to propose a guide which illustrates the systematic approach from identifying a need/concept through to creating a Full Business Case. Figure 2 shows a flow chart identifying the route from concept to Full Business Case submission. For each of the areas identified on the flow chart further detail is provided below:

Concept

Typical time to complete: 6-12 months

Typical cost: £50k - £100k

When identifying the concept for a National Technology and Innovation Centre a Strategic Outline Programme should be created to verify the fit and synergy with the overarching policies, strategies etc. Asking the question '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?' can really help shape the proposal. Having discussions with key partners and sponsors will also help as they can provide a different perspective.

It is paramount to be able to demonstrate the value and impact of the Centre to the UK market and its sustainability in the longer term, for example, Jobs created in the manufacturing process, development of people increasing their skills and capability to enable them to repeat innovation, social or financial benefit from the use of the product or service etc.

At this stage it is critical to spend as much time and effort up front as possible doing market research, it is worth it in the long term. This includes research and analysis around industry and market thinking; competitor landscape; intellectual property rights; industry policies and government policies; (including government timelines) which are all critical to the success of the Centre. Assessing and measuring the scale of risk involved in a proposal at this stage, as well as assessing whether the level of effort is fit for purpose and matches the scale and type of decision required is also critical.

Scoping

Typical time to complete: 6-12 months

Typical cost: £100k - £150k

At the scoping stage a Strategic Outline Case should be completed, which confirms the strategic context of the investment and where a robust case for change is made utilising a SWOT analysis to propose a way forward. There are

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

² 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

also 3 key elements to commence during the scoping stage; the proposal, the Business Plan and Business Case. One of the main outcomes at this stage is defining the Centre themes. There are usually 4–7 core activities that the Centre will focus its work on over a 10 year period. These will be defined within the Proposal.

The Business Plan describes the business opportunity for the Centre, what the Centre will do, how it will do it and how it will be funded. The Business Plan should be revised continuously throughout this process. Ensuring key stakeholders are on board with the Business Plan is also critical.

The Business Case is an examination of the potential opportunity to create benefit and positive impact in the UK and summarises the research and analysis to support the decision making. It summarises the key themes, objectives, benefits and impacts. The development process of creating a Full Business Case creates a framework for thinking and should include at each of the stages, (which build up to the Full Business Case) the following; the Strategic Case; The Economic Case; The Commercial Case; the Financial Case and the Management Case. All of these aspects are important; however, it is important to bear in mind that the content at each of the stages will be refined and will be build on the stage before.

During this process it is essential to review any earlier activity which has taken place and ask to more questions as you go through, revising continuously throughout the process to ensure value, impact and viability of meeting the market need is demonstrated.

Building positive relationships with the public and private sector partners is key to success, in particular, building sustainable relationships, remaining transparent throughout the process and making sure everything that the business committed to deliver is delivered and delivered on time. It is essential that ongoing dialogue exists throughout the process, working closely with key stakeholders, influential leaders, industry experts and governments partners.

Definition and Planning

Typical time to complete: 6–12 months

Typical cost: £150k – £300k

During this stage an Outline Business Case is created where a preferred option is identified which determines the potential value for money and again, being conscious of the value creation and impact the Centre will have for the UK economy.

It is advisable at this stage to get sponsors on side, involving them early in the process and in refining the Proposal/ Business Case will be essential to the Centres success. Gaining endorsement from key sponsors, such as letters of support or even the creation of contracts is key as it helps develop and market the Centre and also provide backing when trying to seek approval. It is also important to set expectations up front with public and private sector partners and be clear around timelines, process, funding availability etc

During the refining/review stage of the Proposal, which will be done in collaboration with public/private sector partners, the key themes will be reviewed and agreed through a series of workshops/meetings over several months.

Funding and finance must be planned and mapped out. Finance sources for creating a National Technology and Innovation Centre come from three main sources; business-funded R&D contracts; collaborative applied R&D projects, and core public funding. Before seeking funding it is advised to create a funding formulation document which should detail elements such as: how much funding is required; expenditure plan; the type of funding; the Centres plans and requirements etc. It is advisable to provide a range of options for delivering the services and meeting the investment objectives. A preferred option should be provided which includes an optimal mix of potential benefits, costs, risks and value for money including how the proposal will address this. Using a cost benefit and cost effectiveness analysis is a good way to help with the assessment of this.

It is also critical to commence the design and planning of the Centre. During this phase it is essential to engage with industry partners (perhaps the chosen sponsors) and with public sector partners to scope out what the requirements are for the design and build of the Centre. During this phase the focus also needs to be on how the Centre will provide positive value creation and impact for the UK market.

Full Business Case

Typical time to complete: 2-3 months

Typical cost: less than £50k

The Full Business Case is the final phase of the project. It revisits and refines the Outline Business Case, and is created after detailed negotiations with potential service providers/suppliers to procure value for money solutions including how the value creation and impact of the Centre will benefit the UK economy.

There are 3 key elements to conclude at this stage; the submission of the final Proposal; the submission of the Business Plan; and the submission of the Full Business Case.

First is the submission of the final Proposal, where all key stakeholders have agreed the key themes and are happy with the case for change and value for money. The Business Plan is also submitted at this stage. Once submitted, the feedback on the Proposal will either be that it has been approved in principle or will fail to secure support. If approved in principle, this means that the Centre has approval to go ahead, however, bear in mind that no monies/funding will have yet been released, so any works carried out will be done so at risk. If the Proposal fails to secure there is an option to continue to develop the idea and resubmit at an appropriate time.

Once the approval in principle is given the Full Business Case is submitted. It is also advisable 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.

It is essential to ensure that the Full Business Case continues as a live document even when it 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.

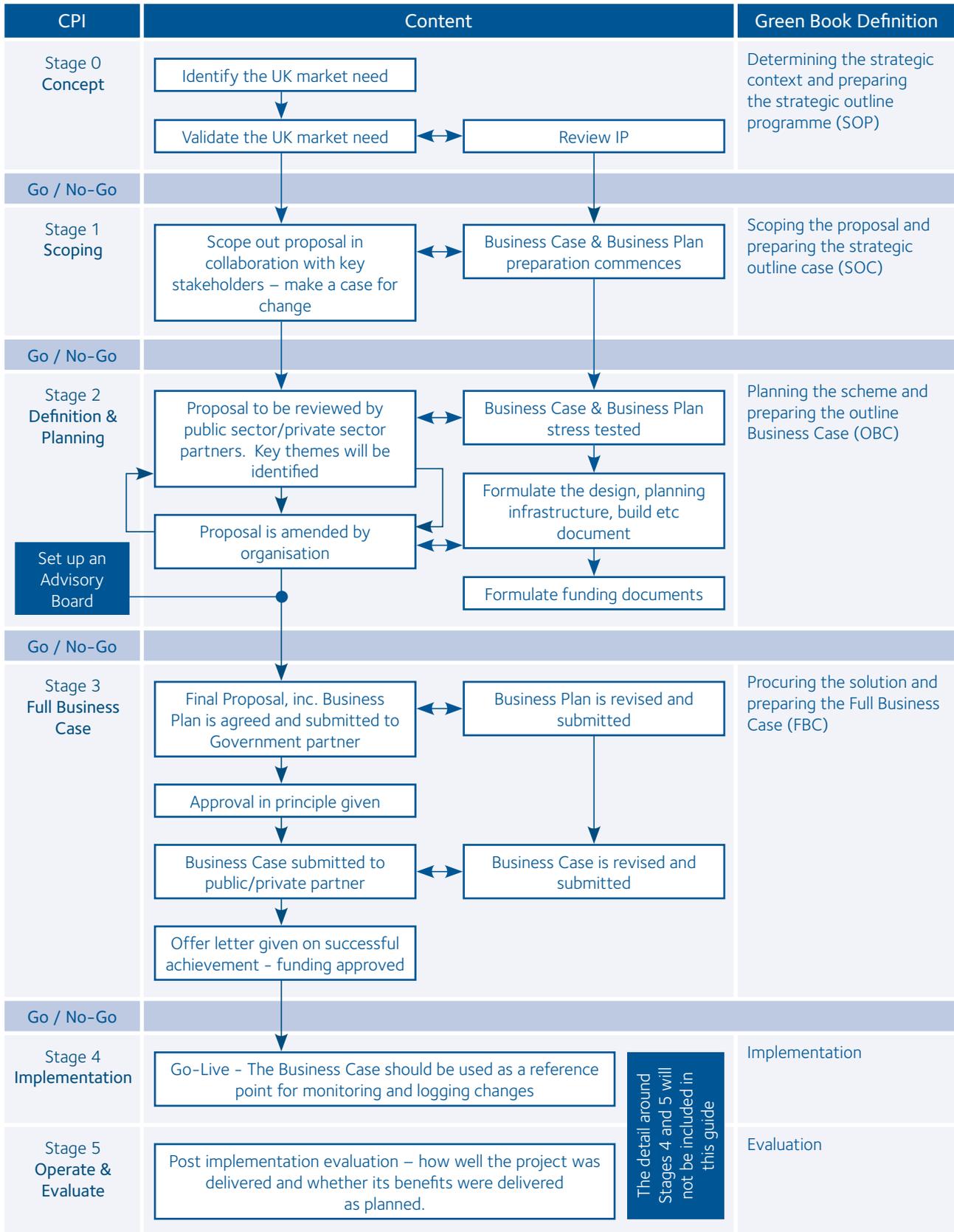
KEY POINT

From identifying the concept to creating the Full Business Case there will be many stages of iteration over several months with several stakeholders. It is also important to remember that the completion of each stage is essential with each stage building on the stage before; however, it is useful to bear in mind the order in which the stages are completed can sometimes differ.

In conclusion, the guide is intended to enable others to rapidly develop National Technology and 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 a finished National Technology and 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/>

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>

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