PROGRAMME LIFECYCLE							
STRATEGIC PHASE				DELIVERY PHASE			
INITIATION STAGE	DEFINITION STAGE	ESTABLISHMENT STAGE	MANAGEMENT STAGE	DELIVERY STAGE			CLOSE
PROGRAMME OBJECTIVES	PROGRAMME SCOPING	PROGRAMME PRIORITISATION	PROGRAMME OPTIMISATION	FEASIBILITY	DESIGN	IMPLEMENTATION	CLOSEOUT STAGE
	NICR						

Programme Scoping

NICR

(Needs, Issues, Causes, Resolutions)

Helping asset owners release programme scope quicker

By the Introduction of Programme Prioritisation using the NICR Approach: Needs, Issues, Causes, Resolutions

Where Does NICR Fit into the Overall Programme Cycle?

NICR is a process that is positioned at the front-end of a capital programme, in the Definition Stage of the Strategic Phase. It enables the early definition and challenge on the functional scope requirements (Needs) within a programme

Why Do We Need NICR?

As projects and programmes grow in complexity, Asset Owners and Delivery Organisations tend to have difficulty defining the overall long-term deliverable requirements in projects. There has to be assurance that the projects deliver outputs that satisfy the programme outcomes in line with the benefits stated in the Business case.

This forces reduced capital investment in the early stages of a programme as more definition is needed before a funding commitment to move to delivery can be made. To alleviate the back loading of these large capital programmes due to definition difficulties, different methodologies are needed at the front of the overall lifecycle.

What is the NICR Advanced Workflow?

NICR is a highly flexible methodology based on Agile principles that is used at the front-end of the programme management cycle. It applies an iterative and incremental develop and build model to the capital programme. The methodology allows for more rapid capital investment in the early stages of the programme by quickly and continuously identifying small portions of the programme work which can be released.

It uses a 4-stage approach to prioritisation:

1. Validate the Programme "Needs"
2. Understand and identify the "Issues" – Defined Data and Data Uncertainties
3. Identify the Root "Causes" of the Issues and develop Resolutions
4. Determine "Preferred Resolution" for each Need (by using a scoring matrix)

The process works on a continuous cycle of information gathering, and in each cycle iteration uncertainty is reduced without causing detriment to the overall programme.

We're active members of the communities we serve. That's why at Stantec, we always design with community in mind.

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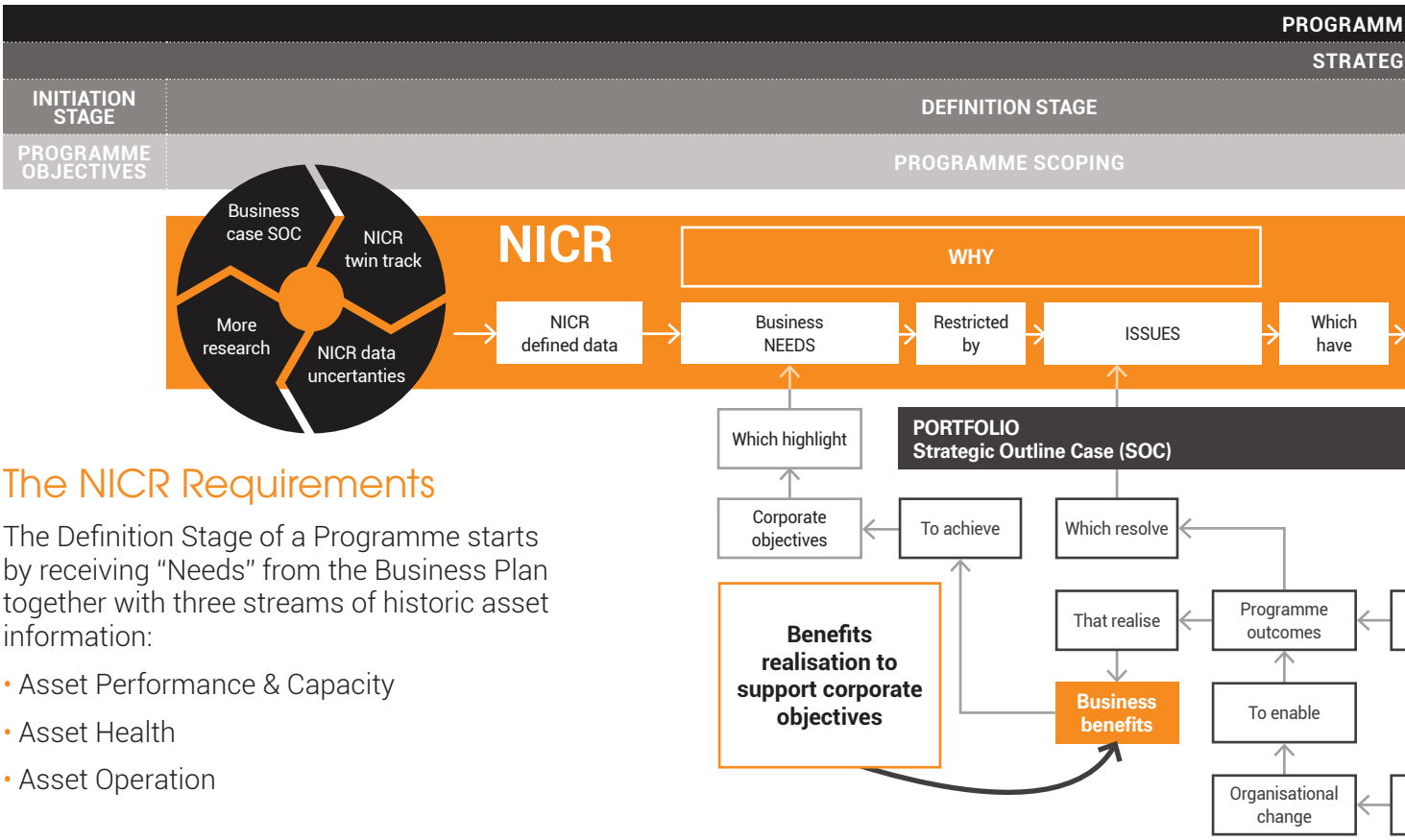


The NICR Requirements

The Definition Stage of a Programme starts by receiving "Needs" from the Business Plan together with three streams of historic asset information:

- Asset Performance & Capacity
- Asset Health
- Asset Operation

This data requires analysing and validating in large volumes and is where the NICR model is used. The approach is to process the data and to establish a knowledge- based position throughout the Definition stage of a programme.

In many cases by the time the Business Plan is implemented, this asset information can often be more than two years out of date and both the "Needs" and the asset information require re-validation before the commitment of funds.

Within the received information there will always be a level of 'Validated Data', which can be quickly confirmed as well as many 'Data Uncertainties' which will need more research.

The key to an improved release of capital investment, and the optimisation of the overall programme, is to avoid trapping the 'Validated Data' and 'Data Uncertainties' together within the same projects, as the project can only progress at the rate of the resolution of the last piece of 'Data Uncertainty'.

The simple approach of continuously separating the 'Defined Data from 'Data Uncertainties' and then where appropriate compiling the Defined Data into projects for delivery is at the core of the NICR Advanced Workflow.

How Does NICR Work?

At the core of the NICR approach are the four interdependencies; Needs; Issues; Root Causes; Resolutions.

For a single Need there can be several Issues and for a single Issue several Root Causes but only one Resolution for each Root Cause. A Solution is a sum of Resolutions.

Using an NICR data-base can also reveal the state of programme 'knowledge' by, for example, illustrating the extent of 'data uncertainty' which in turn point to outstanding optioneering still required.

The extent of the 'data uncertainty' around Root Causes can illustrate the amount of missing information. For those Issues unable to be properly understood, the Need cannot yet be validated.

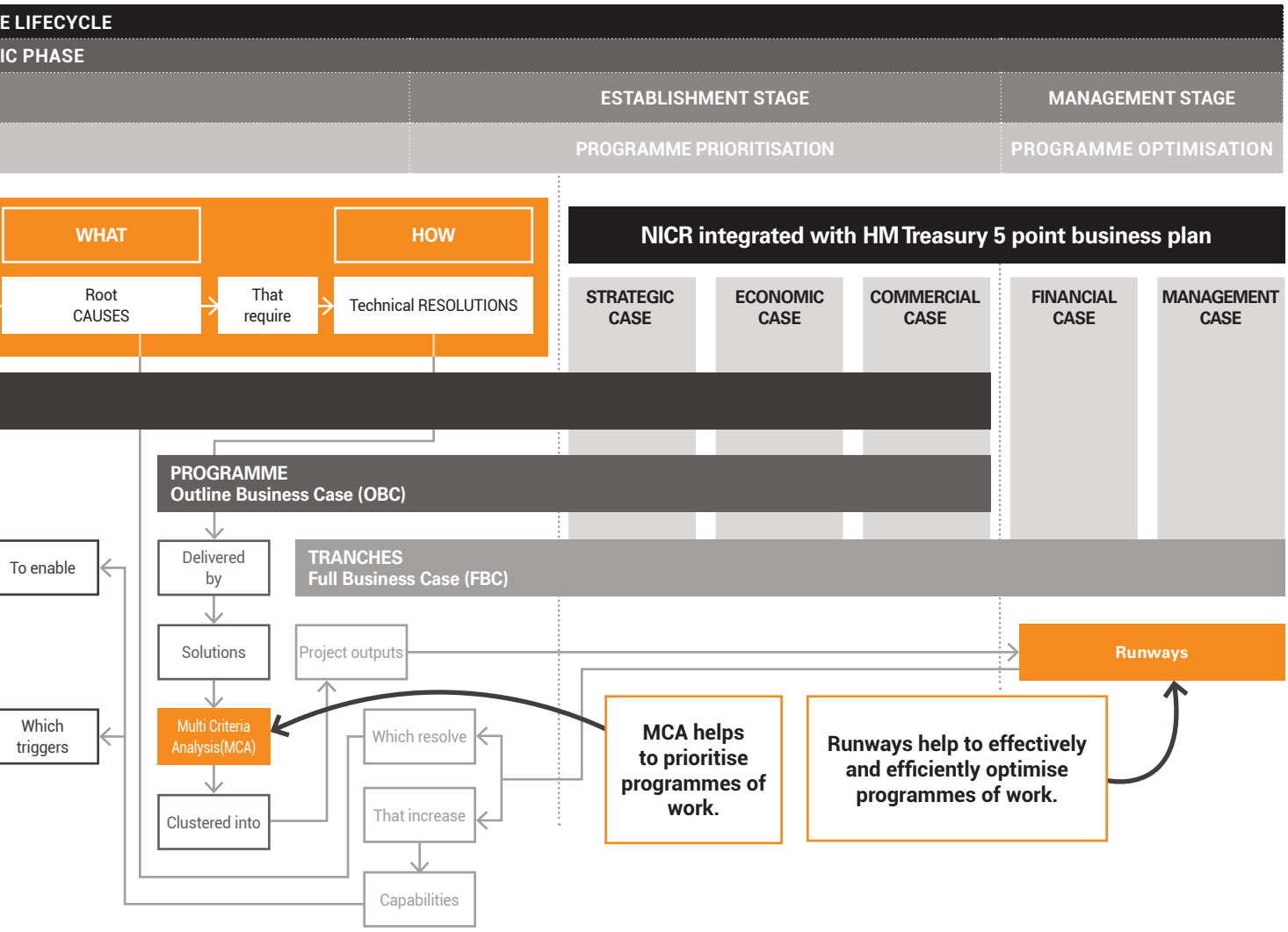
The power of this matrix is that taken together the Need & Issues represent the 'why' and the Root Causes & Resolutions represent the 'what & how'. With the Issues (business risks to be mitigated) now exposed, these can easily be mapped onto outcomes and benefits with the associated Resolutions informing the project scope and outputs.

This then establishes a 'clear line of sight' between the required business outcomes and the derived project outputs.

Following standard HM Treasury 5 point guidelines on business case production, the timescale of this work occurs during the definition stage of the programme, which means the business case maturity will be to produce an outline strategic case.

This depth of business case defines the outline of the strategic and economic case. The commercial, financial and management cases are defined once the work is allocated into tranches and clustered into projects.

Again this continuously ensures that the business case production for the later stages is based on validated data only which will improve timescales of projects through governance gateway approvals.



The NICR swim lanes cover the Needs, Issues, Root Causes and Resolution. The Needs are derived from the Programme Business Case and provide a framework for linking into the benefits management processes.

Industry Best Practice allocates Benefits into three categories:

1. Economic

2. Effectiveness

3. Efficiency

Linking NICR swim lanes to the business benefits process allows the benefit categories and values to be made clearly visible when resolving the programme needs.

To these NICR swim lanes, other business risk assessment (legacy approaches or fields) can be added to support decision-making and prioritisation, e.g. MoSCoW or variants – must have/should have/ could have/won't have.

Integrating the Business Case with NICR

The approach of using the five point business case at programme and project level allows for more effective control of the programme.

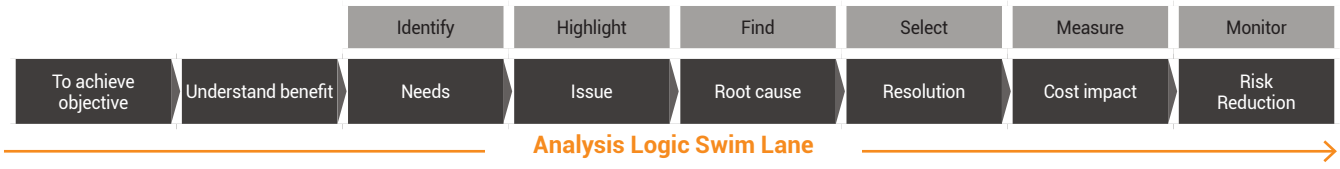
The integration and flow downs from the programme business case, through the tranches and into the projects, enables the programme to ensure its overall containment within budget while not increasing the business risk position.

In addition a cost impact 'field' utilising 'top-down' parametric estimating data can be added to indicate potential savings to be achieved against the Business Plan.

This can be particularly useful when 'rapid release' of business case is required by proving that the scheme/project is within budget rather than waiting for 'bottom-up' estimates involving a more developed understanding of technical scope.

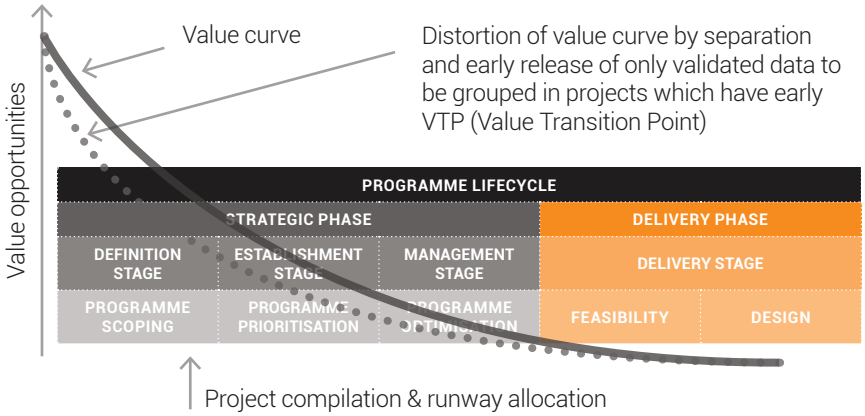
Holding the overarching Business Case in this way allows for it to be readily translated into tranches, which can in turn be more effectively operated on simultaneously by a variety of stakeholder groups.

This is in order to reveal opportunities of similar type irrespective of the state of completion of the matrix lines.



Using the NICR approach allows for:

- Increasing the pace of releasing projects for prioritisation
- Identifies tranches which can be managed
- Establishes different synergies and efficiency savings



Compiling projects from 'Defined Data' enables far earlier release of work and placement into delivery streams known as Runways. These are derived from a project complexity modelling process.

The remaining 'Data Uncertainties' are investigated separately. This twin track release approach avoids all scope development having to move through a single project lifecycle irrespective of the state of 'knowledge' or nature of solution.

This approach serves to increase early capital expenditure to the traditional value curve by allowing simple single option solutions to be delivered earlier in the programme.

VTP (Value Transition Point) is the point where the project's scope definition is at a level of maturity that the implementation ownership and risk can be transferred to a delivery organisation; this has a direct correlation to a project's complexity

Within a large programme of work the adoption of Advance Workflow starts by distributing the Needs across a series of tranches (sub-programmes) instead of a myriad of small, often site-based, projects.

This programme 'view of 'scope' enables different synergies to be identified. This in turn can release efficiency savings from the Programme Business Case prior to compiling into projects where they will be prioritised and optimised.

To manage these tranches of continuous emerging scope, Stantec has created a business process and supporting tools which run from spreadsheets on small programmes to database solutions for large programmes.

These tools can integrate or be independent from the asset owners incumbent information systems and 'sort & display' the 'Defined Data & Data Uncertainties'. This is referred to as the Stantec NICR* (Need/ Issues/ Root Causes/ Resolutions) approach to establish a knowledge-based position at any point in the programme development which can ensure the optimum release of capital investment.

Learning from the NICR experience

The NICR approach is a new Agile concept and differs from the traditional Need/Solution approach prioritised against a risk based assessment, by bringing in the "Resolutions". Feedback from NICR initiatives will be used in lessons learnt exercises.

Key Benefits

- Validates existing needs
- Addresses all issues
- Identifies resolutions
- Increases early release of work
- Measures maturity progress
- Clearly links outputs and outcomes
- Minimalises capital scope expenditure

*Note: Most asset management approaches and systems adopt a need/ solution methodology prioritised against a risk based condition/ criticality assessment. Whereas this adequately serves the derivation of a Business Case and the associated funding, for the commitment of the funding more 'granularity' and justification is required.

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