

# Deliver Stage Guide



## Summary

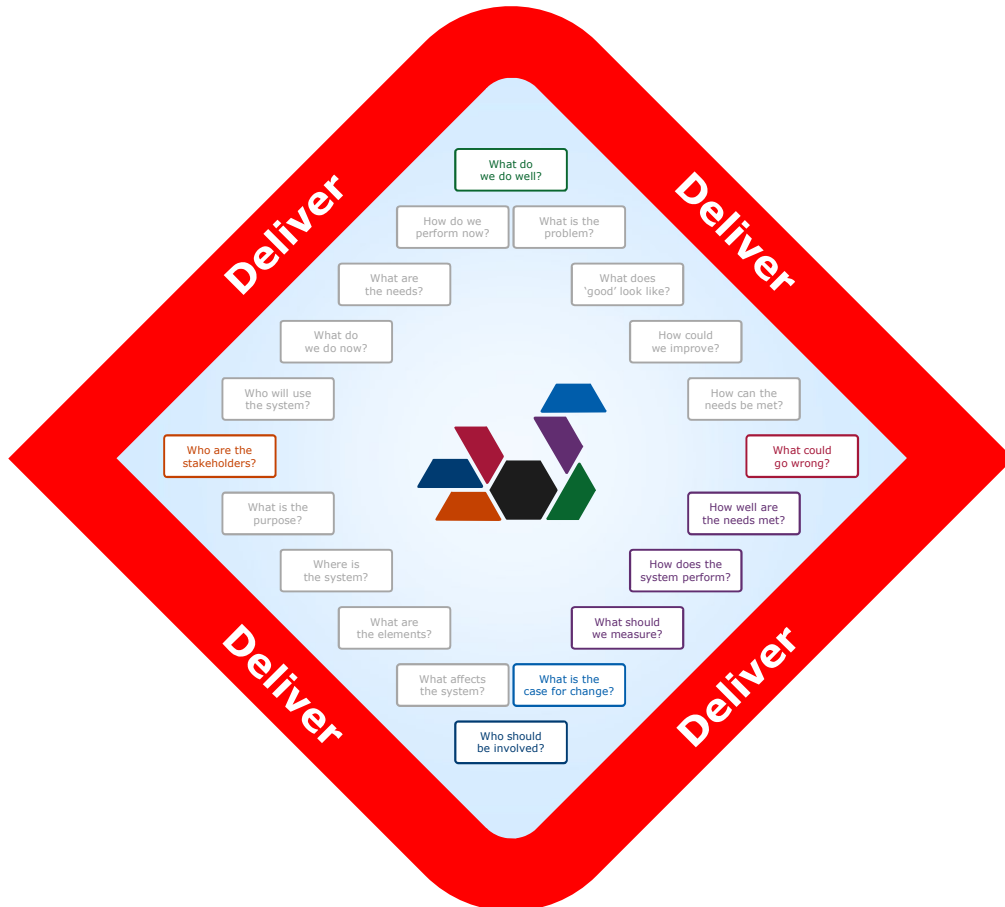
This guide provides a brief description of the application of a systems approach to the deliver stage of health and care design and continuous improvement.

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# Introduction

This guide is part of the University of Cambridge **Improving Improvement Toolkit**, which develops the approach presented in the Royal Academy of Engineering report titled "[Engineering Better Care](#) – a systems approach to health and care design and continuous improvement".



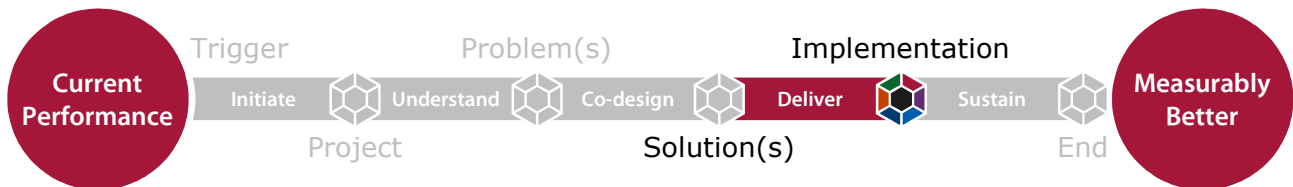
Engineers routinely use a systems approach to address challenging problems in complex projects. This allows them to work through the implications of each change or decision they make for the project as a whole. They consider the layout of the system, defining all the elements and interconnections, to ensure that the whole system performs as required.

**“Systems that work do not just happen — they have to be planned, designed and built”**

This particular guide assists in the definition, visualisation, planning and execution of the **Deliver Stage** of the Improvement Programme. The questions and activities highlighted here provide a minimum suggested set for the stage and may be supplemented with other familiar activities.

# Introduction

The following steps, described in more detail below, describe possible elements of a systems-based approach for planning the [Deliver Stage](#) of an improvement process — leading to a description of the current system (now), a common understanding of the problem, a consensus view of what the future system might look like (better) and a clearly articulated process for changing the system.



- (1) Improvement Canvas** – Describe the context and nature of the challenge and current ideas for delivering and sustaining improvement.  
Agree the scope of the proposed improvement or decision-making process and identify the team required to deliver it.
- (2) Stakeholder Influence** – Identify key stakeholders, their interest in the system and potential to influence the outcome of the process.
- (3) Design Measurement** – List the full range of stakeholders’ prioritised needs and the corresponding means to measure performance.
- (4) Resilient Operation** – Determine those elements of the proposed system that are core and must be present in its operation.
- (5) Bowtie Method** – Identify deviations from normal operation and their undesirable consequences for the proposed improvement.
- (6) Design Solutions** – Translate the initial ideas into viable concepts and solutions that meet the system requirements.
- (7) Failure Modes and Effects Analysis** – Identify the causes of all possible failures in the system and their consequent risk.
- (8) Stage Plan** – Define the outputs or outcomes required for the each of the strands of the improvement or decision-making process.  
Select the activities and tools required to deliver these outputs and the critical dependencies between them.

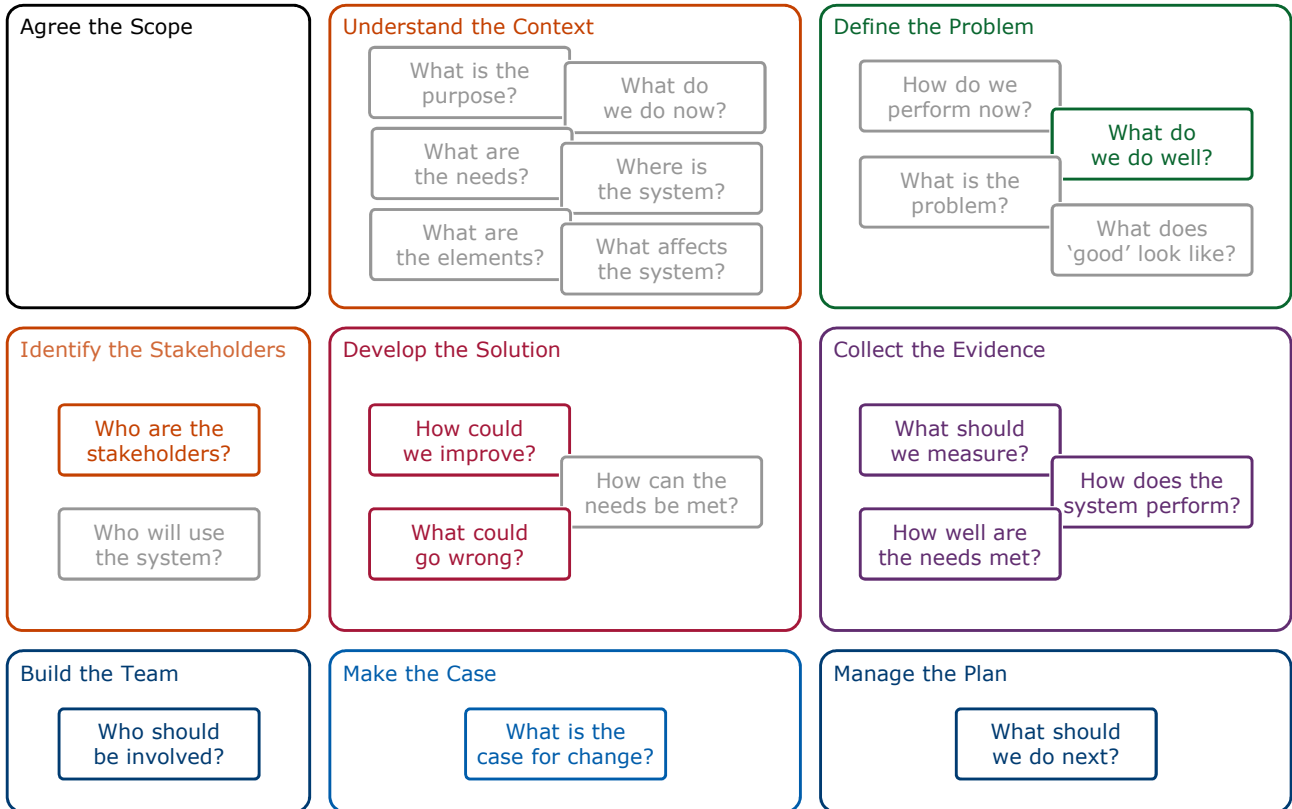
There is particular value in completing a preliminary Improvement Canvas and draft Stage Plan early in the stage to facilitate the building of an appropriate team for this and/or subsequent stages. Individual outputs for this stage can be recorded at the end of the guide and may then provide the basis for a stage-gate review.



**Useful toolkit resources:** printable PDFs for all of the **Stage Guides** are included in the [Stage guide PDFs](#) part of the [Resources](#) section.

# Improvement Canvas

Use the [Improvement Canvas Poster](#) to investigate the team's current knowledge about the system and agree the scope of the change required.



A clear articulation of the scope helps to define the boundary between what is in and what is out of the system of interest. It also reflects the prioritised needs of the stakeholders that should drive any improvement. The scope will also be influenced by the context of the system, primary focus of the challenge, core themes of possible solutions and level of detail required to describe the system and its stakeholders.

At the beginning of each stage of the improvement programme it is important to reaffirm the content of the canvas and scope of the challenge. This helps to define the gap between what is known at the start of the stage, the needs to be met by the end of the stage, and the plan to move between them.

The questions of particular interest to the **Deliver Stage** of the Improvement Programme are highlighted in colour above.

# Improvement Canvas

Use the [Improvement Canvas Worksheet](#) to describe the team's current knowledge about the system and agree the scope of the change required.

Agree the Scope	Understand the Context	Define the Problem
Identify the Stakeholders	Develop the Solution	Collect the Evidence
Build the Team	Make the Case	Manage the Plan

The canvas may be completed in any order, with input from the stakeholder influence and stakeholder needs worksheets informing the stakeholder and team boxes, from the system boundaries and rich picture understanding the context, and from the design themes and persona descriptions defining the problem.

All entries are important in capturing the team's current knowledge about the challenge, and in determining a sensible starting point and scope of interest for improvement. Ideas of solutions inspire a deeper understanding of the problem, and

The questions of particular interest to the **Deliver Stage** of the Improvement Programme are highlighted in colour opposite and may be answered, in part, by completing some or all of the template that follow.

# Stakeholder Influence

Use the [Stakeholder Influence](#) worksheet to identify key system stakeholders' interest and influence.

Low Interest and High Influence (satisfy)	High Interest and High Influence (manage)
Low Interest and Low Influence (monitor)	High Interest and Low Influence (inform)

Successful improvement depends on a wide range of stakeholders and system users who, at any point in time, will have different levels of interest in and power to influence such improvement. They will bring a range of perspectives to any programme and through their action or inaction can enable, actively encourage or frustrate progress.

There is value in characterising stakeholders, in terms of their interest and power, to ensure that they are sufficiently informed, engaged or managed at all stages of an improvement programme. Understanding them and their relative importance is an essential element of managing change.

Use the worksheet to remind the team of the stakeholders related to the improvement process, to capture the particular needs of the individual stakeholders, and to highlight the range and diversity of stakeholder needs.

# Design Measurement

Use the [Design Measurement](#) worksheet to list the system stakeholders' needs and corresponding means to measure performance.

As a ...	... I need / require ...	... which could be measured by ...

Successful improvement depends on a wide range of stakeholders and system users who, at any point in time, will have different levels of interest in and power to influence such improvement. They will bring a range of perspectives to any programme and through their action or inaction can enable, actively encourage or frustrate progress.

There is value in characterising stakeholders to ensure that they are sufficiently informed as to how the proposed system performance will be measured to provide evidence of alignment with their needs, in particular the prioritised needs.

Use the worksheet to remind the team of the stakeholders related to the improvement process, to capture the particular needs of the individual stakeholders, and to highlight the range and diversity of stakeholder needs.

# Resilient Operation

Use the [Resilient Operation](#) worksheet to determine those elements of a system that are core to its operation.

Adaptability – approach may be adjusted

Agility – approach can be changed rapidly

Robustness – approach must be the same

Flexibility – approach can be changed easily

Resilience is the process by which a system can face disturbance in such a way that it continues to perform in an acceptable manner. This can be reinterpreted to describe how a system needs to be constituted to ensure that its performance meets acceptable quality requirements.

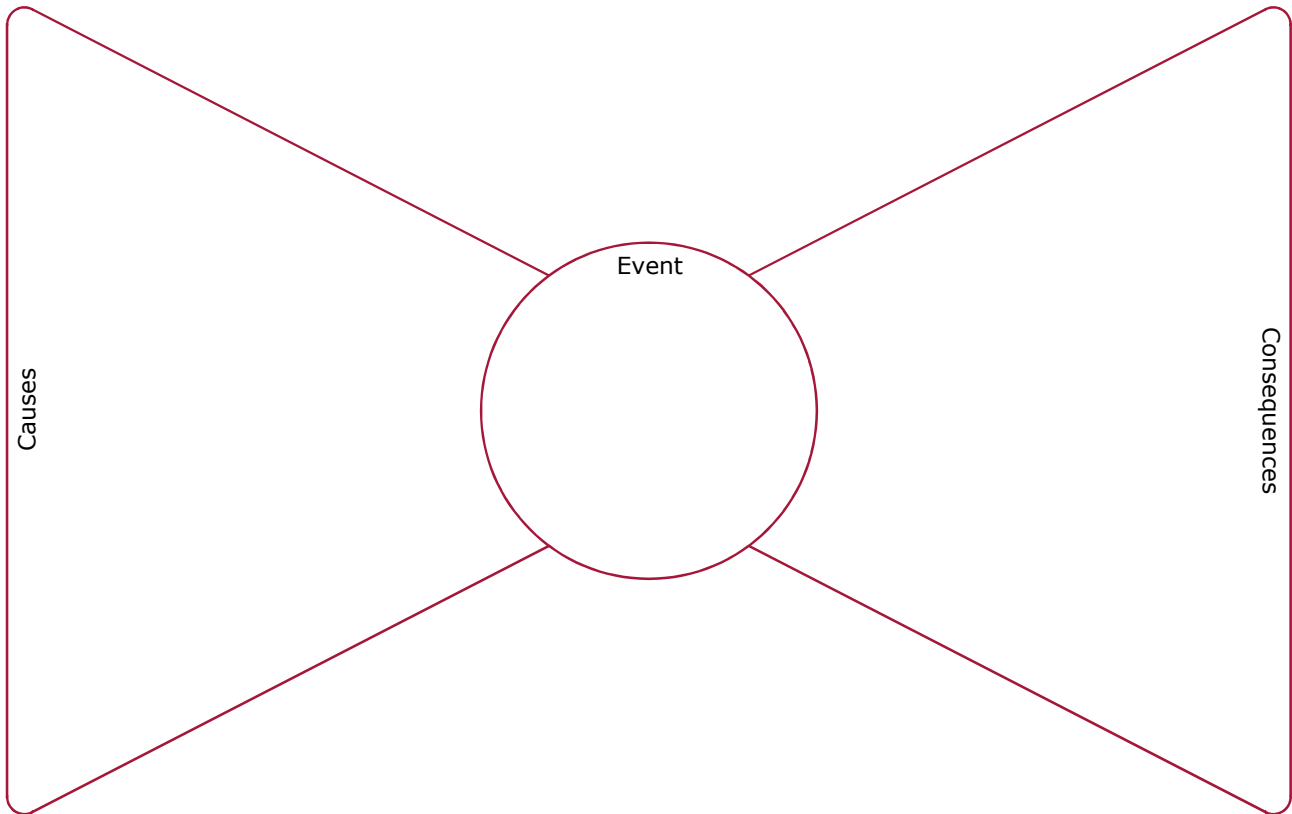
Resilient operation is achieved when elements of a systems exhibit properties of robustness, adaptability, flexibility and agility in such a way that critical core elements are consistently delivered and variance is acceptable only where it does not impact these core elements.

Use the worksheet to identify those features of a process that are core to its operation, to determine which features must be delivered in common or related ways, and to understand where a degree of local variation is necessary.



# Bowtie Method

Use the [Bowtie Method](#) worksheet to identify deviations from normal operation and their undesirable consequences.



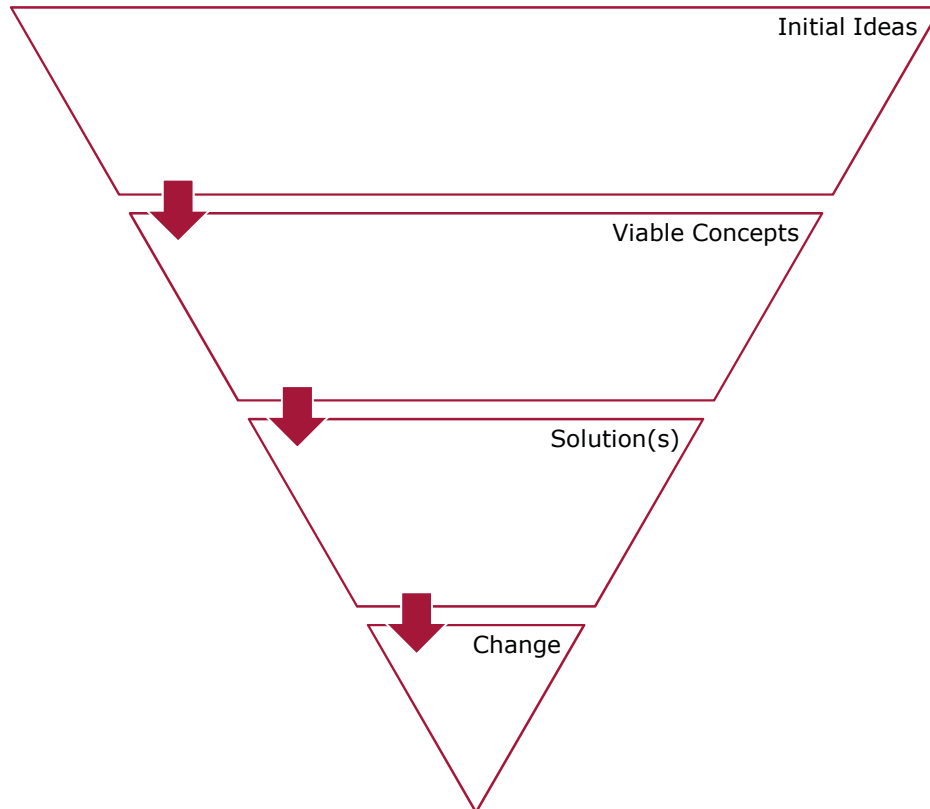
The bowtie method is a useful visual summary of risk management practices targeted at a particular high-risk threat. Elements shown to the left of the event summarise steps taken to eliminate the threat and elements shown to the right capture steps to mitigate the impact of the threat.

Identify a critical threat to the operation of the system and describe it at the centre of the bowtie. Possible causes of the threat and barriers to block them can be sketched to the left, and potential consequences and barriers to block them to the right. Any likely degradation of these barriers can also be identified, along with steps to monitor or eliminate such degradation.

Use the worksheet to identify a key 'top event' associated with the system, to add causes (threats) to the left and consequences to the right, and to overlay any preventative and mitigation barriers.

# Design Solutions

Use the [Design Solutions](#) worksheet to translate initial ideas into viable concepts and solutions that meet the system requirements.



The delivery of an effective improvement process requires careful identification of initial design ideas and their integration of into viable concepts and solutions with the aim of the delivering realisable system change. This is a complex, iterative process, critical to the success of the whole programme.

Initial ideas that provide elements of an overall solution to the system requirements must be generated and captured. A number of these can be integrated into viable concepts that inspire the design of a solution to the design requirements. This in turn can be incorporated into a programme to deliver measurable change.

Use the worksheet to present the initial ideas generated in response to the system requirements, to highlight the viable concepts inspired by the initial ideas, and to summarise the solution(s) developed from the viable concepts.

# Failure Modes and Effects Analysis

Use the [Failure Modes and Effects Analysis](#) worksheet to identify the causes of all possible failures in a system and their consequent risk.

What is going on? (list the main parts of the system)	What could go wrong? (Based on experience)	What problems might it cause? (harm, lack of care)	What are we doing to prevent it? (leave blank if nothing)	How bad is it if it does go wrong? (high, medium or low)	How likely is it to go wrong? (high, medium or low)

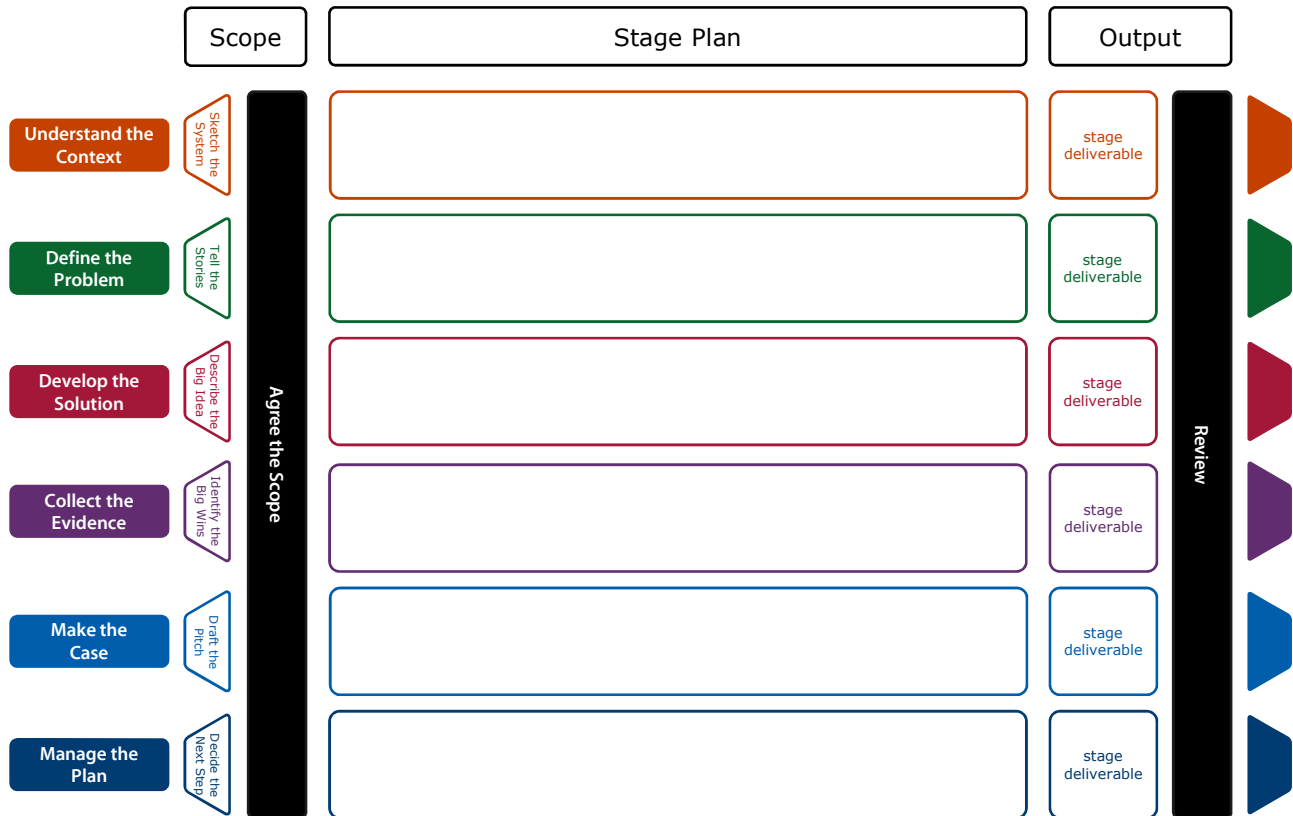
Failure Modes and Effects Analysis (FMEA) is a systematic, proactive method for evaluating a system to identify where and how it might fail and to assess the relative impact of different failures, in order to identify the parts of the process that are most in need of change.

FMEA can be used to review the performance of a system concept or a finished design. Failure modes, causes, effects and mitigating actions can be evaluated to determine the risk of 'harm' for a wide range of potential failures for a proposed change in a process prior to its implementation.

Use the worksheet to provide a systematic framework for the assessment of system risks, to prompt the identification and preliminary evaluation of hazards and risks, and to highlight the value of a clear system description as a prerequisite for assessment.

# Stage Plan

Use the [Stage Plan](#) worksheet to select the most important elements of the improvement process that are required to deliver the desired outputs.



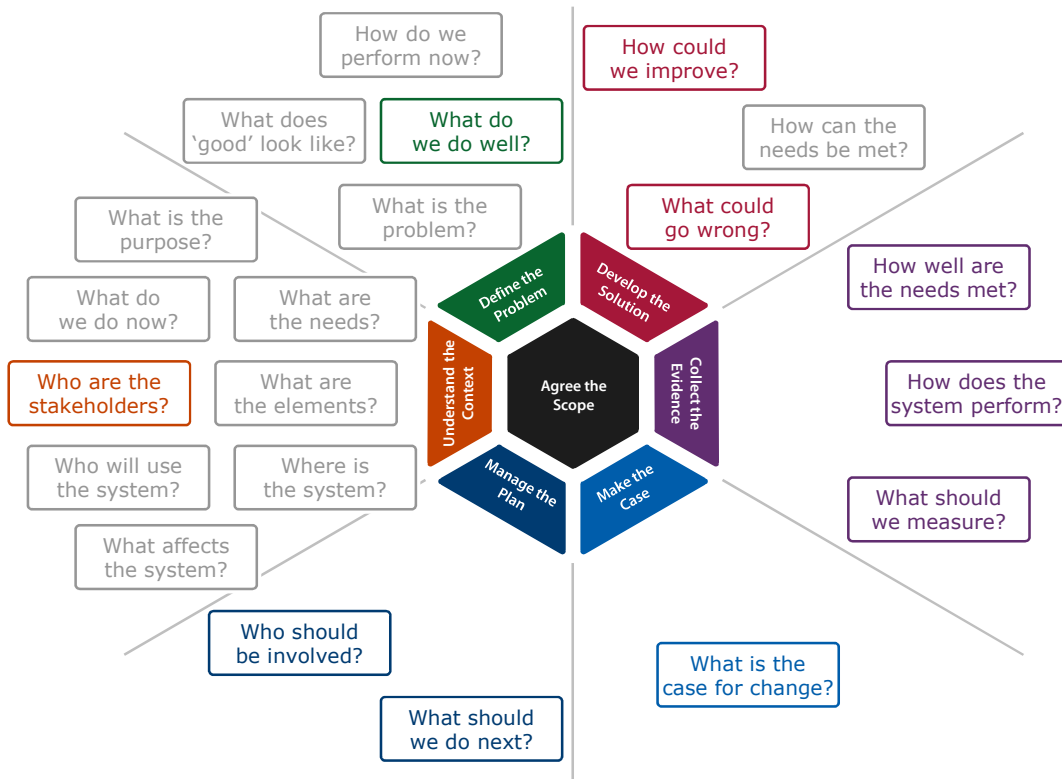
This model underpins the stage gates of an Improvement Programme, where progress is driven by clear objectives for each of the key elements at each stage of the programme.

The desired outputs or outcomes should be identified, based on the content of the Improvement Canvas for the **Deliver Stage** of the Improvement Programme and the particular objectives of this stage.

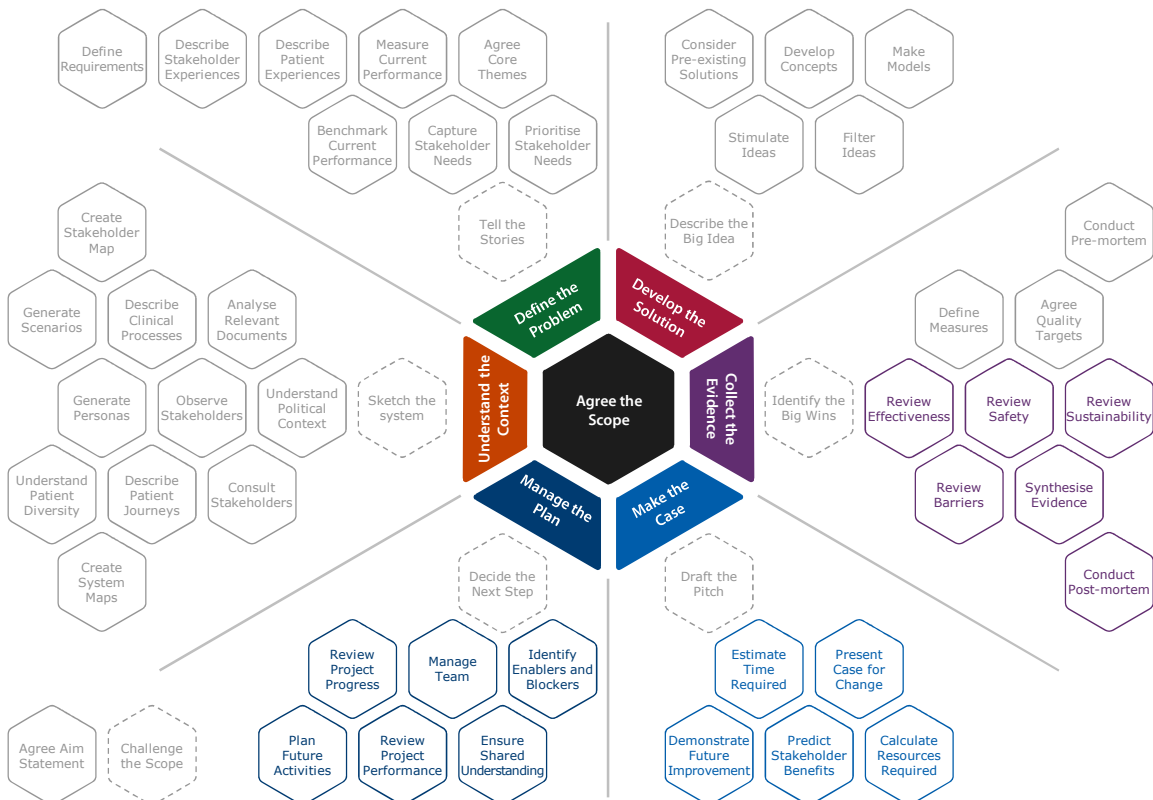
The stage plan should identify the questions and activities that are required to achieve the specific understand stage deliverables. They are more likely to focus on understanding the context of the challenge and on defining the problem. Later stages will see a shift in focus to developing the solution and collecting the evidence. All stages should reflect the need to make the case and manage the plan.

# Stage Plan

The [Questions Map](#) poster can be used to identify the key questions that would help to deliver the outputs required.



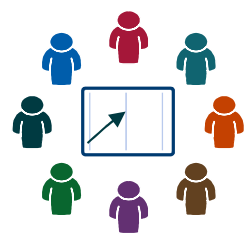
The [Stage Activities](#) poster can also be used to identify the improvement activities that would help deliver the outputs required.



# Stage Plan

A sample of possible [Activities](#) which may be added to the deliver stage plan.

**Define Measures**



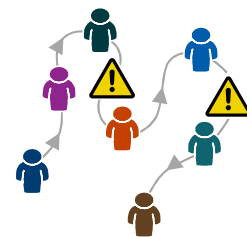
Define performance measures to evidence the successful delivery of a measurably better system

**Agree Quality Targets**



Define service quality targets to ensure the successful delivery of a measurably better system

**Review Safety**



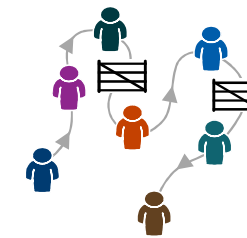
Identify safety concerns in the adoption of new concepts by their intended users

**Review Effectiveness**



Identify clinical and cost effectiveness risks in the adoption of new concepts by their intended users

**Review Barriers**




Identify potential barriers to the adoption of new concepts by their intended users

**Review Sustainability**



Identify sustainability concerns in the adoption of new concepts by their intended users

**Synthesise Evidence**




Provide evidence of evaluation of new concepts against the project requirements and quality targets

**Identify Enablers and Blockers**



Identify stakeholders who are able to facilitate or block delivery of an improved system

**Plan Future Activities**



Plan the future activities in a clear and robust programme to deliver an improved system

# Stage Plan

A sample of possible [Tools](#) which may be added to the deliver stage plan.

### Expert Review

A systematic approach to identifying potential causes of difficulty when using a system

### Exclusion Audit

A systematic approach to estimating potential levels of exclusion when using a system

### Life Cycle Assessment

A systematic approach to estimating the environmental impact of a system

### Bowtie Method

A systematic approach for visualising links between causes of an event and potential consequences

### Failure Mode and Effects Analysis

failure mode	failure effect	failure likelihood	failure impact	risk of failure

A systematic approach for identifying the causes of all possible failures in a system and their consequent risk

### Risk Matrix

A structured representation of the likelihood and impact of threats and opportunities in the system

### Project Canvas

Scope	Context	Problem
Stakeholders	Solution	Evidence
Team	Case	Plan

A dynamic summary of a programme of improvement to encourage team consensus

### Stakeholder Analysis

	High Interest		
Low Power/Influence	Defenders	Drivers	High Power/Influence
	Bystanders	Blockers	
	Low Interest		

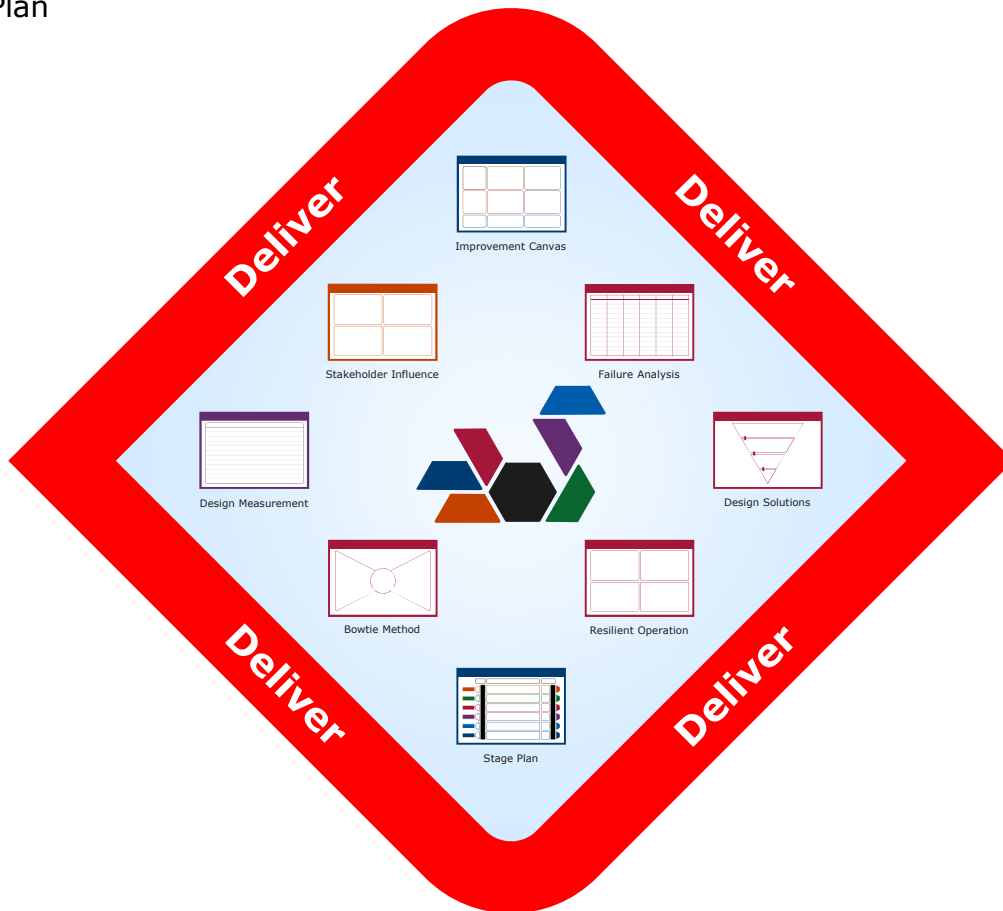
An analysis of the potential for stakeholders to drive or block the outcome of a proposed change

### Gantt Chart

A bar chart to illustrate the schedule required to deliver a programme of improvement

# Stage Outputs

Activity Plan



	Deliver Output	Narrative / Authors / Date
✓	Agreed Scope	
✓	Stakeholder Needs	
✓	Performance Measures	
✓	Resilient Operation	
✓	Initial Risk Review	
✓	Solution Details	
✓	Risk Assessment	
✓	Case for Sustain	
✓	Other	
✓	Other	