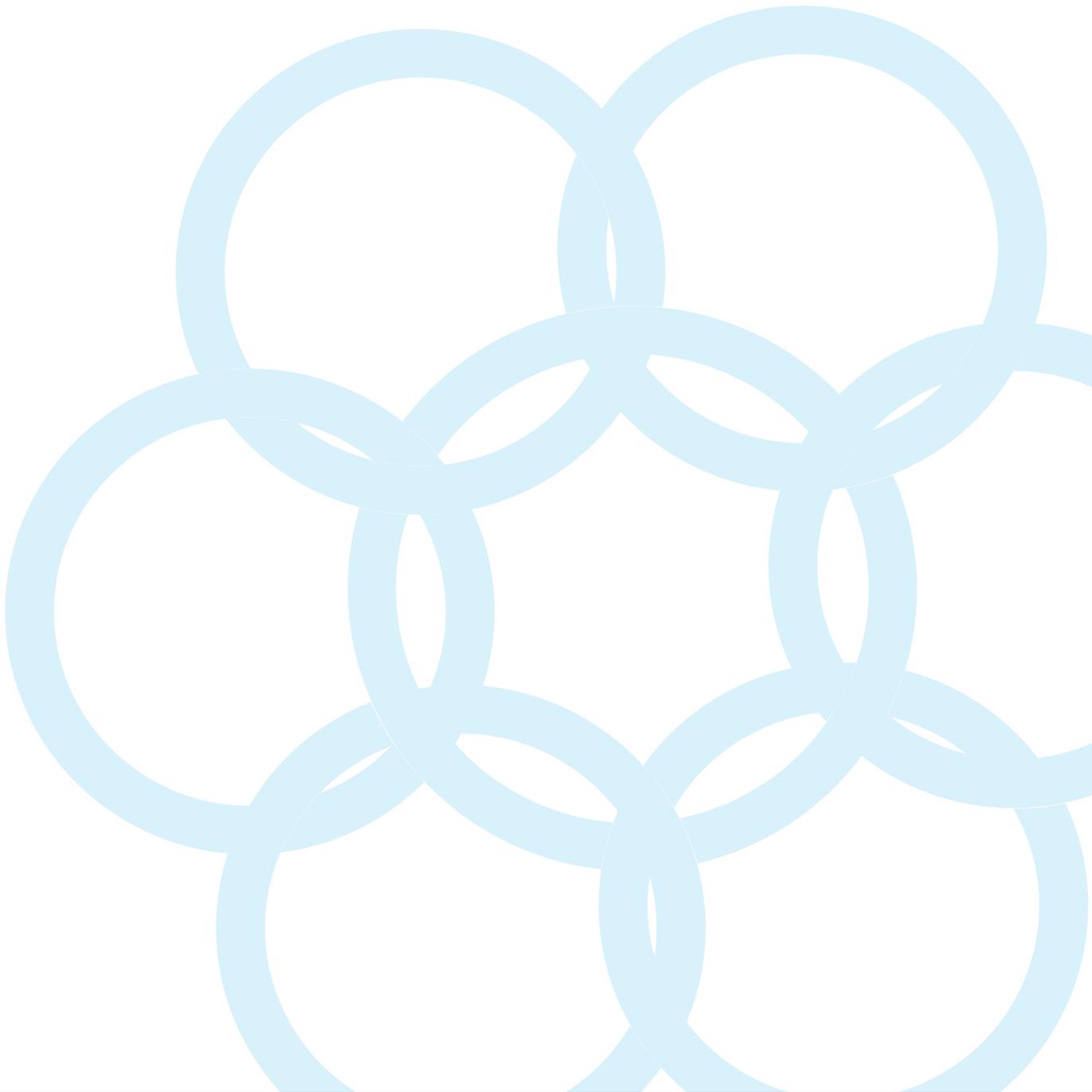


# 2020 Framework for Quality, Efficiency and Value



## Foreword by Alex Neil MSP

The NHS is, arguably, the best-loved public service in Scotland. Those of us who are its stewards, and manage it on behalf of the people of Scotland, never forget how much it means and how important it can be; almost everyone in the country will use its services from cradle to grave and many of us work in it or have family members or friends who do.

NHSScotland is increasingly recognised as a world-leading health system that has made significant progress in areas such as safety, prevention and older people's care. Our 2020 Vision is that: '[...]by 2020 everyone is able to live longer, healthier lives at home, or in a homely setting', and we have set out the actions that are needed to deliver this within the *Route Map to the 2020 Vision for Health and Social Care*.



Alex Neil - Cabinet Secretary  
for Health and Wellbeing

Many of the world's best-performing healthcare systems frame their ambitions around the 'Triple Aim' of **Quality of Care; Health of the Population; and Value and Financial Sustainability**. In Scotland, we have an excellent story to tell around the first and second of these aims with successes like the Scottish Patient Safety Programme, the Early Years Collaborative and progressive legislation such as that around smoking and the proposed minimum pricing of alcohol. What is not so often celebrated, is that we are also extremely cost-effective as a healthcare system, delivering continued improvements in the quality of services at the same time as making the best use of our resources.

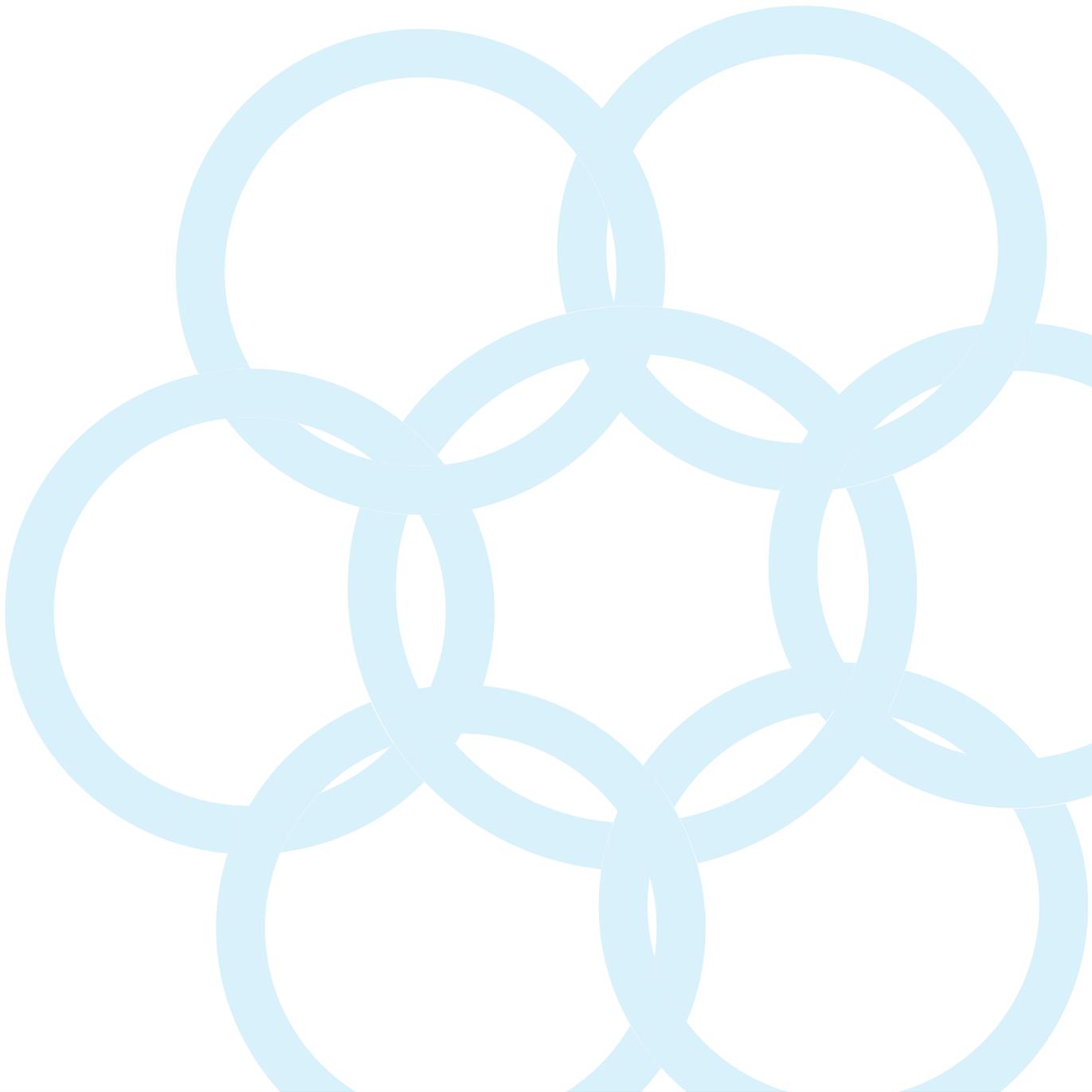
However, we cannot be complacent; the worldwide recession has an impact on NHSScotland as it does on all our lives and, despite the increases in resources allocated to the NHS, price inflation, increasing demand and the welcome innovations in healthcare technology all lead to massive pressure on our system.

This 2020 Framework for Quality, Efficiency and Value seeks to help NHSScotland continue to improve the quality of its services in the way we all wish by ensuring that it can afford these improvements. It has been developed in discussion with colleagues from the service and is not a prescriptive document; it is not mandating NHS systems to do specific things but it is offering a comprehensive approach that will enable us to use the resources we have in the best possible way. In this way, it is a very different publication to those the Scottish Government usually produces; while there will be a 'document' published, this is primarily an iterative, online tool to support planning and activity in local systems and partnerships. The website will be frequently updated and refreshed as new information becomes available and its users interact with it.

I commend this approach to you and invite you to be part of the community working to ensure that NHSScotland continues to develop as a world-leading healthcare system.

A handwritten signature in black ink, appearing to read 'Alex Neil', written in a cursive style.

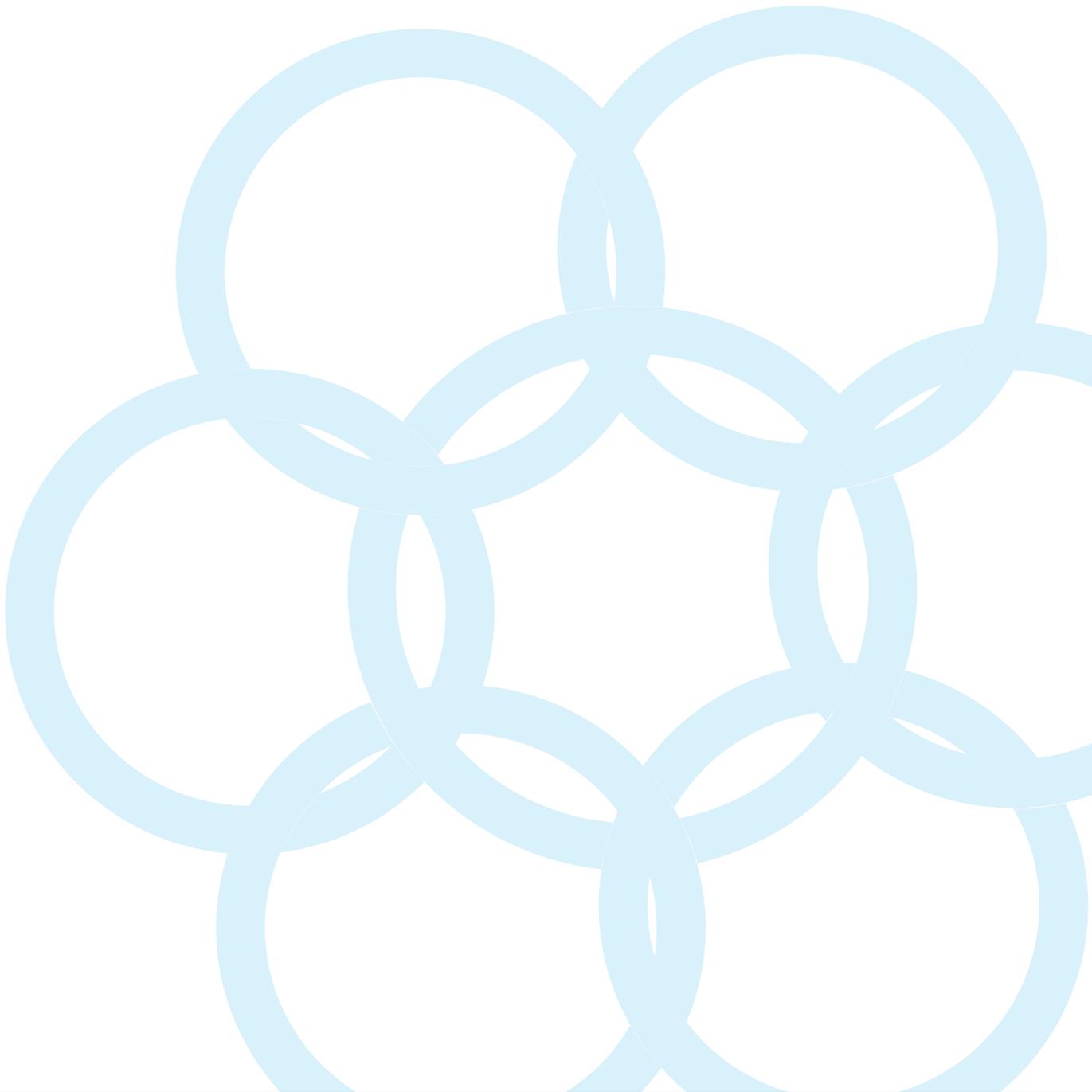
Alex Neil MSP



# Contents

<b>1. Introduction</b>	<b>7</b>
1.1 Scale of the Challenge	8
1.2 Policy Context	8
1.3 QuEST Approach to Delivery	12
<b>2. Principles</b>	<b>17</b>
2.1 Portfolio, Programme and Project Management	18
2.2 Spread and Sustainability	20
2.3 Consultation and Engagement	22
2.4 Asset-based Approaches	23
2.5 Co-Production	23
2.6 Equality Impact Assessment	25
2.7 Partnership	25
<b>3. Identify and Diagnose</b>	<b>27</b>
<b>4. Improve</b>	<b>29</b>
4.1 Systems Thinking	30
4.2 Deming's System of Profound Knowledge	31
4.3 Lean	33
4.4 Model for Improvement and PDSA	34
4.5 Process Mapping	35
4.6 Best Value	36
4.7 EFQM Excellence Model (European Framework for Quality Management)	37
4.8 STAR Tool	38
<b>5. Evaluate</b>	<b>39</b>
5.1 Evaluation Strategies	39
5.2 Measurement for Improvement	41
5.3 Action Research	42
5.4 Health Economics	43
<b>6. Bibliography</b>	<b>47</b>

Written and adapted by: Dayna Askew, Shona Cowan, Nils Michael, Linda Semple and other members of QuEST.



# 1. Introduction

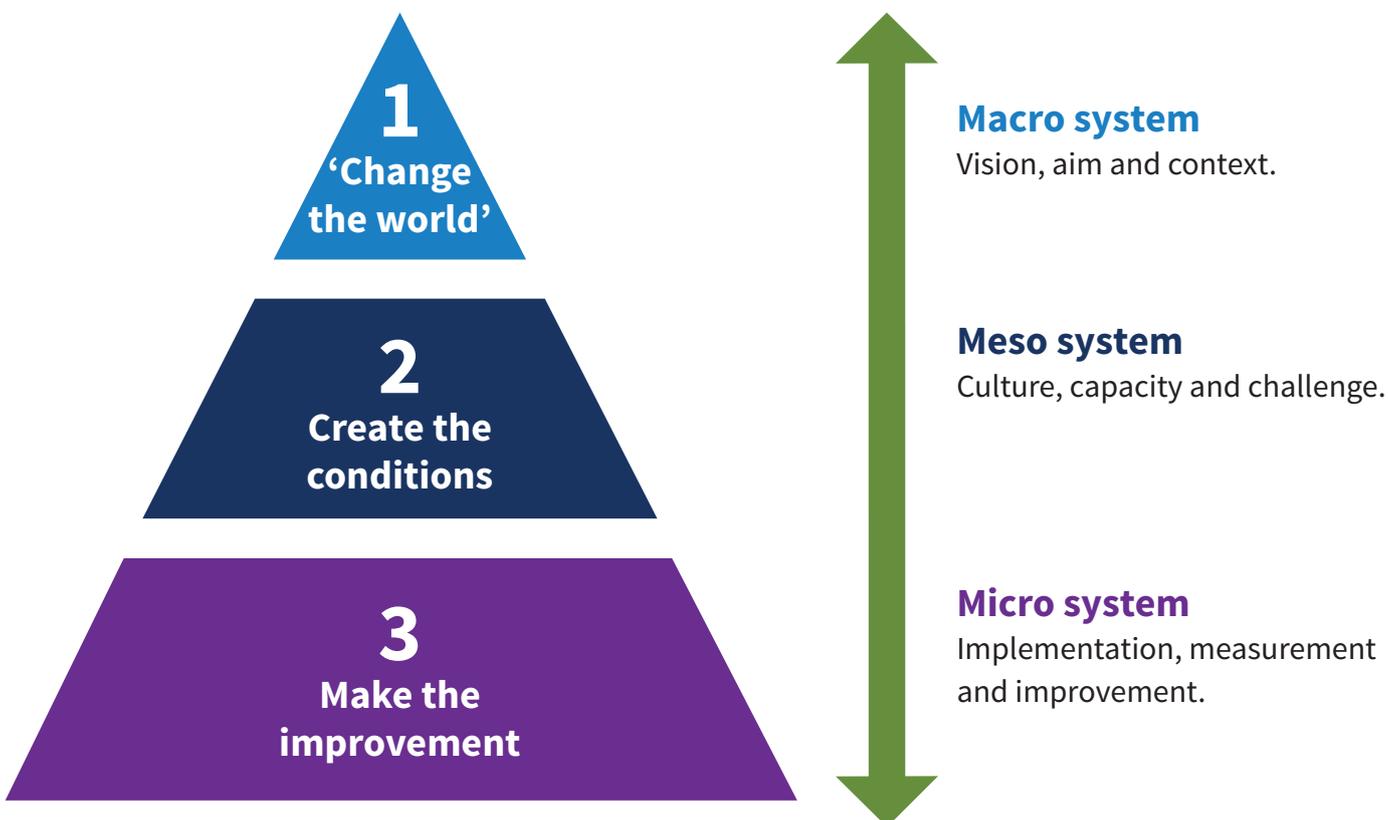
The 2020 Framework for Quality, Efficiency and Value (Framework) refreshes the [NHSScotland Efficiency and Productivity: Framework for SR10](#) and refocuses our efforts on the Triple Aim of improving Quality of Care (including safety), Health of the Population and Value and Financial Stability.

Whereas the *NHSScotland Efficiency and Productivity: Framework for SR10* set out a list of areas of focus and nominal ‘targets’ for savings this Framework aims to be a little different.

This Framework outlines the approaches, tools and techniques - underpinned by robust quality improvement and other methodologies – that experience has shown to be most successful in delivering improved quality alongside better value, a landscape we are calling ‘**Quality, Efficiency and Value**’.

Necessarily, as the landscape of quality, efficiency and value changes all the time, with more and more case studies, methods and evidence coming on-stream, this Framework aims to be iterative and interactive. You will find a wealth of additional material, enhancing and building on this narrative, on our [website](#) as well as ways of sharing and discovering [case studies](#) and contacts who can help with sustaining and spreading good practice.

This Framework complements [The 3-Step Improvement Framework for Scotland’s Public Services](#) which has been developed to support people to create the conditions for, and implement, the improvements that will make a difference across our public services.



This Framework has been co-produced with our stakeholders and you are invited to help develop this Framework further by sharing resources, case studies and good practice, and innovative approaches to improving the quality of care.

## 1.1 Scale of the Challenge

Since 2008 NHS Boards have delivered over £1.3 billion of efficiency savings (over 10 per cent of the revenue budget for NHS Boards) which have been reinvested to fund service developments. For the past five years NHS Boards have exceeded their efficiency target of 3 per cent of baseline funding across NHSScotland. NHS Boards delivered these efficiencies at the same time as making significant improvements to the quality of services. NHSScotland's portfolio of work around efficiency and productivity seeks to maximise opportunities for quality improvement whilst ensuring sustainability of services now and in the future.

However, there is still more to be done; despite the protection of the NHS budget by the Scottish Government and the additional significant investments that have been made during the period covered by the previous *NHSScotland Efficiency and Productivity: Framework for SR10*, the financial environment facing the NHS in Scotland during the next five to 10 years will be equally challenging, if not more so. Recent publications from The King's Fund (2014) and Monitor (2014) have outlined just how significant this challenge will be for NHS England and, despite the major and increasing differences in approach, philosophy and strategic direction of the two healthcare systems, we should not assume that it will be any easier in Scotland.



## 1.2 Policy Context

The [Healthcare Quality Strategy for Scotland \(Quality Strategy\)](#), launched in May 2010, provides the basis for the people who deliver healthcare services in Scotland to work with partners and the public towards our three Quality Ambitions and shared vision of world-leading safe, effective and person-centred healthcare.

In 2011 the Scottish Government announced its ambitious plan for integrated health and social care and set out the [2020 Vision](#) and Strategic Narrative for achieving sustainable quality in the delivery of health and social care across Scotland.

## Our '2020 Vision'

Our vision is that by 2020 everyone is able to live longer, healthier lives at home, or in a homely setting.

We will have a healthcare system where we have integrated health and social care, a focus on prevention, anticipation and supported self-management. When hospital treatment is required, and cannot be provided in a community setting, day case treatment will be the norm. Whatever the setting, care will be provided to the highest standards of quality and safety, with the person at the centre of all decisions. There will be a focus on ensuring that people get back into their home or community environment as soon as appropriate, with minimal risk of re-admission.

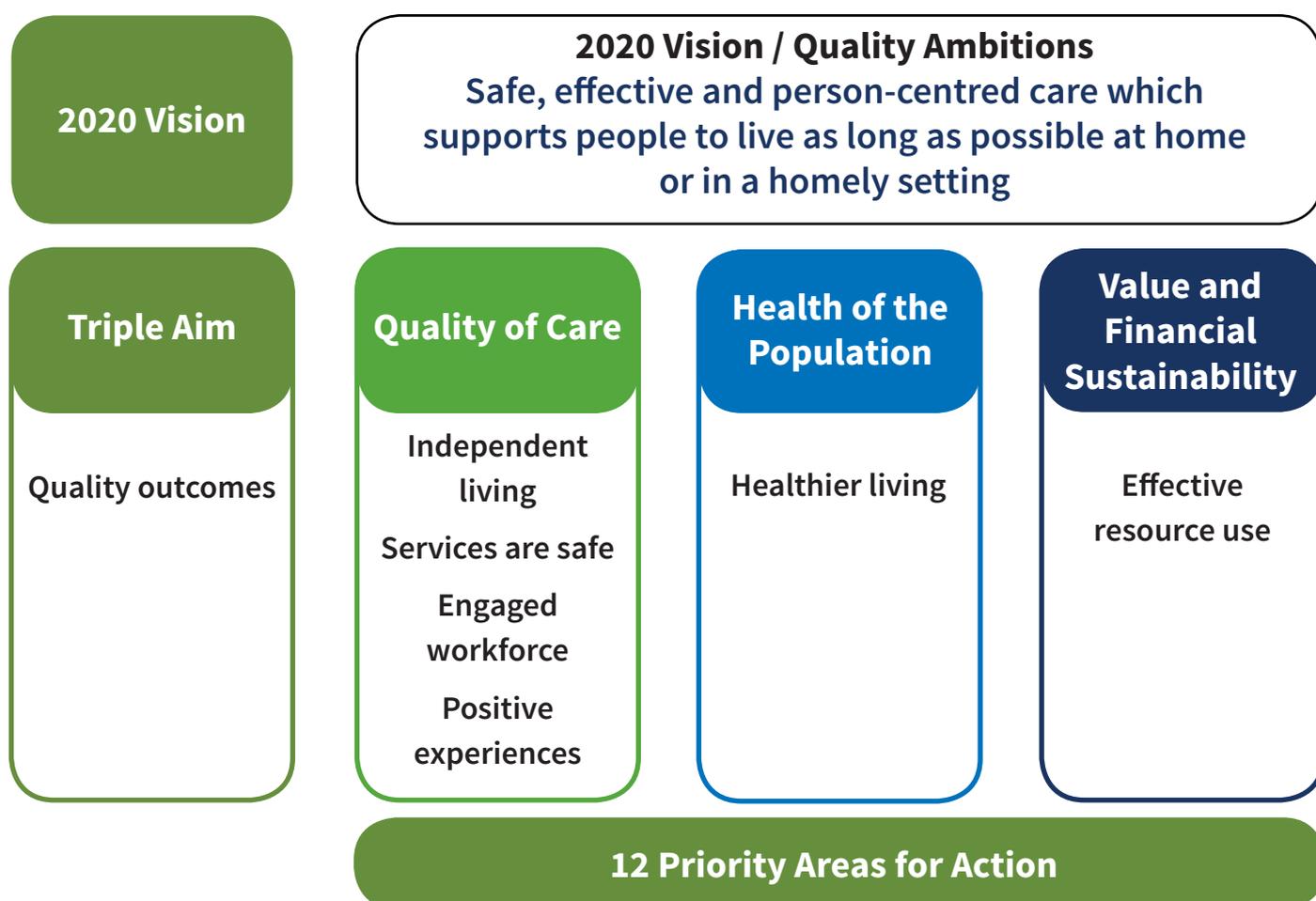
This vision is supported by [A Route Map to the 2020 Vision for Health and Social Care \(Route Map\)](#) launched at the NHSScotland Event in June 2013. The *Route Map* sets out a new and accelerated focus on 12 priority areas for action and has been designed to retain focus on improving quality and to make measureable progress to the 2020 Vision.

The *2020 Vision* and the Strategic Narrative describe the challenges for health and social care for the future and describes our direction of travel. The *Quality Strategy* provides the approach and the required actions to improve both quality and efficiency in order to achieve financial sustainability. The *Quality Strategy* is supported by this Framework which emphasises the need for quality healthcare to be delivered in a sustainable way. This Framework refreshes the *NHSScotland Efficiency and Productivity Framework for SR10* published in February 2011 to ensure it continues to reflect the context within which NHSScotland operates, and provides practical tools and guidance to support NHS Boards to deliver quality healthcare, whilst achieving efficiencies to ensure the sustainability of the service.

NHSScotland is committed to becoming a world leader in healthcare quality and to meeting the overall aim of the *Quality Strategy* 'to deliver the highest quality healthcare services to people in Scotland and through this to ensure that NHSScotland is recognised by the people of Scotland as amongst the best in the world'.

The *Route Map* describes 12 priority areas for action for pursuing our 2020 Vision for high quality sustainable health and social care services in Scotland in three domains, often referred to as the ‘Triple Aim’:

- **Quality of Care** - improve the care experience, which goes beyond simply providing the right type of care
- **Health of the Population** - improve the overall health of the population being served
- **Value and Financial Sustainability** - provide the best care possible while lowering the per-capita costs of care over time



Within the domain of Value and Financial Sustainability are three of the 12 priority areas for action, being: Workforce, Innovation and Efficiency and Productivity.

This Framework focuses on the third of these, Efficiency and Productivity, whilst also recognising the important links and interdependencies with the other priority areas.

HEAT targets and standards focus on four priority areas and contribute towards delivery of the Scottish Government’s Purpose and National Outcomes; and NHSScotland’s Quality Ambitions.

Triple Aim	Quality Ambitions	12 Priority Areas for Improvement		
Quality of Care	Person-Centred	Person-Centred Care		
	Safe	Safe Care		
	Effective		Primary Care	
Unscheduled and Emergency Care				
Integrated Care				
Care for Multiple and Chronic Illness				
Health of the Population			Early Years	
Health Inequalities				
Prevention				
Value and Financial Sustainability				Workforce
				Innovation
	Efficiency and Productivity			

The HEAT targets are grouped into four priority areas:

- **Health Improvement for the People of Scotland** - improving life expectancy and healthy life expectancy
- **Efficiency and Governance Improvements** - continually improve the efficiency and effectiveness of the NHS
- **Access to Services** - recognising patients' need for quicker and easier use of NHS services
- **Treatment Appropriate to Individuals** - ensure patients receive high quality services that meet their needs

Each of the four priority areas are relevant to improving the quality and efficiency of healthcare. This Framework focuses on the second of these: Efficiency and Governance Improvements.

During 2012-13 and 2013-14 there was a specific HEAT target in place, requiring NHS Boards to operate within their revenue/capital resource limits whilst ensuring value for money. There are no specific financial performance HEAT targets for 2014-15, however, it is an on-going statutory requirement for NHS Boards to deliver these outcomes. Delivery of efficiency savings is a key component of NHS Boards' plans to ensure financial balance and the sustainability of services into the future. NHS Boards have a combined commitment to deliver efficiency savings equivalent to 3 per cent of baseline funding.

There is a specific HEAT target for NHSScotland to reduce energy-based carbon emissions and to continue a reduction in energy consumption to contribute to the greenhouse gas emissions reduction targets set in the Climate Change (Scotland) Act 2009. This target aligns to the Efficiency and Productivity priority area within the *Route Map*.

The [Everyone Matters: 2020 Workforce Vision](#) has been developed in recognition of the vital role of the workforce in responding to all of these challenges to improve quality and outcomes.

## Our '2020 Workforce Vision'

We will respond to the needs of the people we care for, adapt to new, improved ways of working, and work seamlessly with colleagues and partner organisations. We will continue to modernise the way we work and embrace technology.

We will do this in a way that lives up to our core values. Together, we will create a great place to work and deliver a high quality healthcare service which is among the best in the world.

The *Everyone Matters: 2020 Workforce Vision* sets out a commitment to valuing the workforce and treating people well. Together, we will put people at the centre of everything we do and work to a common set of values which guide the work we do, the decisions we take and the way we treat each other.

The values that are shared across Scotland's Health Service are:

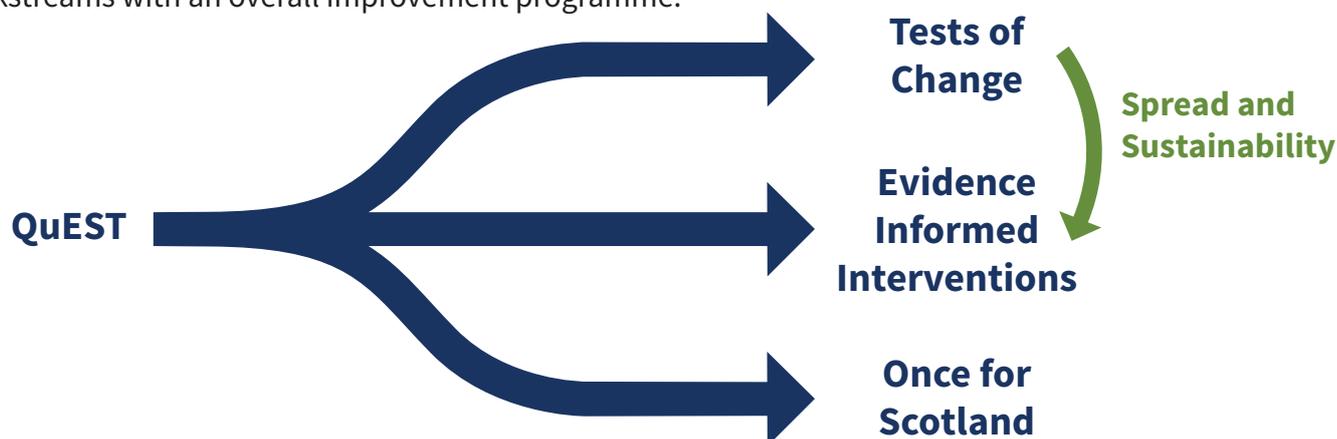
- care and compassion
- dignity and respect
- openness, honesty and responsibility
- quality and teamwork

### 1.3 QuEST Approach to Delivery

QuEST supports NHS Boards to deliver improvements using three approaches:

- Once for Scotland
- Evidence-Informed Interventions
- Tests of Change

These approaches are complementary and the principles behind each might be used by individual workstreams with an overall improvement programme.



## Once for Scotland

Some services provided by NHSScotland can be delivered most efficiently (i.e. balancing cost and quality) on a Once for Scotland basis. Delivering some services in this way can achieve the following benefits:



Simplified and standardised service delivery



Improved customer service



Increased compliance and consistency within and across NHS Boards



Greater opportunities for sharing good practice, skills and expertise



Improved quality of service and support to staff



Enhanced management information and improved reporting tools



Enhanced ability to manage demand and capacity by flexibly deploying resources



Cost efficiency through economies of scale

NHSScotland already has a number of services provided at a national level, primarily by the Special NHS Boards, for example, legal services provided by the Central Legal Office, new medicines evaluation provided by the Scottish Medicines Consortium, and technical guidance on healthcare estates and facilities provided by Health Facilities Scotland.

A number of national programmes aiming to deliver services on a Once for Scotland basis are currently underway. These programmes are developing new ways of working across the following functions:

- finance
- human resources
- facilities management
- procurement

These programmes are focused on driving quality and efficiency in NHSScotland by removing duplication, variation and non-value adding tasks in the provision of services, enabling reinvestment of resources elsewhere.

In addition to these programmes, it has become increasingly clear that there are other areas where it may be possible to increase those services that can be delivered on a Once for Scotland basis, led by the Special and Support NHS Boards. A major programme of work is being developed over the period of this Framework. This will be a flexible programme that can incorporate other areas of activity as and when they are identified.

## Evidence-Informed Interventions

Evidence-informed interventions are those interventions which have been proven to be effective (i.e. proven to positively change the problem being targeted) through an evaluation of outcomes.

Through a number of national programmes QuEST supports NHS Boards to implement evidence-informed interventions such as:

- [Enhanced Recovery](#)
- [Releasing Time to Care](#) (RTC)
- [Productive General Practice](#) (PGP)
- [National Therapeutic Indicators](#) (NTIs)

In some instances NHS Boards are hesitant to implement these interventions in their local context. In these cases the intervention can be tested on a small scale using an improvement science approach before implementation on a large scale.

## Tests of Change

Ideas for change may come from anywhere, for example:

- experiences and insights of front-line staff working on a ward within a particular NHS Board
- sharing learning with colleagues from NHSScotland who have made successful improvements
- adapting innovations from elsewhere in the public sector or industry

When making a change there may be uncertainty about whether it results in an improvement to processes or outcomes. It is important to test the change on a small scale using a robust methodology such as The Model for Improvement. Once the change has been successfully tested, evaluated and refined it can be implemented and spread more widely.

Over time an intervention may move from being a ‘test of change’ to an ‘evidence-informed intervention’ (i.e. an intervention that an NHS Board can implement with the knowledge that it has been proven to be effective).

Staff at all grades within NHSScotland should be empowered to develop innovative ideas which may improve quality, efficiency or productivity. Across a range of organisations, private and public, the concept of the ‘**intrapreneur**’ is gaining currency. This is an approach whereby staff working within a large organisation are encouraged, through protected time or development opportunities, to come up with innovative solutions to problems or to develop potential improvements.

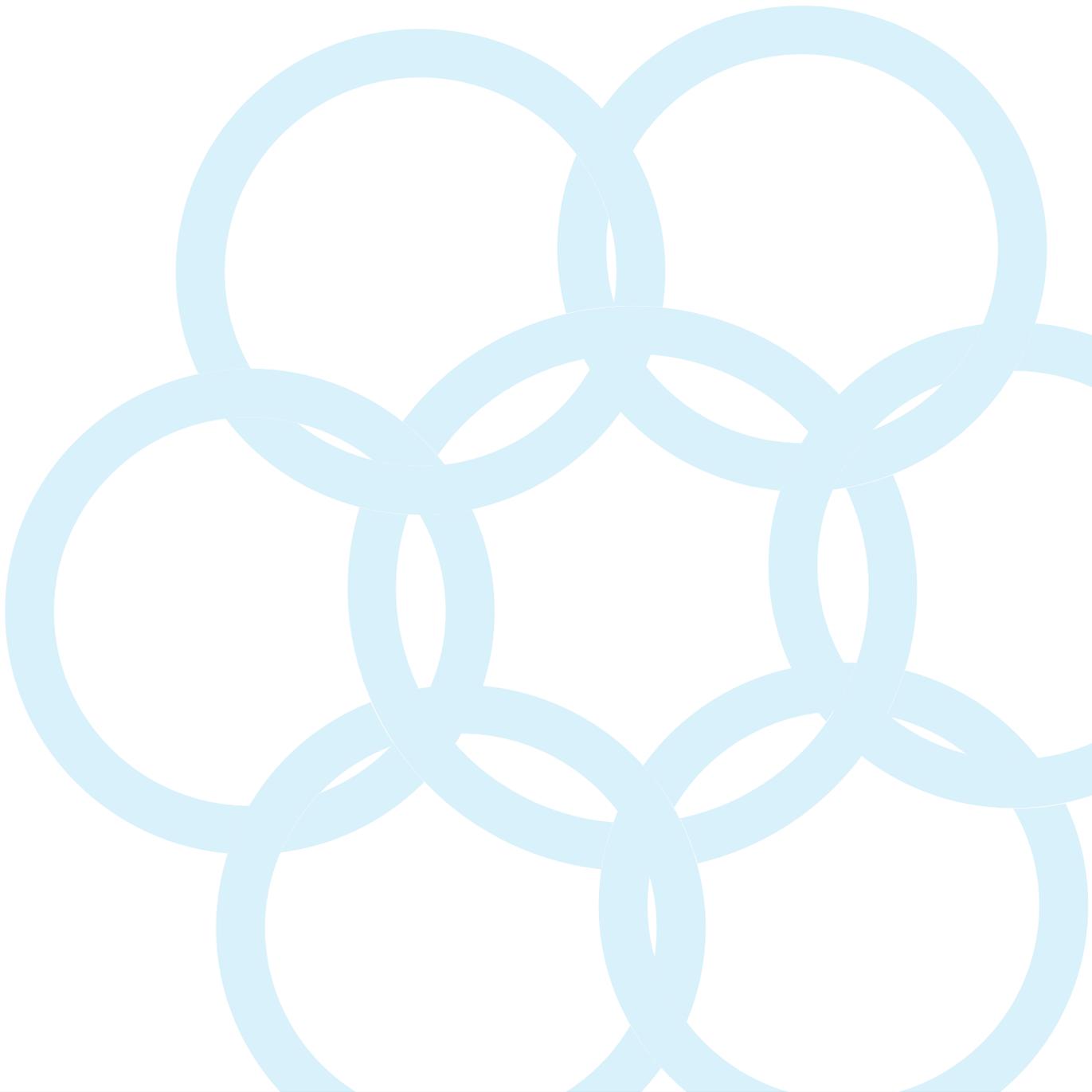
In this section, we have outlined the 'QuEST Approach'. Section 2 sets out many of the underpinning principles and methods that may help NHS Boards to increase their activities around improving quality, efficiency and value.

In sections 3, 4 and 5, we outline a three-part approach to undertaking the quality, efficiency and value journey:

- **Identify and Diagnose** - in which we outline some of the ways in which NHS Boards can identify where they may wish to concentrate their activities
- **Improve** - in which we suggest some of the quality improvement and other tools and methods that have been proven to be successful
- **Evaluate** - where we suggest some of the ways in which you can check whether you have or have not made a difference

Crucially, these sections are not prescriptive; we recognise that the methods, approaches and tools an NHS Board may wish to use to identify, address and evaluate potential changes will differ depending on their individual context, capacity and, in some cases, attitude. This is not a bad thing. We firmly believe that sustainable improvement can only be delivered when those implementing that change fully own it, and that can only happen if they are comfortable with the approaches used and can explain the rationale for using one approach or another.

In each section, therefore, you will find a range of recommendations outlined very briefly, with links to more detailed information which maybe found and followed up via the website.



## 2. Principles

Our approach to improving the quality, efficiency and value of healthcare for the people of Scotland is based on 10 key principles:



Reduce unwarranted variation in service provision, remove waste and eliminate harm



Improve healthcare quality by increasing the safety, effectiveness, experience and responsiveness of services



Use resources effectively - reduce costs, improve productivity and release efficiencies to enable reinvestment in front line patient care



Encourage innovative approaches to service redesign and use of technology



Adopt a whole system approach to service redesign



Collaborate and partner with NHS Boards, Local Authorities and the third sector



Ensure clinical decision-making takes precedence over short term efficiency gains or achievement of targets



Encourage a more productive and empowering workplace culture



Use good quality benchmarking and performance data, together with insight into service provision, to identify where productive opportunities lie



Identify, spread and sustain good practice

## 2.1 Portfolio, Programme and Project Management

Robust portfolio, programme and project management, in combination with quality improvement tools, expertise and resources, are essential to the delivery of successful quality and efficiency programmes.

The Office of Government Commerce defines portfolio, programme and project management as follows:



### Portfolio Management

A coordinated collection of strategic processes and decisions that together enable the most effective balance of organisational change and business as usual.



### Programme Management

The action of carrying out the coordinated organisation, direction and implementation of a dossier of projects and transformation activities (i.e. the programme) to achieve outcomes, and realise benefits that are of strategic importance to the business.



### Project Management

The planning, delegating, monitoring and control of all aspects of the project, and the motivation of those involved, to achieve the project objectives within the expected performance targets for time, cost, quality, scope, benefits and risk.

Portfolio, programme and project management are relevant to quality improvement because quality improvement is all about change. Without change there can be no improvement, although it is important to remember that not all change leads to improvement.

The process of change involves moving from a current to a future state; this process can be complex and uncertain. Using a portfolio, programme and project management approach provides a structure within which to deliver a change and a framework to help ensure that the change is successful.

There are a range of programme and project management methodologies which can be used to provide a framework for managing change. The most common within the public sector are [PRINCE2](#) and [Managing Successful Programmes](#) (MSP). These methodologies tend to identify similar processes and stages for managing projects and programmes including start up or identify, initiate or define, deliver, monitor or control, and close.

The Quality and Efficiency Support Team has adapted these methodologies in order to define a seven step approach to delivering efficiency and productivity initiatives. This approach is not prescriptive and can be adapted for individual initiatives as appropriate.



## Identify

Potential projects or programmes are identified. This may be as a result of an issue or problem that needs to be fixed or alternatively through horizon scanning or identification of new evidence which suggests a potential improvement to current practice.

## Initiate

Projects or programmes are initiated. This may include scoping, planning and design, development of approach, and development of project documentation.

## Baseline

A baseline which provides information on the current state is developed. This may provide an opportunity to quantify the potential efficiency saving, productive gain or quality improvement to be made.

## Decide

Development of alternative options for service delivery (this may be accompanied by small tests of change to establish what works). Option appraisal to identify which solution will provide the optimum level of benefit or improvement, balancing both cost and quality.

## Implement

The preferred solution is implemented, including plans for spread and sustainability to replicate and hold the benefits delivered through the change. The change is embedded and becomes 'business as usual'.

## Monitor

Projects and programmes are monitored and reported on, on an exception basis. There is oversight scrutiny and challenge to ensure that benefits are realised.

## Review

The programme is reviewed and lessons learned are captured. If issues are identified these can inform the next iteration of improvements to be made.

## 2.2 Spread and Sustainability

An on-going challenge for NHSScotland is how to spread and sustain improvements in quality, efficiency and value.

**Spread** is about being able to replicate the gains of a change which is reliably implemented in one context in another context.

**Sustainability** is then about being able to hold that gain into the future, across a system, for the organisation, staff and patients.

(Jeffcott, 2014)

NHSScotland's Quality Improvement Hub (QI Hub) has undertaken research which seeks to understand how to create the right conditions to ensure reliable and effective spread and sustainability of improvement across NHSScotland. From this research the QI Hub has produced a publication called [The Spread and Sustainability of Quality Improvement in Healthcare: A resource to increase understanding of the 10 key factors underpinning successful spread and sustainability of quality improvement in NHSScotland](#) with the aim of enabling healthcare practitioners and managers to become better informed about the current evidence base behind the complex issue of how to spread and sustain improvement across NHSScotland.

The Evidence Assessment identifies 10 key elements that underpin successful spread and sustainability of improvement in healthcare systems:



## **Innovation**

Innovation refers to the notion of doing something different rather than doing the same thing better. We need to understand what is changing, where and to whom.

## **Measurement**

All improvement will require change, but not all change will result in improvement. We need to measure changes and determine which demonstrate improvement and by how much.

## **Human Factors**

Understanding why errors occur and tackling poor design and procedures is key to improvement. We need a whole systems approach to design, investigation and learning at all levels.

## **Safety Culture**

Safety culture reflects the attitudes, beliefs, perceptions and values employees share in relation to safety. We need to be aware of our cultural opportunities and challenges and instil core values.

## **Change Management**

Change management is how you transition individuals, teams and organisations to a desired future state. We need to acknowledge both the technical and social impacts of change and improvement efforts.

## **Leadership**

A good leader makes the status quo feel uncomfortable (push) and the future look attractive (pull). We need to embrace leadership that sacrifices self-interest and puts quality and safety at the centre of all we do.

## **Knowledge into Action**

We must get knowledge to the frontline - by combining research, practice, staff and patient experience. We need to understand how to translate and embed our best ideas and evidence.

## **Engagement**

Large scale engagement can breed large scale changes. We need to fuel and support mobilisation for improvement across a diverse set of health and social care stakeholders.

## **Evaluation**

Evaluation is vital to our understanding of which methods and innovations work to improve quality. We need evidence as to which changes have been made, when and how they made an impact.

## **Empowerment**

The degree of person-centredness in a system is reflected in superior decision making, design and care. We need participation based on listening and incorporating the views of those who are vital for change.

## 2.3 Consultation and Engagement

The principles of consultation and engagement are key to how we continuously improve our health services in Scotland.

**Consultation** [kon-suhl-**tey**-shuh n]

The action or process of formally consulting or discussing.

**Engagement** [en-**geyj**-muhnt]

The action of engaging or being engaged.

(Oxford English Dictionary)

Scottish Government Guidance in 2010 on [Informing, Engaging and Consulting People in Developing Health and Community Care Services](#), lays out the expectations for how the NHS in Scotland will listen and respond to patients, public and other stakeholders on the experience of using services and in the involvement of planning new or redesigned services.

The *Quality Strategy* reinforces the strategic importance of consultation and engagement by its focus on person-centred care and the need to use systematic approaches to identifying what those who we provide services to value and then use this to inform the design of our services.

Case studies from across NHSScotland demonstrate how these principles are being used to inform changes at organisational, service and team level.

The [Scottish Health Council](#) provides a range of resources, including a participation toolkit and case studies.

Information on [person-centred care collaborative approaches](#) is also available.

## 2.4 Asset-based Approaches

Asset-based approaches increasingly inform Scottish Government policy development. Across Scotland, national and local delivery organisations are developing asset-based approaches as a means to tackle the deep-rooted social problems that persist across Scotland. These approaches focus on the assets within individuals and communities rather than on their deficits (needs or problems).

The asset approach to health improvement is based on Aaron Antonovsky's concept of salutogenesis (the creation of positive health and wellbeing). It is a set of concepts and actions which seem to offer the most coherent and evidence based approach to the creation of health and wellbeing. A key aspect of Antonovsky's theory is the idea that having control of one's life and circumstances is health enhancing. Central to the asset approach is the idea of helping people to be in control of their lives by developing the capacities and capabilities of individuals and communities. It draws on existing approaches that foster effective and appropriate involvement of the people and the professionals who serve them.

Asset-based approaches are concerned with identifying and utilising the protective factors that support health and wellbeing. They offer the potential to enhance both the quality and longevity of life through focusing on the resources that promote the self-esteem and coping abilities of individuals and communities.

## 2.5 Co-production

NHSScotland is currently facing a significant increase in demand for services and demographic change within the context of a challenging financial environment. In order to address these challenges it is vital that new models of service delivery are developed which enable NHS Boards to be more efficient and productive whilst also maintaining or increasing the quality of care. Asset-based approaches can help to shift the balance of health and social care and to promote services that are focused on prevention and independence (Loeffler *et al*, 2013).

Asset-based approaches involve developing and mobilising the capacity and capability of individuals and the connections and resources within communities and organisations, rather than focusing on problems and deficits. The approach aims to involve and empower individuals to be in control of their lives, enabling them to rely less on public services, and to participate in services that better meet their needs.

Co-production is an assets-based approach which places service users at the centre of the service, involving them in all aspects from design through to delivery, assessment and sometimes, where appropriate, its end. This person-centred approach enables the delivery of a quality service which not only focuses on outcomes but also on the user experience of service delivery.

A key principle underpinning co-production is that services 'do with, not to' the people who use them, empowering people to take responsibility for their health and healthcare. Individuals, families, communities and service providers have a reciprocal and equal relationship which recognises and uses the knowledge, skills, expertise and resources held by each to achieve better outcomes or improved efficiency.

Loeffler *et al* (2013) identify the following types of co-production:

- **Co-commissioning** of services, which embraces:
  - **Co-planning** of policy – e.g. deliberative participation
  - **Co-prioritisation** of services – e.g. personal budgets for social care
  - **Co-financing** services – e.g. user charges for prescriptions or dental services
- **Co-design** of services – e.g. customer journey mapping to understand the experience of a service
- **Co-delivery** of services, which embraces:
  - **Co-managing** services – e.g. community management of public assets
  - **Co-performing** of services – e.g. peer support groups such as expert patients
- **Co-assessment** of services – e.g. user on-line ratings

NHS Boards are required to make transformational changes to the way they work with their partners to deliver the *2020 Vision for Health and Social Care*. To reflect the changing landscape, and the publication of the *Route Map* to the *2020 Vision for Health and Social Care*, NHS Boards' Local Delivery Plans will include an Improvement and Co-production Plan (based on the 12 priority areas within the *Route Map*).

NHS Boards will work with staff, patients, the public and partners to develop Improvement and Co-production Plans that will set out the priority actions that will be taken to deliver the 2020 Vision. It is vital to recognise that embedding co-production in services will require whole systems change.

## 2.6 Equality Impact Assessment

All public bodies are required, by law, to publish equality outcomes and to take into account the potential impact, positive or negative, on those people using their services who are members of a group with 'protected characteristics'. In practice, this means that NHS Boards should be undertaking a process of Equalities Impact Assessment (EQIA) on proposed changes. This is particularly important when proposing changes that are related to making financial savings; a number of public bodies have faced legal challenges on decisions they have made to 'save money' where they have not considered the potential impact on service users with protected characteristics.

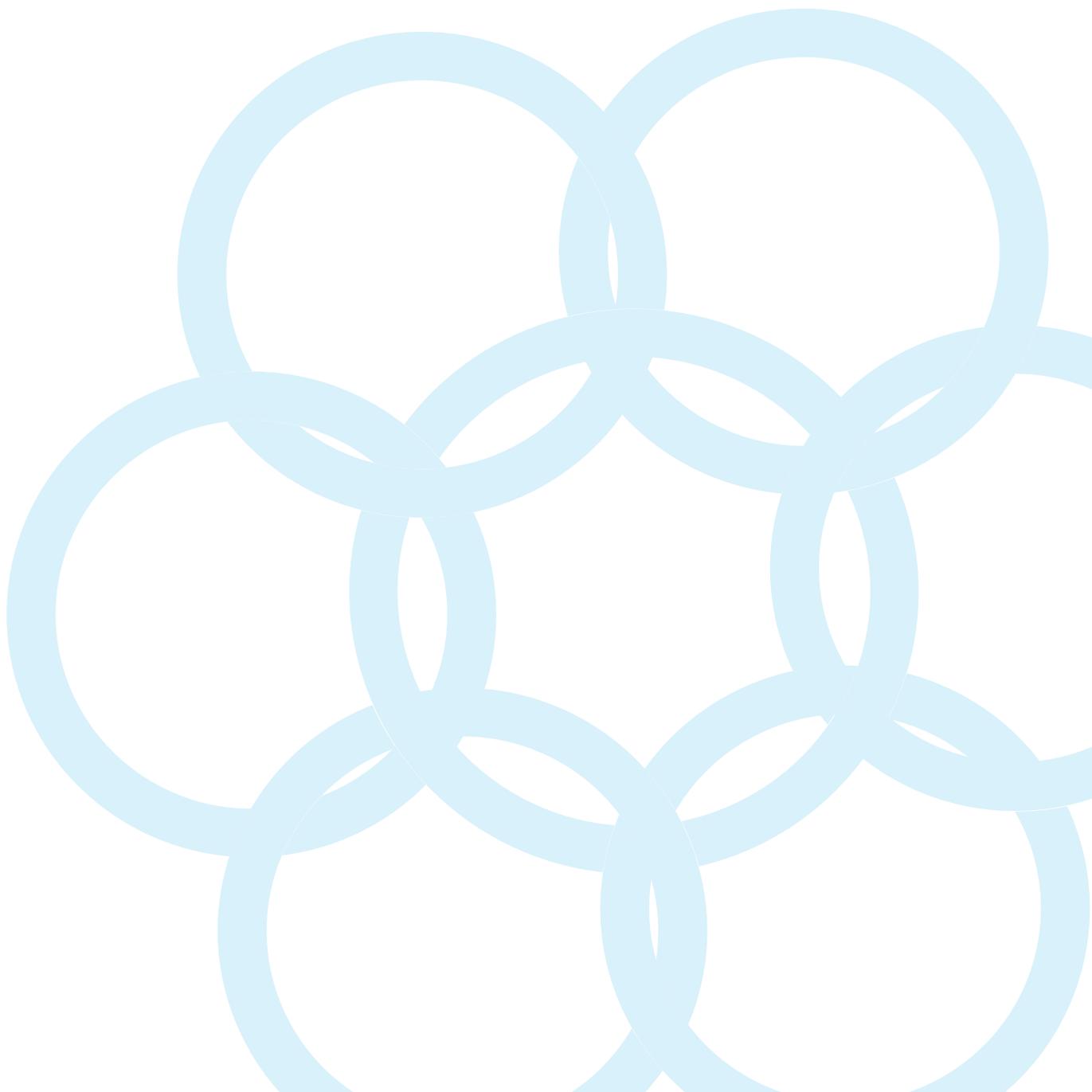
Guidance on how this can be done is widely available and all NHS Boards have staff who can advise on this process.

## 2.7 Partnership

NHSScotland has rightly been praised for its approach to partnership working that has underpinned the consensus model for delivery of healthcare services over the last decade or more. Examples of this include the fact that each NHS Board has an Employee Non-Executive Director, advisory groups across clinical professions and clear engagement and facilities arrangements with trades unions.

This successful approach has meant that service change and other transformational activities have, on the whole, been introduced with little if any industrial unrest. Quality, efficiency and value activities, especially those that impact on direct delivery of services have the potential to require different ways of working (such as moving to a shared service model for support functions), and critically require engagement with, and the support, of all partners. The quickest way to ensure failure in any attempt to improve quality, efficiency or value is to fail to engage with those staff who will be delivering the changes.

A range of tools and techniques for ensuring that this engagement process is undertaken properly exists, and this process is a core principle of the delivery of [Everyone Matters: 2020 Workforce Vision](#).



### 3. Identify and Diagnose

All systems have the potential to improve. No-one would disagree with the idea that there is always scope for improvement and the concept of 'Continuous Quality Improvement' (CQI) is founded on this fact. But in order to identify where there may be scope for improvement, organisations need to have a process by which they can interrogate their activities and diagnose areas of focus.

There are many ways in which a system can do this. Primarily, and most easily, analysing data routinely collected as part of the organisation's day-to-day running alongside any other information such as, in the case of healthcare, patient complaints and staff feedback, can give an organisation a rich understanding of those areas where improvement may be necessary.

For example, routine analysis of the number of people waiting for treatment against the Scottish Government's 18 Week Treatment Time Guarantee at its simplest can identify those specialties that are struggling to cope with demand, for whatever reason.

It is not only an internally-facing view that can help with this. A healthcare system can 'benchmark' its performance in an area against other systems locally, nationally or even internationally; the art of this approach is to ensure that the systems against which it is benchmarking itself are appropriate, and there are a range of different approaches to doing this.

NHSScotland has a number of [benchmarking products](#) available to all NHS Boards covering areas such as theatres, mental health services and acute activity. Furthermore, some NHS Boards have implemented the CHKS benchmarking product, with support from the Scottish Government. Within all of these products, there is a range of tools, approaches and comparisons but they all allow systems to identify areas on which they may wish to focus improvement activity. For example, comparing the average utilisation of theatre time between specialties across an NHS Board and across Scotland may give an idea of how effectively lists are being managed.

A range of other tools, such as [Demand, Capacity, Activity and Queue \(DCAQ\) analysis](#) can be used if there are already areas of focus to identify where exactly - and how significant - the potential improvement areas may be.



A critically important way to identify potential areas for improvement is by ensuring that your system has space and opportunity for staff, patients and others to offer innovative suggestions. Many of the most significant improvements in healthcare have come from people who just had a good idea or wondered what would happen if something was done differently. While wholesale ‘innovation activity’ or approaches to finding solutions to ‘big problems’ are to be applauded, sometimes just making space for the small idea to be tested quickly, evaluated simply and then sustained and spread can make an enormous difference. Many of the [case studies](#) available come from just such ideas.

The diagram below details how specific improvement methods fit within the overall framework.

<b>Identify and Diagnose</b>	<b>Clarity on purpose of system</b>	<ul style="list-style-type: none"> <li>• Focus on defining purpose of local system through the eyes of the customer</li> </ul>
	<b>Diagnose how well process/system currently works</b>	<ul style="list-style-type: none"> <li>• Quantitative data including DCAQ</li> <li>• Qualitative data including patient experience</li> <li>• Understanding level of ‘failure’ and ‘value’ demand</li> <li>• People/relationships</li> <li>• Impact of senior leadership thinking on system conditions</li> </ul>
<b>Improve</b>	<b>Design a better process/system</b>	<ul style="list-style-type: none"> <li>• Asset-based approach/co-production</li> <li>• Evidence-based practice</li> <li>• Operations management theory including DCAQ</li> <li>• Human factors and human dimensions of change</li> <li>• Involve those receiving and delivering in redesign</li> <li>• Design against demand</li> <li>• Address system conditions</li> <li>• Set measurable aims</li> </ul>
	<b>Test/implement</b>	<ul style="list-style-type: none"> <li>• Implementation science</li> <li>• PDSA</li> <li>• Project management</li> </ul>
<b>Evaluate</b>	<b>Review/evaluate</b>	<ul style="list-style-type: none"> <li>• Data - quantitative and qualitative</li> <li>• Process, outcome and balancing measures</li> <li>• Use of run charts and SPC charts</li> </ul>

## 4. Improve

Improving the quality of health services is about closing the gap between our knowledge of the best care and treatments available and ensuring that those treatments are applied consistently for every patient, every time.

Regardless of size, structure or maturity, improving organisational performance requires an approach which combines a range of activities within a framework of principles and policies. Quality improvement is about using recognised methods, tools and techniques to enhance the quality of care we provide and avoiding the cost associated with poor quality.



Juran was one of the first writers to focus on the cost of poor quality. The 'Juran trilogy' describes an approach to identifying the links between the three managerial activities of quality planning, quality control and quality improvement and the way in which they need to be aligned in order to sustain change and improvement and increase productivity (Juran, 1986).

- **Quality Planning** provides a system that is capable of meeting quality standards
- **Quality Control** is used to determine when corrective action is required
- **Quality Improvement** seeks better ways of doing things

Having identified that there are areas of activity within a system that are amenable to improvement, using any of the approaches outlined in the Diagnose section (or others), the next step is to assess which of the many methods for improvement would be most appropriate to the specific circumstances.



For example, if the improvement required is connected to a process-driven area with repeated activity that varies little, it may be that applying the techniques of Lean would be most useful. If, however, there are complex cultural issues and/or variations in practice across an area, using the Model for Improvement with the widest possible range of stakeholders would probably work better.

There are a wide range of frameworks and methodologies used to support change and continuous improvement and in this section we will highlight some of the most widely used approaches across health care and the public sector. The frameworks are about helping us to manage change by being able to understand where we are now, where we want to be and planning systematically to meet the gaps and improve.

## 4.1 Systems Thinking

Systems thinking draws on various disciplines to contribute to our knowledge of how to improve quality.

Understanding that healthcare organisations are made up of systems and processes, often of great complexity, is very important to improving the quality of the care we deliver. Applying systems thinking enables us to see that improvements are achieved by systematic approaches to change that take account of this complexity.

Systems thinking provides a framework for looking at relationships between parts of the system and how they connect, rather than separate activities as disconnected, individual parts. It helps us to see and understand patterns over time rather than just snapshots in time.

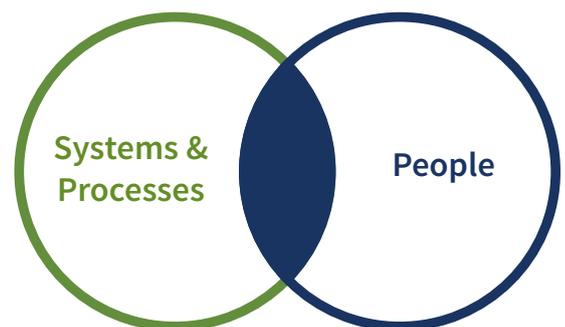
The way the systems that we work in are designed determines what we are able to achieve and the majority of problems are the system – not the people.

Sometimes systems feel as though they are set up to stop us delivering care or we may have worked with colleagues who do not have the skills do their job. The best system will not function unless it has appropriately skilled staff, so the people matter as well.

Ultimately the systems impact the people and vice versa.

Systems thinking allows us to look at a problem and consider what the underlying cause or causes might be.

First law of improvement is ‘Every system is perfectly designed to achieve exactly the results it gets’



Command and Control View	Systems Thinking View
All demand is work that needs to be responded to	Demand is viewed as value and failure demand
Transaction = cost	Cost is in flow
Standardise and functionalise for efficiency	Design against demand
Control work by budgets, targets and rules	Measures relate to purpose and are in the hands of those doing the work
Central targets, specification and inspection will drive improvement	Replace compliance with responsibility for measures and method
People can be held accountable for their performance	Majority (80-95%) is due to the system. Often it may look like the people are the problem but digging further nine times out of 10 it will be the system
Focus on costs. Costs must be managed.	To reduce costs focus on value and quality
Change by plan <ul style="list-style-type: none"> <li>• As is</li> <li>• To be (Target Operating Model)</li> </ul>	Change is emergent. All you need to do to get knowledge. Understand > Improve > Make Normal

Table adapted from <http://leanandkanban.wordpress.com/2010/02/28/vanguard-network-day-25th-february-2010-part-1/>

## 4.2 Deming's System of Profound Knowledge

William Edwards Deming was an American statistician, professor, author, lecturer, and consultant who defined a theory of management and leadership called the System of Profound Knowledge. It is a theory of management that provides a framework of thought and action for any leader wishing to transform or improve their team or organisation and consists of four components, or 'lenses', through which to view the world simultaneously:



An Appreciation  
of a System



Understanding  
Variation



Psychology



Theory of  
Knowledge

Improving systems is about appropriately applying the four principles and practices so that the organisation can simultaneously reduce costs through reducing waste and variation whilst increasing quality.



### An Appreciation of System

Deming defined a system as 'a network of interdependent components that work together to try to accomplish the aim of the system. The aim for any system should be that everybody gains, not one part of the system at the expense of any other'.

He used the analogy of an orchestra to illustrate the concept of a system: 'An orchestra is judged by listeners, not so much by illustrious players, but by the way they work together. The conductor, as manager, begets cooperation between the players, as a system, every player to support the others. There are other aims for an orchestra, such as joy in work for the players and the conductor.' The emphasis on interrelated connections and interactions working together was critical to how he believed organisations could accomplish shared aims.



### Understanding Variation

Understanding variation is critical to managing systems effectively. Deming located two types of variations within a system:

- **Common cause variations** are problems built into the system, such as defects, errors, mistakes, waste and rework. In a stable system, common cause variation will be predictable within certain limits.
- **Special cause variations** represent a unique event that is outside the system, such as a natural disaster which has to be managed in a different way.

Reducing common cause variation and building stable systems is a key goal of effective system management.

## **Psychology**

Leaders can create the best system, know all about variation and knowledge, and still not have a successful organisation if they don't understand people, and particularly what motivates them to want to do a good job.

Deming understood the importance of effective people management and accepted that people cannot all be managed in the same way. He also understood that people are primarily motivated by intrinsic needs, including taking pride in workmanship and working with others to achieve common goals, in contrast to simply being motivated by monetary reward.

## **Theory of Knowledge**

Theory of knowledge is based on the premise that management is prediction and that knowledge is acquired as one makes a rational prediction based on a theory of what may happen which is then revised based on comparison of prediction with actual observation. The new knowledge is then reflected in the new theory of what action is needed to effect change. The process of learning is embodied in the Deming Plan-Do-Study-Act cycle (a modification of the Shewhart Plan-Do-Check-Act cycle), a systematic and dynamic process covering theory and application that helps gather knowledge, not simply data or information. It is a means for achieving a never-ending cycle of valuable learning for the continual improvement of a process or product.

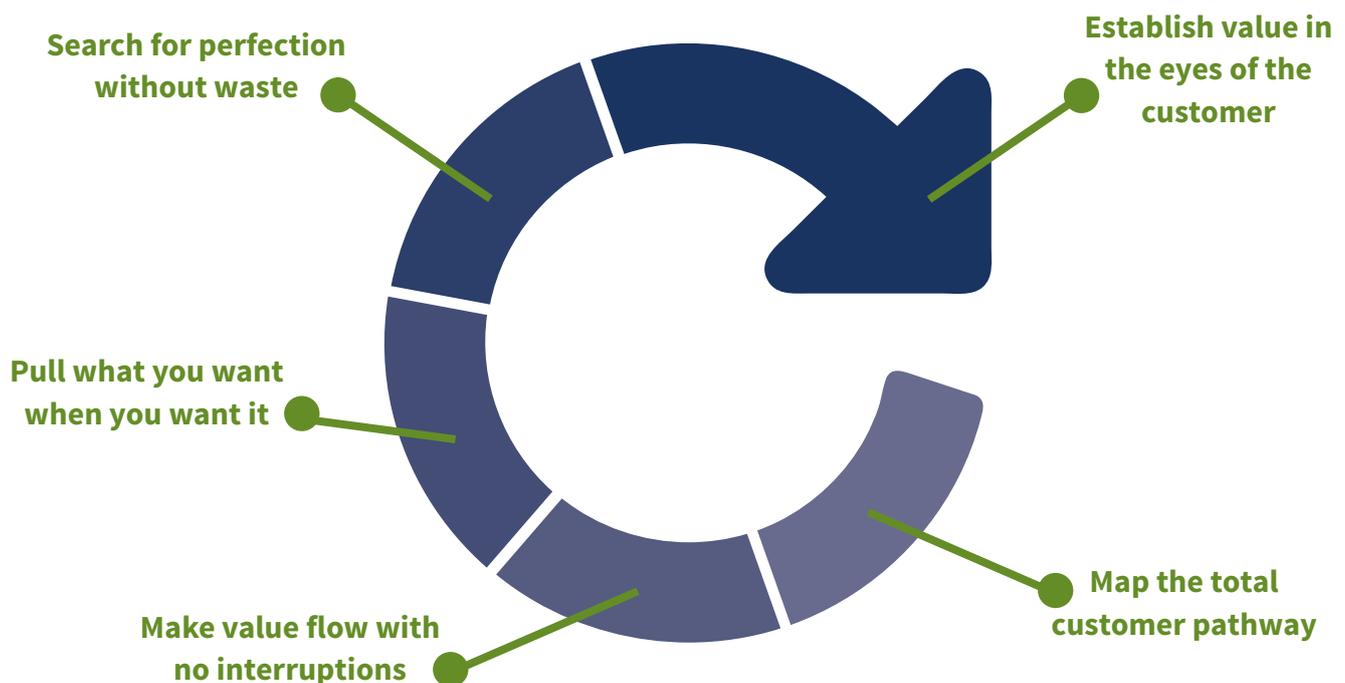
## 4.3 Lean

The term Lean is used to describe a set of principles and tools used to support organisations to pursue continuous improvement of their systems and processes. Lean focuses on adding value and removing waste and, importantly, always striving to improve.

The term Lean comes from research undertaken in the late 1980s into Toyota car manufacturers in Japan. Researchers discovered that Toyota were consistently outperforming other world-leading car manufacturers and they did this by focusing on some key principles which guided much of how the workplace was organised and managed.

Their systems improvement approaches were based on the sound methods of management principles dating back to Dr W. Edward Deming and other leading western management thinkers of the 20th century.

Lean aims to improve services for customers, whilst supporting a positive work environment for staff and running effective, high performing systems and processes.



NHSScotland has increasingly adopted the principles of Lean to support its improvement work and many of the [case studies](#) identify how we are developing capabilities in applying good systems management. The focus in Lean on establishing what value means to those who we provide services to brings an excellent focus to our aim to be person-centred and collaborative in our redesign and improvement work. These approaches are also gaining ground across the wider public sector with many organisations keen to apply systems thinking supported by some key tools to focus their improvement efforts.

QuEST is currently supporting the delivery of Releasing Time to Care in the community, a resource which introduces Lean tools and methods to support integration of health and social care teams. QuEST also supports the use of Productive General Practice, a set of Lean resources aimed at primary care.

## 4.4 Model for Improvement and PDSA

The Model for Improvement was developed by Associates in Process Improvement, and tells us that any changes we make must be based on an understanding of what it is we are trying to achieve, then testing our changes and analysing the results. The three fundamental questions the model asks relate to Deming's notion of using the profound leans of knowledge to assess and fix problems in the workplace:

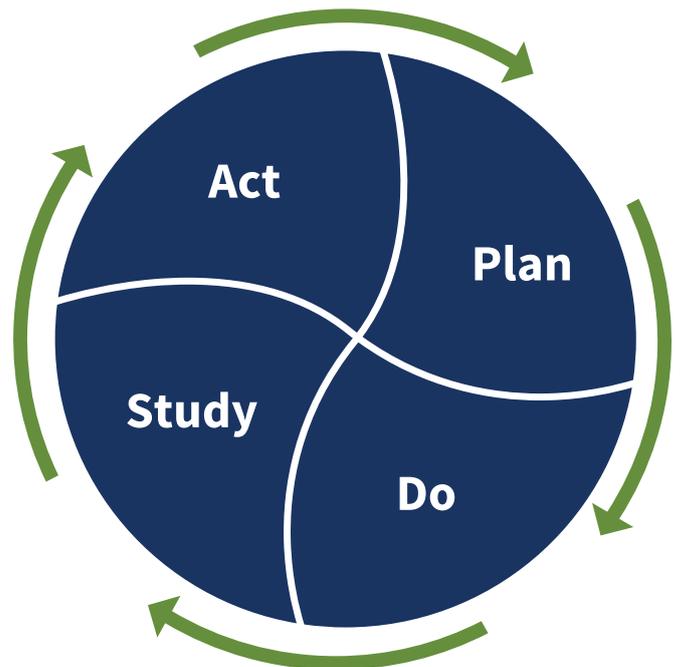
- **Setting aims** - What are we trying to accomplish?
- **Establishing measures** - How will we know that a change is an improvement?
- **Selecting changes** - What changes can we make that will result in improvement?

The Plan-Do-Study-Act (PDSA) cycle is used as a framework to develop tests and implement change - by planning it, trying it, observing the results, and acting on what is learned. After conducting a small test of change, learning from the results and refining the change through a number of PDSA cycles the change can be implemented more widely. If the change is successfully implemented more broadly then it can be spread to other areas (Langley *et al*, 2009).

The PDSA cycle:

- is a structured approach for making small incremental changes to systems
- is a full cycle for planning, implementing, testing and identifying further changes
- is a practical tool for bringing about change as it can reduce anxiety about the impact of the change as people can see outcomes quickly
- reduces the time invested into change projects which may not work but this is not known until full scale implementation is attempted

We have many examples across NHSScotland of the PDSA approach being applied to improving quality.



## 4.5 Process Mapping

Understanding the multiple processes involved in care delivery is an important step in improving the quality of services. In health, our processes are often complex, have developed over years and involve clinical, administrative and paperwork or IT systems often across multiple departments and locations.

Using [process mapping](#) enables us to identify all the steps and interaction in a patient's journey through the system from diagnosis to treatment outcome and is an excellent way of analysing what is currently happening. By gaining this knowledge and being able to identify potential duplication, waste and unnecessary variation it provided a sound basis for identifying possible improvements.

The aim of process mapping is to make things clear and to provide insight. The best map is often the simplest map.

There are different approaches to process mapping. Which one you select will depend upon what you need to know, what level you are working at (whole pathway or a small part of it), resources available and timescales.

Across NHSScotland we now have many practitioners and teams who are applying process mapping to provide them with the baseline information they need to identify next steps for improvement.

## 4.6 Best Value

Best Value provides a common framework for continuous improvement in public services in Scotland, and is a key foundation of the Scottish Government's Public Service Reform agenda. The duty of Best Value in public services is as follows:

- to make arrangements to secure continuous improvement in performance whilst maintaining an appropriate balance between quality and cost; and in making those arrangements and securing that balance
- to have regard to economy, efficiency, effectiveness, the equal opportunities requirements, and to contribute to the achievement of sustainable development

There are nine characteristics of Best Value that public service organisations are expected to demonstrate:



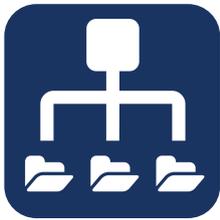
Commitment and Leadership



Sound Governance at a Strategic and Operational Level



Accountability



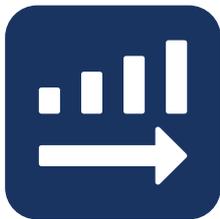
Sound Management of Resources



Responsiveness and Consultation



Use of Review and Options Appraisal



A Contribution to Sustainable Development



Equal Opportunities Arrangements



Joint Working

Audit Scotland provides a range of resources and toolkits to help implement [Best Value](#).

## 4.7 EFQM Excellence Model (European Framework for Quality Management)

The EFQM Excellence Model is a non-prescriptive framework that is flexible and adapts to any type of organisation, regardless of size or sector. It is used as a diagnostic tool for self-assessment, identifying strengths and areas for improvement across nine key criteria.

These nine 'criteria' are split between 'Enablers' and 'Results'. Enablers are what an organisation does and how it does it, and Results are what an organisation achieves.

The Excellence Model provides a framework for developing and implementing improvement plans that deliver sustainable growth and performance improvement. It can be used alongside other tools and standards like Investors in People, Charter Mark and Balanced Scorecard.

The EFQM Excellence Model is widely used across both private and public sector bodies. [Quality Scotland](#) provides a good introduction to the model, and also examples of how the framework is being applied.

## 4.8 STAR Tool

[Star](#) (socio-technical allocation of resources) is a tool developed by the London School of Economics with funding from the Health Foundation.

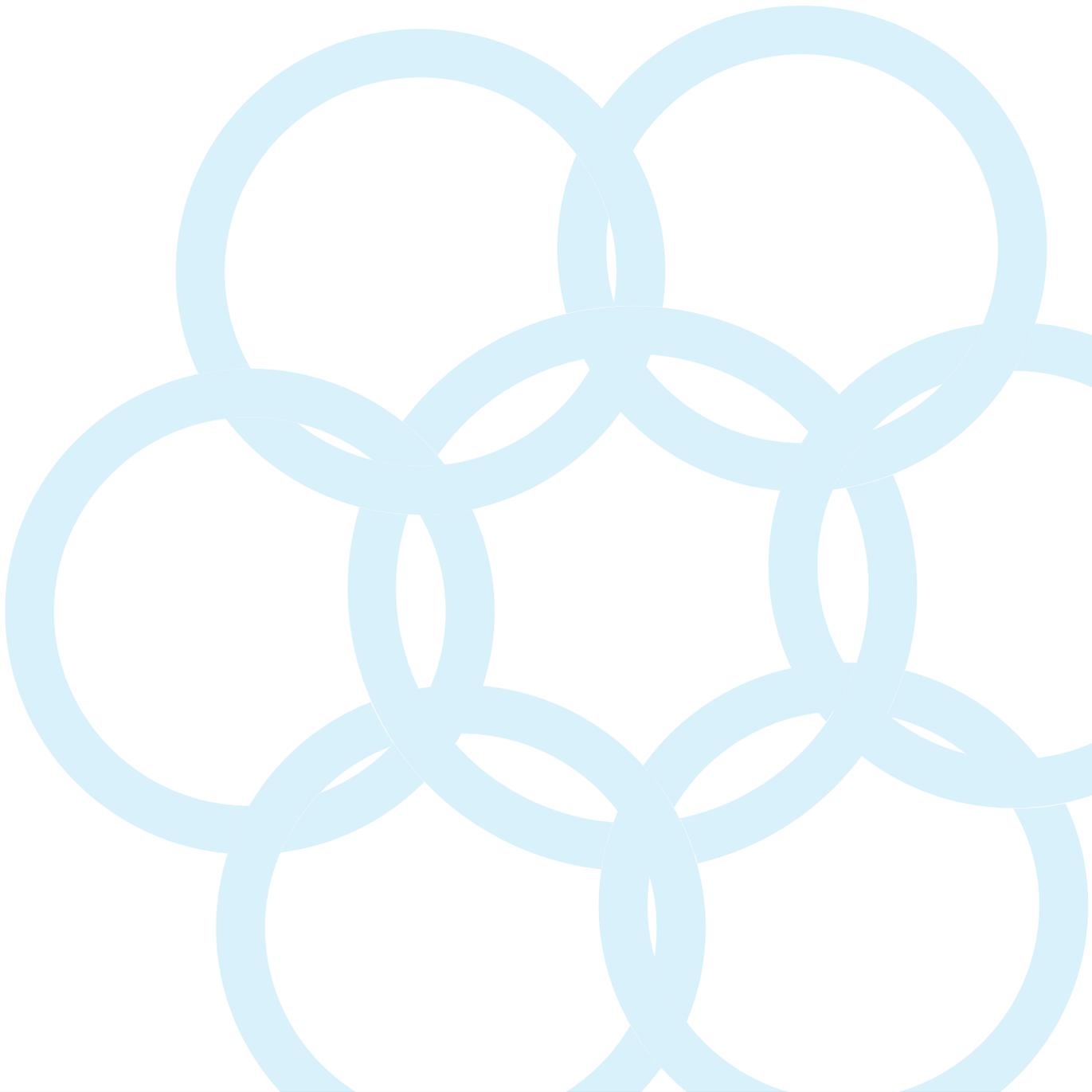
The approach aims to help to identify priorities for health service development by using both a technical approach to using and presenting data visually along with involving stakeholders such as patients, carers, clinicians and others in the process of decision making.

Star uses three pieces of information for each intervention:

- how many people you can treat
- the cost
- value or benefits

The Star tool has been developed from findings of two pilots in NHS England which involved participants in change projects understanding both the data about and estimating the potential benefits of, proposed interventions by following a structured process.

The Star tool collates and presents the data in an easy to understand visual format which helps to make sense of complex information and support decisions about service development and resource changes.



## 5. Evaluate

Despite the fact that this section is called ‘Evaluate’, it is not solely concerned with the ‘traditional’ disciplines of academic evaluation – although that may occasionally be what is required for an improvement programme, particularly if it is large, over a longer period and complex. On the contrary, the philosophy of this Framework is that the evaluative process must be that which is most appropriate for the improvement activity in hand; this may be something that can be done very simply using easily available data or it may be something more complex requiring help from the experts concerned, such as Health Economists.



There are really only two critical issues where evaluation is concerned, and they are:

- identify the appropriate evaluation required for the specific improvement activity
- start the evaluation process before the changes are made to ensure that baseline information is available, otherwise there will be no way of assessing whether improvement has happened

### 5.1 Evaluation Strategies

Feedback, learning and monitoring are concepts that are central to the theory and practice of continuously improving quality.

This definition uses some important descriptors such as systematic, assessment and feedback.

Working in dynamic, complex systems it is important to have a planned approach to gaining feedback from a wide audience including patients, staff, service partners and others to ensure that information is provided to influence decision-making about possible next steps in improvement. Change initiatives can be resource intensive and the impact and value need to be assessed as part of the evaluation process and planned as part of the overall programme delivery.

Therefore, ‘Evaluation is not a decision-making process per se, but rather serves as an input to provide decision-makers with knowledge and evidence about performance and good practices’ (United Nations Evaluation Group, 2005).

“ Evaluation is the systematic acquisition and assessment of information to provide useful feedback about some object ”  
(Research Methods Knowledge Base)

There are two key basic distinctions in the evaluation process: formative and summative. These approaches relate to the timing of the evaluation process:

- **Formative evaluation** methods are put in place as the project develops and enable feedback to be gathered by looking at the delivery of the project, understanding of organisational context, staffing procedures and other inputs
- **Summative evaluations** examine the effects or outcomes and try to determine the overall impact of the intervention as well as relative costs

The evaluation process is also influenced by the type of the data and the way it is gathered and used, and the two distinctive approaches here are qualitative and quantitative.

**Quantitative Evaluation** – this approach can be used for wider-reaching research that can be replicated on a bigger scale. It will produce data in terms of figures and further statistical analysis. It is often favoured, but it too has its limitations, such as not capturing some of the more emotional and subjective issues that are part of healthcare itself, as well as improvement projects. Also, the data gathered can offer a bias, just by choosing only certain measurements – and rejecting others.

**Qualitative Evaluation** – this approach can generate useful and cost-effective evaluations – for example if a single case study is undertaken. It can cover complex issues that may not be easy to answer yes or no to, using interviews, observation or focus groups. However, because it is very subjective, care needs to be taken at the outset to ensure that the samples produce the information required and, because of this, the results may be hard to replicate.

**Using Both** – quantitative and qualitative evaluation are often used side by side:

- Quantitative research is designed so that it can be replicated. It may not be possible to replicate qualitative research but it should be possible to form a judgement of the validity of the qualitative research process.
- In quantitative research, the sample size used is usually defined by statistical methods. In qualitative research, statistical sample calculations and statistical sampling methods may not be applicable. There should, however, be a clear rationale for the sampling procedure used.
- Quantitative research usually involves statistical analysis to extrapolate from the sample to a wider population. This includes studies where only simple descriptive statistics such as percentages are appropriate.

(NHS Research and Development Forum, Categorising Projects Guidance, University Hospital, Birmingham)

NHSScotland has many examples of evaluating programmes which aim to improve cost and quality and have often worked in conjunction with academic colleagues to publish reports which aim to determine impact and influence how next improvements are scoped.

## 5.2 Measurement for Improvement

As outlined in the 'Identify and Diagnose' section, a clear understanding of the data and information around an area for improvement is required to ensure successful change.

Measuring our improvement activity enables us to:

- understand what is happening in the process we are improving
- gather just enough data to test our changes
- track changes over time and see whether the changes made are an improvement
- inform the business case for service redesign and improvement

As you think about using data to inform changes in your service you need to be aware of some key principles to do this effectively:

- define the aims of your improvement before you think about measures
- design measures around the agreed aims
- establish a reliable baseline or starting point from which to measure changes
- track progress over time
- make the results visible so they can reliably inform the next steps

There are many approaches to measuring improvement. As a minimum, the data used to identify the area of focus should be regularly collected, analysed and monitored throughout the period of change (and after) to check for improvement and identify any anomalous changes that could show that the improvement approach has delivered unintended consequences.

In addition, there should be a small number of measures of system performance that will enable a clear reading of the success or failure of the improvement approach, and these will have been agreed in advance of the change being implemented. An example would be using a [run chart](#) to keep an eye on the delivery of improvement within a ward setting.

The potential tools for analysing and understanding the impact of changes and whether improvement has or has not happened are many and range from simple to complex. eLearning modules in [Measurement for Improvement](#) are available.

Across NHSScotland there are examples of improvement programmes applying measurement approaches such as statistical process control, demand and capacity planning techniques to ensure that we understand the impact of changes.

## 5.3 Action Research

Evaluation is very important as part of an action research approach to defining a problem that needs to be fixed and then identifying what has made an impact and how practice has changed or needs to change.

“ Action research is simply a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out ”  
(Carr and Kemmis, 1986)

Kurt Lewin is generally credited as the person who coined the term ‘action research’ in which he described interventions which demand self-reflection from the practitioner as an approach to understanding the impact of actions on the outcomes of change plans.

Action research is widely used in healthcare to investigate professional practice and patients’ experience while simultaneously:

- introducing innovations
- planning, actioning and evaluating new ideas
- seeking to improve patient care
- working collaboratively

Action research as an approach fits very comfortably with ways in which we are able to measure the impact of change programmes in health and social care settings.

## 5.4 Health Economics

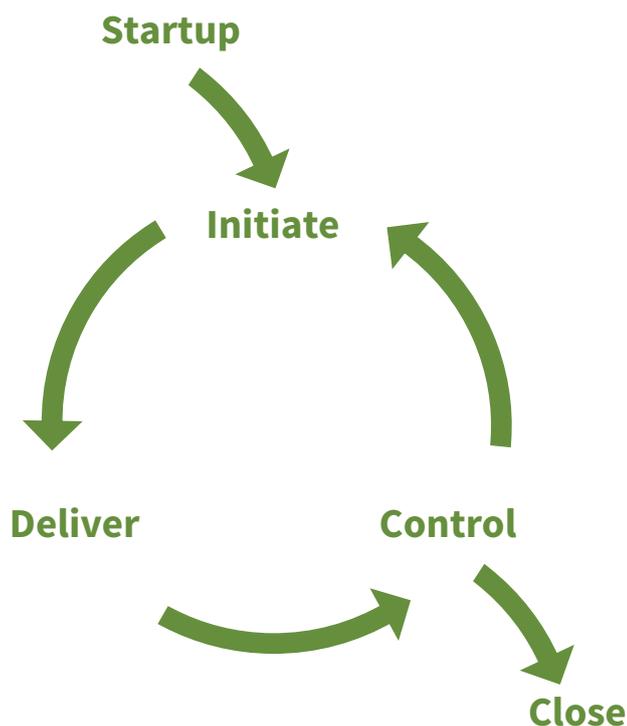
The evaluation and appraisal tools of health economics help improve the efficiency with which we use NHS resources. They do this by enabling better prioritisation of competing population, preventative and healthcare interventions; and by allowing a deeper understanding of the circumstances in which treatments are effective and/or efficient in meeting the needs of particular individuals or groups. These tools account for explicit trade-offs between costs and benefits, and can be used to look forward, as tools for appraisal, or to look backwards, as tools for evaluation.

Health economics also uses the concept of opportunity cost – the best alternative use of time and resources – and considers the productivity loss of resources inefficiently allocated to activities which could have been allocated otherwise. This approach ensures that the full impact of an intervention can be assessed, rather than reducing a decision to a budgetary consideration only.

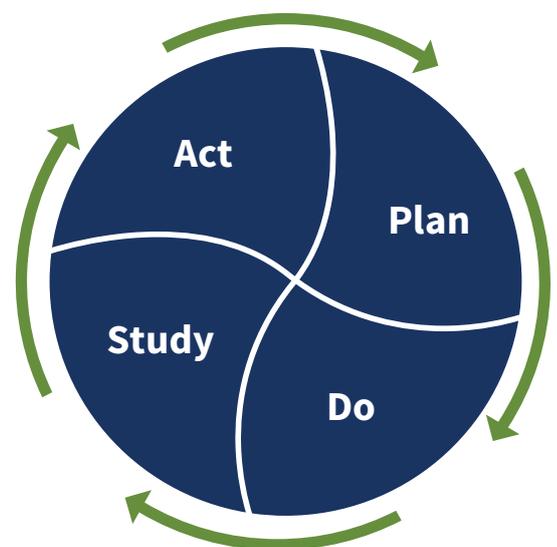
Improvement science seeks to translate what is learned from research into actual practice to improve care and outcomes. In a sense it sits naturally between appraisal and evaluation. The gap between knowledge and practice can be closed through evidence-informed quality improvement and best practice, reinforced by the research techniques of health economic evaluation and driven by the ability to measure outcomes.

Economic appraisal of alternative options for intervention can link in at the planning stage of classic project management as well as the Plan-Do-Study-Act (PDSA) cycle of continuous improvement to help make more informed decisions about the preferred way of intervention. Evaluation methods are naturally employed at the monitoring and controlling, or the study stage, respectively.

### Typical Project Management Cycle



### PDSA Cycle



Evaluation and appraisal techniques analysing the costs and benefits of interventions can ensure that benefits are maximised per unit of expenditure, or that the desired outcomes can be achieved at the least cost (value for money). The economic evaluation tool-kit encompasses a range of types of analysis varying in comprehensiveness and complexity. These tools are summarised below.

**Cost-benefit analysis (CBA)** is the most comprehensive method, monetising all costs and benefits of an intervention and giving a clear indication whether its costs exceed its benefits, and a metric with which to compare different alternatives (cost-benefit ratio).

**Cost-effectiveness analysis (CEA)** and its variants, **cost-utility analysis (CUA)** and **cost-minimisation analysis (CMA)**, measure intervention outcomes either in terms of their natural units (e.g. 'years of life gained' or 'cases correctly diagnosed') or in terms of the subjective level of wellbeing that people experience in different health states (utility level). Cost effectiveness is normally expressed as cost per unit of effect (measured outcome). For example, 'cost per quality adjusted life year (QALY)' is a familiar measure used in cost-utility analysis.

**Cost-consequence analysis (CCA)**, another variant of CEA, splits out costs and the consequences and lists these, but no aggregation of costs and outcomes and no ratio of the two is computed. Listing, but not aggregating outcomes somewhat simplifies this evaluation process, yet the method can still help to offer insights into prioritisation of different options.

Glick *et al* (2001) identify a six-stage process for economic evaluation:

1. Quantification of outcomes (effectiveness, utilities, benefits, or any other measure of effectiveness)
2. Quantification of the costs (direct costs and also indirect costs if a societal perspective is adopted)
3. Assess whether and how much means costs and outcomes differ between alternatives
4. Comparison of the magnitudes of differences in incremental costs and incremental outcomes (report cost-effectiveness ratio or net-health benefits)
5. Evaluation of the precision of these comparisons (reporting confidence intervals for the measures presented in step 4)
6. Addressing of other sources of uncertainty in a sensitivity analysis

Not all health economic analysis has to be carried out by professional health economists, although it is difficult to define the exact boundary at which the remit of the non-professional, well informed practitioner ends and that of the professional health economist starts.

There are no hard and fast rules. However, it is fair to say that it is more feasible for an informed practitioner to carry out an options appraisal by setting the costs and benefits of different options of an intervention under the guidance of a professional and following the available guidance, than it is for a non-professional economist to delve into the intricacies of an economic evaluation of a health technology assessment (HTA).

The health economist can help in deciding the appropriate analytical framework to use and consequently the type of analysis. This will depend upon the type of question to be answered; and the availability of - and cost of gathering - data, especially on outcomes. This decision process is likely to be iterative and the health economist can help advise this process, either broadly or in detail.

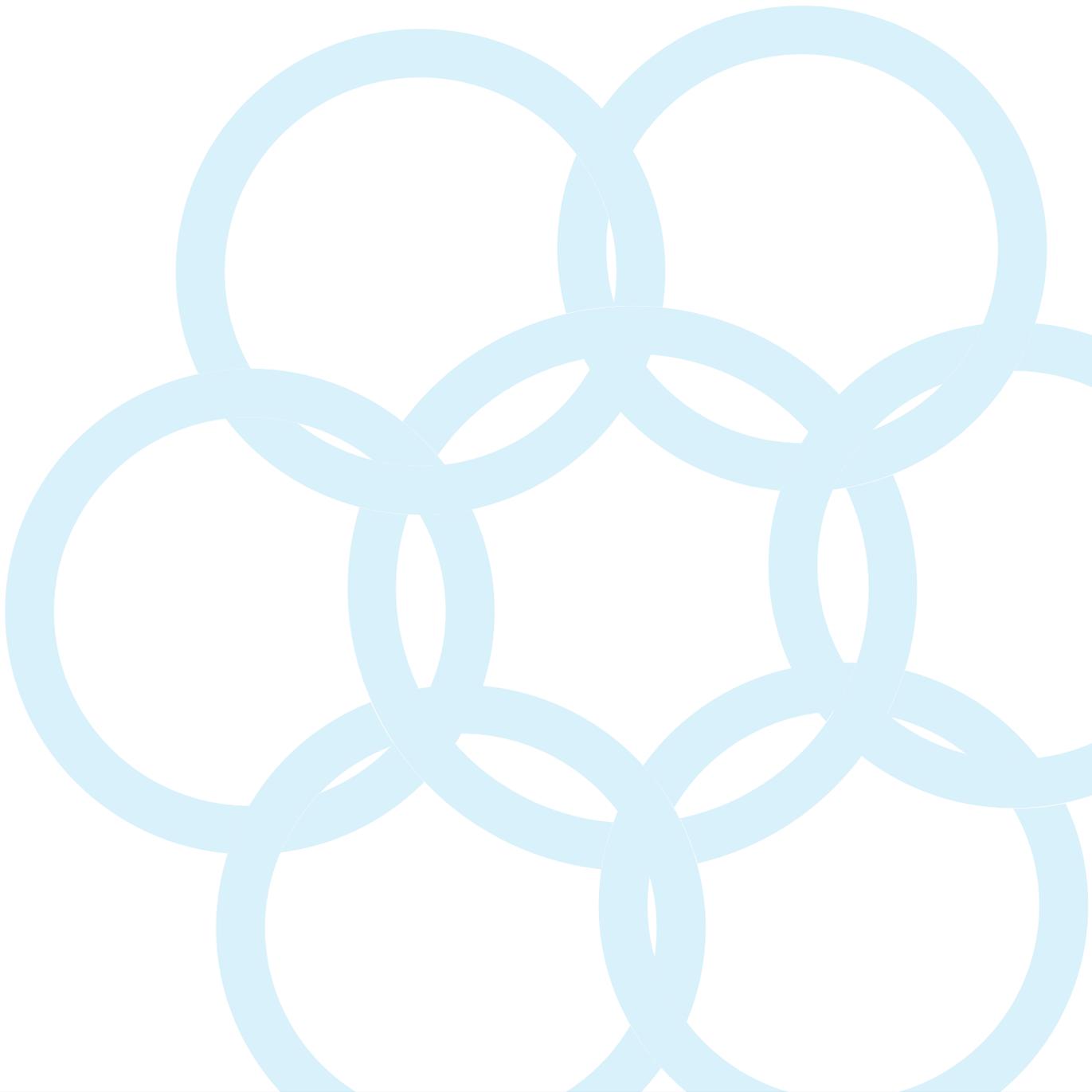
Further guidance on evaluation and appraisal techniques can be drawn from:

- the [Treasury's Green Book](#)
- the [Scottish Capital Investment Manual \(SCIM\)](#)
- the Scottish Health Council's (SHC) [Evaluation Toolkit](#)
- the London School of Economics' [Star tool](#)

NHS Health Scotland offers further guidance on [Health Inequalities Impact Assessment \(HIIA\)](#) and a detailed evaluation [methodology toolkit](#).

Information on [Healthcare Technology Assessments \(HTAs\)](#) can be found on Healthcare Improvement Scotland's (HIS) site.

A good starting point for further information on health economics and how this can be used to support decision making processes is the [Health Economics Network for Scotland \(HENS\)](#), newly established to facilitate collaboration between the health economics, policy and practice communities across the health system in Scotland.



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## Further Resources

Quality improvement resources from the NHSScotland Quality Improvement Hub

Available from <http://www.qihub.scot.nhs.uk>

Resources and case studies from the NHSScotland Event which each year celebrates improvements across NHSScotland

Available from <http://www.nhsscotlandevent.com>

Resources and tools about EFQM and Lean from Quality Scotland

Available from <http://www.qualityscotland.co.uk>

The Scottish Health Council supports NHS Boards in Scotland to effectively involve patients, carers and communities in planning and providing healthcare

Available from <http://www.scottishhealthcouncil.org>

The Healthcare Value Network is a partnership between the ThedaCare Center for Healthcare Value and the Lean Enterprise Institute (LEI) — two leaders in lean thinking

Available from <http://createvalue.org/networks/healthcare-value-network/>