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*sowing seeds*

# Continuous Improvement

Delivering better public services:  
Models and approaches



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# Introduction

This is 'Continuous Improvement - Delivering better public services: Models and approaches'.

The accompanying edition, 'Continuous Improvement - Delivering better public services: Methodology and theory', explored the **what, why, when, where** and **who** of continuous improvement (CI).

The challenge now is **how** to do it.

This edition introduces some of the more common approaches organisations can take to CI.

It explores some of the important principles that can affect the success of CI efforts, from engaging people in CI to the importance of measurement. Essentially, it also points out there is no wrong way to do CI and it is about finding out what works best for the organisation.

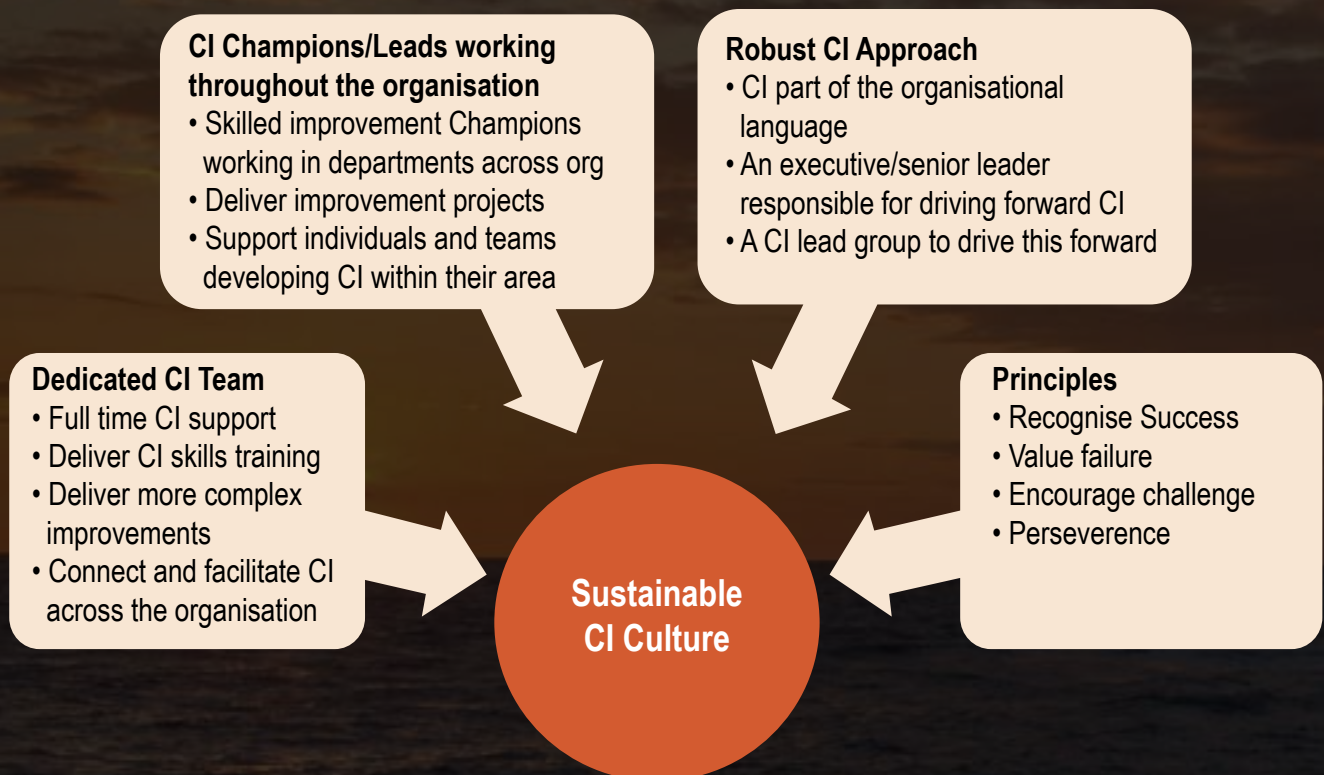




# How?

There are a number of important considerations to take in any continuous improvement activity. The key elements include **creating the right structure** to support the development of CI and winning the **commitment of everyone**.

## Create the Right Structure





### **Reward success**

**“The encouragement of people who have initiated improvements, however small, is an important component. This can be done in many ways, from displays on special improvement notice boards to the awarding of prizes. This is an area in which the culture and style of the organisation has to be considered. The sudden introduction of a show business style into a staid environment may lead to cynicism rather than effective promotion of improvement. Rewards may, but need not, have a financial component.”**

### **Dealing with failure**

**“It is very common to find that about 12 to 18 months into a continual improvement programme it is felt that it is not delivering what was expected. This is just the time to redouble efforts. It is a long-term haul to change behaviour, therefore, persistence and extra imaginative effort is the key.”**

*Chartered Quality Institute, (2016)*

## Win the commitment of everyone

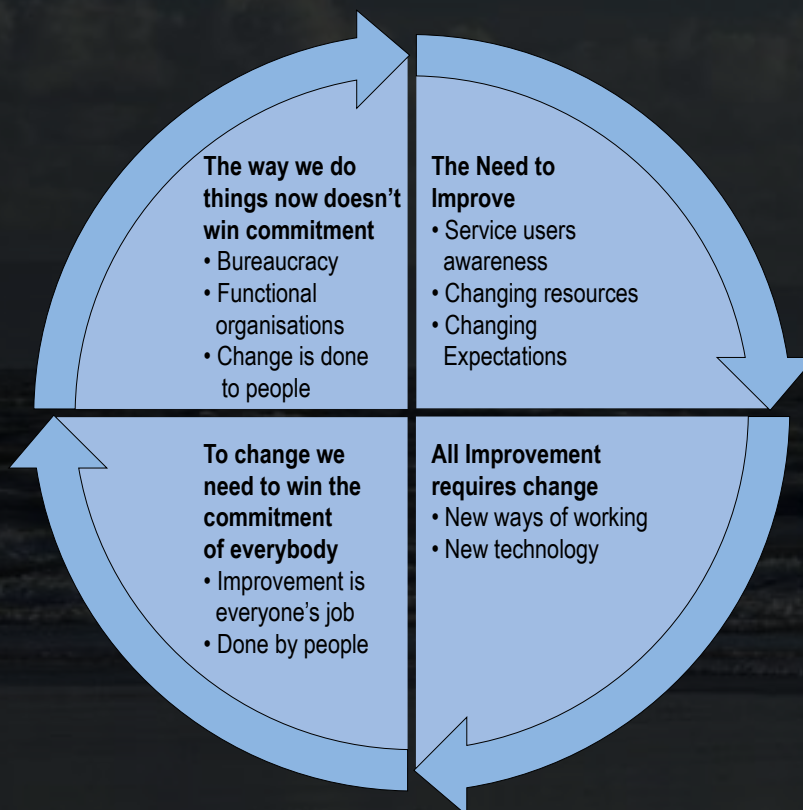
**“Continual improvement is about the entire organisation and everything it does. It has to be a prime concern of executive management and its success depends upon commitment from the top. The commitment must also be highly visible. It is not enough to have a quality policy signed by the chief executive. If executive management does not demonstrate its commitment by doing what it says it will do, it cannot expect others to be committed to the policy.”**

*Chartered Quality Institute, (2016)*

Change has become a constant in the delivery of public services. However, change is not always successful or implemented very well which can increase resistance to it.

This consideration is important as:

- there is a need to improve, but
- all improvement requires change, and
- to change we have to win the commitment of everyone, but
- the way we do things now doesn't win commitment.

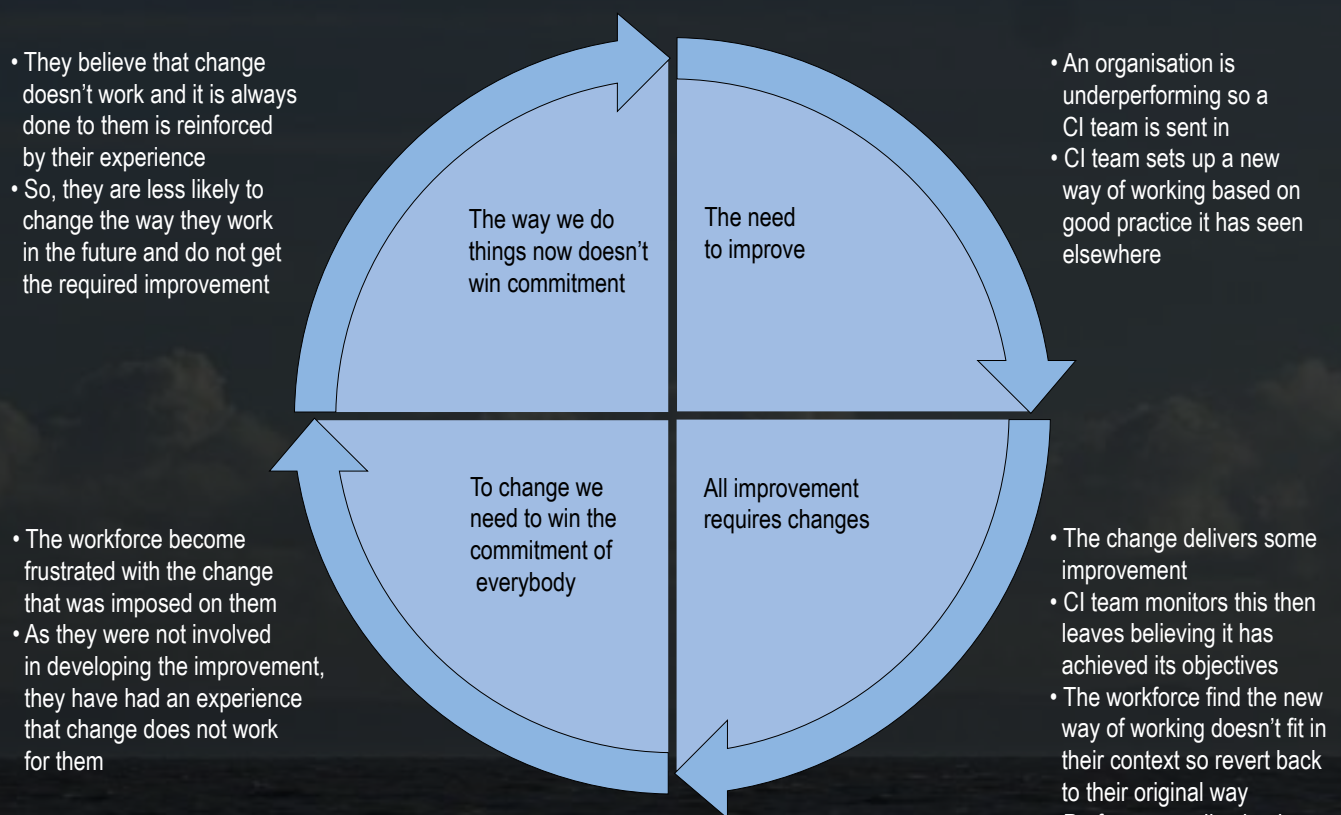




This cycle can be thought of as a self-limiting belief:

- the results we currently get are driven by the way we currently do things,
- the way we currently do things is driven by what we believe, and
- what we believe comes from our experiences
- our current experiences reinforce our current beliefs.

**Often the way organisations try to improve reinforces this cycle**



Continuous improvement and change go hand in hand. You cannot do one without the other and both are deeply embedded in the wider organisational development thinking.

## How can we have CI in our organisation?

There are a number of barriers to achieving CI in organisations, such as culture, structure and support. So, over time a variety of approaches have been developed to enable the delivery of continuous and step change improvements.

From those approaches, the professional improvement practitioner has evolved in many different guises – you may have heard of the Six Sigma Black Belt or the Lean Practitioner. This inevitably leads to debates as to which approach is the best or whether one approach suits a particular sector more than another. The debates often manifest themselves as ‘fads’ as our organisations try different approaches to achieving the outcomes they are currently being judged against.

There is no right or wrong approach to CI and you might have to explore what works best for you, your team and your organisation. There are many established methodologies that provide a structure for CI to exist in organisations. It doesn't matter which you use but make sure CI is happening for the right reasons and that it is being done the right way.





# Approaches to CI

The table below summarises and aligns the most common approaches. These are outlined in more detail in the next section.

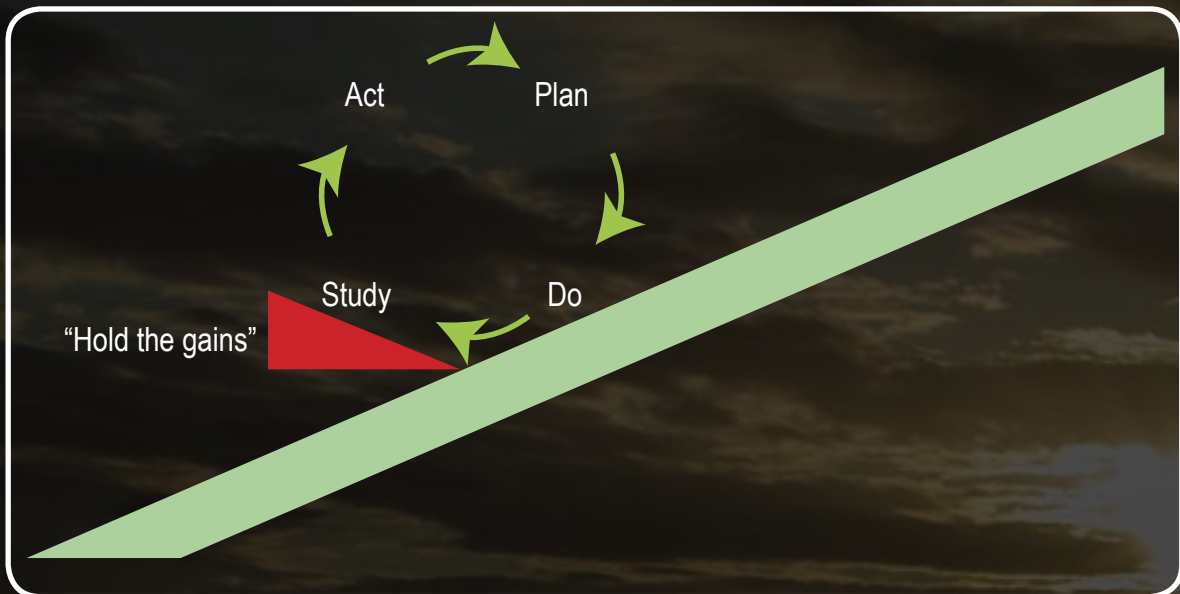
Deming PDSA	Six Sigma	A3	8D	7 steps	Vanguard	Other approaches you may come across
(Study) (Act) Plan	Define	Clarify the problem	Create team	Identify problem	2. Plan	GROW  TRIZ  Theory of Constraints  Agile  TQM  RBA  RCA
	Measure	Break down the problem	Describe the problem	Define the problem		
		Set an aim	Develop short term solution			
	Analyse	Analyse the root cause	Determine the root causes	Analyse the problem		
Do	Improve	Develop solutions	Develop solutions	Develop solutions	3. Do	
		Test solutions	Implement solutions	Select the best solutions		
Study	Control	Evaluate results		Put controls in place  Celebrate the success	Implement solutions	
Act		Standardise	Evaluate and learn			



# Plan Do Study Act (PDSA)

## How to use PDSA

The PDSA cycle encourages you to be methodical in your approach to problem solving and implementing solutions. Follow the steps below every time to ensure you get the highest quality solution possible.



It's important to understand what 'Do' means in this cycle – 'Do' means 'try' or 'test'. It doesn't mean 'implement fully'. Full implementation happens in the 'Act' phase.

### Step 1: Plan

Firstly identify exactly what your problem is.

You may find it useful to use tools like 'Cause and Effect Diagrams', and the '5 Why's' to help you really get to the root of it.

Once you've done this, it may be appropriate for you to map the process that is at the root of the problem.

Next, gather any other information you need that will help you start developing solutions.

### Step 2: Do

This phase involves several activities:

- generate possible solutions
- select the best of these solutions, try using 'Ease benefit' to assess them
- implement a pilot project on a small scale basis, with a small group or in a limited geographical area, or using some other trial design appropriate to the nature of your problem, product or initiative.



### Step 3: Check/Study

In this phase you measure how effective the pilot solution has been, and gather together any learning from it that could make it even better.

Depending on the success of the pilot, the number of areas for improvement you have identified and the scope of the whole initiative, you may decide to repeat the 'Do' and 'Check' phases, incorporating your additional improvements.

Once you are satisfied that the costs outweigh the benefits of repeating the Do-Check sub-cycle, you can move on to the final phase.

### Step 4: Act

Now implement your solution fully. However, your use of the PDSA cycle doesn't necessarily stop here. If you're using the PDSA as part of a continuous improvement initiative, you need to loop back to the 'Plan' phase (Step 1), and seek out further areas for improvement.

### When to use the PDSA cycle

The PDSA cycle provides a useful, controlled problem solving process.

It is particularly effective to:

- help implement CI approaches when the cycle is repeated again and again as new areas for improvement are sought and solved
- identify new solutions and improvements to processes that are repeated frequently. In this situation, you will benefit from extra improvements built in to the process many times over once it is implemented
- explore a range of possible new solutions to problems, and trying them out and improving them in a controlled way before selecting one for full implementation
- avoid the large scale wastage of resources that comes with full scale implementation of a mediocre or poor solution.

# A3

## What is A3?

- Structured thinking – thinking deeply
- Follows a series of standard steps to solve a problem
- Can be useful in applying rigour to the PDSA cycle
- Output is a concise, condensed document – A3 Report (11 x 17 inch paper)

Title	Team
Problem	Identify the vital few (root causes)
Stakeholders	
Aim	Solution (Future state)
Current State (Process & Measures)	Implementation Plan
	Next Steps



# Results Based Accountability (RBA)

## What is RBA and how will it help?

Mark Friedman (2005) describes RBA as a disciplined way of thinking and taking action that can be used to improve the quality of life in communities and also the performance of programmes and services. It has a number of basic ideas.

It starts with ends and works backwards, step by step, to means. For communities the ends are conditions of well-being for the community such as children being healthy. For programmes or services, the ends are how citizens (service users) are better off when the service works the way it should.

- It provides step-by-step processes to enable partners to get from talk to action quickly.
- It uses plain language and avoids jargon.
- It uses common sense methods that everyone can understand.
- It's an inclusive process where diversity is an asset and everyone in the community/service can contribute.
- It places importance on the collection, base-lining and understanding of data, as without it we don't really know if things are getting better or worse.



## Six Sigma

Six Sigma is a set of tools and strategies for process improvement originally developed by Motorola in 1986. Its popularity grew in 1995, after becoming central to the General Electric business strategy, and it is currently used in many sectors.

Six Sigma seeks to improve the quality of process outputs by identifying and removing the causes of defects (errors) and minimizing variability in business processes.

It uses a set of quality management methods, including statistical methods, and creates an infrastructure of people within the organisation who are experts in these methods.

Each Six Sigma project carried out within an organisation follows a defined sequence of steps – Define, Measure, Analyse, Improve, Control (DMAIC) – and has quantified targets.

Above all, Six Sigma is customer focused. How can you improve the service you give customers until you know what your customers want (and how they measure you)?

### **What is the Six Sigma approach?**

- Target specialists on improvement projects.
- Projects are selected based on business need by a senior team.
- Regular project reviews by the senior team.
- Use of statistics in support of solving business issues.
- Use of cross functional teams.
- Works on improving systems not 'beating up poor workers'.



## Theory of Constraints

Theory of constraints is based on the premise that the rate of goal achievement by a goal-oriented system (i.e., the system's throughput) is limited by at least one constraint.

Only by increasing flow through the constraint can overall throughput be increased.

Assuming the goal of a system has been articulated and its measurements defined, the steps are:

1. identify the system's constraint(s).
2. decide how to exploit the system's constraint(s).
3. subordinate everything else to the above decision(s).
4. elevate the system's constraint(s).
5. warning! If in the previous steps a constraint has been broken, go back to step 1, but do not allow inertia to cause a system's constraint.

The five focusing steps aim to ensure ongoing improvement efforts are centred on the organisation's constraint(s). In the TOC literature, this is referred to as the **process of ongoing improvement** (POOGI).



## Agile

Agile started out as an alternative approach to software development, but is now applied more widely to running other types of projects and products.

The principles behind agile are set out in the Agile Manifesto.

Agile can be very different for people used to traditional 'waterfall' methods for service development. With **waterfall** methods the process is sequential. You start by gathering requirements, making plans and going through procurement processes. You then design the product and build it. In the final stage you test and release it to the public. It is only at this end stage that you get feedback and find out if it works for your users. You only have one chance to get each part of the project right as you don't return to earlier stages. While a sequential waterfall approach is necessary to build things like bridges and buildings, it's less effective for building and running services when technology changes quickly.

Government services also need to be able to respond quickly to policy changes and the needs of the public.

Using waterfall methods may mean you spend 18 months building a service that no longer meets government policy, is not compatible with the latest technology and doesn't meet users' needs.

Agile takes a different approach. You do all these things – gathering requirements, planning, designing, building and testing – at the same time. You start small in the 'discovery' and 'alpha' phases. You carry out research, prototype, test and learn about your users' needs before you start building the real service in the beta phase. You only go live when you have enough feedback to show your service works for your users and meets their needs. You continuously learn and improve so it meets users' needs.

Using Agile methods allow you to quickly make any changes while you're building the service.

## Total quality management (TQM)

TQM is a management approach centred on quality, based on the participation of an organisation's people and aiming at long term success. This is achieved through customer satisfaction and benefits all members of the organisation and society.

In other words, TQM is a philosophy for managing an organisation in a way which enables it to meet stakeholder needs and expectations efficiently and effectively, without compromising ethical values.

## Root Cause Analysis (RCA)

Root cause analysis is a method of problem solving used for identifying the root causes of faults or problems.

A factor is considered a root cause if its removal from the problem-fault-sequence prevents the final undesirable event from recurring. A causal factor is one that affects an event's outcome, but is not a root cause. Though removing a causal factor can benefit an outcome, it does not prevent its recurrence within certainty.

## Eight Disciplines (8Ds)

8Ds problem solving, developed at Ford Motor Company, is used to approach and to resolve problems, typically used by engineers or other professionals.

Focused on product and process improvement, its purpose is to identify, correct, and eliminate recurring problems. It establishes a permanent corrective action based on statistical analysis of the problem and on the origin of the problem by determining the root causes. Although it originally comprised eight stages, or 'disciplines', it was later augmented by an initial planning stage. 8D follows the logic of the PDSA cycle.

## 7 Steps

The 7 Steps are another variation on focused problem solving and appear as methodology used by numerous organisations. They follow the same logical approach as other methodologies in that you first identify a problem, understand it, identify the causes and then develop and test solutions and then finally learn and share.

## Systems thinking – Vanguard 'Check Process'

The Vanguard method is the means for helping service organisations change from a conventional 'command-and-control' design to a systems design.

The method represents a translation of Taiichi Ohno's ideas behind the Toyota Production System for service organisations. The method makes the assumption that service is different from manufacturing. According to the Vanguard method, there is inherently greater variety in customer demand, hence the need to design to absorb that variety.

The Vanguard method enables people to study their organisation as a system and on the basis of the knowledge gained, re-design their services to improve performance and drive out costs.

'Failure demand' is a type of waste often discovered during the 'Check' phase of the Vanguard method.



## GROW model

The GROW model is a simple method for goal setting and problem solving and is often used as a coaching model.

Here are a number of different versions of the GROW model. Typically the stages are:

<b>Goal</b>	The goal is where the service needs/wants to be. It has to be clear as to how you know when you have achieved it.
<b>Reality</b>	The current reality is where the service is now. What are the issues, the challenges, how far are they away from their goal?
<b>Options</b>	What are the options for overcoming the issues and challenges to move towards the goal?
<b>Way Forward</b>	This is where the options are turned into practical steps to achieving the goal.

## TRIZ – ‘Theory of the resolution of invention-related tasks’

TRIZ is a problem-solving, analysis and forecasting tool derived from the study of patterns of invention in the global patent literature. It was developed in 1946 by the Soviet inventor and science-fiction author Genrich Altshuller and his colleagues. In English the name is typically rendered as ‘the theory of inventive problem solving’.

TRIZ is a systematic approach for understanding and defining challenging problems. Difficult problems require inventive solutions and TRIZ provides a range of strategies and tools for finding these.

One of the earliest findings of the massive research on which the theory is based, is that the vast majority of problems that require inventive solutions typically reflect a need to overcome a dilemma or a trade-off between two contradictory elements.

The central purpose of TRIZ-based analysis is to systematically apply the strategies and tools to find superior solutions that overcome the need for a compromise or trade-off between the two elements.



# Lean

Lean is a unified comprehensive set of philosophies, rules, guidelines, tools and techniques for improving and optimising processes.

There are five overriding principles to Lean.

## **Identify Customers and Specify Value**

The starting point is to recognise that only a small fraction of the total time and effort in any organisation actually adds value for the end customer. By clearly defining value for a specific product or service from the end customer's perspective, all the non value activities – or waste – can be targeted for removal.

## **Identify and Map the Value Stream**

The value stream is the entire set of activities across all parts of the organisation involved in jointly delivering the product or service. This represents the end-to-end process that delivers the value to the customer. Once you understand what your customer wants, the next step is to identify how you are delivering that to them (or not).

## **Create Flow by Eliminating Waste**

Typically when you first map the value stream you will find that only 5% of activities add value. This can rise to 45% in a service environment. Eliminating this waste ensures that your product or service “flows” to the customer without any interruption, detour or waiting.

## **Respond to Customer Pull**

This is about understanding the customer demand on your service and then creating your process to respond to this. Such that you produce only what the customer wants when the customer wants it.

## **Pursue Perfection**

Creating flow and pull starts with radically re-organising individual process steps, but the gains become truly significant as all the steps link together. As this happens more and more layers of waste become visible and the process continues towards the theoretical end point of perfection, where every asset and every action adds value for the end customer.

The fundamental insight behind Lean is seeing that customer value is created by the actions of lots of different people across many departments and organisations. Linking these together into a seamless end-to-end process or value stream for each service reveals literally hundreds of opportunities for streamlining the flow, eliminating non-value creating steps and aligning the rate of flow with customer demand.

# Other important elements

In addition to CI approaches there are some other important elements involved in an organisation's improvement efforts. These should be considered with the approaches outlined in the previous section.

## Measurement

**“Trying to improve something when you don't have a means of measurement and performance standards is like setting out on a cross-country trip in a car without a fuel gauge. You can make calculated guesses and assumptions based on experience and observations, but without hard data, conclusions are based on insufficient evidence.”**

*Mikel Harry (1999)*

Caution should be applied in saying there is no improvement without measurement, as it's important to develop a culture where people can just get on with improving services. However, measurement and improvement do go hand in hand. Using the right measures in the right way allows more effective decision making and provides credible evidence as to whether the improvement efforts have been worthwhile.

It is important that the **right measures are used** and that they are **used the right way**.

**“Tell me how you measure me and I will tell you how I will behave. If you measure me in an illogical way... do not complain about illogical behavior...”.**

*Eli Goldratt (1990)*

Measures have to be focused on the purpose of the service if they are to support improvement. They have to be meaningful and useful to those who deliver the service.

It is important to remember that data collection does not add value to the services that are delivered but it is recognised that the right data used properly is essential. With this in mind there is a need to ensure that only measures that are useful in supporting effective decision making in relation to service delivery and understanding are used. If those who deliver services are required to collect data then ensure they only collect what is needed and that it is used by them in the first instance. When the data is no longer required the collection of that data needs to stop.



## Basic Tools (Seven Quality Tools)

The seven basic tools of quality are a set of graphical techniques identified as being the most useful in troubleshooting issues related to quality. They are called 'basic' because they are suitable for people with little formal training in statistics and because they can be used to solve the vast majority of quality-related issues.

The seven tools are:

- Cause-and-effect diagram (also known as the 'fishbone' or Ishikawa diagram)
- Check sheet
- Control chart
- Histogram
- Pareto chart
- Scatter diagram
- Run Charts

The seven basic tools stand in contrast to more advanced statistical methods such as survey sampling, acceptance sampling, statistical hypothesis testing, design of experiments, multivariate analysis, and various methods developed in the field of operations research.

## Failure

If an organisation is to properly engage in improvement it has to accept failure and take steps to learn from it.

One of the most important elements of failure is to understand the context in which failure happened.

If you have a predictable, structured and controlled environment, failure can be seen as a bad thing especially if it is due to something different happening.

However, in more complex situations (a lot of public services) we have to try new things and often new things fail.

Professor Dave Snowden talks about "Safe to Fail". The basic idea is that, in complex situations there will be no 'right answer'. You have to look for suitable answers through a process of experimentation. This will involve a series of 'safe to fail' pilot experiments that are run in parallel. The point about them being 'safe to fail' is important and he suggests that some pilots should actually be designed to fail.

## Human factors



To err is human

Human error is a natural consequence of being human.

Deming suggested that most failure is down to the system and to improve we must focus on the system. There is, however, a weak link in our systems in that they rely on human beings and as humans we are not infallible. Therefore improvement requires us to understand these 'human factors' and design our system to protect against these fallibilities. So we will end up with systems that work and also protect us from human error. There are many examples we use everyday where thought has been put into protecting us from us e.g. the domestic electrical plug cannot be inserted into the wall socket the wrong way and more recently diesel cannot be put into a petrol car.

Generally people do not intend to do their job badly or make mistakes, so when these things happen we have to start from the point of asking whether the system was perfectly designed to allow this to happen, and look to learn from it and not apportion blame, as this can prevent engagement in improvement in the future.

## How to get started

If you are now asking this question then perhaps you have recognised an opportunity to improve the quality of the services that you deliver, or you have identified issues that get in the way of delivering things the way you should. First and foremost nobody needs permission to improve the quality of the services they deliver. As long as it is safe to do so, you are not using resources not within your gift to use and the improvement is not going to have a detrimental effect elsewhere, then have a go.

### Some pointers that might help

- There is probably someone in your organisation who knows a bit about CI or there is a function that has some of the skills you need – try and find out who they are.
- There is a community of people working in public services across Wales who are involved in CI called the All Wales Continuous Improvement Community (AWCIC). You can contact them at [www.goodpractice.wales/awcic](http://www.goodpractice.wales/awcic).
- Increase your knowledge and skills around CI – there are plenty of courses available, including those from Academi Wales [www.gov.wales/academiwales](http://www.gov.wales/academiwales).
- Get a team to help you – it's hard to do CI on your own.



# How to find out more?

## Useful reading list

W Edwards Deming	Out of the Crisis New Economics
Mark Friedman	Trying Hard Is Not Good Enough
Michael L George	Lean Six Sigma for Service
Eli Goldratt	The Goal
Atul Gwande	Checklist Manifesto
Joseph T Hallinan	Errornomics
Tim Harford	Adapt
Joseph Juran	Juran's Quality Handbook
Darrell Mann	Hands on Systemic Innovation
James Reason	Human Error
John Seddon	Systems thinking in the public sector Whitehall Effect
Donald J Wheeler	Understanding Variation: The Key to Managing Chaos

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Continuous Improvement and Change

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.  
This document is also available in Welsh.

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