

kinetik solutions



Introduction to Lean

agility to sustain change

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Revised 16 Nov 09



Agenda: Introduction to Lean

9.15am	Introductions, Objectives, Expectations and Ground Rules
9.30am	Introduction and Overview of Lean
10.00am	Lean in the Light of a 21C NHS
10.15am	Workshop 1: Red Hospital/Blue Hospital Exercise
	<i>Break</i>
11.30am	Main Principles and 'Methods' of Lean
12.15pm	Workshop 2: The Seven Wastes
	<i>Lunch</i>
1.50pm	Value Stream Mapping
2.15pm	Transformational & Implementation Planning
3.15pm	Workshop 3: Case Studies and Planning for sustainability
4.00pm	Next Steps from Lean
4.15pm	Review of the day



Objectives of Today

- Get an overview of Lean Methodology and how it could help your organisations
- Understand why Lean is not just a tool - more a different way of thinking
- Discuss the high level planning for embarking on a Lean change



What is Lean?

- Focus on Value from a **Customer (Patient) point of view** on every step of process
- **Obsession on removing waste** within the ‘whole system’
- Bottom up approach in identifying value and waste – assumption that **much of waste and value is hidden**
- A true lean system would “flow” and need **little command and control**



The Origins of Lean: Mass production failed to adapt to change - lean manufacturing emerged as the alternative

- Ever increasing market
- Vast Resources
- Infrastructure

GM

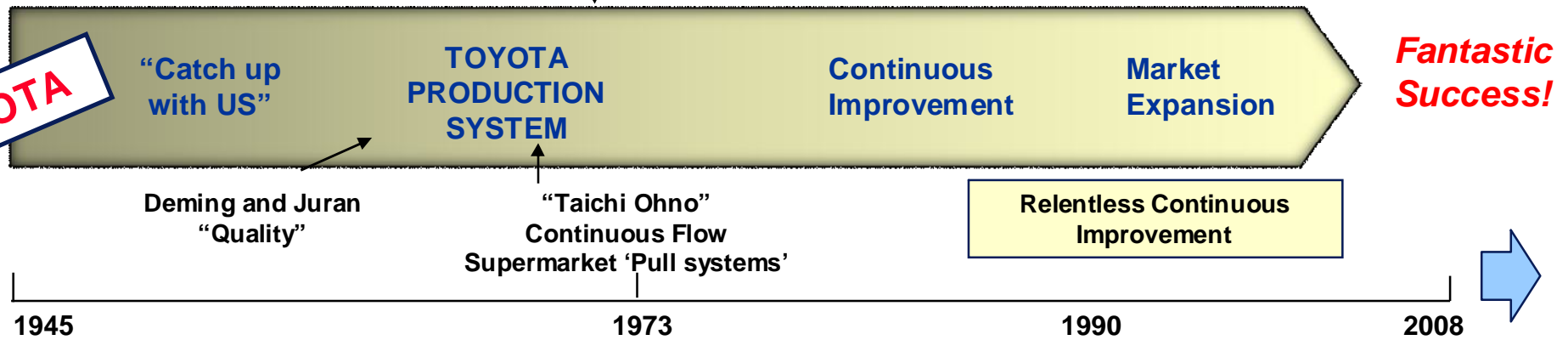


- Small Market
- Few Resources
- Need Cash
- Lousy Quality

1st Oil Shock

Increasingly Complex Vehicles and Diverse Market

TOYOTA





Lean approach is significantly different from traditional approaches to change

Other approaches

- Resources focus on meeting Goal setting/meeting Targets & assurance
- Educate people to work their specific job smarter
- Have a leader that drives change – hope other follow
- Command and Control People to ensure delivery – aim to hit target
- Batch and Queue – maximise ‘efficiency’, use overheads to manage
- Flavour of the year change initiative

Lean Approach

- Resources focused on understand the value and value stream for your ‘products’ – focus on removing waste
- Educate people to make the system flow faster
- Aim for all team members to be leaders and followers
- Intrinsically trust your people to deliver – beyond expected results
- Aim for one piece flow – maximise ‘effectiveness’ , eliminate overheads
- Obsession with continuous improvement



The benefits of applying lean for over 40 years is clear for Toyota

Global Car Companies Compared	Sales (volume)	Sales (£bn)	Profit (£bn)	Market Values (£bn)	Workforce
Toyota	8.2m	176	12.5	208	285,000
GM	8.3m	192	-10.9	20	335,000
Daimler/Chrysler*	4.8m	185	-1.7*	65	382,000
Ford	6.6m	153	-12.7*	16	300,000
Volkswagen	5.2m	118	5.2	43	344,000

*2006 *Chrysler only)
Source: PriceWaterhouseCopers, 2005

Confidential not to be used without consent



Benefits of Lean

- **Long term sustainable improvement**
 - Not a short term ‘financial fix’
 - Financial results often surpass expected
- **Relatively low investment**
 - No costly assets/infrastructure
 - No over reliance on external consultants
 - Low investment of new technologies
 - Waste elimination drives financial benefits for investment
- **Straightforward principles and concepts**
 - Not a complex management fad understood by a few
- **Tried and Tested**
 - It works!

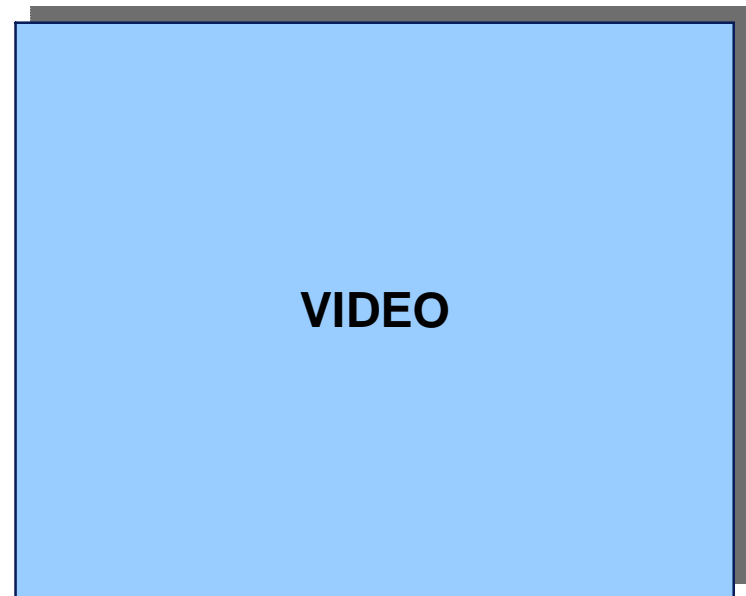
“The scale of improvement is often **extraordinary**. Lean’s focus on delivering care is a refreshing antidote to benchmarks, targets and the traditional approach to performance management. The emphasis it puts on looking at the whole system is valuable”

*Nigel Edwards Policy Director
NHS Confederation*



What is Lean and its benefits? : Hospital Consultants View

- **Birmingham Heartlands Hospital**
- **Interview with Consultant on Lean Implementation**





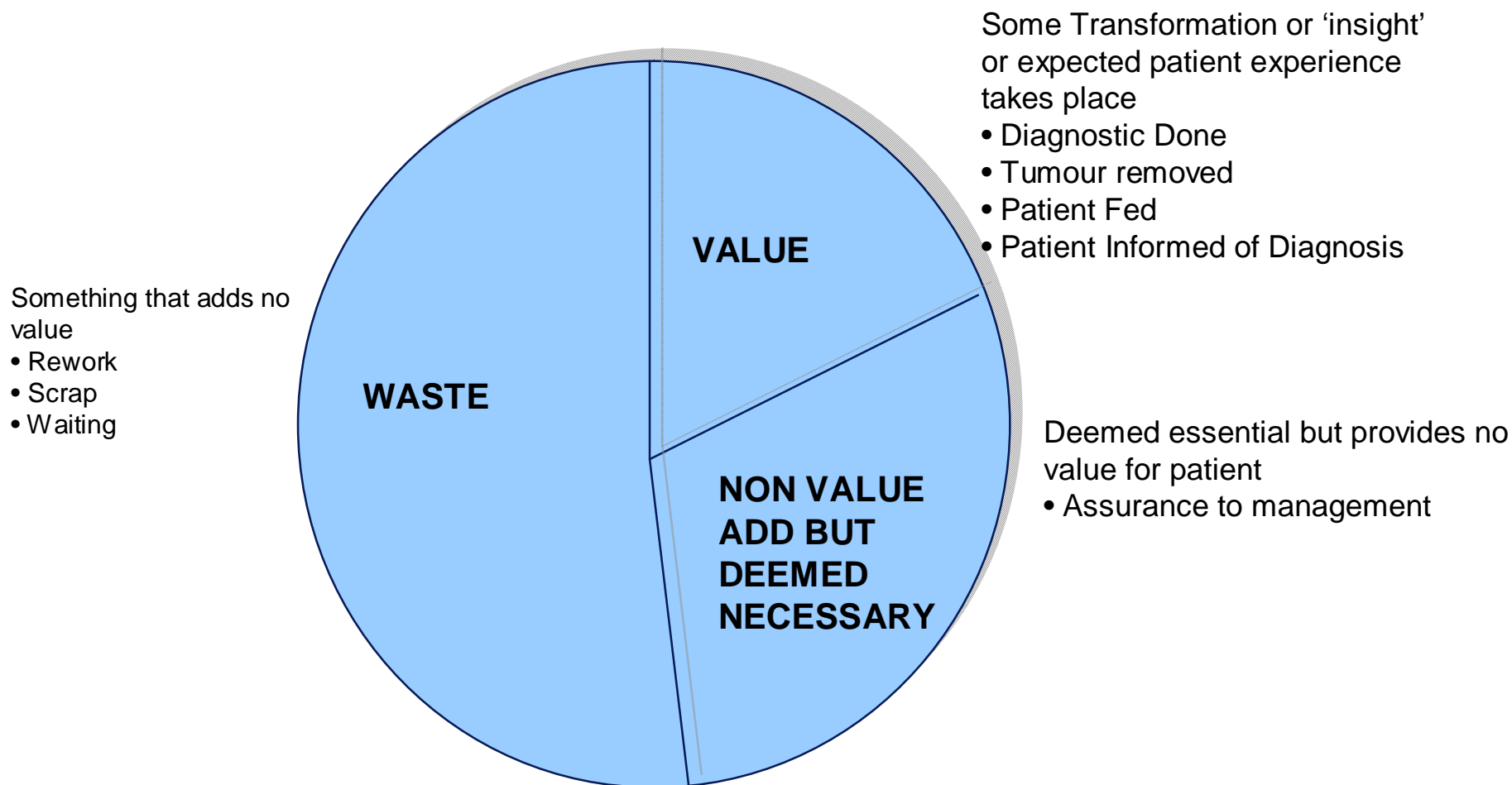
Benefits of Lean in Health Service Sectors

- **Flinders Medical Centre, Adelaide Australia** ¹
 - Improved Flow in Emergency treatment by analysing value streams and eliminating needless queues
 - Waiting times fell by 25%
- **Wirral Hospital Trust (Orthopaedic)**
 - 28% Reduction in bed base – 147K annual saving
 - 29% increase in same day pre-operations assessments
- **Bolton Hospitals (early results)** ¹
 - including a one-third reduction in the death rates of patients having hip operations,
 - 42 per cent reduced paperwork in the trauma unit
 - 50 per cent reduction in the amount of space needed by the pathology department.
 - GP film reporting reduced from 5-7 weeks to 10 days in radiology
- **University of Iowa Hospitals (Emergency Department)**
 - Average length of stay from 161m to 148m (despite demand increase of 9 % of patients)
 - Cost per patient did not increase

¹ from NHS confederation papers



WHAT IS VALUE?





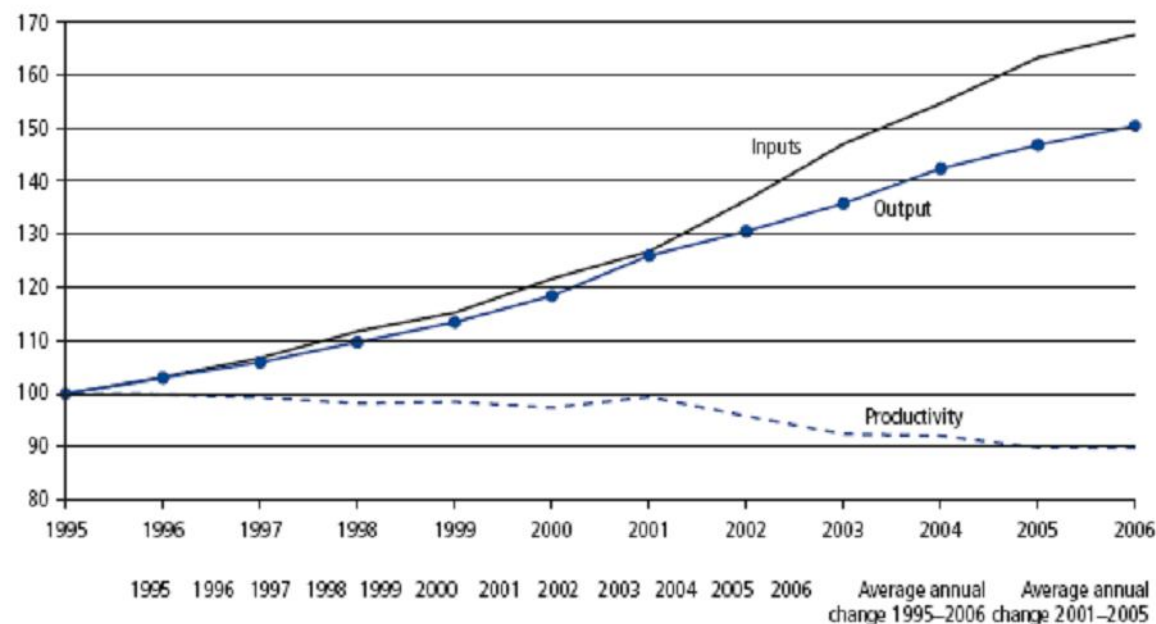
Where does Lean Fit in the NHS?



Productivity in the NHS has not improved since 1995, in fact has got worse since 2001

Figure 1
Health care output excluding quality adjustment, health care inputs and health care productivity

United Kingdom, Index 1995 = 100 and per cent



Source ONS

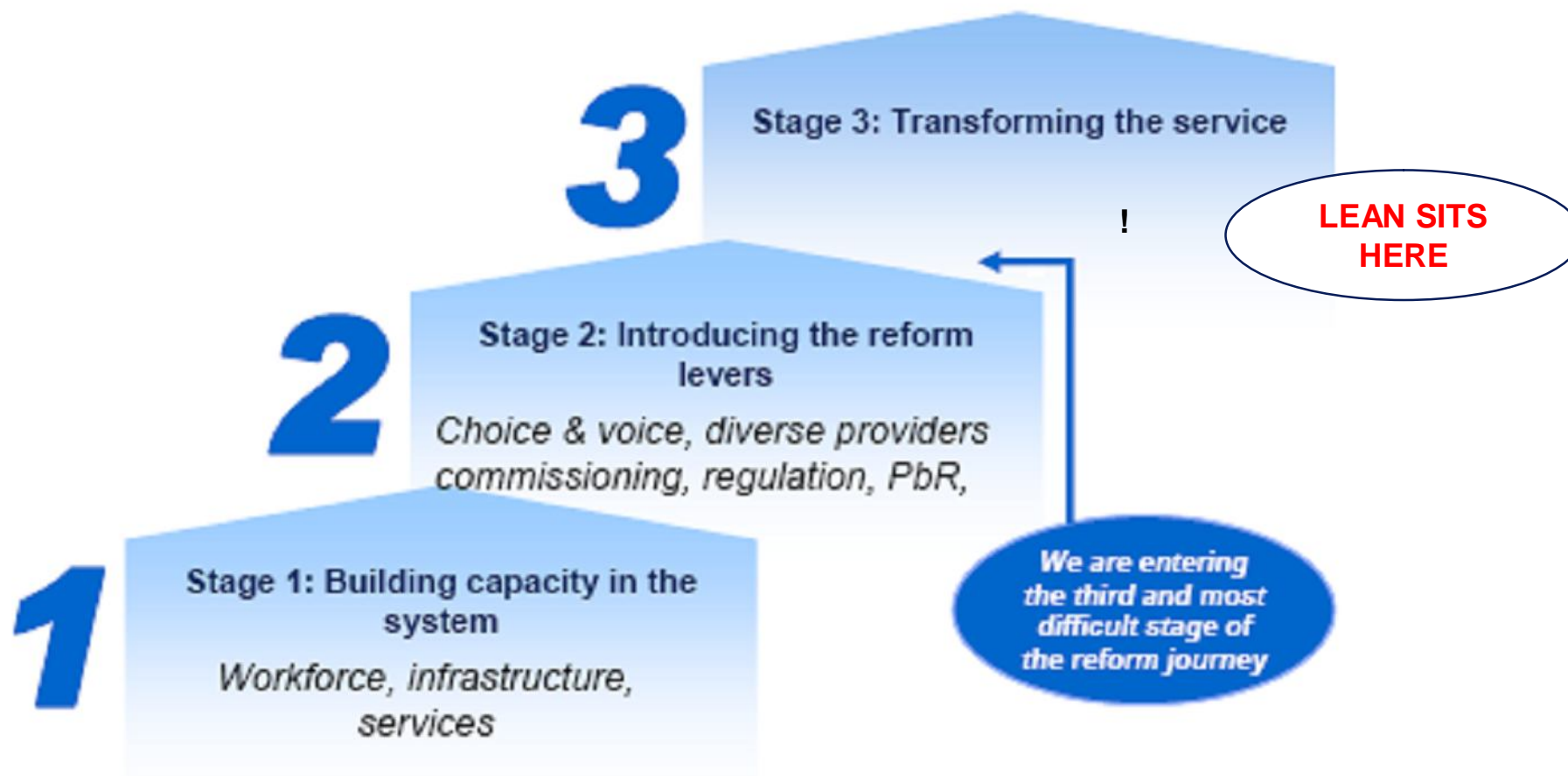
Better use of resources is at the heart of a Lean Transformation

- “For hospital and community health services, the rise in staff and purchased goods and services has outpaced the rise in activity, whether or not the index includes a quality adjustment*” - ONS
- Output increases were mainly due to activity, primary care consultations, drug use, rise in quality of health care.
- Input costs were mainly of labour costs, use of non NHS resources and purchased goods
 - 67% increase input in volume or resources from 1995 to 2006
 - 2006 (89.7Billion, 7.5% of GDP)

* to reflect the higher proportion of patients surviving for more than 30 days after hospital admission.



We are in the 3rd Stage of systems changes to the NHS and Lean Transformation Aligns with this



From Christine Beesely: Chief Nursing Officer



The Future of the NHS and Lean

- DOH have set up a Programme to target Efficiency
 - Pressure to cut NHS Costs by £20B (probable no real increase in cash)
- NHS remains provider of choice – Continuous Improvement is the only way to drive change not ‘harsh’ competition.
- ‘Push’ to move care moving out of hospitals
- Focus on Long Term Care and finding end-to-end efficiency and effectiveness
- Potential of more vertical integration (primary and secondary care provided by one organisation)



“Lean’s focus on delivering care is a refreshing antidote to benchmarks, targets and the traditional approach to performance management. The emphasis it puts on looking at the whole system is valuable.”

Nigel Edwards, Policy Director, NHS Confederation



Only we can make this happen!

“Our success in moving to this next stage of the journey doesn’t just rely on me making the system more flexible and responsive, it also relies on the right response from local leaders across the NHS”

**David Nicholson NHS Chief Executive
Dec 2007**

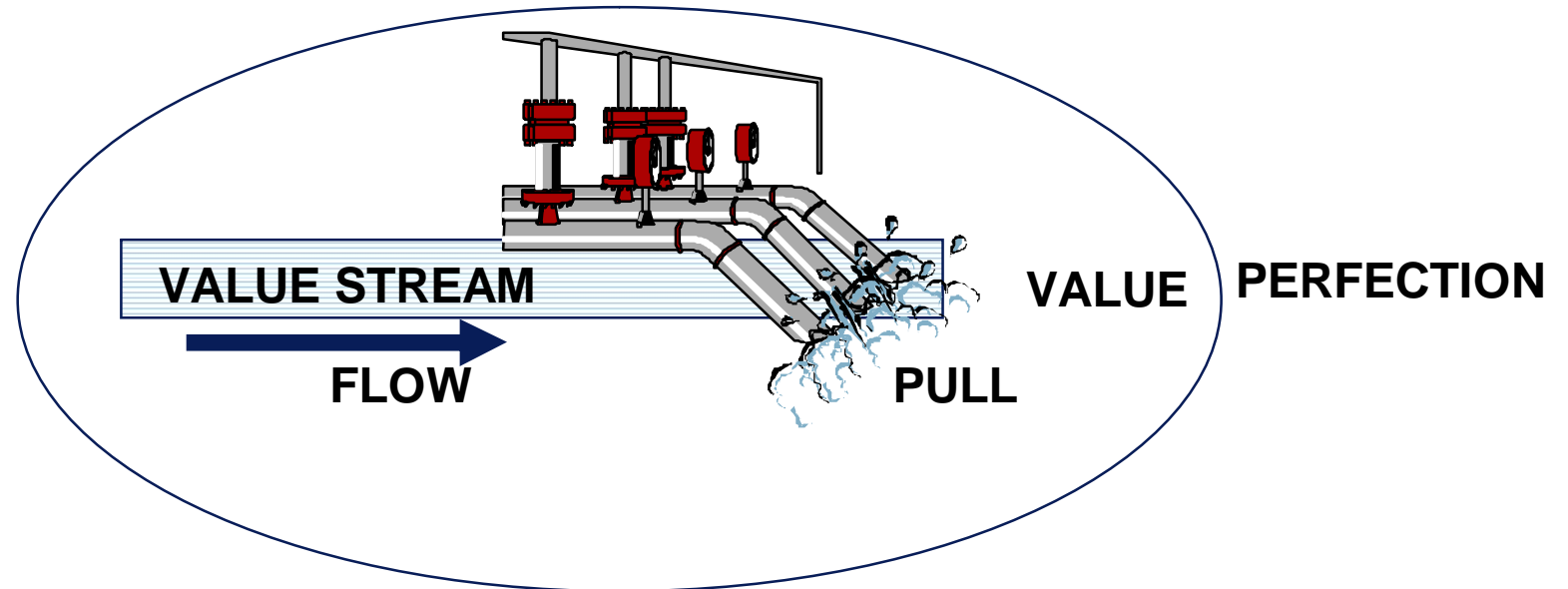


Principles of Lean



Five Key Concepts underpin Lean

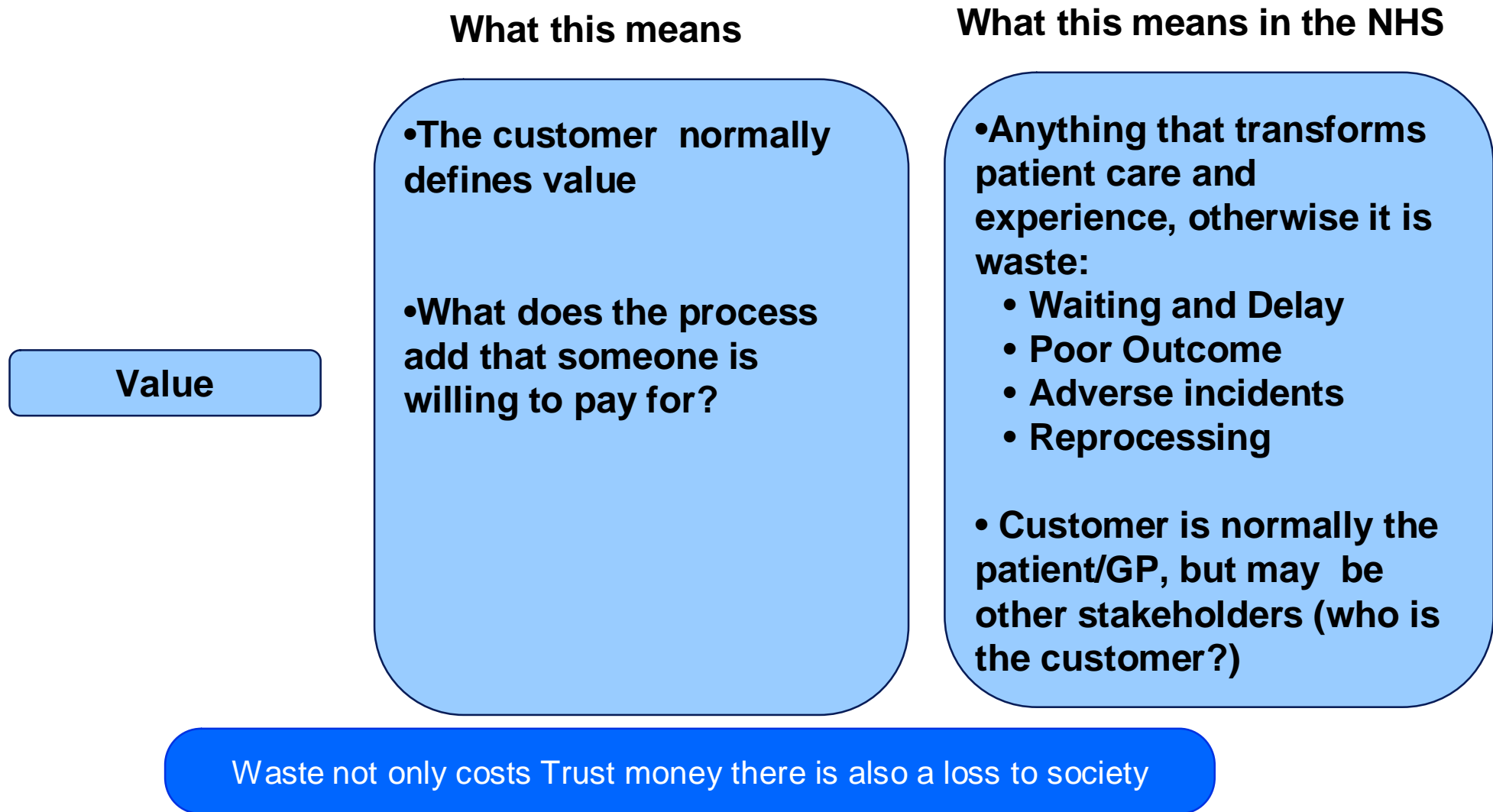
- Value
- Value Stream
- Flow
- Pull
- Perfection



A value stream does not sit in isolation but is part of a bigger system



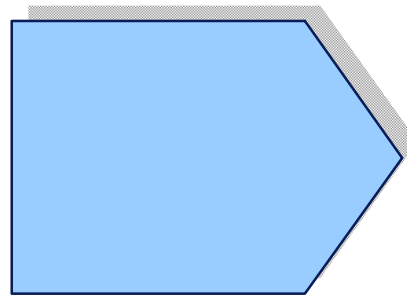
Five Key Concepts underpin Lean





Varieties of Value

- **Basic**
- **Functional**
- **Delight**



Potential elements of Value

- **Clinical quality**
- **Patient safety**
- **Satisfaction of Outcome**
- **Convenient care**
- **Timeliness**
- **Patient Interaction**

Resources Available

Managing Expectations



Managing expectations need to be aligned around all elements of service





Five Key Concepts underpin Lean

Value Stream

What this means

- The core functions or steps that deliver the value
- Considers all steps from start to finish across ALL boundaries

What this means in the NHS

- For a patient this would normally start from GP visit to a satisfactory conclusion (from a patient point of view)
- A Hospital Trust may work on a value stream that defines the GP/primary care as a supplier
 - Supplier is still part of value stream



Five Key Concepts underpin Lean

Flow

What this means

- The value adding activities must flow without blockages (metaphor of tap water/river)
- Blockages are caused by :
 - Batching
 - Multiple processes all adding little value
 - Misalignment of demand versus capacity

What this means in the NHS

- Adapt processes that flow with demand, have fewer steps/handovers /rework
- Areas that stop flow
 - Multiple referrals
 - Multiple pathways
 - Patient Batching
 - Misunderstanding of demand by time of day/day of week/month



Five Key Concepts underpin Lean

Pull

What this means

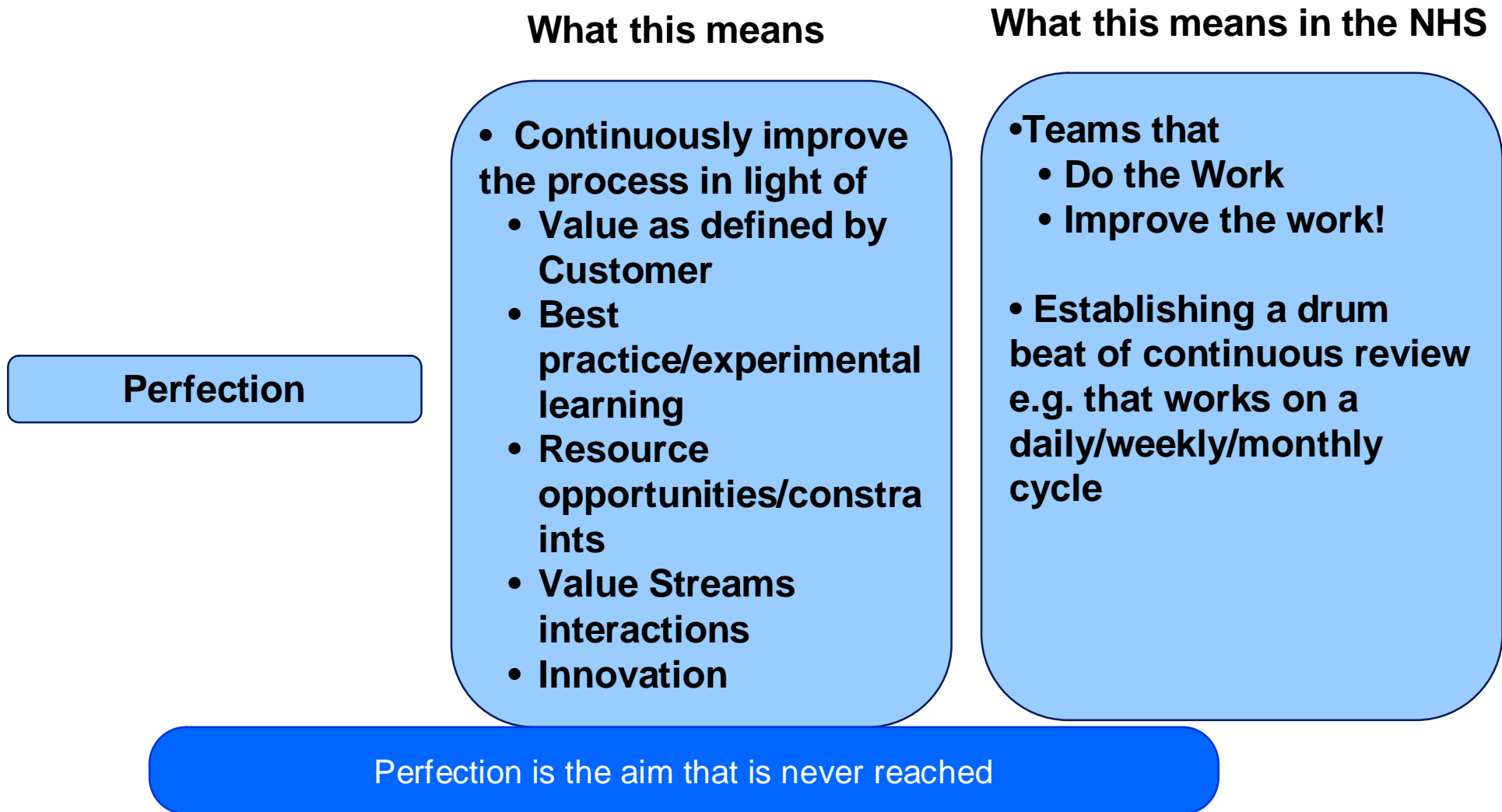
- Two ways pull can be applied
 - Working on actual demand (assuming no capacity constraints)
 - Pulling the whole process by using the bottleneck process as a signal

What this means in the NHS

- Understand whether processes can be
 - Pulled by downstream process (patient on 'red' seat means consultant can pull process forward)
 - Signalled by bottleneck (Empty beds drive a process of pulling the next patient)



Five Key Concepts underpin Lean





Lean concepts: 5S



What Are The 5Ss?

English

Definition

Sort

Organisation

Stabilise

Orderliness

Shine

Cleanliness

Standardise

Adherence

Sustain

Self-discipline

**Additional S -
Safety**



Benefits of Implementing 5s

- **Sets standards**
- **Develops discipline**
- **Eliminates waste**
- **Safety**
- **Creates a pleasant working environment**
- **Creates pride in ownership**
- **Identify equipment problems and improves equipment performance**
- **Improved Quality**



Sort



Sort

In most organisations physical and information items are collected and never put away/disposed off long after they are required for 'value add' activities

The continous moving, counting and storing, all create waste and interrupt flow



Sort - Benefits

- **Frees up space**
- **Removes clutter/obstacles**
- **Stops people adding to it**
- **Stops hoarding**
- **Improves safety**
- **Controls what is in an area**
- **Feeds into the stabilise process**



Sort (Organise)



Distinguish Between What Is And Is Not Needed



Medical records : University Hospitals of Morecambe bay



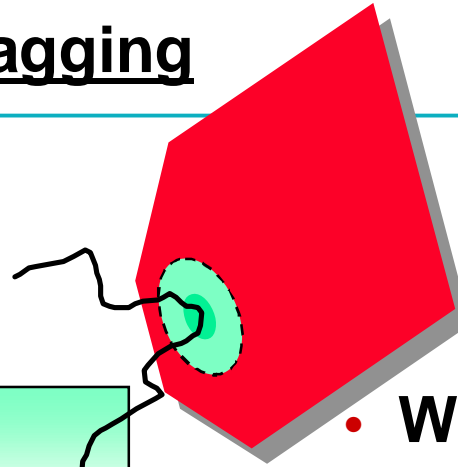
Sort (Organise)



Distinguish Between What Is And Is Not Needed



Sort - Red Tagging



- Obsolete, unneeded?
- Stored here, used elsewhere?
- Used infrequently?
- What is this used for?

- What do we need ?
- What do we not need ?
- What can we remove ?

A visible way to identify items that are not needed or are in the wrong place

Don't red tag people unless you want to be red tagged yourself !



Stabilise



Stabilise

Employees who work in cluttered and untidy factories think that searching for equipment and paperwork is a normal part of their job.

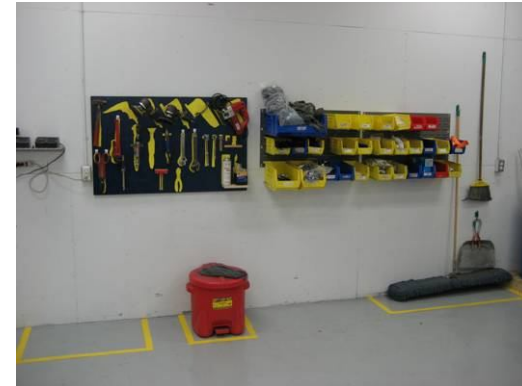
Those people who know where to go / look are often considered invaluable in the running of a department.



Stabilise



© NHS Institute for Innovation and Improvement





Stabilise





Stabilise (Orderliness)

- **Stabilise ensures that there is a place for everything and that everything is in its place**
- **Determine the best location for all necessary items**
- **Determine how many of each item will be stored in a given location and set limits on the space allocated**
- **Locate items in racks, containers, shadow boards**
- **Increase job efficiency by making it easy for anyone to find, use, and return items**
- **Organise things in a orderly and tidy manner and place things close to the point of use**



Stabilise - Benefits

- **Makes things easier to find**
- **Ensures tools are available when required**
- **Removes frustration of searching for things**
- **Creates better working environment**
- **Reduces accidents**
- **Assists Shine**
- **Feeds into the Standardisation process**



Shine



Shine

- **A dirty workplace is often tolerated – however it often hides underlying problems within processes**
- **In a clean environment dirt can easily be viewed (for example spillages, leaks)**
- **In the NHS, Shine brings additional benefits to patient safety and perception**



Safe



“It may seem a strange principle to enunciate as the very first requirement in a hospital that it should do the sick no harm”

Florence Nightingale 1863





Safe

- **A safe workplace for all staff and patient/stakeholders is a ‘housekeeping’ must**
- **Incidents noticed, reported and ‘fixed’ regularly (as part of 5S) prevent major issues**
- **A safe workplace creates confidence in staff and patients**

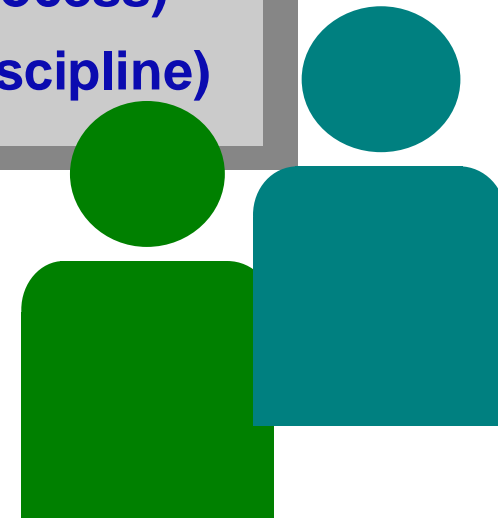


Standardise



Standardise (Adherence)

- 1: Sort (Organise)
- 2: Stabilise (Orderliness)
- 3: Shine (Cleanliness)
- 4: Standardise (Process)
- 5: Sustain (Self-discipline)



Process to *maintain* and *monitor* the first three S's



Standardise (Process)

- **Staff**

- Complete Day with equipment in place according to standard
- Quarterly Red Tag Sort Exercise
- Regular review of Stabilise (order in the workplace) and improvement

- **Information/Infrastructure**

- Proper Storage areas exist
- Information Board on expected standards to be followed

- **Audit**

- Inspection Audit Quarterly and results fed back to team
 - Auditor could be another department



Standardisation - Benefits

- Provides schedule of 5S activities
- Ensures deterioration does not occur
- Makes first 3S's a habit
- Starts problem solving/improvement activities
- Promotes discipline and sustains the process







Sustain



Sustain (Self-Discipline)

- Ensure the 5S become the DNA of the organisation
 - New joiners are properly trained
 - Process and procedures are habitual
 - Benefits are clearly demonstrated to get momentum
 - Standard is accepted by all and there is regular improvement on the standard

Sustain means **Continual improvement is evident from the regular inspection tours**



Sustain Benefits

- Establish standards for all to achieve
- Leads to improve safety
- Maintains a “tour” ready status
- Promotes pride and respect in the work place
- Basis for improvement activities



In which areas would 5S benefit your Trust/organisations?



7 Wastes



Introduction to 7 Wastes

- **Waste is the symptom that shows leakage of value**
- **They are many dimensions of Waste**
- **Learning to identify 'waste' helps uncover root causes**



Description

- **Waste is the opposite to value and is any activity which consumes resources but adds no value, it can be categorised into the following traditional seven wastes to which we have added the waste of human potential**
 - Over production
 - Motion
 - Transport
 - Waiting
 - Over - Processing
 - Inventory
 - Defects
 - Human potential

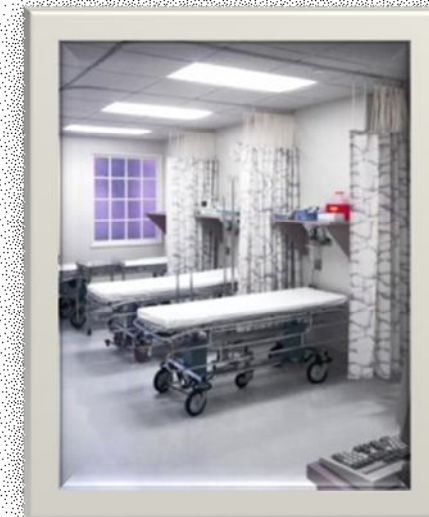




The Waste of Over Production

The production of goods in excess of the requirements

- **Examples of over production waste are:**
 - Unnecessary follow ups
 - Repeated questions and information sharing with patient
 - Repeated Diagnostics
 - Unneeded consultant to consultant referrals
 - Overuse of supplies
- **Effects of over production waste are:**
 - Excessive wait times
 - Longer end-to-end journey
 - Potential procurement of unnecessary equipment
 - Cost and Inventory of excessive supplies
 - Frustration to patient/GP





Techniques to eliminate Over Production

- Analysis of Demand, process and value
- Understanding of patient/GP requirements
- Reducing steps in the pathway (will naturally reduce overprocessing)





The Waste of Motion

Inefficient ergonomics in the workplace resulting in unnecessary motion

- **Examples of waste of motion are:**

- Over - reaching for equipment/tools
- Moving to see work
- Excessive stretching bending
- Double handling
- Walking to and from work centres /areas
- Poorly designed work areas

- **Effects of waste of motion are:**

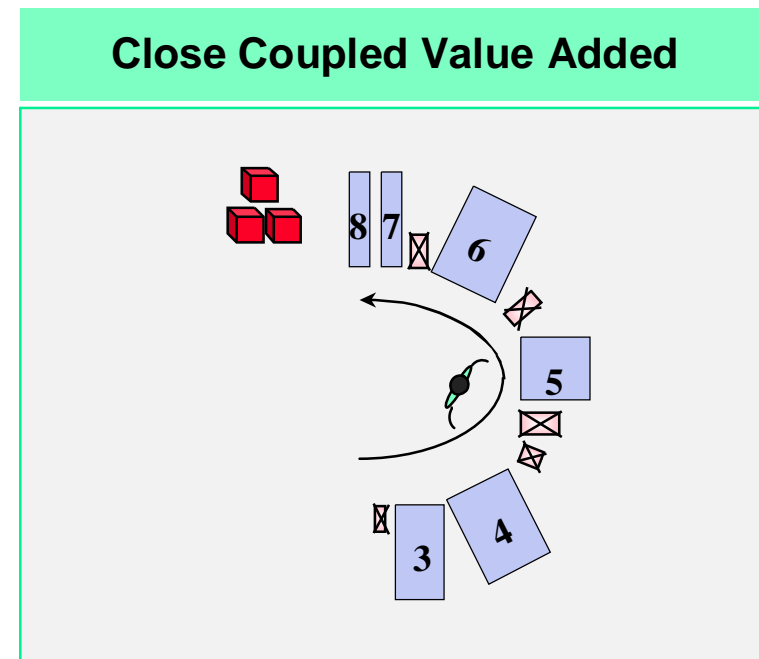
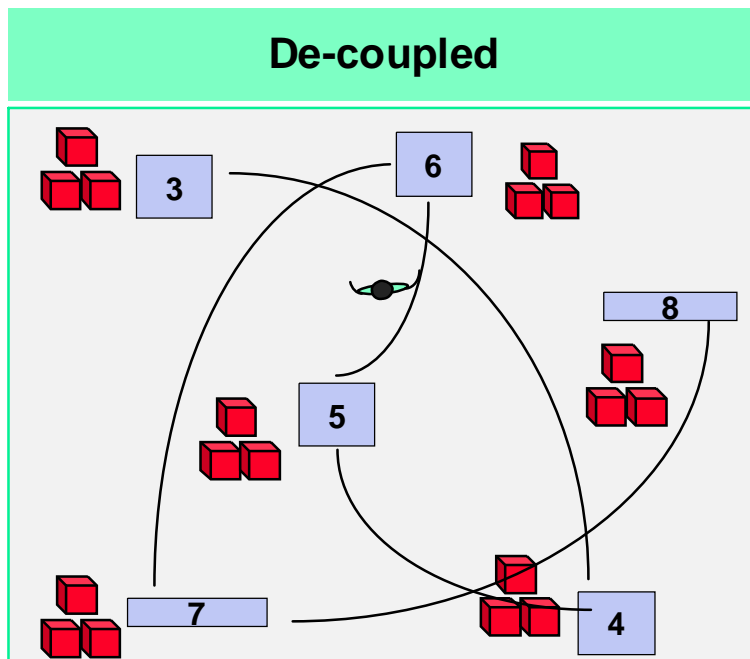
- Increased cycle time for operation resulting in overall increase in lead time
- Looking for parts / tools out of visual sight
- Worker fatigue





Techniques to eliminate Motion

- Create flow within work activity so that patient/product moves in a way that reduces unnecessary motion
- Pilot/Trial various configurations: Good one will instantly reduce tension/frustration

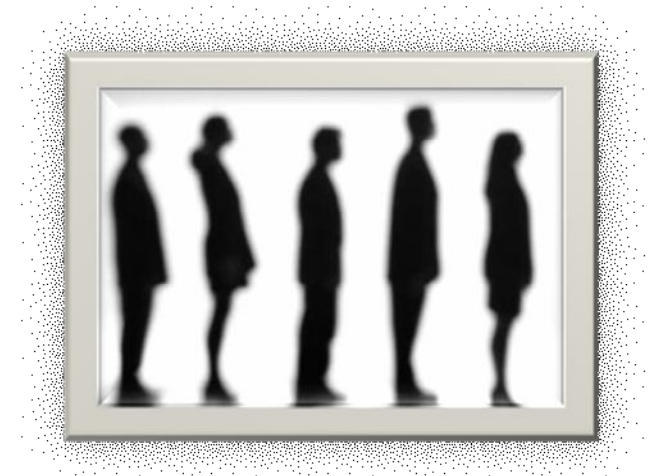




The Waste of Waiting

Ineffective use of time, where patients/materials are not having value added

- **Examples of waste of waiting are:**
 - Waiting for appointment/referral
 - Waiting for material handling equipment to be available
 - Waiting for patients/work
 - Watching machines processing
 - Queuing
 - Waiting for the answer (support staff)
- **Effects of waste of waiting are:**
 - Increased Non value added time
 - Ineffective use of resources
 - Increased work in progress
 - Increased cycle times/leadtimes





Techniques to eliminate Waiting

- Understanding Demand (cyclic, monthly, weekly, hourly etc)
- Flow and Pull eliminate waiting
- Total Productive Maintenance on Equipment/Machines





The Waste of Inventory

Inventory in excess of the requirement to do the job and in excess of suitable safety stocks

- **Examples of unnecessary inventory are:**
 - Excess stock of supplies
 - Obsolete stock
 - Patients that have started on the pathway but never complete (long tail)
- **Effects of unnecessary inventory are:**
 - Supplies/Materials
 - Increased space
 - Inventory is a liability. Money could be invested more usefully
 - Increase chances of obsolescence
 - Long Tail Patients
 - Frustration and complaints
 - Potential for complications
 - Loss to society
 - Burden of continual processing of patient information





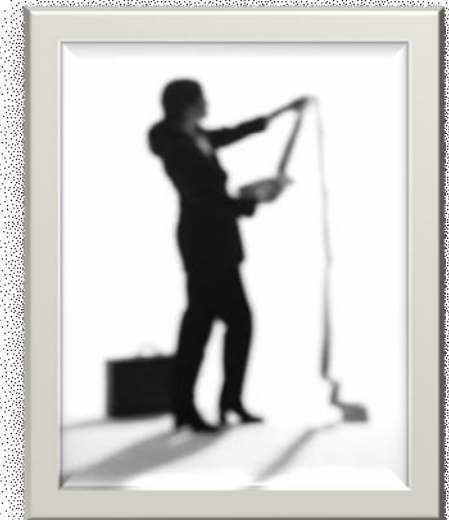
Techniques to eliminate Supplies Inventory

- **Supplies/Materials**

- ABC classification
- Kanban and pull mechanisms
- Safety stock management
- Max, Min level
- Re order points
- Call off schedule

- **Long Tail Patients**

- Analysis
- Expectation Management
- Solution to speed the cycle time





The Waste of Defects

Product manufactured outside the acceptable limits

- **Examples of defects are:**

- Scrap of Materials/Supplies
- Rework on Patient
- Expectation not met/managed
- Returns to Trust
- Customer complaints

- **Effects of defects are:**

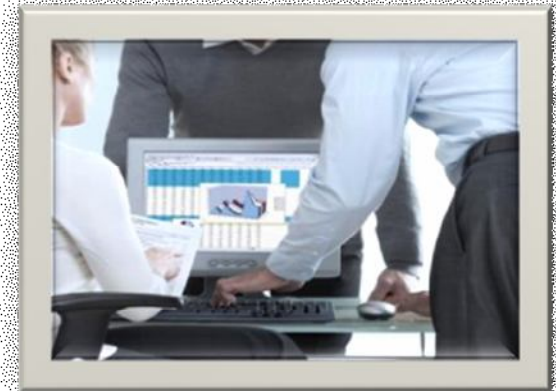
- Increased costs
- Increased capacity requirements
- Requirement for extra materials
- Rescheduling of work
- Poor delivery performance
- Fire fighting





Techniques to eliminate Defects

- **SPC (Statistical Process Control)**
- **Design for manufacture / assembly**
- **5S**
- **Cause and effect analysis**
- **FMEA (Failure Modes and Effects Analysis)**
- **Pareto**
- **Error proofing**
- **Problem solving teams / quality action teams**
- **Continuous improvement**
- **Appropriate measures**
- **Root Cause Analysis**





The Waste of Over Processing

Over processing in the health service is very similar in many ways to overproduction, however its where more is done on a patient then required during a visit

- **Examples of over processing waste are:**
 - Many handovers of paperwork rather than a single handover
 - Rechecking of work, rather then creating simple failsafe mechanisms
 - Treatment that is deemed interesting to the clinician, rather than a proven benefit to the patient
- **Effects of over production waste are:**
 - Longer cycle times
 - Potential of extra complexity, creating chance of errors
 - Longer lead times due to excessive handover
 - Frustration to patient/GP



Techniques to eliminate Over Production

- **Create fail safe mechanisms so that processes are ‘mistake proofed’**
- **Reduce handovers by creating processes that work at ‘first contact’**
- **Use and understand ‘value’ from the patients viewpoint and reduce processes that do not improve value for patients or the system**



The Waste of Transport

Inefficient transportation of materials, patients, equipment, etc.

- **Examples of waste of motion are:**
 - Inefficient transport routes
 - Delay in waiting for transportation
 - Complex material/patient flow paths within the work place
 - Double handling
 - Ineffective material handling equipment resulting in several journeys
- **Effects of waste of motion are:**
 - Increased waiting/cycle and overall lead time
 - Operator fatigue
 - Opportunity for injury to patient/damage to goods
 - Poor communication across long distances





The 8th Waste : The Waste of Human Potential

To develop the creative thinking of people

- **Examples of untapped human potential are:**
 - Not involving people in improvement activity
 - Making changes without getting different views
 - Human resource undertaking non value added tasks
 - Over resourcing
 - Fire fighting
 - Connecting disparate computer systems with brain power
- **Effects of untapped human potential are:**
 - Lower productivity
 - Less buy in
 - Adverse effect on culture
 - Increases in the above 7 wastes





Techniques to tap Human Potential

- Creating momentum for others to join
- Clear communication as to why?
- Listening skills
- Tapping into external experience
- Integrated and other self directed teams
- Change Leaders to manage change and resistance





7 Wastes Workshop



-
- For the organisation that you work identify waste either in your department or organisation
 - Use the 'Waste Sheet' provided
 - How do you know it's waste? Why is it created? Is it easy to resolve?



Value Stream Mapping



Traditional Process Improvement versus Lean Process Improvement

Traditional Process Mapping

- Calculating journey times and identifying bottlenecks
- Focus on activity levels at each step
- Look at activity steps as a whole rather than product specific
- Aim to 'push' things through faster

Lean

- Start with Takt time (how often is 1 created/needed)
- Focus on Waste, Rework, Scrap, Set up time at each step
- Align Cycle Time to Takt Time
- Product flows measured individually
- Obsession with measuring cycle time to takt time



Value Stream Mapping – Common Terms Used

- Cycle Time = Time to process an activity (e.g. Cancer Consultation, X-Ray time)
- Takt Time = Rate of Demand (e.g. a patient arrives every 10 minutes)
- Resources = Number of resources at each activity
- Work in Progress = Number of patients waiting in between processes
- Lead time = The end-to-end time for a whole processes
- Value Adding Time = Time that some ‘transformation’ or ‘diagnosis occurs’ – Generally Cycle time of each process (but may not be!)



Value Stream Mapping First Starts with understanding Takt Time or Demand at the start of the process

- Example 100 patients arrive in 1000 minutes
- Takt Time (time between arrivals) is 1 patient every 10 minutes
- Cycle Time is the time for each activity that processes the demand



Diagnose
Spend time with to understand problems

CT- 20 minutes
↑ 2

Cycle time/Resource = 10 minutes



Treat
Spend time with to understand problems

CT- 10 minutes
↑ 1

Cycle time/Resource = 10 minutes

When Takt Time matches Cycle Time/No of Resources we get flow without waste

Lead Time
----- = **Work in Progress**
Takt Time



Queue are caused due to two reasons

- **Batching** – deliberate creation of queues
- **Variability in cycle time**
 - Rework & Setup
- **Cycle Time mismatch with Takt Time!**

Queue

Batching

Diagnose
Spend time with to understand problems

CT- 20 minutes
↑ 2

Queue

Treat
Spend time with to understand problems

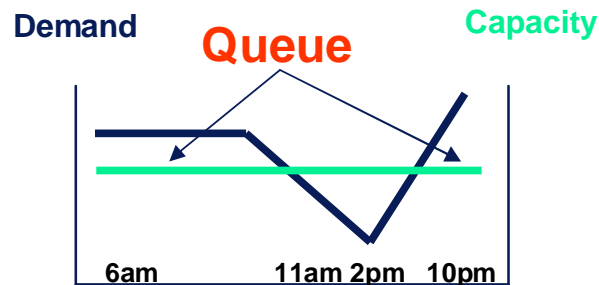
CT- 5 ~ 15 m
↑ 1

Variability of Cycle Time

Overall Capacity in the day meets demand but we still have queues

Total Capacity = 3 people * 1000 = 3000m

Total Demand of Time = 100 * 30 minutes = 3000m

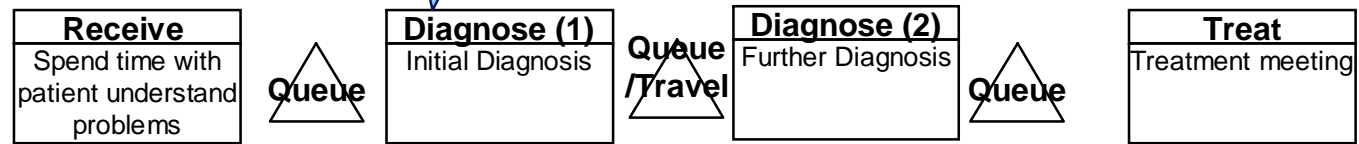




Once we have drawn a value stream map we can use it to identify problems with flow

Cycle Time = Takt Time we get flow!

Is this Step Value Add?



👤 1.5
🕒 15m
RW 5%
Set up = 0
TAKT 10m

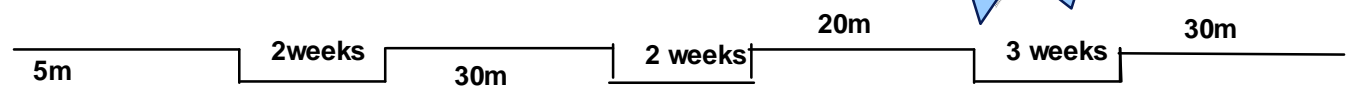
👤 4.5
🕒 30m
RW 5%
Set up = 15m
TAKT 10m

👤 2.5
🕒 20m
RW 5%
Set up = 10m
TAKT 10m

👤 3.5
🕒 30m
RW = 15%
Set up = 5m
TAKT 10m

Can we match cycle time to takt time

Can we reduce the set up time



Total cycle Time = 85mins Lead time = 7.5 days Value Added time = 65mins?



Some of the Tools used in Lean – High Level Overview*

Visual Management

Plan Do Check Act

Standard Work/SPC

Creating Pull Systems

7 Waste Exercise

Policy Deployment/Hoshin

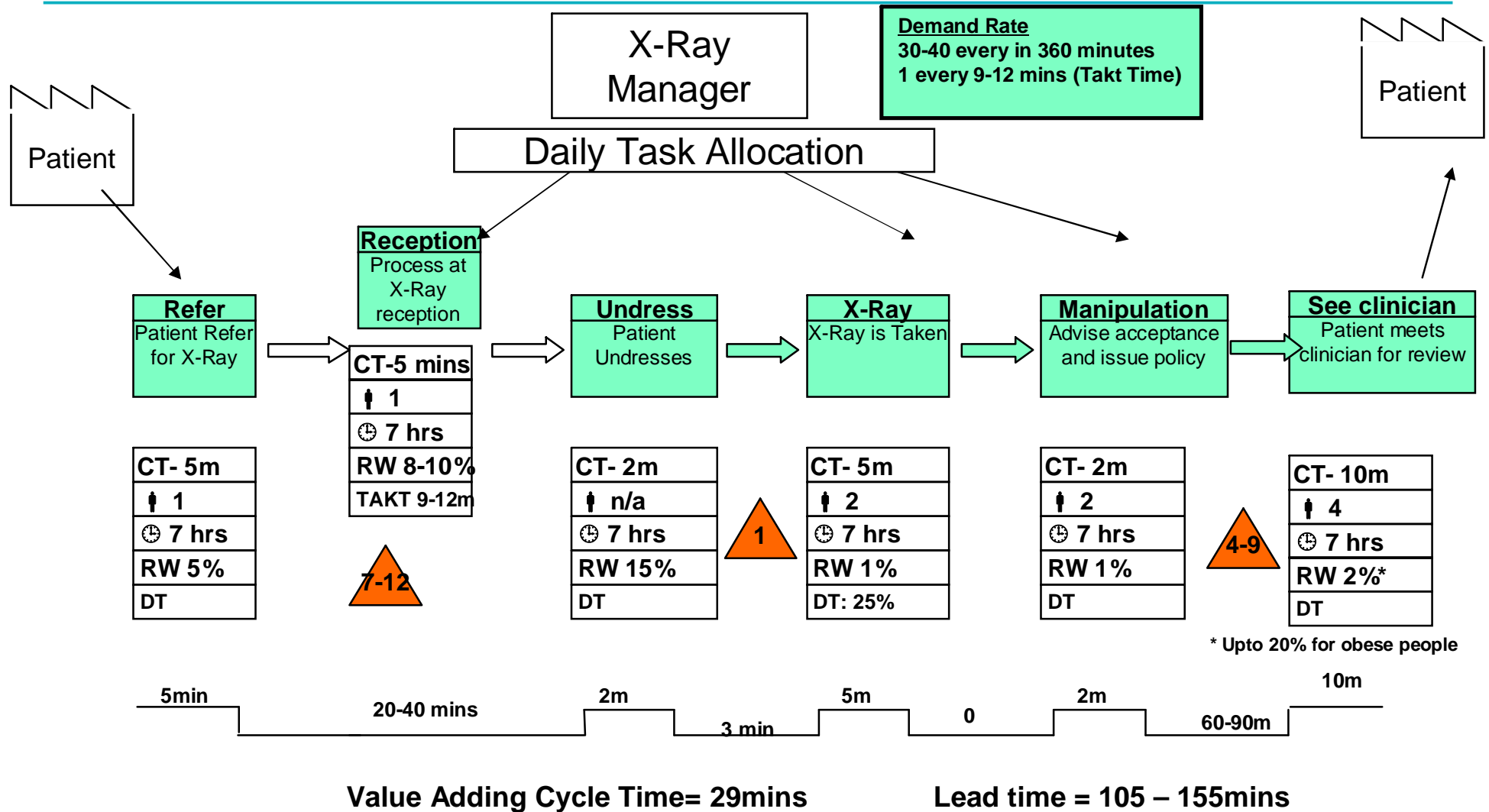
Total Productive Maintenance

SMED

- Ensuring that performance at the coal face can be measured quickly
- A way of ensuring continuous improvement
- Creating a standard way of working that reduces variation and creates flow
- Ensuring that there is a pull of demand rather than a push
- Identifying waste and then understanding its root causes
- A way of ensuring that deployment of strategic policy is aligned with objectives across the organisation
- Ensuring machines and equipment are maintained to avoid breakdown
- A way of focusing on reducing changeover time and batch sizes between products (patients)

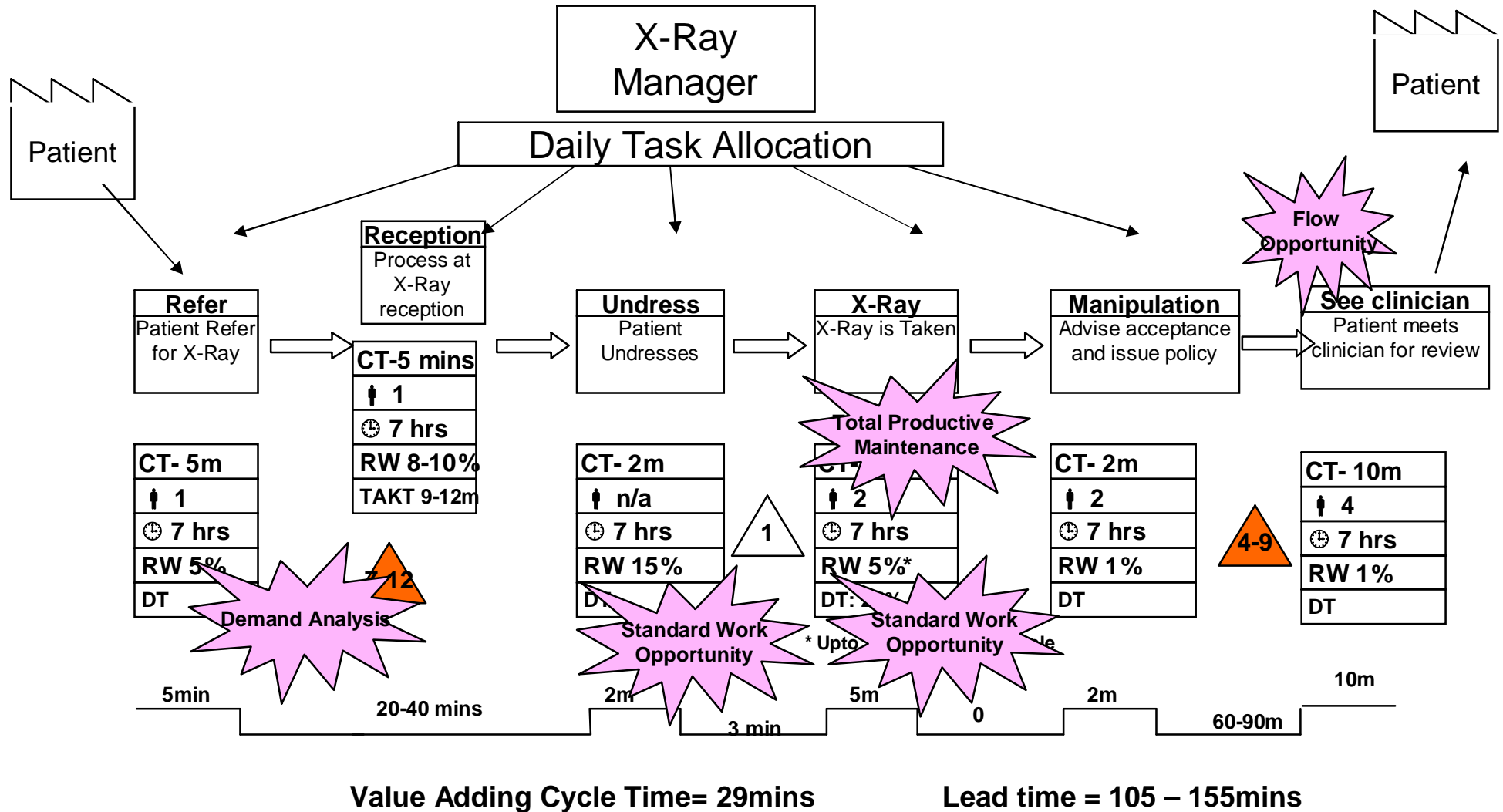


Example Value Stream Map A&E X-RAY



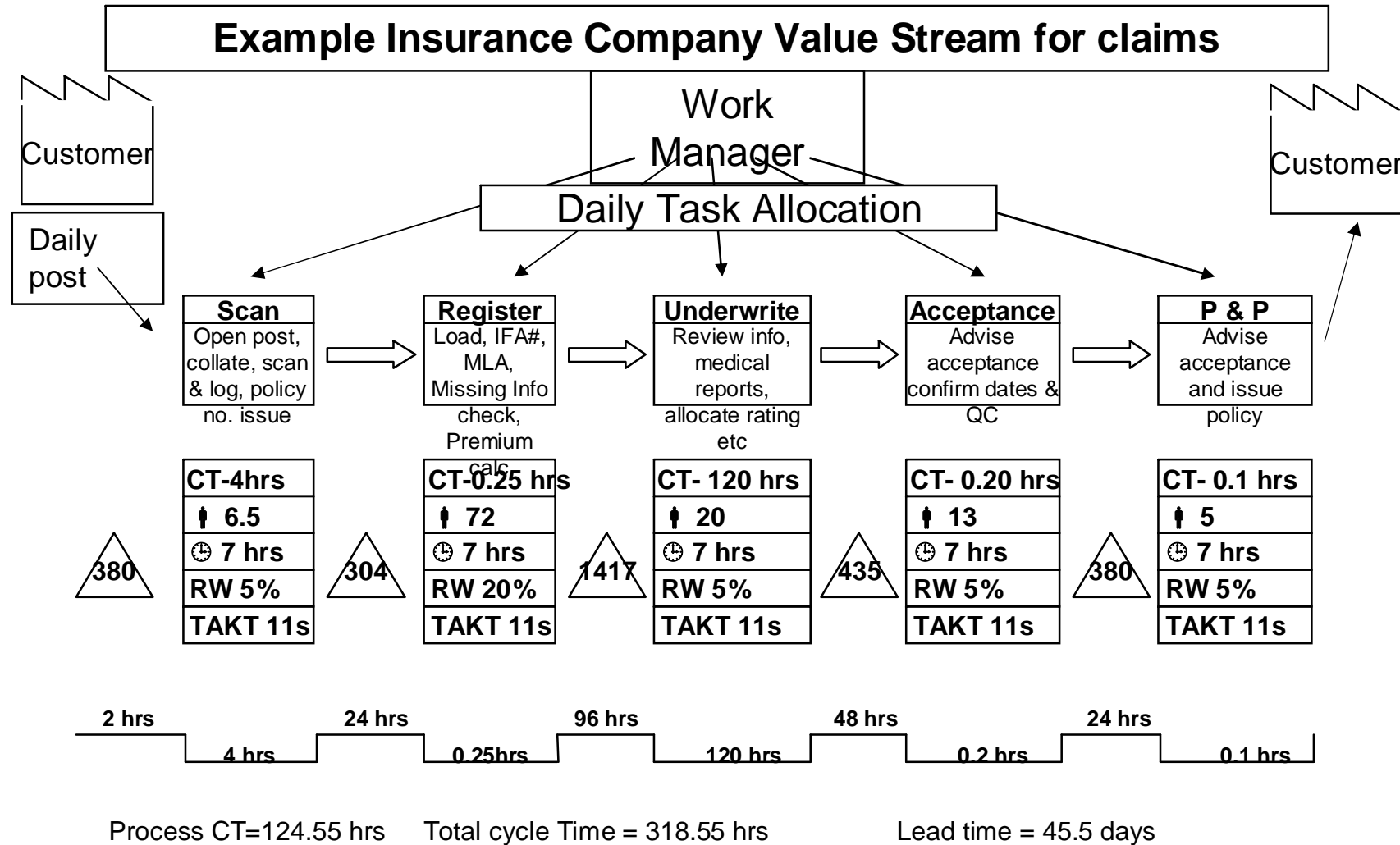


Example Value Stream Map A&E X-RAY





Value Stream Mapping can be carried out in all environment – including administration





“Our analysis indicates most queues within the NHS are relatively stable, suggesting that capacity and demand variation are the cause”

Silvester & Walley, June 2005



Implementation



What Does Implementing Lean Change Feel Like?



“The brutal fact is that about 70% of all change initiatives fail”

From Cracking the Code of Change. By: Beer, Michael, Nohria, Nitin, Harvard Business Review, 00178012, May/Jun2000



For Lean to be sustained the following behaviours needs to be in the DNA of an organisation

- **Iterative Design and Piloting Approach**
 - Continuously test approaches and adapt a mode of fast failure
- **Local decision making by high performance teams**
 - Lean Design must drive decision making to the people that add value
 - Management must learn to 'let go'
- **Frequent and fast reviews**
 - Bottom to Top
 - Nothing is hidden, information can be acted upon
- **Good contingency/scenario plans**
 - How to manage future shocks without breaking the system – recession, stock outs, market dynamics



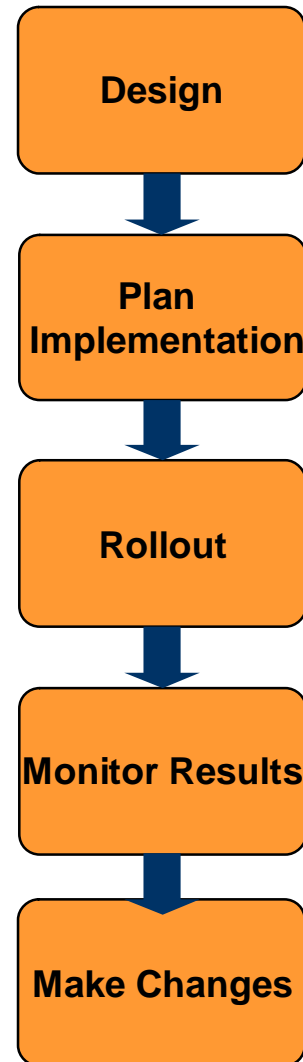
Proper Piloting can be crucial before ‘going’ live with a new process

- **“If I were to pick one issue I would have done differently, it is that, having recognized the importance of testing (piloting) and having designed six months of testing, we subsequently compromised on that”**

Willie Walsh – British Airways speaking to Select Committee Hearing on the T5 ‘Fiasco’

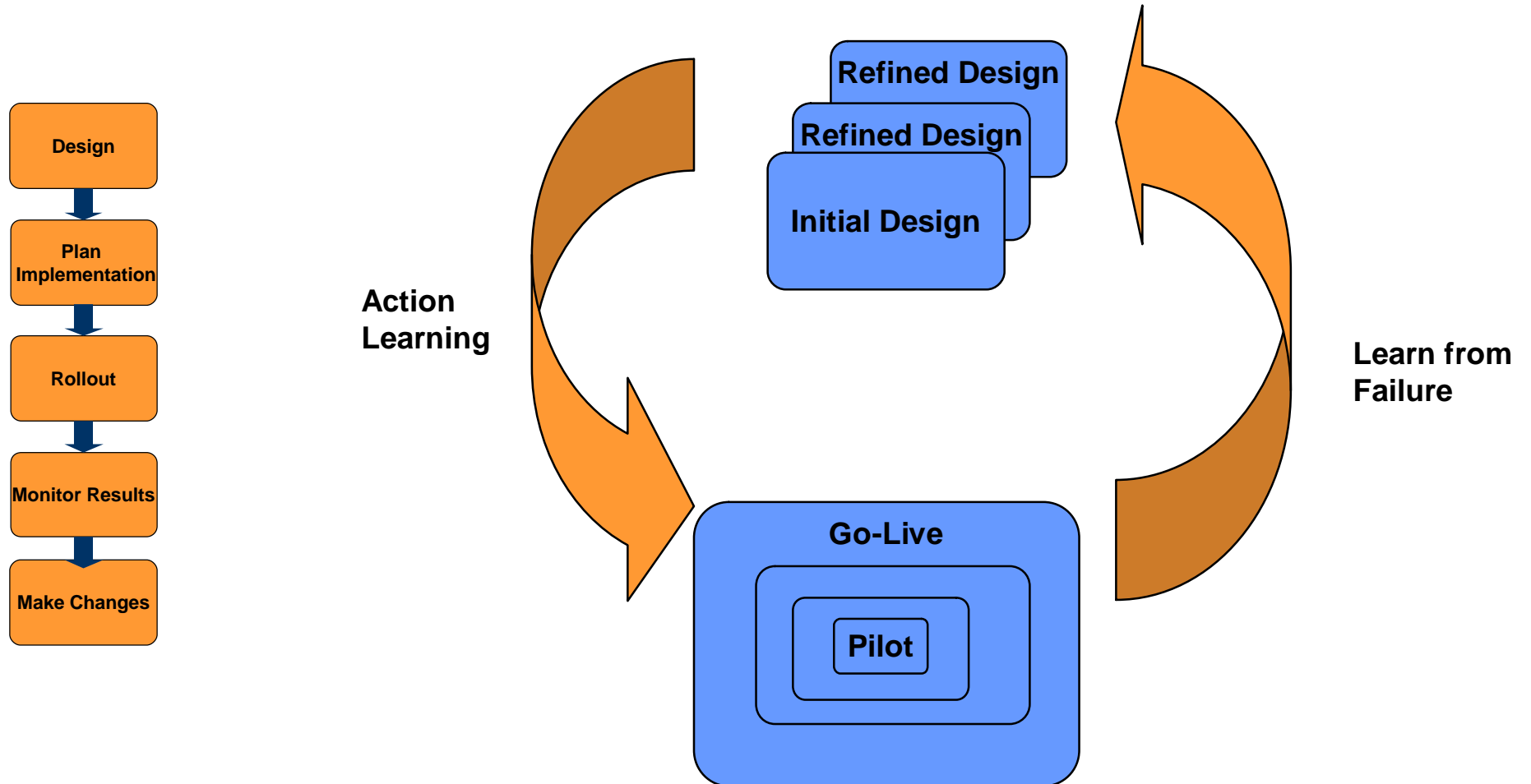


Traditional Steps to Implementation are not feedback driven



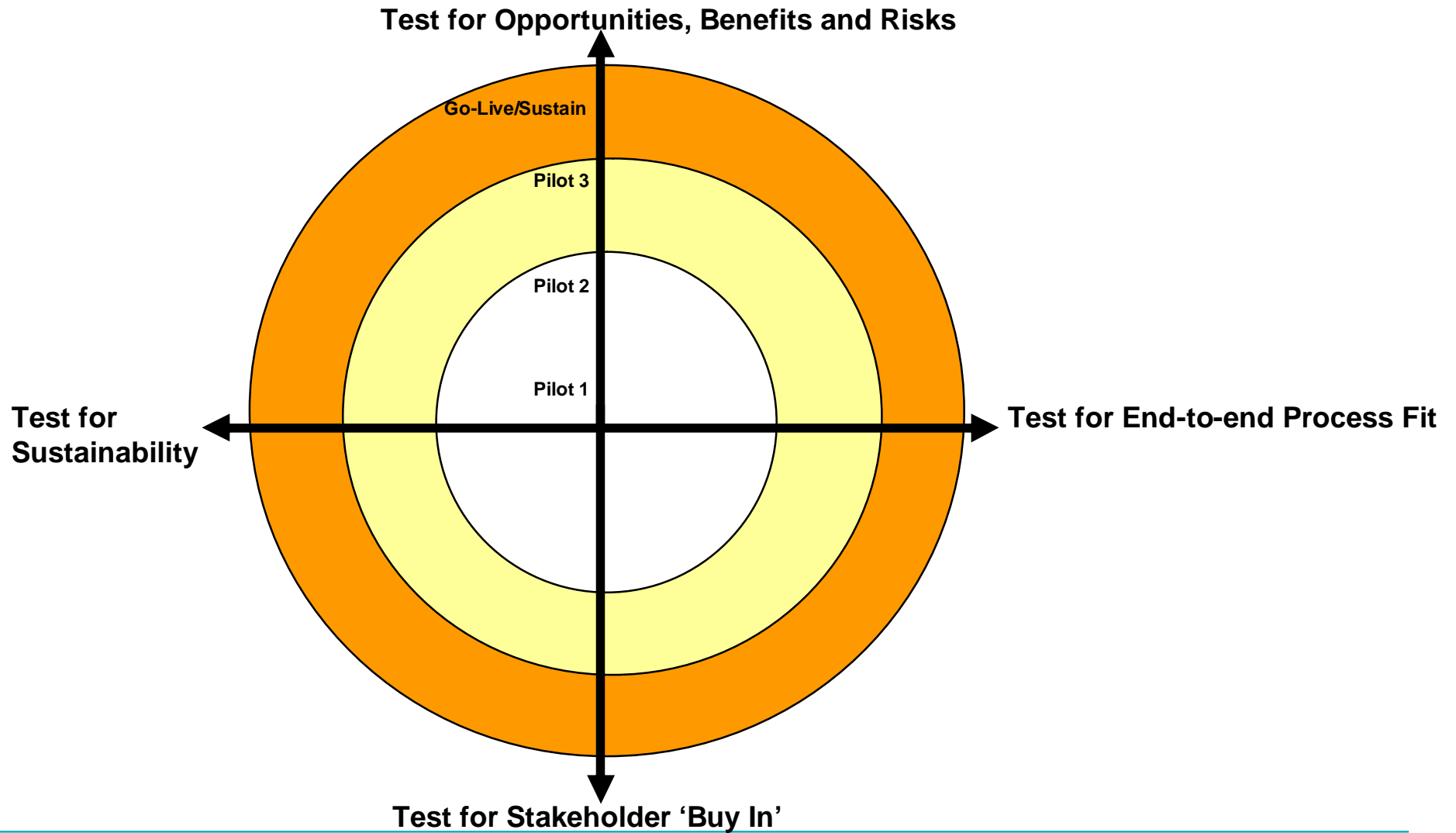


Implementation and Design should be inherently connected





Piloting will test in Many Dimensions





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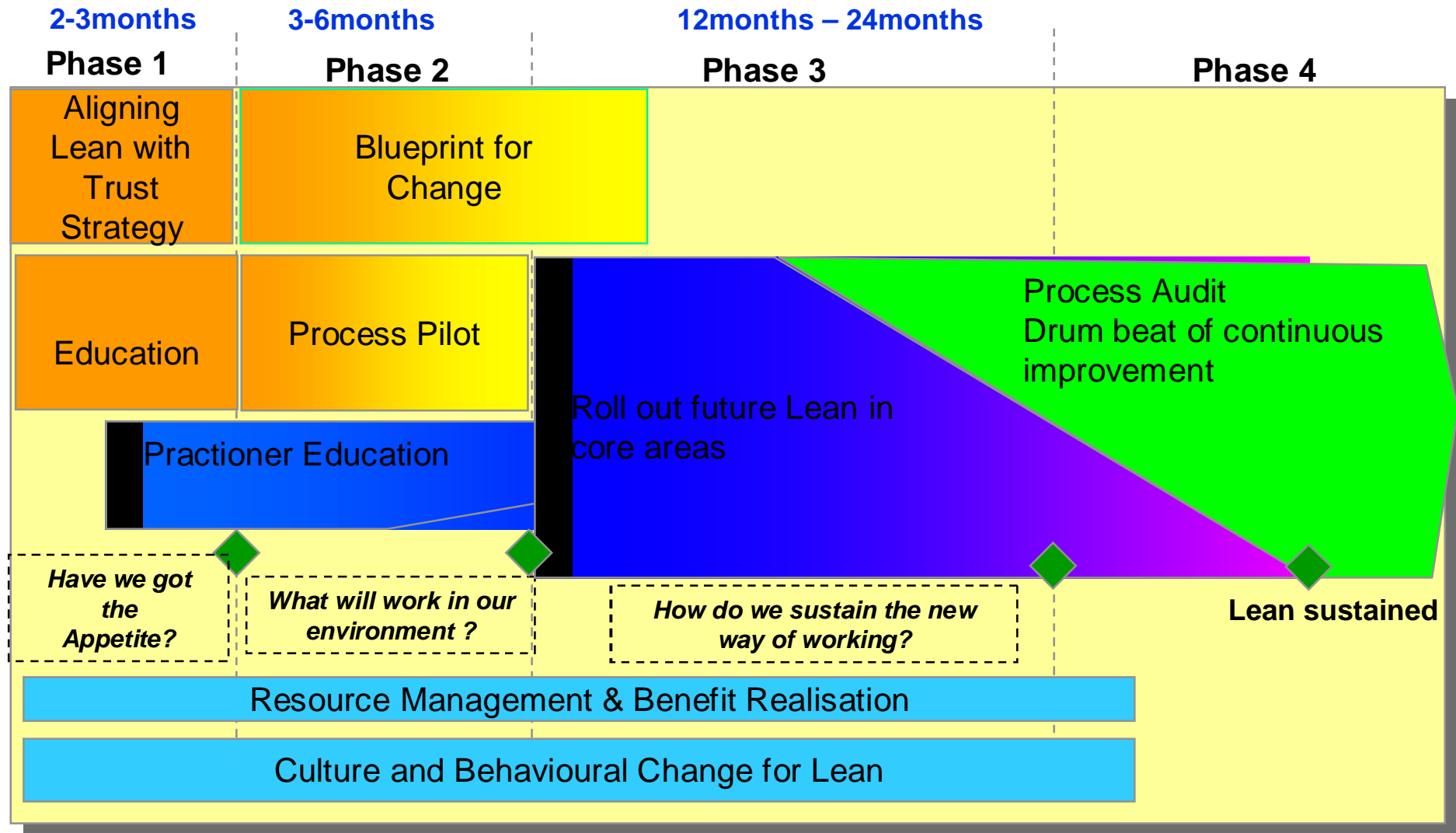
High Performance Teams are radically different to traditional teams

	Team	High Performance Team
Leadership	Single Leader	Shared Leadership
Ownership	Individual	Mutual
Purpose	Specific	Highly Focused
Development	Some	Continuous Development
Meetings	“Let’s Discuss a problem”	“Let’s Make Decisions and Act on Them” based on agreed assumptions
Relationships	Good	Strong and Deep
Aspiration	More than sum of individuals	Beyond Expectation
Size	Varies	< 8

Tailored from article by Source Harvard Business Review By Jon R. Katzenbach and Douglas K. Smith Aug2005



A lean transformation program can take for 18 to 36 months before it is sustained – we need to ask key questions at each phase





Workshop 3: Case Study and plan for sustainability



Case Study: Bedford Hospitals Lean Transformation

Problem: The trust wanted to roll out lean as a standard way of improvement thro the trust, but needed full staff involvement and a culture of continuous improvement

Root Cause Identification: Used 'town halls meetings using the questions 'what makes your blood boil' and 'walk the floor' to identify 20 key projects

Solution: Trained 25 'change leaders' in Lean supported by 2 full time service improvement managers. Sponsorship from COO and extended Lean Network of support

Results: Over 10 day stays reduced from 7.28% to 3.68%
Mean Length of stay reduced by 1.5 days in year .
A dramatic 7 day reduction in average LOS
Day surgery rates increased by 6% to 84%
Theatre efficiency improved to 87%
18 week target delivered 3 months
Diagnostic waits reduced to 0 for plain film x rays
Delayed transfers in care reduced to 2%





Case Study: Hereford Hospitals NHS endoscopy unit

Problem: Endoscopy staff said they did not have enough trolleys to match demand

Root Cause Identification: A value stream was mapped with realisation that transfusion patients taking on some of the capacity for recovery beds. Bottleneck was the flow through recovery chairs

Solution: Found alternative area for transfusion patients. SPC was used to understand demand variation for trolleys and showed that 3 trolleys would match max demand

Results: Avoided cost of extra trolleys





Flinders Medical Centre Australia

Problem: Too many patients waiting in queue in A&E (2003: 1000 waiting over 8 hours). Patients were 'reworked' a lot.

Root Cause Identification: Mapping of value streams showed 5 triage systems and 40% of patients admitted to hospital. Analysis of value showed 2 value streams:

- Patients with minor ailments that could be discharged quickly
- Patients who needed further treatment and ward admission

Solution: Treating the two stream of patients separately and minor ailments patients seen in a first in first out flow

Results: Average wait fell by 25%, Number of patients departing without waiting fell by 41%, Staff felt pressure 'ease'





Bolton Hospitals

Problem: Orthopedic services at the Trust were facing depleting referrals due to ICATs and Independent Treatment Centres (ITCs). They also had a longer than average length of stay (LoS) and higher infection rates.

Root Cause Identification: Value Stream Mapping identified joint surgery as one of the high volume cases for the Trust . The team mapped the pathway and found that there were over 300 steps, many of which were duplicated or wasteful

- e.g. example, a patient could potentially have 3 X-rays when one was sufficient.

Solution: developed a detailed future state process which removed waste from the current system. Defined Clear aims for the future state from the onset

Results: Initial work delivered theatre lists starting on time, a reduction in surgery time and a reduced risk of infection by minimising movement in theatre and from ward to ward. [Actual measures awaiting quantification]





Case Study

- **Review the Lean Health care Case Study in your group**
- **Answer the following questions**
 - What are the 3 most important things you have learnt?
 - What have you learnt from the British Airways Experience?
 - Is there one thing that you felt that they did that wouldn't work for your trust?
 - What one question would you ask their team?



Some 'watch outs' during Implementation

- **Don't Assume that Lean equals using the Lean Tools**
 - Lean Tools are only part of the way to get to perfection – the most important tool is genuine desire to improve
- **Don't Assume that Rapid Improvement Events is all that's required with the help of a change manager**
 - Commitment from the Top for sustainability
 - Provides resources, engagement, change management, stakeholder management
- **Don't assume that all resources should be focused on adding customer(patient) value**
 - Stakeholders work the 'system', resources need to be aligned to deliver a continuing evolving system that meets all stakeholder expectations, otherwise the system will fail.
- **No involvement from staff at the 'coal face' will mean no engagement – and no sustainability – no matter how good the solution is**
 - Respect People and differences
 - Work from where you are



Lean sustainability is all about creating high performing teams

**“Plan with the people,
Begin with what they have,
Build on what they know,
Of the best leaders,
When the task is
accomplished
the people all remark
We have done it ourselves”**

Lao Tzu





Support

- **Recommended Books/Follow On**

- Lean Institute Web Site
www.leanuk.org
- Lean Thinking by Womack and Jones
<http://www.amazon.com/Lean-Thinking-Corporation-Revised-Updated/dp/0743249275>
- Nun and Bureaucrat by Louise Savary and Crawford-Mason
http://www.leanuk.org/pages/book_nun_and_bureaucrat.htm
- Lean London Event: Next one Jan 27 www.leanlondon.org.uk

- **3 day 'in-house' practitioner course**

- Play the powerful 'funnel' game that clearly demonstrates the impact of lean
- Value Stream Map a Process
- Learn about Specific Lean Tools
- Learn more about transformational change and implementation planning
- Facilitation and core change management skills



Thank You



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