

# Lean in Higher Education: Is it just for Efficiency?

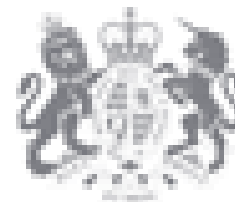
**OR**  
**Can it only ever be just  
for Efficiency?**

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*Associate Professor (Reader) in*  
*Operations Management*  
*Warwick Business School*  
*AIM Management Practice Fellow*

# Lean not just for the Private Sector...



Her Majesty's  
Inspectorate of  
Constabulary



Plus Local Government, Fire and  
Rescue Services.....



## How do we make things better without just spending money?



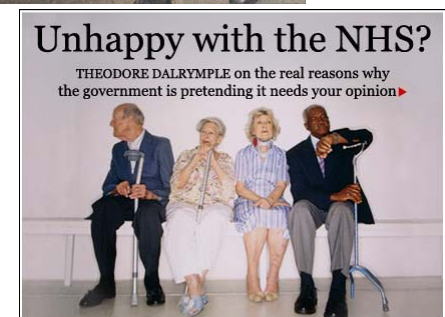
*"This is the question that will define British politics for the years to come. In answering how we can make things better without just spending money, we need to **deliver more for less**.*

*"Let me make clear: we are not offering a simple efficiency drive. What we propose is something entirely different - something so bold and radical I would call it a whole new type of government."  
(David Cameron, UK Prime Minister, March 2010)*

# What's the challenge?: The Cuts or Mindset?

## Current View:

- ❑ Do the same for less money?
- ❑ “Cuts, Cuts, Cuts”
- ❑ Cutting costs/ perceived waste directly or indirectly
  - ❑ Programmes, bureaucracy, services, jobs.
- ❑ But is the focus on the wrong thing?
  - ❑ Do it better with less money?
  - ❑ Improving services through quality delivery.
  - ❑ Not cost reduction but waste reduction related to value



# A Brief History of Lean

## Who “invented” Lean?

- **Taiichi Ohno**  
Vice President of Manufacturing,  
Toyota Motor Corporation
  
- Toyota Production System
  - 1950s, after WW2
  - External factors; small market, culture and difficulties in equipment purchase.
  - Inspired by USA supermarkets



# Understand Value



## Our Customers

ALL TRUSTING US TO GET IT RIGHT

199,000  
Self Assessment  
Customers

People like...



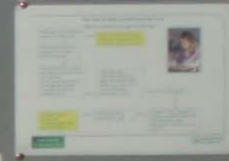
...Stephan



People like...



...Kelly



1.2 Million  
Pay As You Earn  
Customers

People like...



...Doris



People such as...

...DNA Accountants



Pensioners

*Our largest pension  
payers are G. F. Life with  
22,170 pensioners &  
Windsor Life UK Ltd  
with 11,327 pensioners.*

Employers

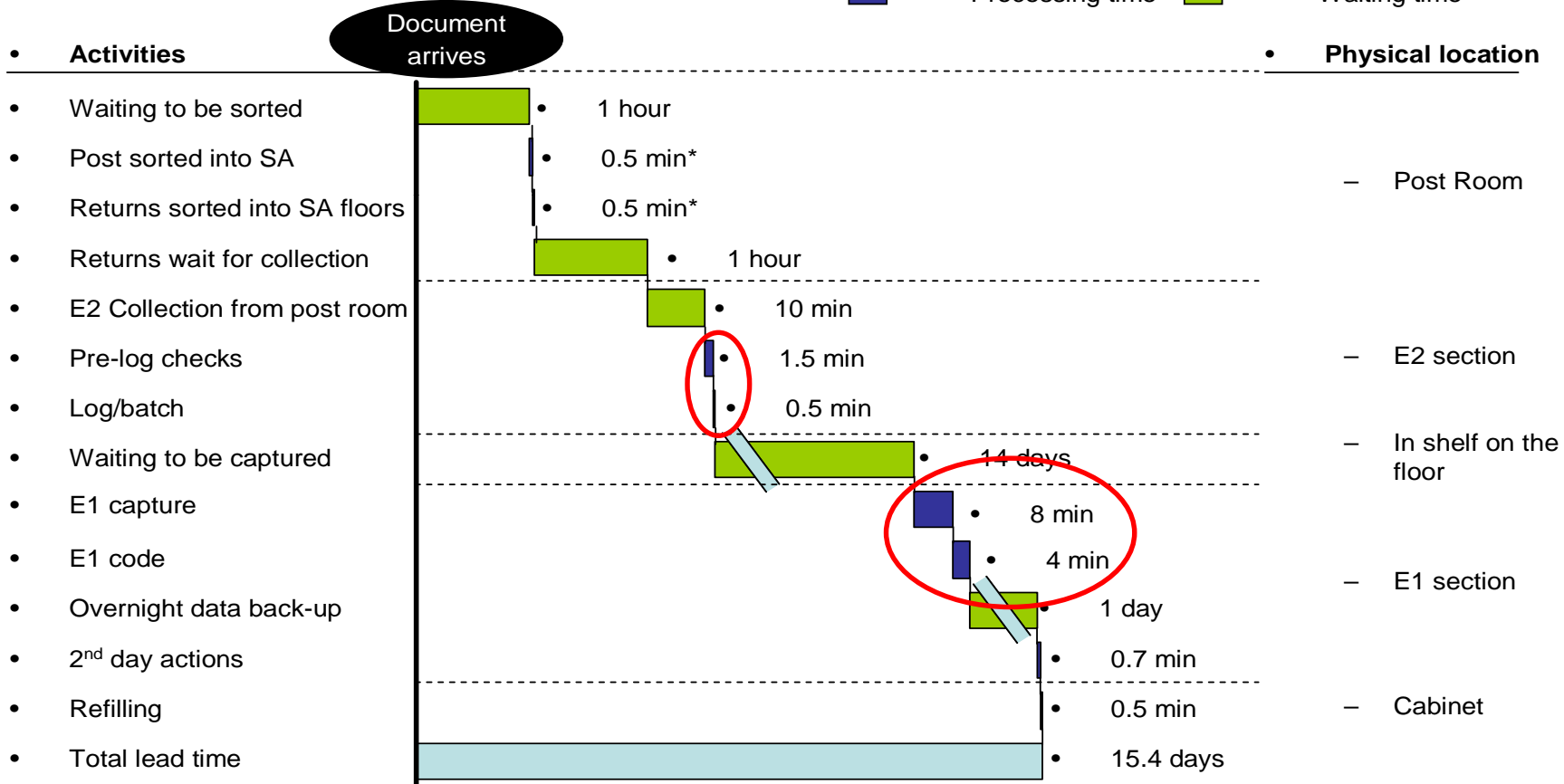
*Our largest employers are  
East Sussex County  
Council with 27,192  
employees & Thales  
Corporate Services with  
12,310 employees.*

# Value-Stream Thinking

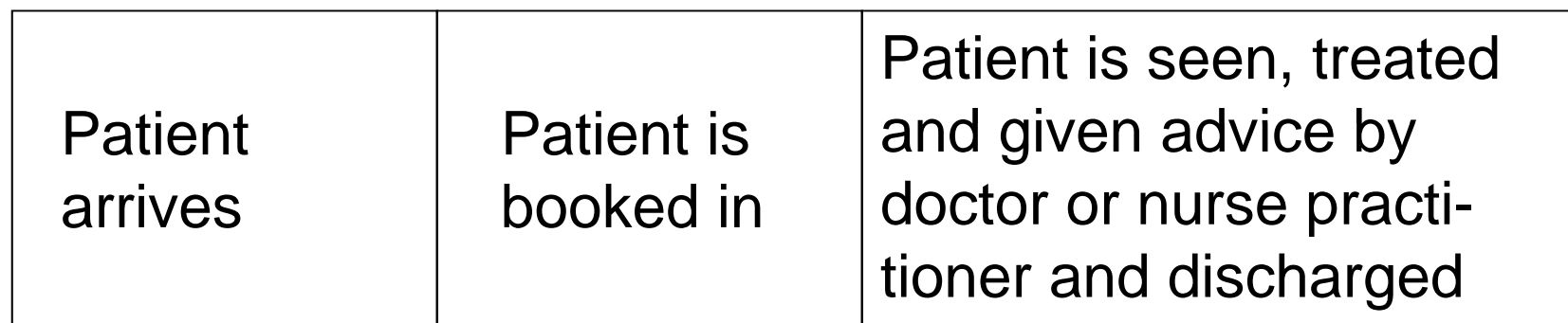
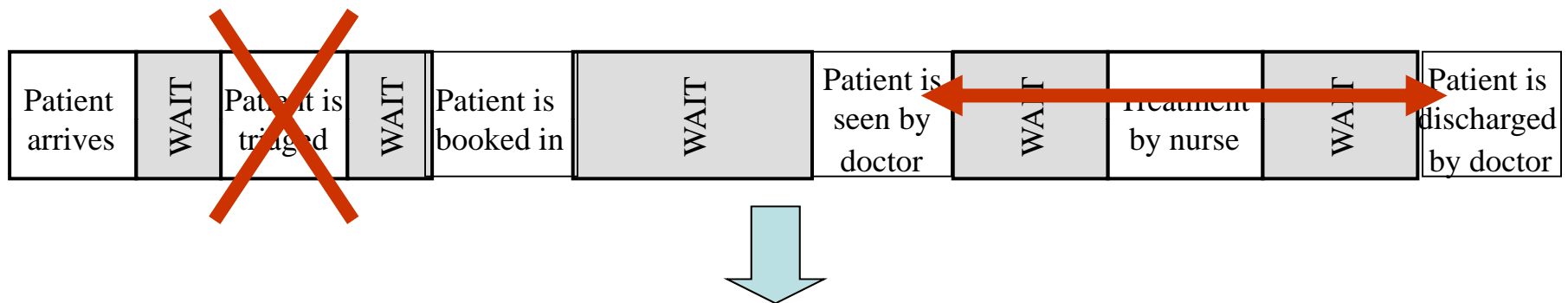
The SA processing lead time for documents received during January was 15.4 days, of which 14 minutes was spent processing (0.05%)

Time to process an SA return

■ Processing time ■ Waiting time



# Flow: The Process for assessment, minor treatment discharge was redesigned to achieve lower waits



# Reduction of Waste



1

**Over-production** - 60% of computer generated post printed in the post room was discarded



2

**Waiting** - Post delivered by Royal Mail did not always arrive at 7:45 am



3

**Transport** - Post moved 500 metres before any value-added work was performed



4

**Over-processing**  
Sorting post in 21 categories when 4/5 were enough



5

**Inventory** – 15+ days of work on shelves



6

**Rework** - Post transferred between offices; Frequent redirection due to mis-sorting



7

**Motion** - In post room the operator moved from desk to scales to measure a single item of post

# Use of Tools and Techniques within Lean in Public Services



## Assessment:

- To assess the processes at organisational level e.g. value stream mapping, process mapping

## Improvement:

- Tools implemented and used to support and improve processes e

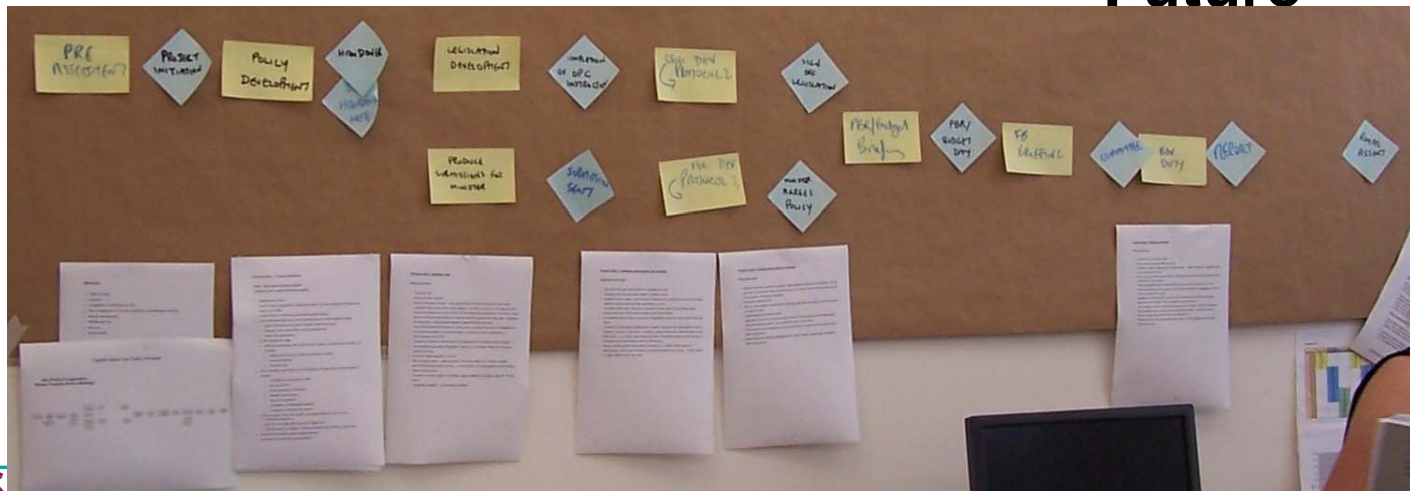
## Monitoring:

- To measure and monitor the impact of the processes and their improvement e.g. control charts, visual management, benchmarking, work place audits
- Measures in terms of quality, time, costs, satisfaction levels e.g. 5S, structured problem solving

# Assessment: Reviewing the work



From  
Current  
State  
to  
Future



# Improvement: Structured and systematic use of problem-solving

## Day-to-day problem solving: 3Cs document

HM Revenue & Customs						
Problem Solving - 3Cs						
Team	⊕	⊖	⊙	⊙	⊙	⊙
Concern	Cause	Countermeasure	Resp	Date Due	Status	
						⊕
						⊕
						⊕
						⊕
						⊕
						⊕

This is the basic method of Problem Solving used by teams to address day-to-day issues affecting performance. The process has 3 steps:

### **Concern:**

Define the Problem clearly – doing this is essential, as it will help to ensure that you don't try to put the whole world right in one go.

### **Cause**

Think carefully – try to get to the “*ROOT CAUSE*” of the problems, rather than just dealing with the symptoms.

### **Countermeasures**

Try to fix the problem once and for all, but if that's not possible, then do everything you can to mitigate the impact on the customer.

These are some of the Problem Solving tools that are available, but there are many more



- 3 C's Document
- Brainstorming
- Kipling
- SMART
- Open Questions
- 5 Why's
- Timing Plan
- Fishbone Diagram
- Web Chart
- Like & Must
- Check Sheet
- Action Plan
- Pareto Analysis
- Interviewing

## More challenging problems: Structured Approach

### 1 - Problem

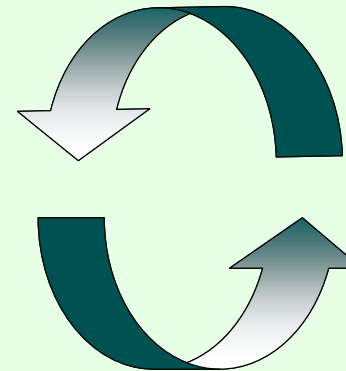
WHAT DO WE WANT TO IMPROVE AND WHERE DO WE WANT TO BE?

### 2 - Causes

WHAT'S STOPPING US FROM ACHIEVING OUR DESIRED STATE?

### 3 - Options

WHAT CHOICES DO WE HAVE ?



### 6 - Results

HOW GOOD WAS THE SOLUTION ?

### 5 - Implementation

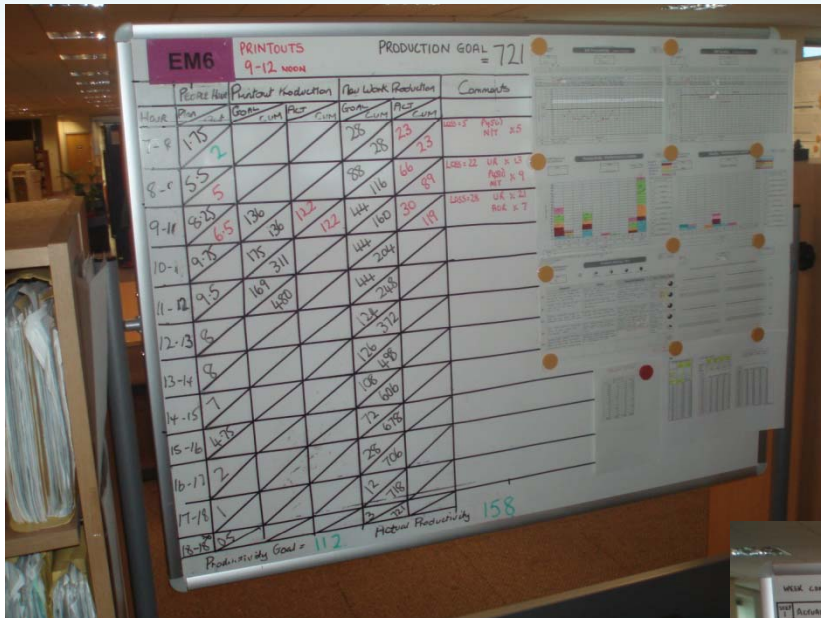
WHAT IS OUR ACTION PLAN ?

### 4 - Solutions

WHICH IS THE BEST WAY TO SOLVE OUR PROBLEM ?

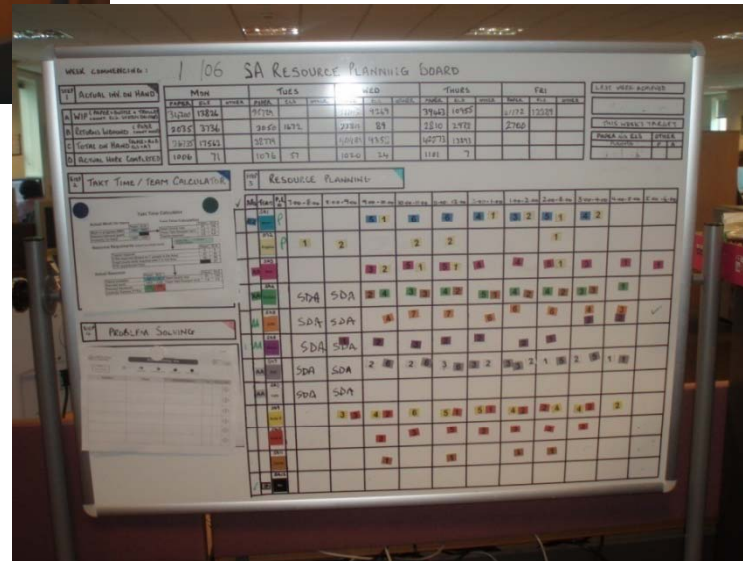
# Monitoring: Visual Management

## Team Board



## Team Communications Hub

## Resource Planning



# Improvement: 5S

**SEIRI**  
*Sort*

**SEITON**  
*Set in order*

**SEISO**  
*Sweep and Shine*

**SHITSUKE**  
*Standardise*

**SEIKETSU**  
*Sustain*

# Lean Transformation – A Two Pronged Attack

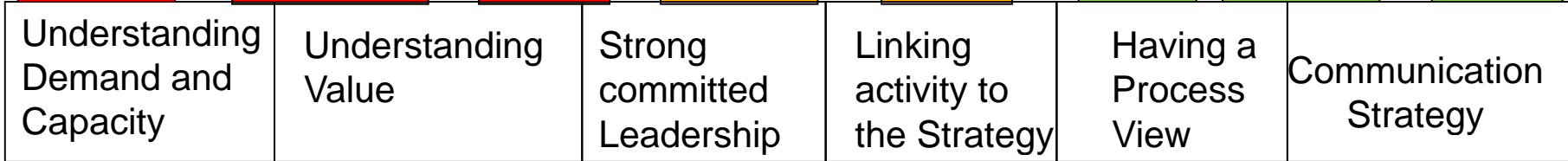
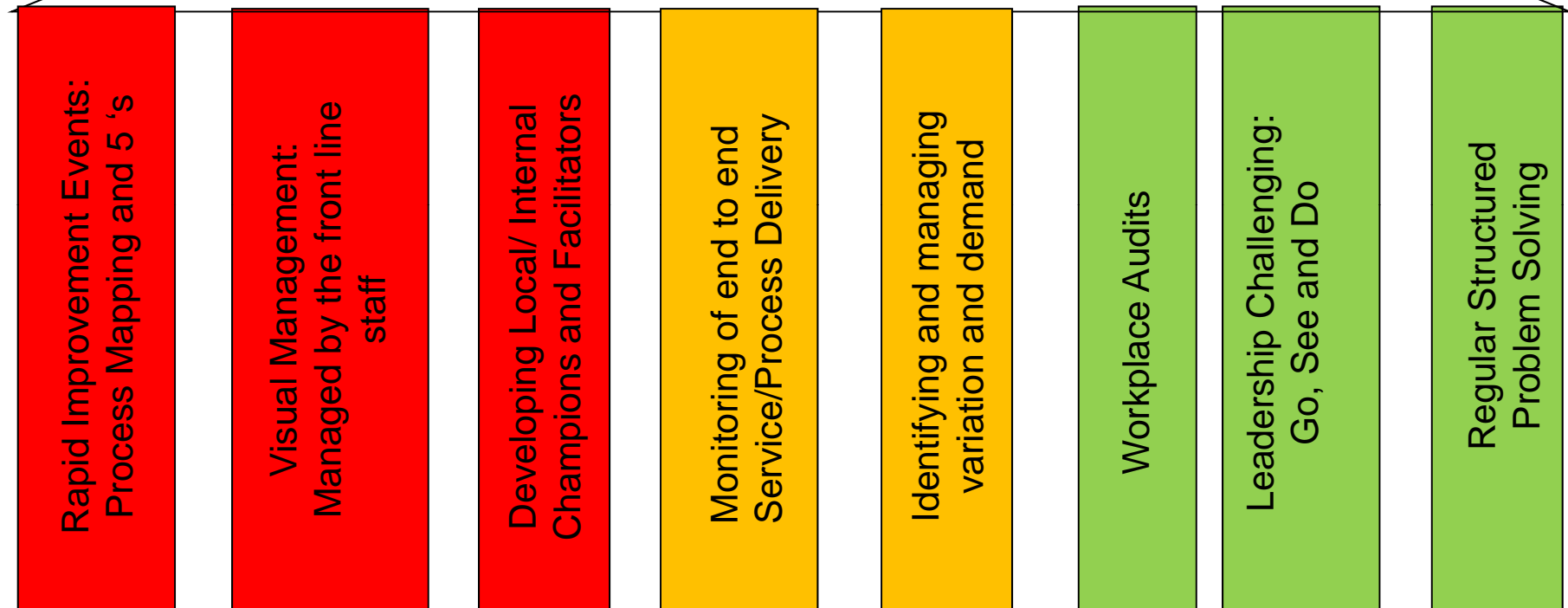


# House of Lean for Public Services

©Zoe Radnor



**Whole system view**  
**Embedded improvement behaviours**  
**Focused stable robust processes**



**Training and Development**

**Steering Group and Project Team**



Engineering and Physical Sciences Research Council

# Case Studies: Lean in Higher Education



Organisation	Project Name and Start	Type of Project	Tools and Techniques	Project Management	Outside Facilitation
Welsh University	Lean University Started September 2006	University Wide with input from Business School academics	RIWs Process Mapping Value Stream Mapping 5Ys Fishbone Diagrams Visual Management TIBs	Dedicated central University team leading and running the project	No
Nottingham Business School	Lean @ NBS Started 2008	Business School led with input into central University processes	A3s Visual Management Value Stream Mapping Root Cause Analysis Fishbone Diagrams	Dean led project Business School Executive oversees project with budget allocation Add on to existing job	Yes – external academic acting as consultant.
South Coast Business School	CLeanUp	Business School with some discussion into central University admin processes	RIWs	No dedicated team or budget Two individuals running Lean and RIWs Add on to existing job	No
Midland Business School	Operational Excellence Started November 2007	Business School led with some input into central University processes	RIWs Process Mapping	Project Steering Group oversees project with budget allocation Add on to existing job	Yes – external organisation initially undertook RIWs and trained internal facilitators.

# Foundation: Training and Development



## NBS:

- ‘Blanket training’ approach for all 250 staff in Lean techniques. NBS is trying to enable every member of staff to work in a Lean environment.
- Three day training programme in mixed groups consisting of academic, administration and clerical.
- *“If staff are trained, they become more familiar with Lean and are more willing to become integrated with it”*

## Wales University:

- Lean Skills for Leaders Programme for middle and senior managers.
- To equip managers with the ability to apply Lean thinking and to give them the skills to do continuous improvement work.
- *“We need key skilled managers and key senior admin staff with good Lean knowledge and understanding to help ...keep the momentum of Lean going.”*

# Building Blocks: Organisational Readiness

## Senior Management Commitment:

- Lean at NBS is being led by the Dean.
- This involves initial set up for the programme, specifying the training required for staff, reviewing the projects on a weekly basis (A3) and setting a direction to the rest of the school that this is how business is done at NBS ('unblocking').
- *“To become a Lean school, the top management needs to be on board and drive it. This is not an add-on. Its about getting the entire operation of the school adopt Lean.”*

Link to Strategy: Wales University has a Strategy map.

Communication Strategy: Two of the Universities had an area of their web sites detailing the purpose of Lean, projects and achievements.

# Pillars: Tools and Techniques

3 Business Schools using Rapid Improvement Workshops.

Developing Internal Facilitators: Midland Business School

- To equip its own staff with the skills to be able to lead on improvement work.
- External company X run the RIWs, staff shadowing, followed by training for staff and, then running workshops themselves.
- Staff have volunteered to become facilitators and at the moment there is a waiting list for staff to be trained.
- Lean is still over and beyond the normal duties of staff and is a real commitment.

Process Mapping/ Value Stream Mapping used by all organisations.

Problem Solving tools used by 2 Business Schools.

Sporadic use of visual management in two organisations to make Lean information visual in public areas.



# PUBLICATION PROGRESS BOARD

	Research projects	Working papers				Conference papers				Submitted papers				Published papers	
 Martin Sköld Assistant professor	<ul style="list-style-type: none"> <li>- Research project 1</li> <li>- Research project 2</li> <li>- Research project 3</li> </ul>	 Designed for Learning: A Tale of Two Axes (Thom) Aug-2009 <span style="color: red;">●</span>	 Designed for Learning: A Tale of Two Axes (Thom) Jan-2010 <span style="color: red;">●●●</span>			 Designed for Learning: A Tale of Two Axes (Thom) Dec-2009 <span style="color: yellow;">●●</span>	 Designed for Learning: A Tale of Two Axes (Thom) Apr-2010 <span style="color: yellow;">●●</span>			 Designed for Learning: A Tale of Two Axes (Thom) Jan-2010 <span style="color: green;">●</span>	 Designed for Learning: A Tale of Two Axes (Thom) Mar-2009 <span style="color: green;">●●●</span>			<ul style="list-style-type: none"> <li>- 4 published papers</li> <li>- 1 book chapter</li> <li>- 13 books</li> </ul>	
 Magnus Mähring Associate professor															
 Anders Richtnér Assistant professor															
 Niklas Kälberg PhD Student															
 Martin Sköld Assistant professor															
 Magnus Mähring Associate professor															
 Anders Richtnér Assistant professor															
 Niklas Kälberg PhD Student															

# SEMINAR PROGRESS BOARD

Seminar 1	Seminar 2	Seminar 3	Seminar 4	Seminar 5	Seminar 6	Seminar 7	Seminar 8	Seminar 9	Seminar 10
21 Jan	4 Feb	18 Feb	11 Mar	25 Mar	8 Apr	22 Apr	6 May	20 May	10 Jun
Designed for Learning: A Tale of Two Assn Plans									
Designed for Learning: A Tale of Two Assn Plans									

**Post-seminar  
13.50  
Kaizen-meeting**  
 - Positive outcome  
 - Improvement points

INDIVIDUAL PERFORMANCE			
Attending Seminar	Written feedback	STAR	TOTAL
1	1		2
1	1	1	3
1			1
1	1		2
1	1	1	3
1	1		2
1	1	1	3
1	1		2
1	1		2
1	1		2
1	1		2
1	1		2
1	1		2
1	1		2

CONTRIBUTORS	Presence	Feedback	Presenter / STAR	Presence	Feedback	Presenter / STAR	Presence	Feedback	Presenter / STAR	Presence	Feedback	Presenter / STAR	Presence	Feedback	Presenter / STAR	Presence	Feedback	Presenter / STAR	Presence	Feedback	Presenter / STAR	Presence	Feedback	Presenter / STAR
Mattias Axelsson				●	●																			
Anna Brattström				●	●	★																		
Malin Holm				●	●																			
Niklas Kallberg				●																				
Christer Karlsson				●																				
Ryusuke Kosuge				●	●																			
Christoph Loch				●	●	●																		
Lasse Lychnell				●	●																			
Niklas Modig				●	●																			
Magnus Mähring				●	●	★																		
Pär Mårtensson				●	●																			
Anders Richtné				●	●																			
Jon Rognes				●	●																			
Malin Schmidt				●	●																			
Martin Sköld				●	●																			
Björn Thodenius				●	●																			
Pär Åhlström																								

SEMINAR PERFORMANCE	11	12	3
Positive outcome	<ul style="list-style-type: none"> <li>- Good presentation since the presenter only used 5 slides</li> <li>- Structured feedback in terms of how it was presented</li> <li>- Etc</li> </ul>		
Improvement points	<ul style="list-style-type: none"> <li>- We have to keep the time. Presentation starts 12.10 sharp!!</li> <li>- We shall not interrupt each other during the feedback loop - wait with additional questions!!</li> <li>- Etc!!</li> </ul>		

# Approaches to Lean Implementation

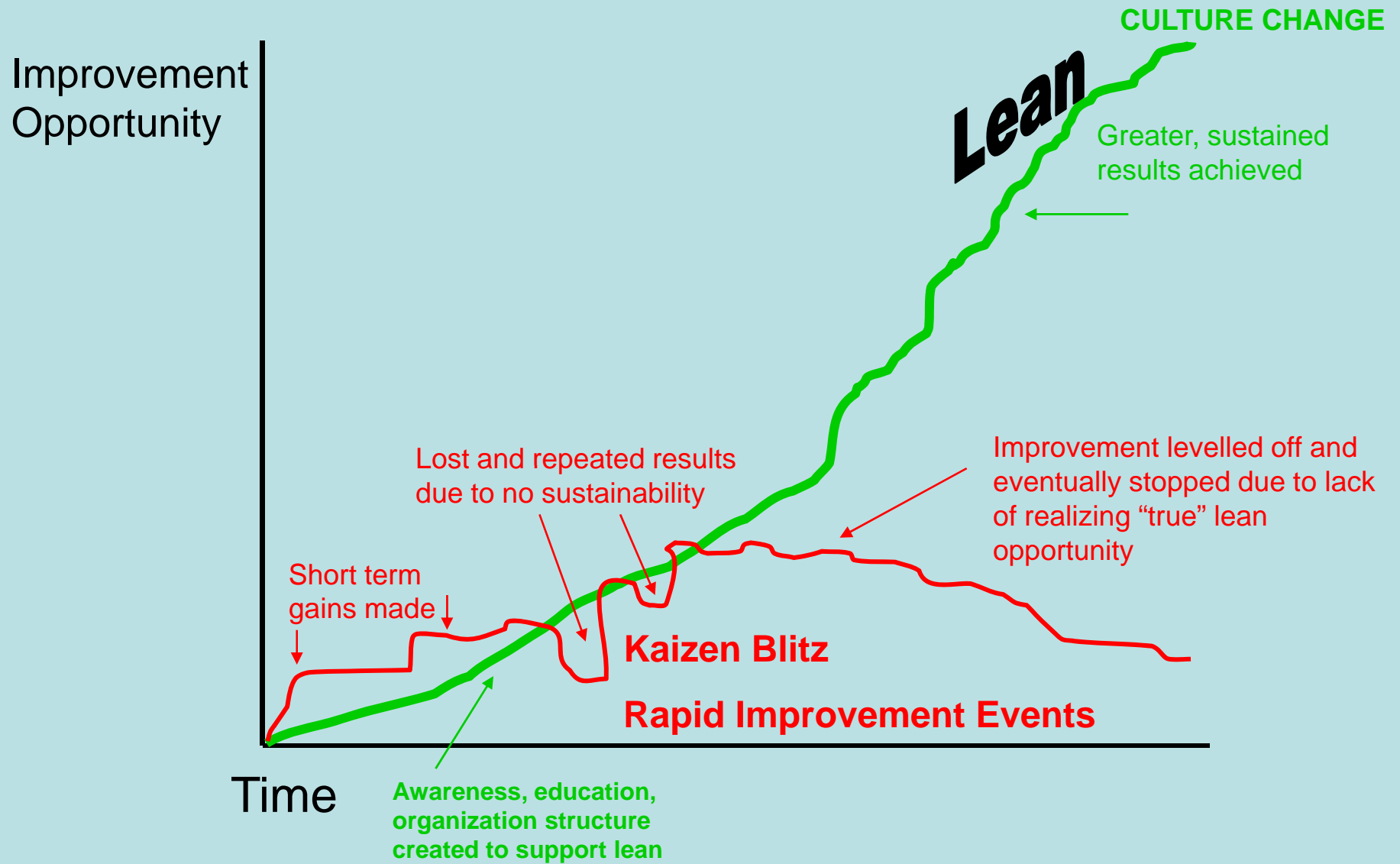
## ‘Rapid Improvement Events/ Workshops (RIE)

- *“RIW provides a way of making improvement manageable by cutting problems into bite-sized chunks. RIW works because it is a process which delivers quick and visible wins.”*
- *1 Business School specific defined projects across departments/ sections*
- *1 Business School projects within departments*

**Full Implementation** is embedding the principles through a broad use of the tools.

- *“Lean gives an opportunity to give suggestions and question why? The days of ‘the way things are done’ have gone”*
- *1 Business School using Lean to develop a way of working*
- *1 University developing a University wide approach*

# RIEs Vs. Full Implementation



# Challenges of Lean in Higher Education



- Joint Working across departments/ sections within a School.
- Working across the School with the University: “*don’t own the complete process*”.
- Academics involvement: See it as admin only.
- People losing their empire or control.
- Not enough Senior Management commitment or key decision makers involved.
- Not enough communication within and across the School, University and Community.
- Lack of sharing information within the Academic community.
- Lack of understanding about Lean: Seen as small improvement/ process projects and not developing a continuous improvement culture.

# Success Factors for Implementing Lean in Public Services



**Organisational culture** where staff develop a sense of ownership of continuous improvement .

**Senior management** are critical in implementing any change programme. Failure to do so, leads to a lack of attendance at events, partial engagement in the change process and a visible reluctance to implement.

**Adequate resources** are necessary for implementation with commitment of a large amount of financial and staff resources to implement Lean.

**Clear and effective communication** is important for the successful implementation of Lean. Need to communicate messages to staff across all sites, disseminate success stories and facilitate the transfer of knowledge within and between departments/sections/sites.

**Organisational readiness** implies being realistic about the timescales; helping staff to understand the impact of Lean; understanding capacity and demand; and having a process and customer view.

'If you always do  
what you always did  
you'll always get what  
you always got'