wbs
WARWICK BUSINESS SCHOOL
THE UNIVERSITY OF WARWICK

For the Change Makers

Process IMPROVEMENT (3)

Agenda

LEAN asynchronous

SIX SIGMA asynchronous

TQM asynchronous

BPR asynchronous

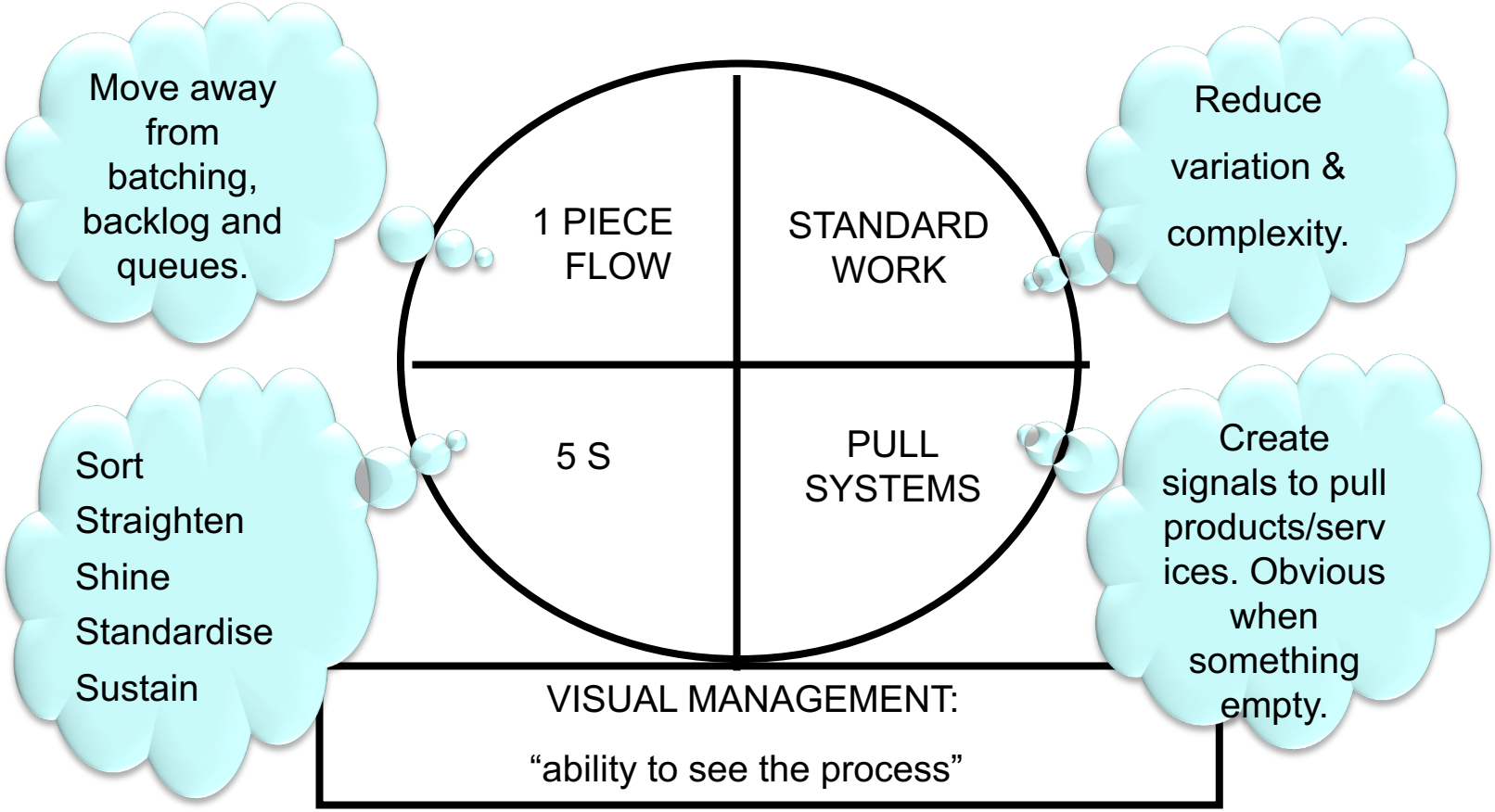
Recap of Process Improvement methods

Comparison of PI methods

Breakthrough versus continuous improvement

Lean Operations

Basic Lean Principles

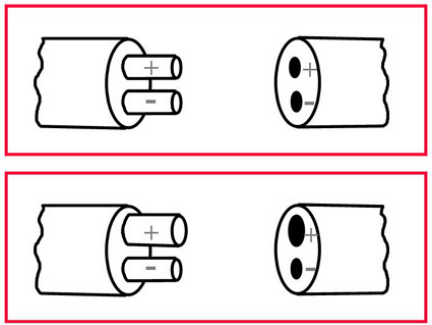


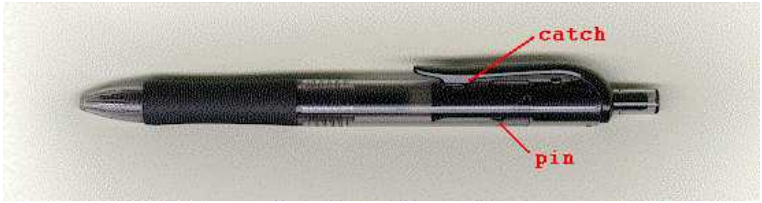
Ann Schenk, 2011

Class Exercise

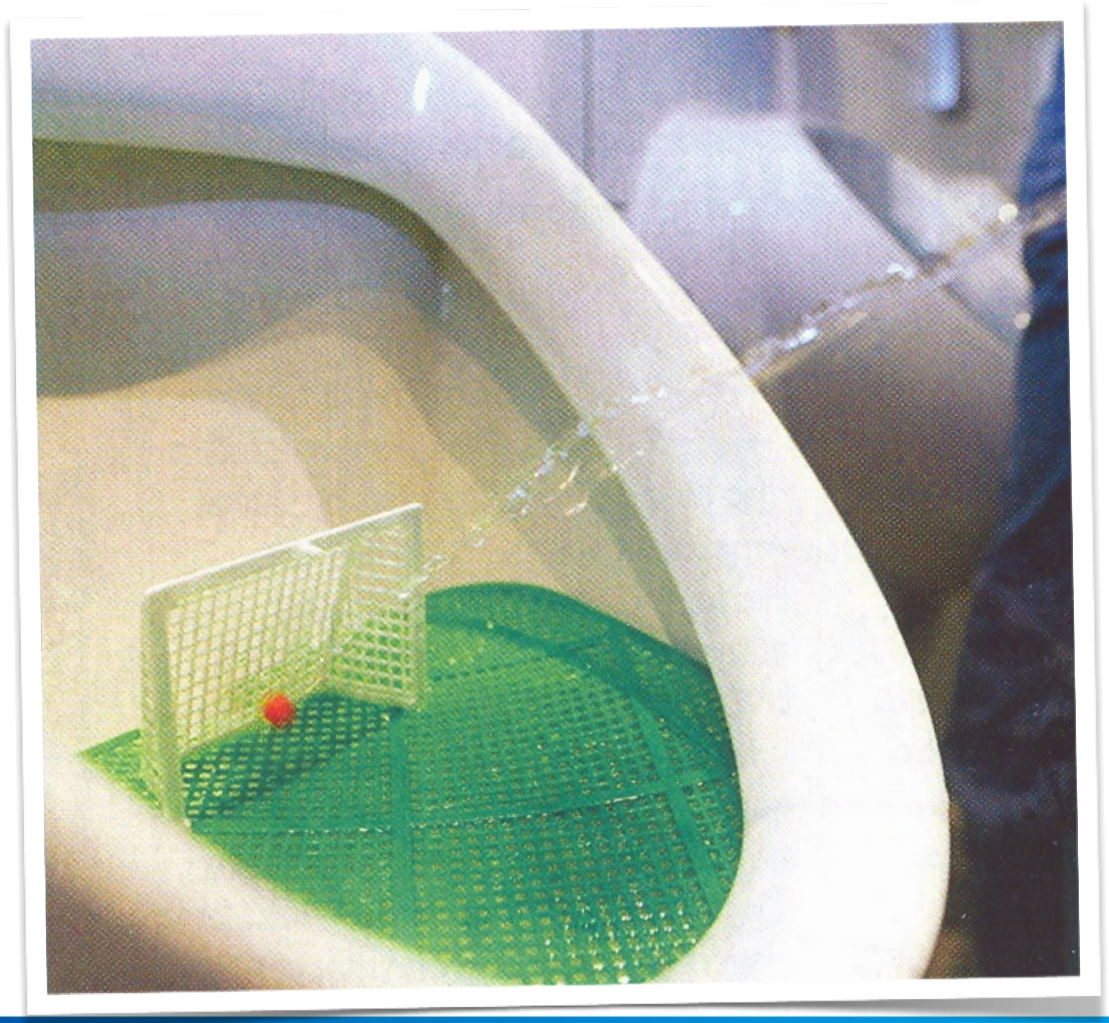
Visual Prompts

Poka Yoke: Mistake-proofing





How do you make this process failsafe?

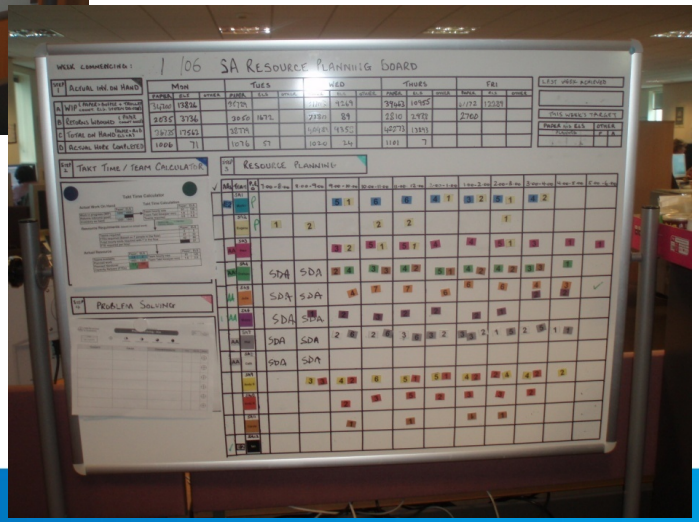


Visual Management

Team Board

Team Communications Hub

Resource Planning



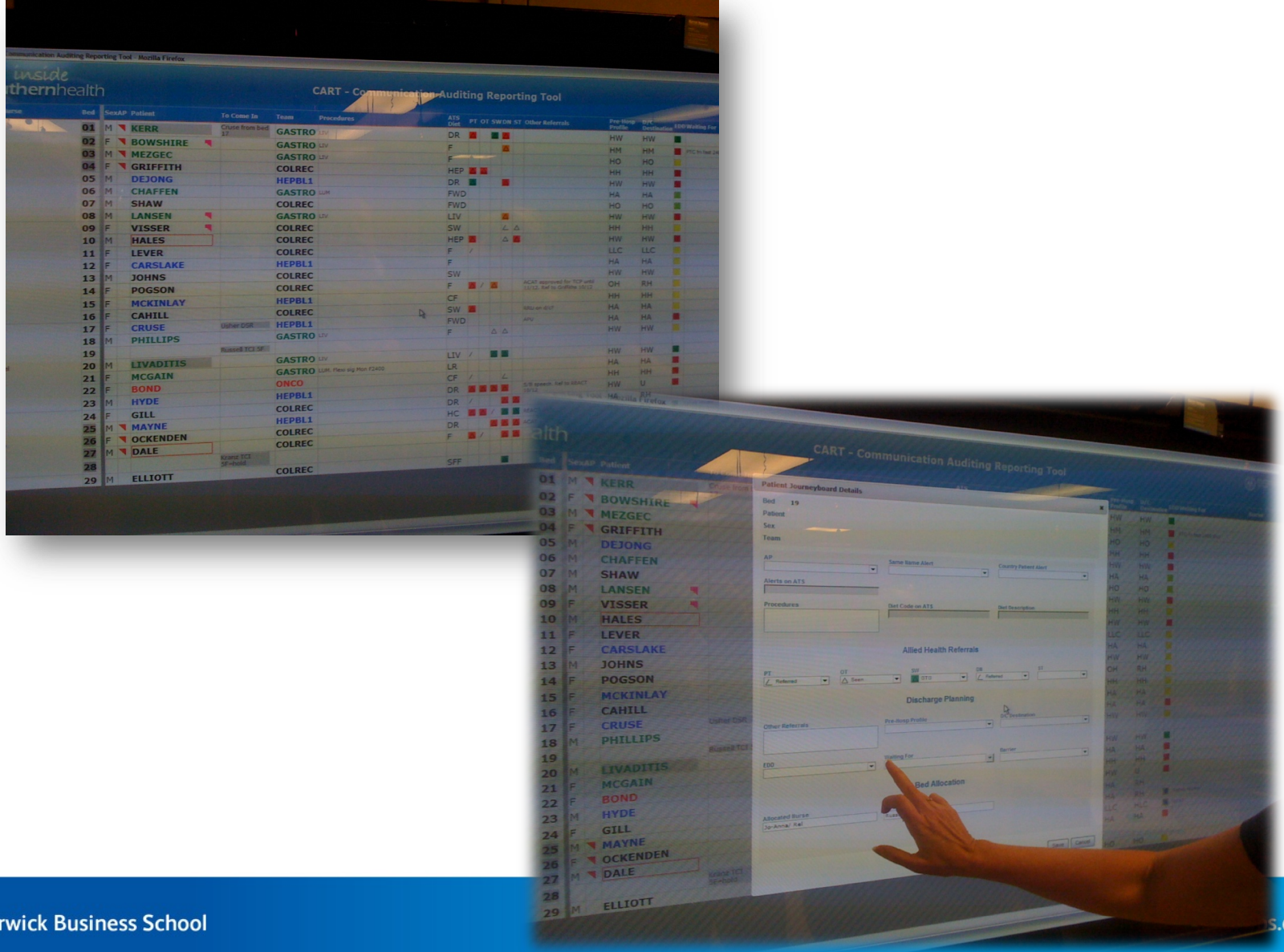

CART - Communication Auditing Reporting Tool
Patient Journeyboard Details
Allied Health Referrals
Discharge Planning
Bed Allocation


PLATE HOLDERS
LARGE PIPETTES
BODYGUARDS
Powder Free
M
Medium
L
Large
S
Small
XL
VINYL
DISPO-SAFE


WHITE CAPS
WARNING LEVEL
REFILL – NOW
BLUE CAPS
WARNING LEVEL
REFILL – NOW
PUSH IN STOPPERS


DONE
MEDICATION RECONCILATION
WARD 42
WARD 42
WARD 42
NOT Done
NOT Done
DONE
MEDICATION RECONCILATION
MEDICATION RECONCILATION
MEDICATION RECONCILATION
FROM PHARMACY
WD42
RETURN TO PHARMACY
DISCHARGE MEDICATIONS
WD42

Types of waste

7 Types of waste:

1. Overproduction
2. Waiting time (time on hand)
3. Unnecessary transport
4. Process - overprocessing or incorrect processing
5. Inventory
6. Motion - Unnecessary movement
7. Defects

Source: Liker, 2003

Waste Categorization in IT (Wipro)

Waste Category	Examples (Software)
Transport	▪Searching for required information (document, email etc.) ▪Changing requirements, evolving requirements ▪FTP /Copy
Inventory	▪Frequent task switching results in half-baked inventory & loss of context ▪Backlog, Over skill
Motion	▪Customer deliverable going through multiple hands – customer, onsite co-ordinator, offshore team, ▪Frequent travel between locations for reviews ▪Test setup
Waiting	▪Waiting for customer feedback, information, resources ▪Waiting for completion of predecessor tasks, clarification on requirements ▪Delayed Reviews

Waste Category	Examples (Software)
Over-production	▪Duplicate test cases ▪ Extra features ▪ Unused features
Over-processing	▪Redundant reviews, Irrelevant training, Duplicate builds ▪Obsolete test cases ▪Duplicate test cases ▪ Unnecessary meetings ▪For every code drop, every engineer initiates ftp & does a build
Defects & Rework	▪Defects ▪ Rework ▪ Poor documentation ▪ Incomplete documentation ▪Efforts spent in tracing the test setup (Other members disturb the setups to fill the equipment shortage in their setups)

Benefits of standardization?

Benefits of standardization

- Stabilizes the work conditions (‘Basic Stability’ – see Balle & Regnier, 2007)
  - Allow for easier judgment regarding “normal” versus “abnormal” situations
  - Increases the level of safety
  - Enables cost reduction – faster with less variation and less defects
  - Stabilises operating time (cycle time)
  - Helps maintain and improve quality

Criticism of Lean Process Improvement ?

Criticism of Lean Process Improvement ?

- One size fits all solutions
- Top down rather than bottom up problem solving
- Application of lean tools/techniques without understanding the philosophy and culture
- Too much standardization and people management might result in inhumane working conditions
- Thus might be a paradox rather than panacea if not managed well

Improvement approaches

Compare and contrast

Comparison of process improvement programs

Program	Six Sigma	Lean Production	Theory of Constrains (TOC) Drum Buffer Rope
Key aspects	Reduce variation; remove causes of defects	Reduce waste and increase customer value	Identify and exploit constraints
Application guidelines	1. Define 2. Measure 3. Analyze 4. Improve 5. Control	1. Identify value 2. Identify value stream 3. Flow 4. Pull 5. Perfection	1. Identify constraint 2. Exploit constraint 3. Subordinate process 4. Elevate constraint 5. Repeat cycle

Four broad approaches to managing improvement

Total quality management (TQM) – *CI approach that puts quality at the heart of everything that is done by an operation. Emphasis upon 'total'. Involves everyone.*

Business Process Reengineering (BPR) - *Radical approach to improvement that attempts to redesign operations along customer-focused processes rather than on the traditional functional basis. Top down.*

Lean – *CI approach that emphasises the smooth flow of items synchronised to demand achieved through a complete elimination of waste. Involves everyone.*

Six Sigma - *disciplined methodology of improving every product, process, and transaction. Involves specially trained individuals.*

All these improvement approaches share overlapping sets of elements

Shared elements of process improvement approaches

- A process perspective (all)
- Customer centricity (all)
- Use data to understand processes (all)
- Reduce variation (all)
- Identify and eliminate waste (all)
- Involves everyone (Lean, TQM)
- Emphasis on Flow (Lean)
- Perfection is goal (Lean, Six Sigma, TQM)
- Scientific method and cyclical process (Lean, SS, TQM: PDCA / DMAIC)

Lean	Six Sigma
Specify Value What is important in the eyes of the customer?	**Define** What is important?
Understand Demand What is the type and frequency of the demand?	**Measure** How are we doing?
Flow How will the material and information flow through our process?	**Analyse** What is wrong?
Pull How can we let the customer pull products, rather than pushing products?	**Improve** What needs to be done?
Perfection How can we optimise our processes?	**Control** How do we sustain the improvements?

Lean Sigma – complementary *not* competing

Lean

Comprehensive process surgery

Lean: improves flow in the value stream and eliminates waste

Six Sigma

Microsurgery

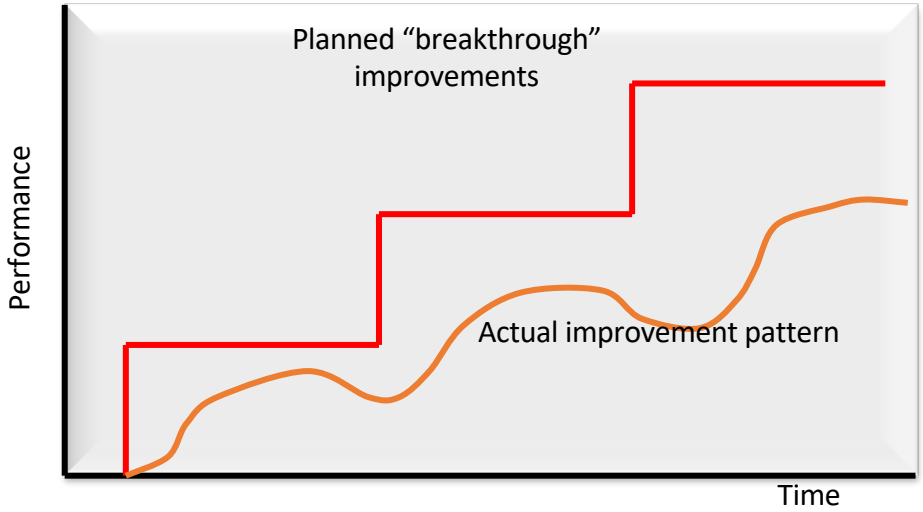
Six Sigma: fine-tuning adjustment to reduce variation

Two profiles of improvement: 'Breakthrough' (or radical) improvement versus continuous (incremental) improvement

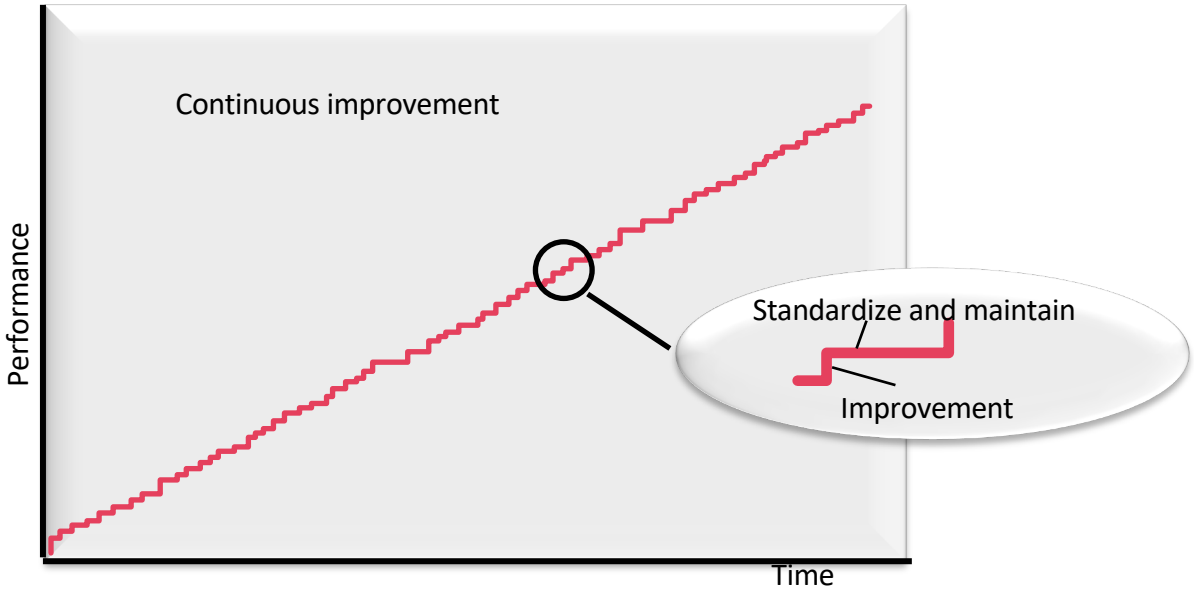
Breakthrough		Continuous
Short-term, dramatic	Effect	Long-term, undramatic
Large steps	Pace	Small steps
Intermittent	Timeframe	Continuous, incremental
Abrupt, volatile	Change	Gradual and consistent
Few champions	Involvement	Everyone
Individual ideas & effort	Approach	Group efforts, systematic
Scrap and rebuild	Mode	Protect and improve
New inventions/theories	Spark	Established know-how
Large investment	Capex	Low investment
Low effort	Maintenance	Large maintenance effort
Technology	Focus	People
Profit	Evaluation	Process

“Breakthrough” improvement

“Breakthrough” improvement, does not always deliver hoped for improvements



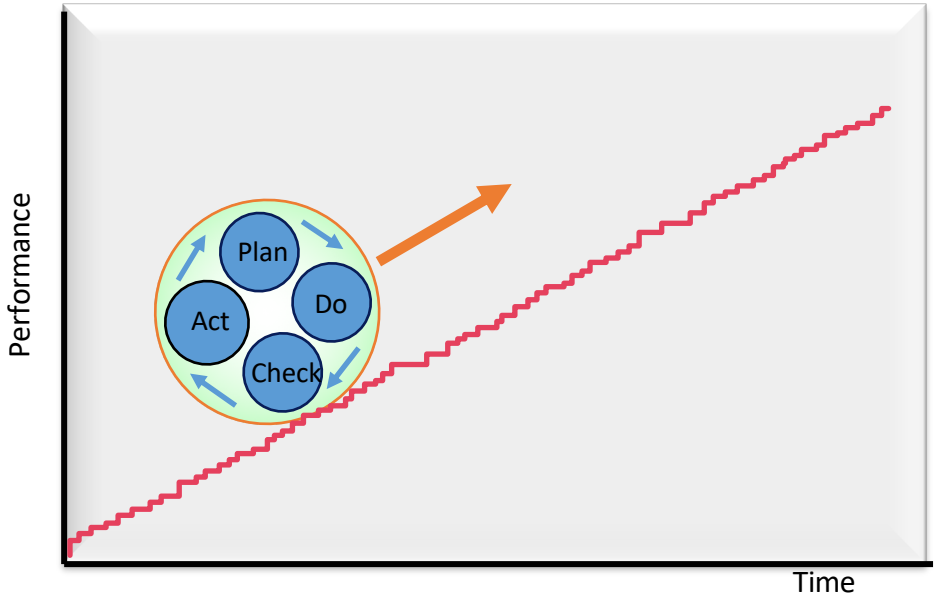
Continuous improvement



Where there is no standard, there can be no kaizen – Taichi Ohno

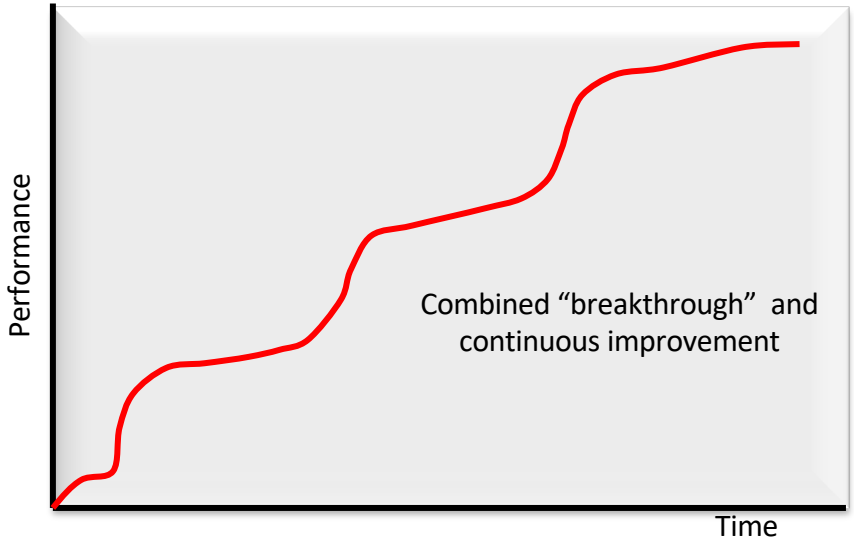
Continuous improvement

PDCA Cycle repeated to create continuous improvement



Combined improvement: the challenge of ambidexterity

Can it be both radical and incremental?



Remember when in doubt always improve in quality: The Sandcone model of improvement

Ferdows, K. & De Meyer, A., Lasting Improvements in Manufacturing Performance: In Search of a New Theory. Journal of Operations Management, 1990, Vol. 9, No. 2, pp 168-184.

Thank you!

Questions?