



## MOE Overview

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*Embed innovation*



General Centre  
of United and  
Global Manufacturing

**Bloomberg  
Business**

# Overview

## ▶ Introduction

- ▶ The Manufacturing Technology Centre (MTC) was set up 4 years ago.
- ▶ We specialise in combining Lean Implementation with access to world leading technologies and processes particularly important to the high volume manufacturing.
- ▶ Adoption of the Lean Values and Behaviours will improve the bottom line of the business

# How the MTC is structured to achieve this

## ASSEMBLY SYSTEMS

Advanced Tooling & Fixturing

Electronics

Intelligent Automation

High Integrity Fabrication

## COMPONENT MANUFACTURING SYSTEMS

Net Shape & Additive

Non-Conventional Machining

## MANUFACTURING DATA SYSTEMS

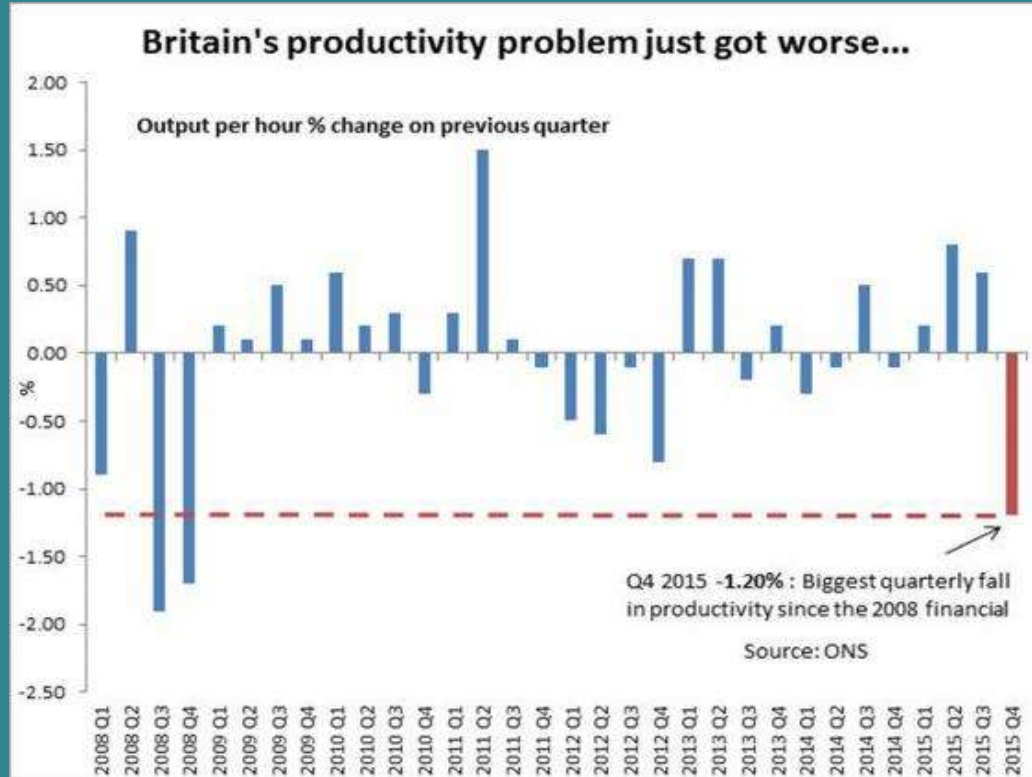
Simulation

Informatics

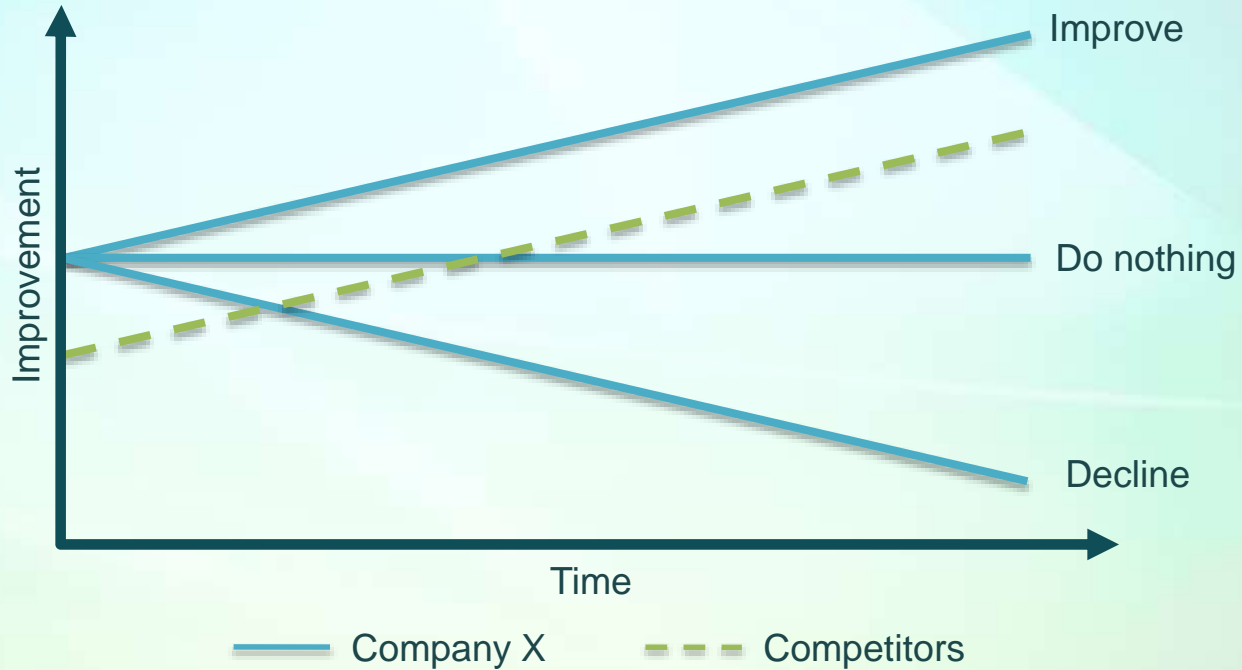
Metrology & NDT

Manufacturing Operational Efficiency

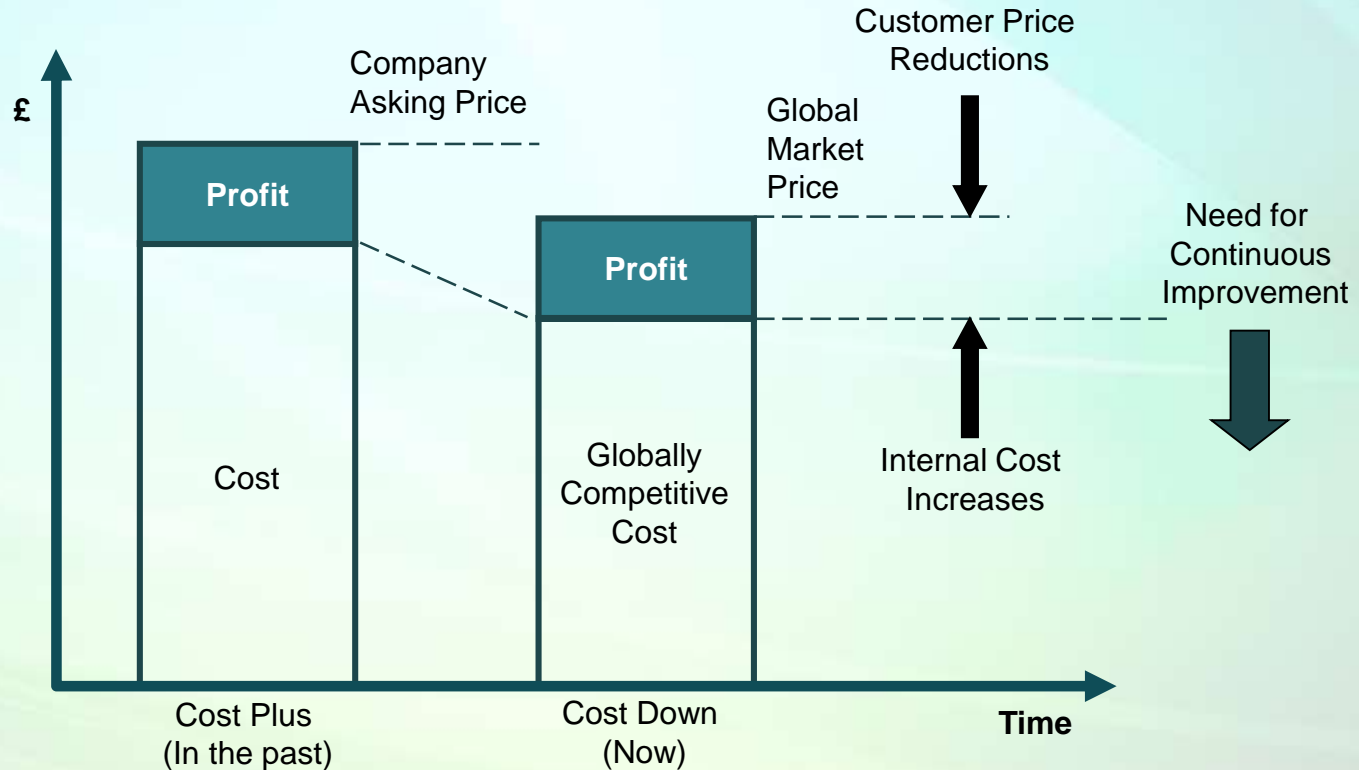
# Overview



# Your competition will improve. Will you?



# NEED FOR CONTINUOUS IMPROVEMENT



# Why Implement Lean?

The financial equation has changed :  
In the past,

$$\text{PRICE} = \text{Costs} + \text{Profit}$$

This allowed companies to avoid focussing on cost reduction and still maintain margin.

In an evermore competitive market place,

$$\text{PROFIT} = \text{Price} - \text{Costs}$$

Therefore to remain financially profitable and competitive companies must focus on the reduction of waste-costs within their processes.



## Our Approach

Our specialists are not only experts in the deployment of LEAN tools they fully understand the LEAN Values & Behaviours which are the key to successful Lean implementation.

We focus on “bottom line” improvement by focussing on,

- ▶ **Quality** Better “Right First Time”
- ▶ **Cost** Elimination of waste, Line Balancing, Improved OEE, Lower Working Capital
- ▶ **Delivery** Increased Delivery Schedule Adherence and Process Stability(including variability reduction)

# Company issues that need addressing

(in addition to improved QCD)

- ▶ **Cash Flow**  
( Sales are Vanity, Profit is Sanity, Cash is the only Reality)
- ▶ **Working Capital deployed**
- ▶ **Stock Turns**
- ▶ **Logistics**
- ▶ **Utilisation of People and Machines (OEE)**
- ▶ **Total Productive Maintenance (TPM)**
- ▶ **Single Minute Exchange of Dies (SMED)**
- ▶ **Skills – the right people in the right job**

# 'Mind-set' Values and Behaviours

## ▶ **Lean Values**

- Work in a standardised and safe way
- Customer first
- Continuously eliminate waste
- Level out our activities across the available time
- Always look to long term

## ▶ **Lean Behaviours**

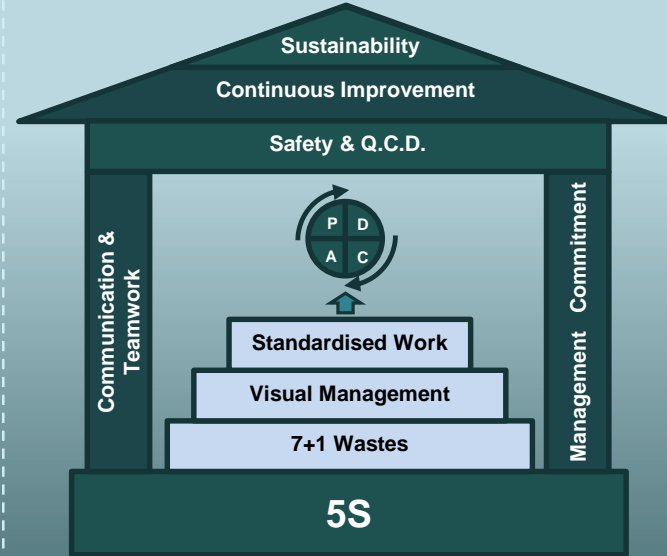
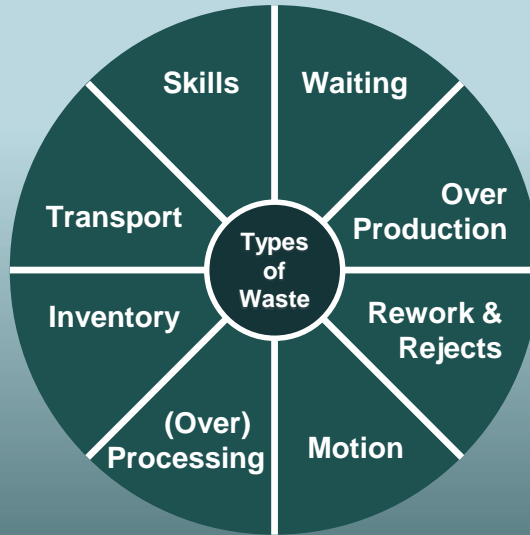
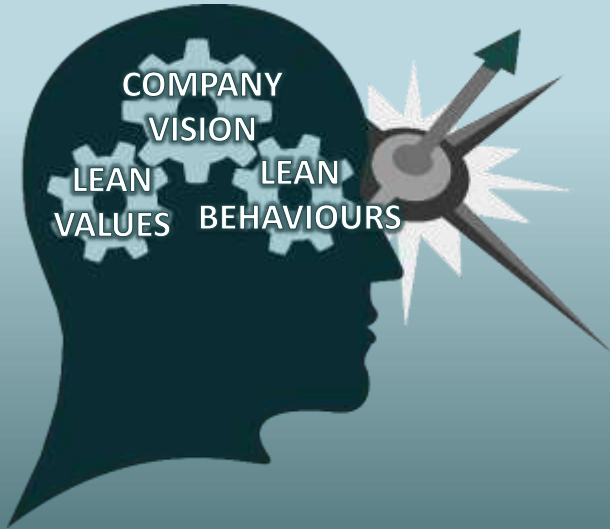
- Go, Look & See
- Challenge the status quo
- Respect for the individual
- Work as a team
- Kaizen

# Linkage between Values, Behaviours, Waste and the Lean Tool kit

Agree

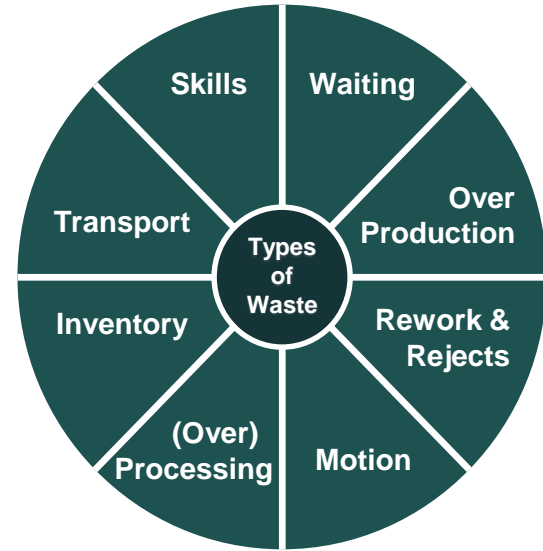
Identify

Use



	<b>TRADITIONAL WESTERN</b>	<b>TOYOTA</b>
What is the problem?	Result of someone messing up	Deviation from standard
What is the cause?	Individual (5 Whos)	System (5 Whys)
Who is responsible?	Person who makes mistake	Management
What should individual who makes mistake do?	Solve problem on own if possible	Call attention to problem for assistance and to avoid the problem in the future
Assumptions about People	They will not accept blame unless forced to	They will feel empowered if they get positive support for solving problems
Problem solving skills	Some have it, some don't	It can be must be taught

Waste is any activity, material or process that does not add value to the product from the Customer's point of view



## A Manifold for Rolls Royce cars:



# Waste Identification (non-manufacturing)

**Waiting**

Waiting for reports to be run at beginning of the day

**Over Production**

Multiple codes used for parts

**Rework / Rejects**

Not enough or corrupted information on e-trackers

**Motion**

Extra clicks / keystrokes, going between systems

**Processing (Over)**

Very few standardised processes

**Inventory**

E-mails waiting to be read

**Transportation**

Moving people between sites

**Skills**

Training, no Skills Audit, under-utilised talent



# Case Study : Carrying out a line-walk

## The Agenda, setting the scene

▶ Dear CEO / MD,

Please find below a suggested agenda for our meeting,

09.00 Introduction, meet the team.

09.45 Shop floor data gathering supported by internal team (as required)

11.45 Data Analysis / Lunch

13.30 Report compilation / Data clarification

14.30 Feedback

It would be great if you can be at the Introduction and feedback sessions. You are of course welcome to be at any of the other parts of the process, as your time availability dictates.

## Observations:

- ▶ The company is achieving significant **profitable** growth, current **T/O £10M**
- ▶ High level of **process capability**.
- ▶ **Good 'can do' culture**.
- ▶ Although some issues are being worked on, further significant growth will impact profitability unless areas such as **Inventory** and **New Product Introduction** are addressed.
- ▶ Space is becoming an issue, **new premises acquired**

# Key Issues:

## Inventory

Analyse year end stock take numbers. **£1.2M** tied up in inventory (Stock turns 1.8 – 2.0).  
Look at,

- ▶ Inventory that will be transferred to a new facility comes on-line.
- ▶ Lead times, volume price breaks.
- ▶ Redundant inventory levels, **how much is being written off ?**
- ▶ Design solutions : **Standardisation of parts.**

# Key Issues:

## New Product Introduction

Three new products being introduced in the near future. Recent experience of product introduced (5 Month delay to market) shows the need for,

- ▶ Dedicated owner for introducing new products / upgrades into manufacturing.
- ▶ Create a flow process map and **standardise** to ensure robustness.

## Key Issues:

Manufacturing is carried out in a good systematic way with very good 'Right First Time' metrics. This suggests that the processes are capable.

- ▶ SAGE 200 has its limitations – Accountancy package with a Mfg module bolted on
- ▶ Look at 'paperless' manufacturing approach (once **standardisation** has taken place).
- ▶ Need for improved Visual Management / 5S condition.

# Key Issues:

## PCB Manufacture

- ▶ Look at re-layout of production facility (Space permitting).
- ▶ With continued growth of manufacturing **Automatic Optical Inspection** starts to become essential for preventing defective parts getting into the field. Relevant systems could be looked at, evaluated and recommendations made.

# The Value Proposition:

Support for the following activities,

- ▶ Inventory reduction (a reduction in the order of 20% should be achievable saving @ **£250K**).
- ▶ New Product Introduction robustness (the reputational cost of late NPI is difficult to calculate, however un-planned management time must be @**£50K** per annum).
- ▶ Achieving a 'paperless' approach to Manufacturing. This would need more effective Product Data Management - Multiple part number entries must be a significant cost with opportunities for errors.
- ▶ Improving PCB Manufacture and Automated Optical inspection – Increased volumes will make this a necessity.

## Next Steps:

- ▶ Generate Proposal for support work with access to SME REACH\* funding
- ▶ Visit to MTC to look at particularly the PCB facility – Support from the Advanced Tooling and Fixturing theme
- ▶ Sign proposal agreement !

**WOW ! Factor**



\*Can be used to match the company contribution in days of support



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