

# **5 ‘s’ Housekeeping**

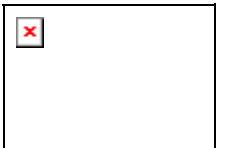


# The 5 's' Approach

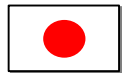
**5 S is a systematic approach to housekeeping and workplace organisation.**

## It aims to :-

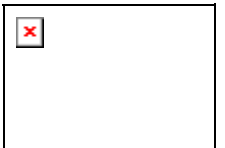
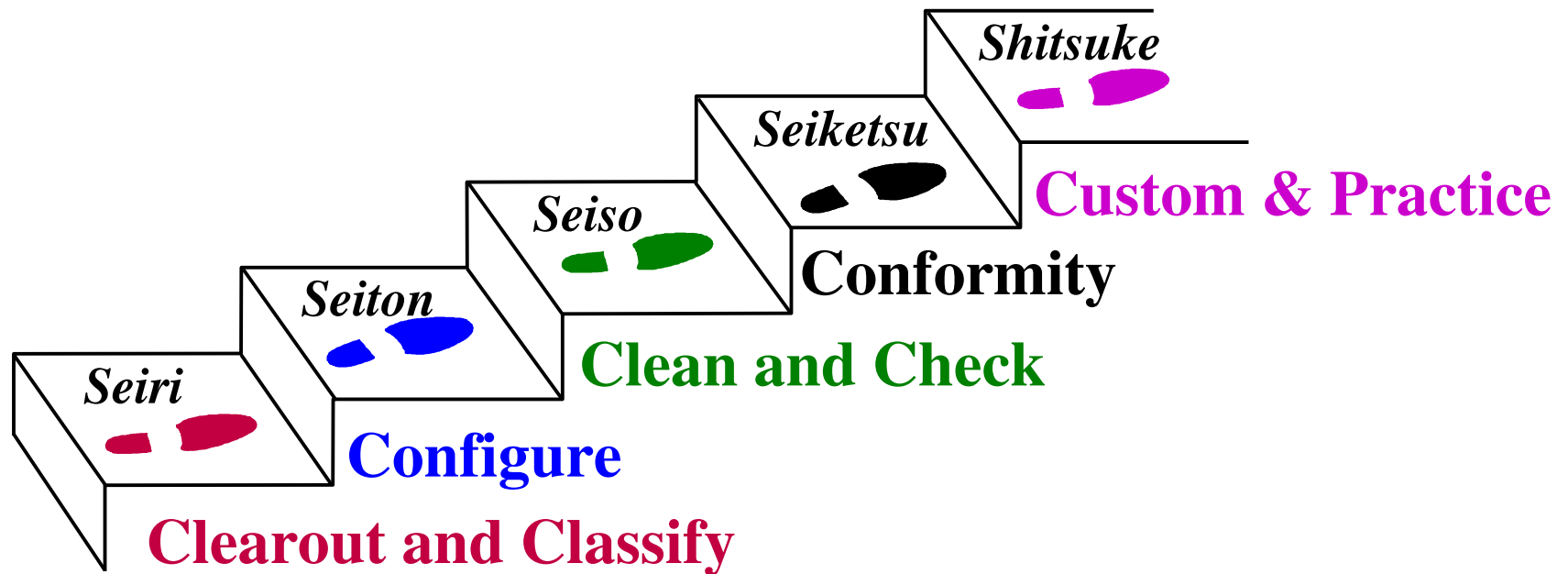
- ↗ Remove waste from the workplace.
- ↗ Provide reduction in non value added activities.
- ↗ Provide an environment where continuous improvement is embraced.
- ↗ Improve safety.
- ↗ Increase quality.



## What are the 5 's'



The 's' are five Japanese words, which provide the steps to improvement.



## Step 1 (Seiri)

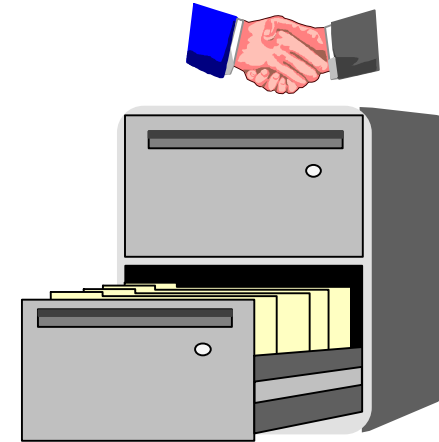
### Clearout and Classify

#### Identify

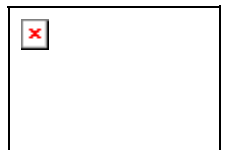
- ↗ what you **KNOW** you definitely need all the time.
- ↗ what you **KNOW** you definitely need occasionally.
- ↗ what you **THINK** you might need in the future.
- ↗ what you **THINK** you no longer need.

Never **Assume**. Ensure that everyone is in agreement.

Check to make sure that what you think becomes what you **KNOW**.



*Remember! Redundant items cost money to store - If you don't need it don't keep it!*



## Step 2 (Seiton)

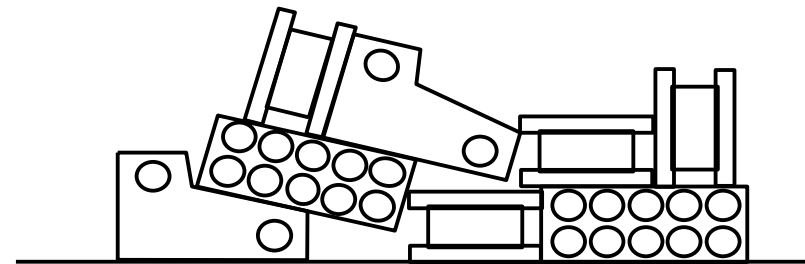
### Configure

Put Everything in its correct place

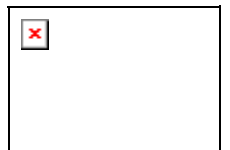
- ↗ Organise storage for all equipment i.e. what, where, how many.
- ↗ Frequency of use defines location relative to point of use.
- ↗ If its used frequently keep it close / low frequency store offline.
- ↗ Shop organisation must have clear walkways, work areas, rest areas. etc.
- ↗ Consider using different coloured floor areas to highlight walkways, work, storage areas etc.
- ↗ All essentials such as fire extinguishers and safety equipment must be visible and easily accessible.

The place must be

- ↗ Appropriate to usage
- ↗ Well maintained
- ↗ Tools Easily located
- ↗ Tools / locations Clearly identified



*A place for everything and everything in its place*



## Step 3 (Seiso)

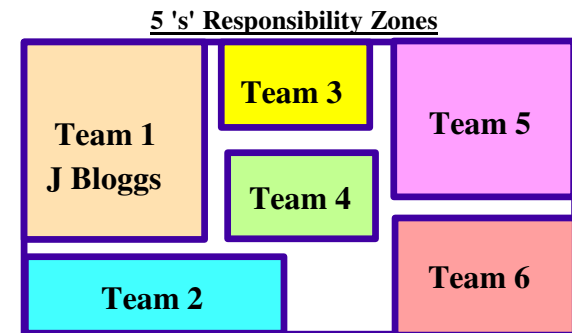
### Clean and Check

Regular cleaning schedules are required

- Create a clean and tidy working environment and maintain it.
- Define responsibility zones for cleaning areas, and clarify roles and responsibilities.
- Develop regular routines for maintaining a clean environment (e.g.. 5min 5S etc).

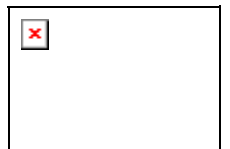
Cleaning must become an activity which is

- Ongoing
- Monitored
- A source of pride
- Seen as a value added contribution



Cleanliness is the basis of quality. Once the workplace is clean it must be maintained.

*Creating a spotless workplace*



## Step 4 (Seiketsu)

### Conformity

#### Good Housekeeping

- ↗ Decide what is classed as an abnormality and make it visible to the operator.
- ↗ Design clear, standard labels for locations, tools, machine conditions and locate them in standard positions.
- ↗ Provide indicators where limits can be exceeded.
- ↗ Draw position markers in places where items are removed and returned.

#### Agree and set :

- ↗ Standards of cleanliness.
- ↗ Procedures for maintaining standards.
- ↗ Standard marking and labelling of all items.
- ↗ Standard methods for indicating limits, identifying locations, etc.

*The system must be controlled and maintained.*



## Step 5 (Shitsuke)

### Custom and Practice

Adhere to the system rules

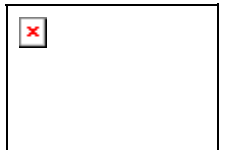
- ↗ Develop and maintain habits through training and discipline. (At all times)
- ↗ Use visual rather than verbal communication to train for new procedures.
- ↗ Involve everyone in the development of standard documentation.(e.g.. Checksheets etc.)
- ↗ Be conscious of time (3-10min 5S).

It is important to maintain discipline

- ↗ Incorrect practices must be identified.
- ↗ Correct practices have to be taught and demonstrated.
- ↗ Ensure everyone's understanding and agreement.



*Without training and discipline the other steps will fail*

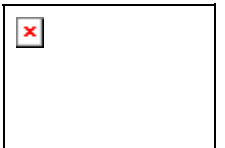




## 5 's'

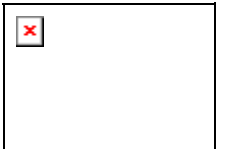
**We all want to work in the best possible environment. Good housekeeping is important as it :**

- 📄 Creates an environment in which even minor abnormalities and mistakes will be obvious
- 📄 Produces an easily managed, safer and more pleasant environment
- 📄 Portrays professionalism and efficiency to others (particularly customers!)  
*It can be expected that the standards displayed in the environment will be reflected in the product*
- 📄 Stimulates efforts to improve productivity through better use of people, space, equipment, time and materials



# **7 Wastes**

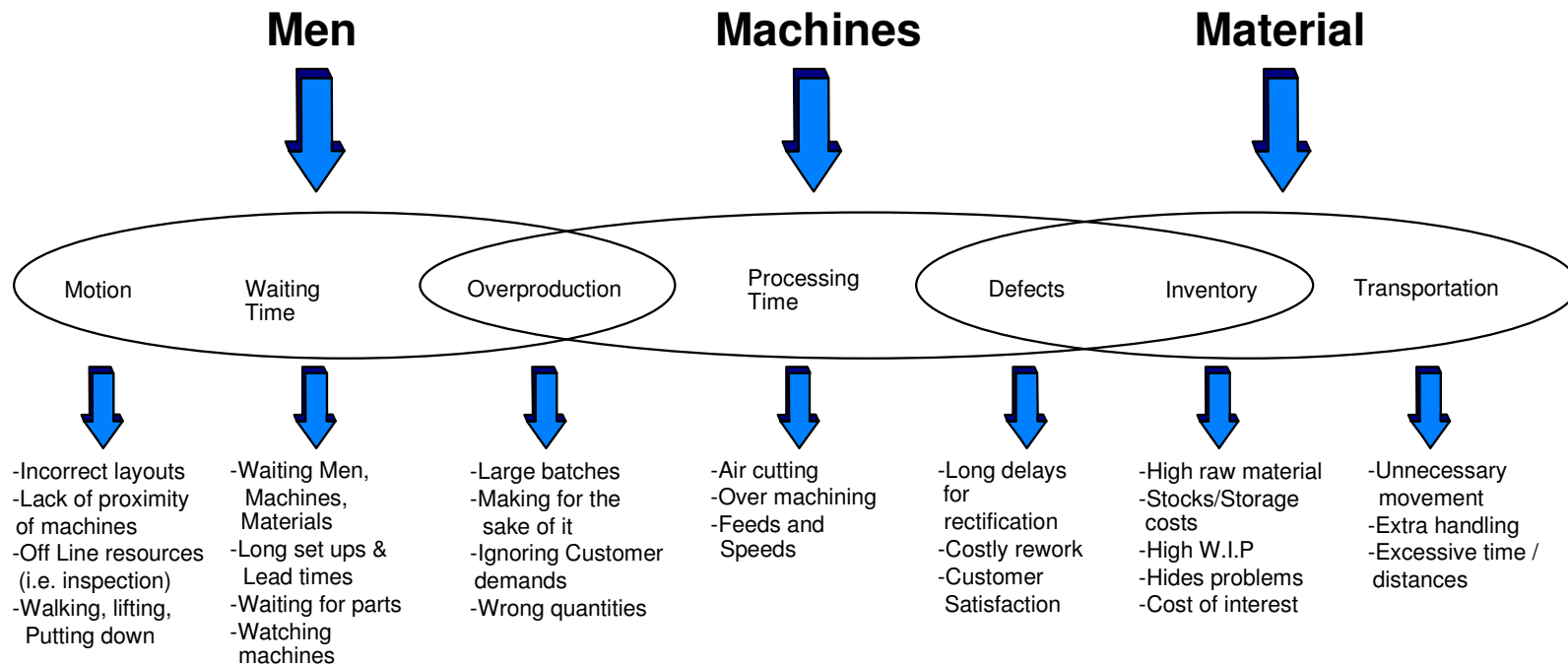
(Waste Elimination)



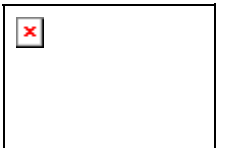
# 7 Wastes

## Definition

"A tool set which promotes a structured approach to the elimination of wasteful elements within the Manufacturing and Office Environment."



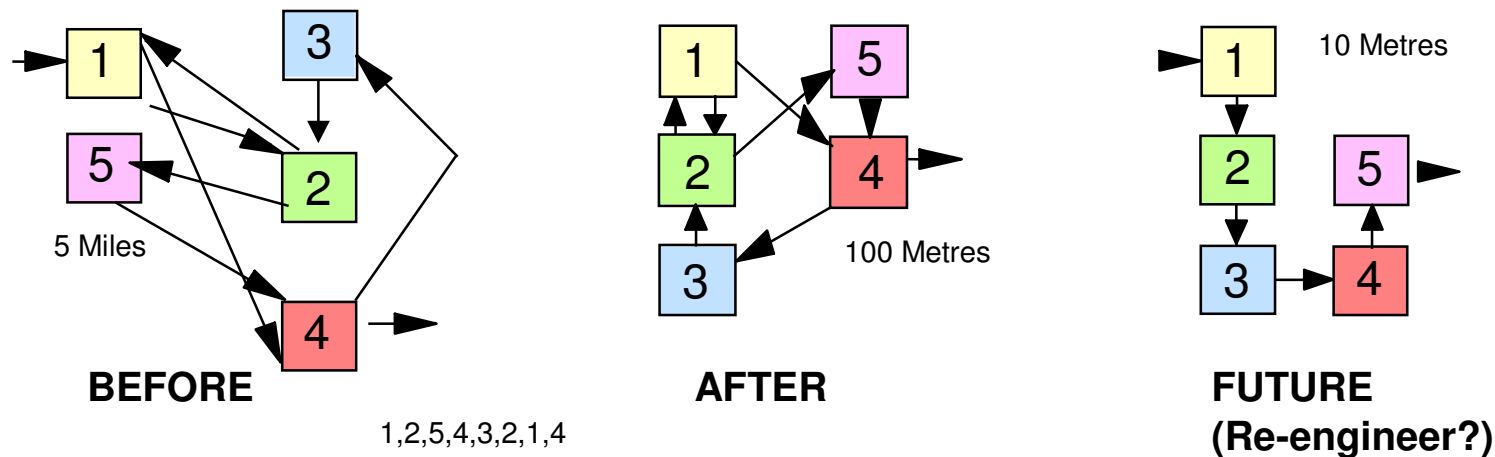
.....Waste does not add value



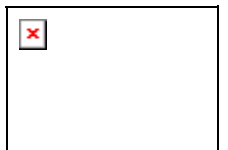
# 7 Wastes

## Waste - Motion / Transportation

- Long travelling distances consume time. This results in long lead times, reduced response to customer demands, transportation damage, lost components and makes it much harder to manage.
- Effort to close couple resources must be applied



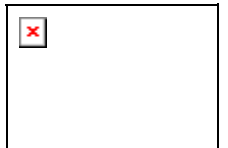
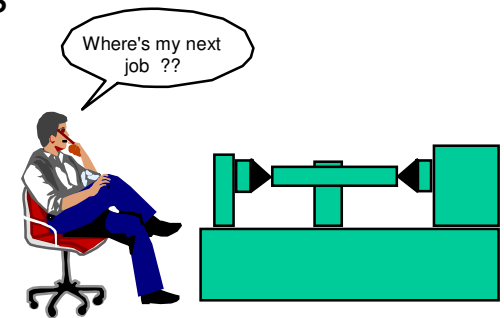
*.....the same principle applies to non-manufacturing areas*



# 7 Wastes

## Waste - Waiting Time

- Waiting or queuing is waste since it does not add value to the product
- Waiting manifests itself in the form of inventory accumulations at process stages. High inventory in turn encourages high product waiting times
- Operator waiting time implies under-utilisation and poor control of workflow
- Waiting results in :-
  - Long lead times
  - Wasted floor space
  - Increased damage
  - Potential obsolescence
  - Misplaced items
  - Demoralised workforce
  - Poor workflow continuity
  - Ineffective use of time
  - Reduced competitiveness
  - Ineffective Production Planning / Control



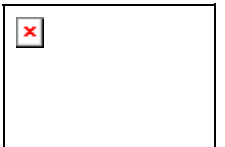
# 7 Wastes

## Waste - Overproduction

### Definition

The production of goods in excess of absolute Customer requirements

- Manufacturing too much, too early or "Just in Case".
- Overproduction discourages a smooth flow of goods or services.
- Takes the focus off what the Customer really wants.
- Leads to excessive Inventory.



# 7 Wastes

## Waste - Processing Time

### Definition

Ensuring processing / manufacturing time is optimised

### Target



To add value to the product with least effort

By improving processing efficiency we ultimately commit less resources to achieve the same customer satisfaction

### Result



Reduced lead-time (reduced cycle time)  
Improved customer response  
Flexibility

### Outcomes



Greater output / productivity  
Reduced defects  
Improved resource utilisation



# 7 Wastes

## Waste - Defects



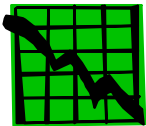
Defects reduce or discourage Customer Satisfaction



Defects have to be rectified

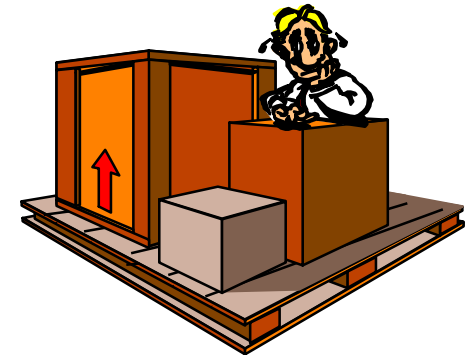


Rectification costs money with regard to time, effort and materials

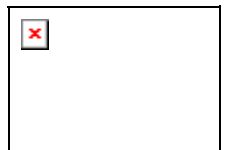


Defects in the field will lose customers

?



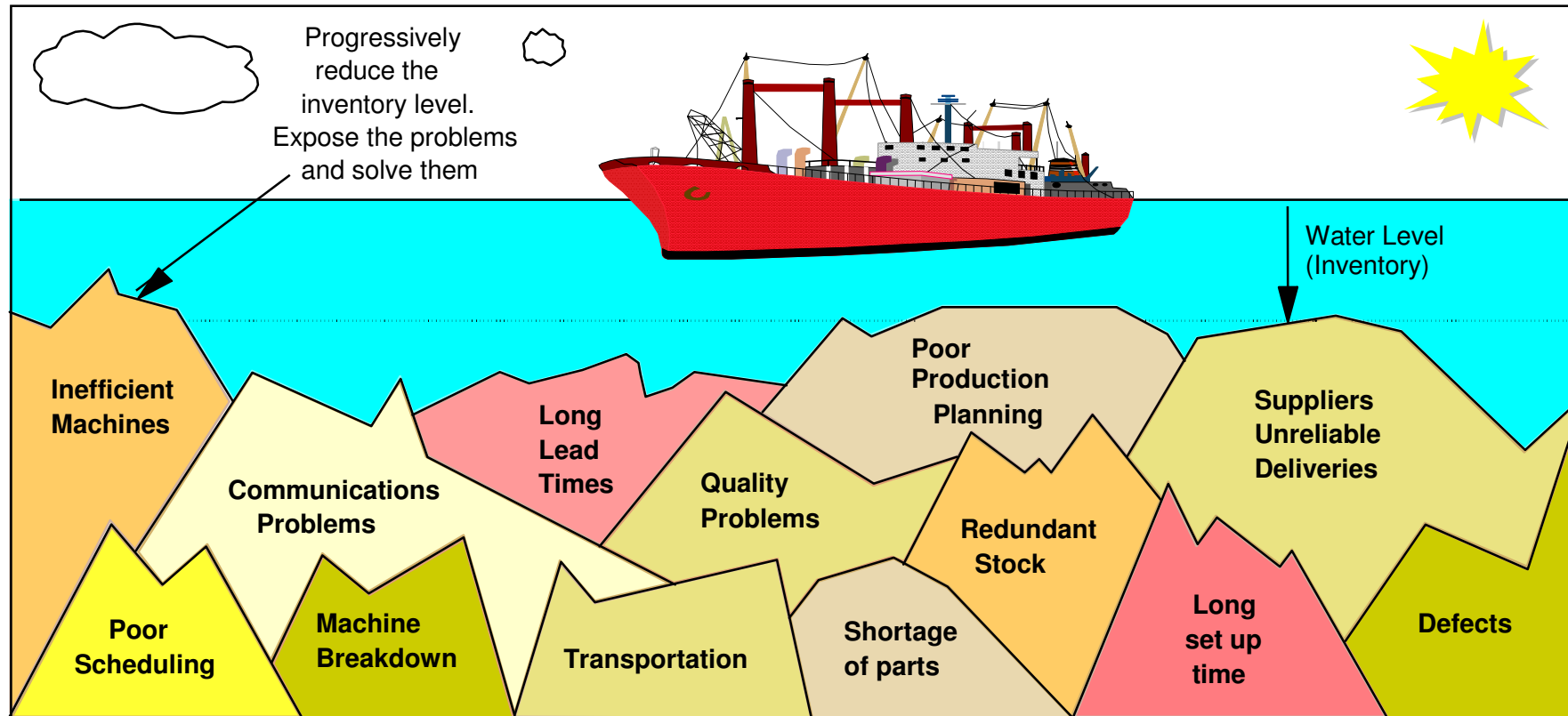
**Right First Time is key**





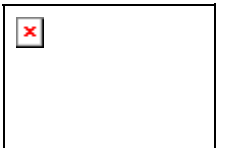
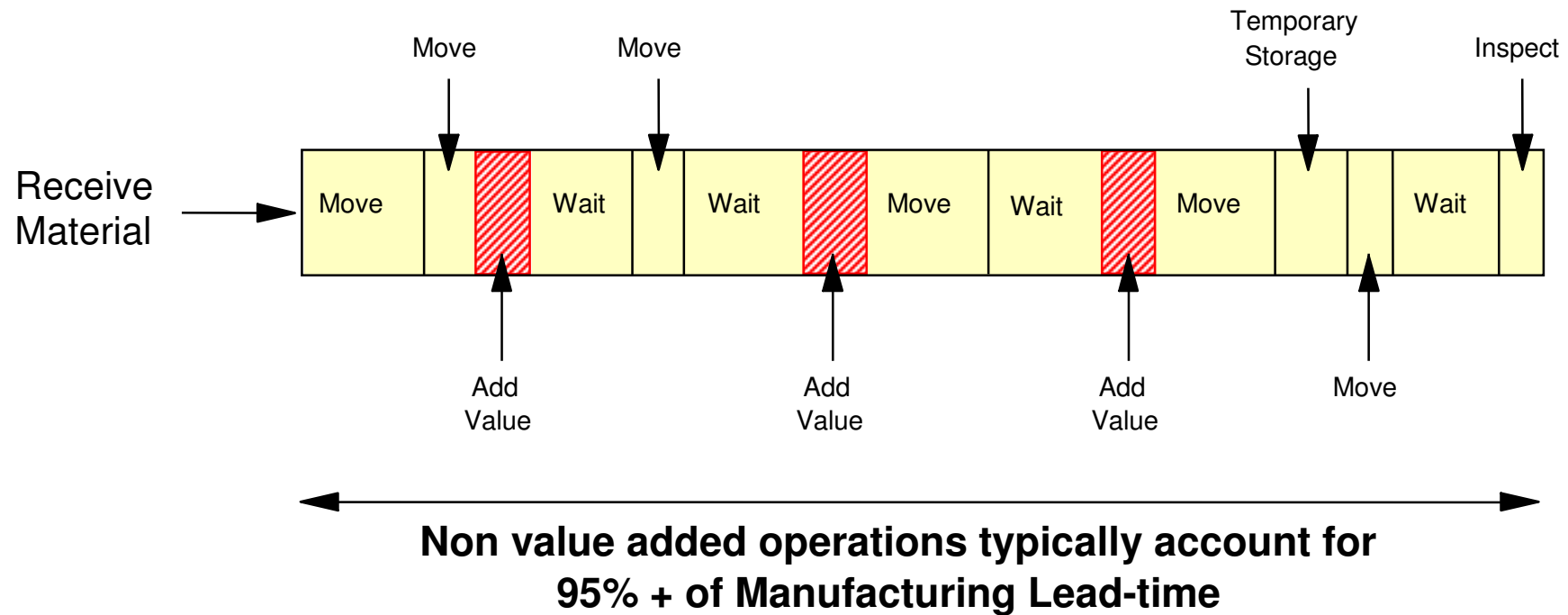
# 7 Wastes

## Inventory Covers Problems (Rock Analogy)

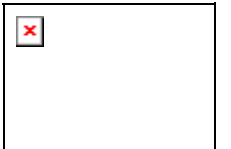


# 7 Wastes

## Typical Elements of Throughput Time :-



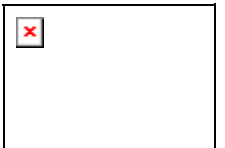
# Kanban



# Kanban

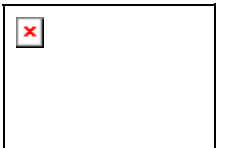
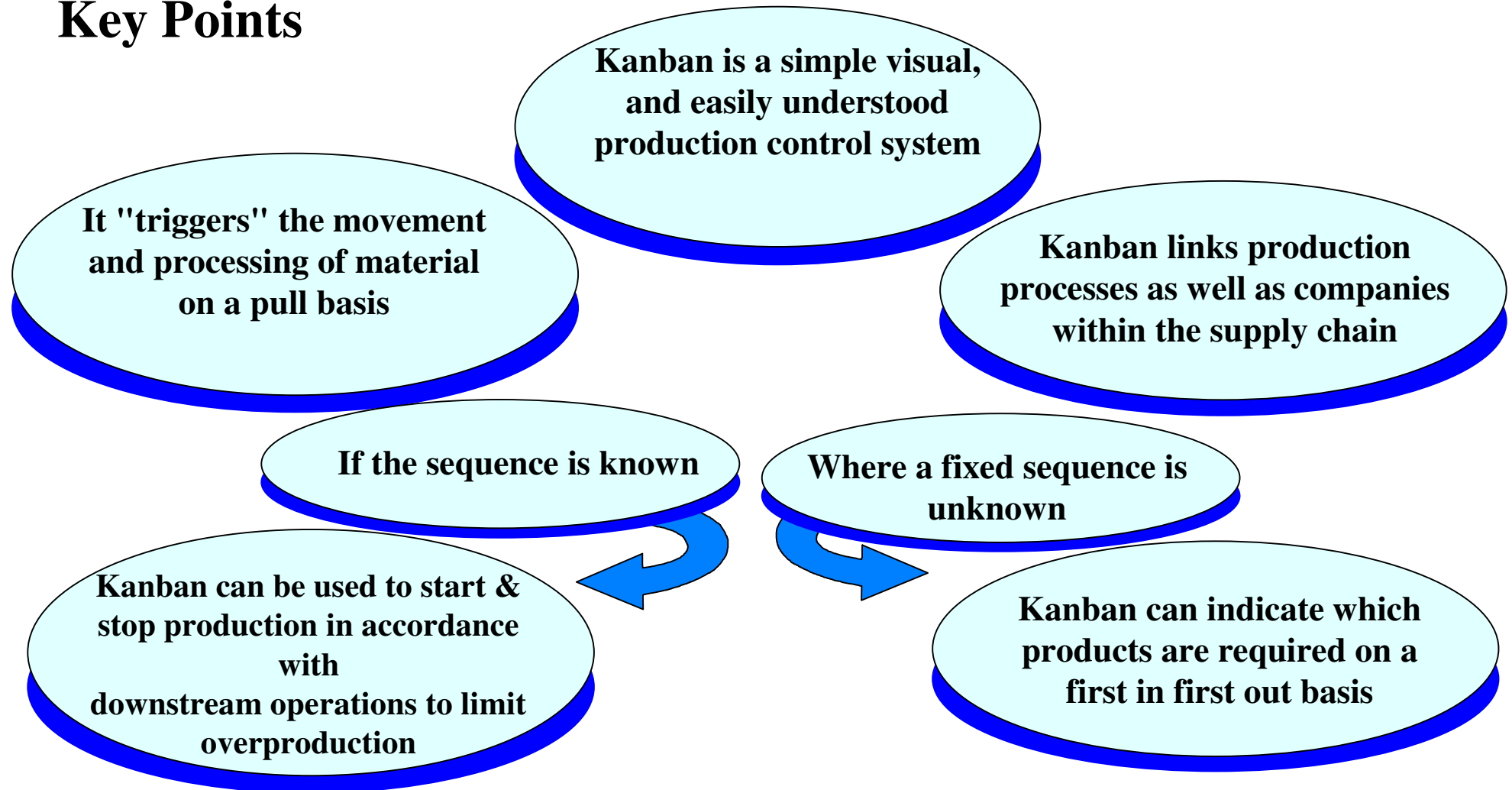
## Definition

**Kanban is the basis of " PULL SCHEDULING" which seeks to ensure that preceding operations only supply or make as required by the succeeding operations.**



# Kanban

## Key Points



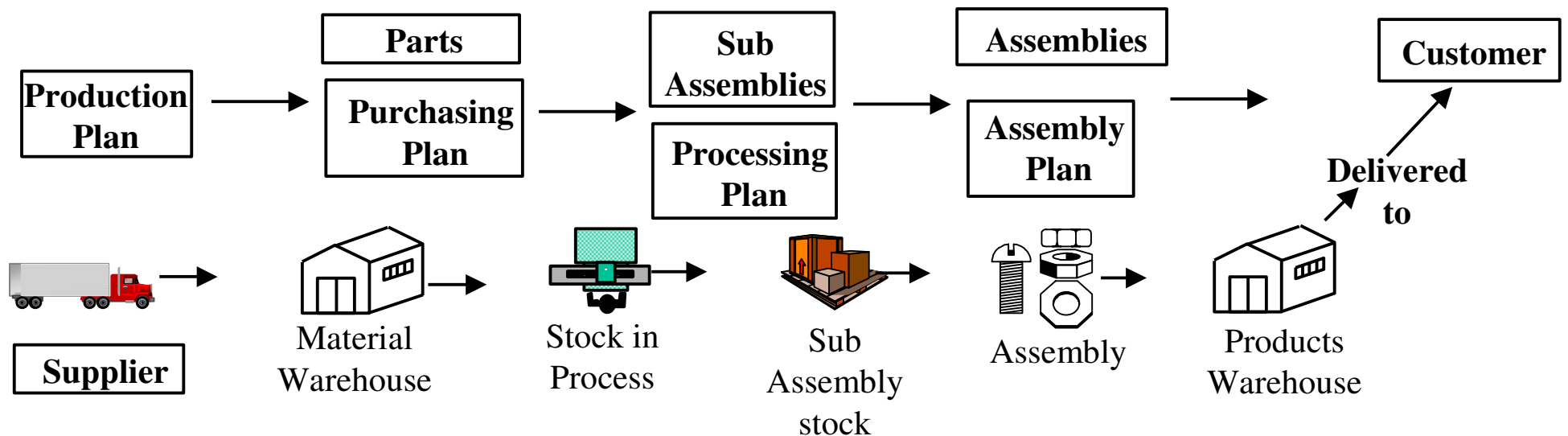
# Kanban

## Differences in Push and Pull systems

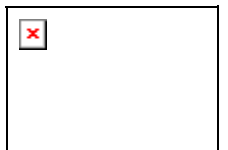
### Pushing Production (traditional Western production system)

This process pushes work along the system

- Flow is controlled by the production plan
- Work is pushed on to work centres, regardless of the level of WIP at each of the work centres
- Batch sizes may not be related to demand



*.... all the plans are based on forecasts*



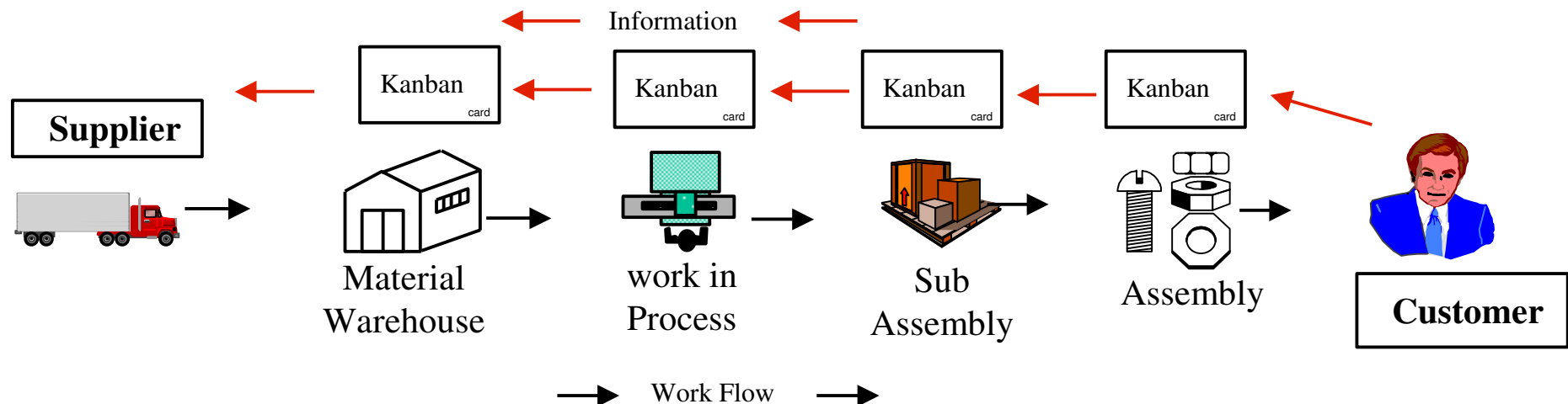
# Kanban

## Differences in Push and Pull systems

### Pulling Production

This process pulls work along the system in line with demand.

- Flow is controlled by customer requirements.
- Kanban authorises upstream processes to re-manufacture parts when they are withdrawn into downstream processes.
- Small batch sizes and smoothing of demand limits WIP.



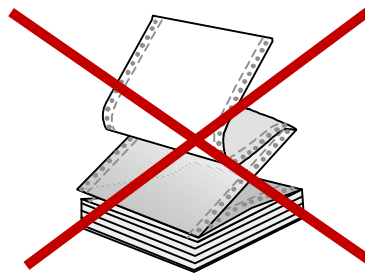
# Kanban

## The Function of Kanban

- **Production control (indicator of when, how many, and what to produce)**
- **Material control (controls the movement of parts and flow of information)**
- **Improvement tool (reduces inventory, reduces lead-time and encourages visual control)**



Focuses on JIT, reducing lead time



Kanban reduces the level of paperwork in the system



Satisfied customer





# Kanban

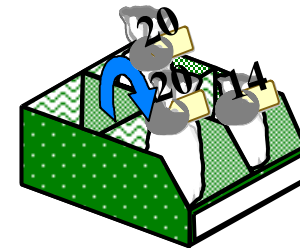
There are several variations of the Kanban System being used at the present time. However one thing they all have in common is that they can be adapted and developed for most types of production systems.

Typical variants of Kanban :-

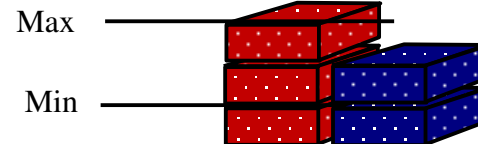
Footprint



2 Bin



Minimum / maximum  
stock levels

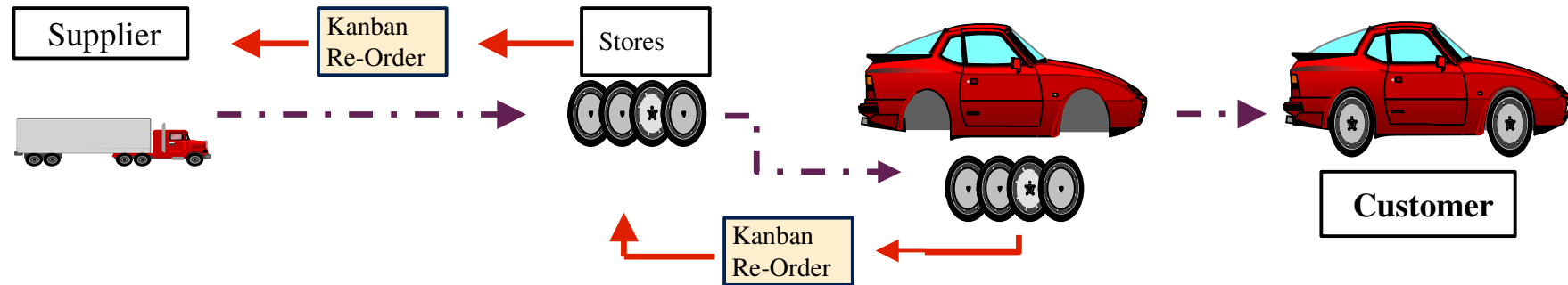


Card System

ACHIEVING MANUFACTURING EXCELLENCE	
<b>KANBAN CARD</b>	
PART DESCRIPTION	
PART NUMBER	
MOVE/PROCESS DETAILS	
SOURCE/LOCATION/OP	
DESTINATION/LOCATION/OP	
BATCH SIZE	CONTAINER
KANBAN CARD NUMBER	



# Kanban



## Benefits of Kanban

- ☞ Synchronisation of supply and demand
- ☞ Totally customer driven demand
- ☞ Optimum inventory
- ☞ Defect detection time reduced
- ☞ Better machine utilisation
- ☞ Reduced or eliminated queues
- ☞ Problem identification leading to resolution
- ☞ Lead time is kept to a minimum
- ☞ Simple and cheap to operate

