IPHA PRODUCTION SEMINAR 2016

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Waste management: A Lean Production Perspective

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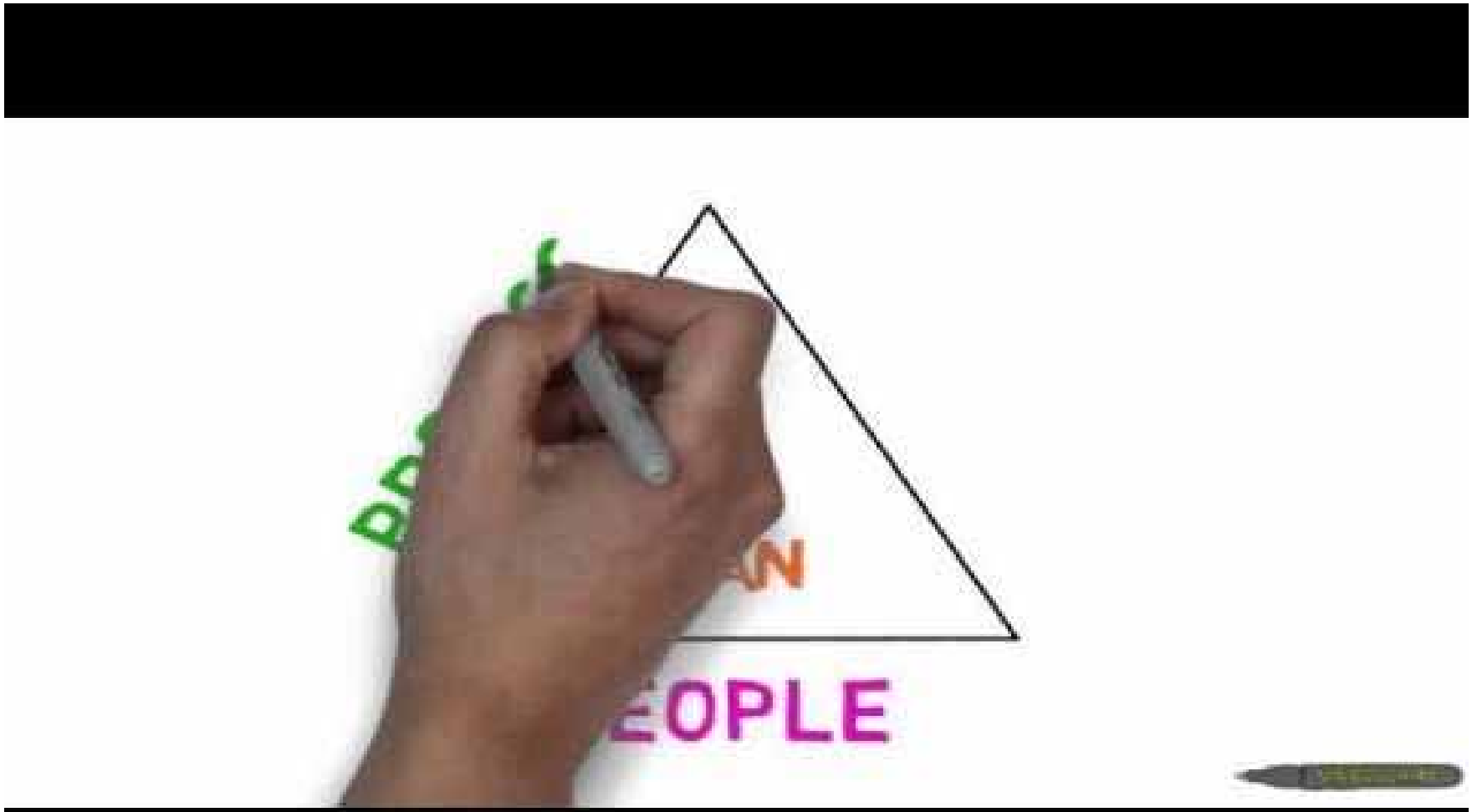
IPHA
INTERNATIONAL PRESTRESSED HOLLOWCORE ASSOCIATION

in cooperation with

Pujol

Introduction- what is lean production?



https://www.youtube.com/watch?feature=player_embedded&v=N3DjSHHC1U4

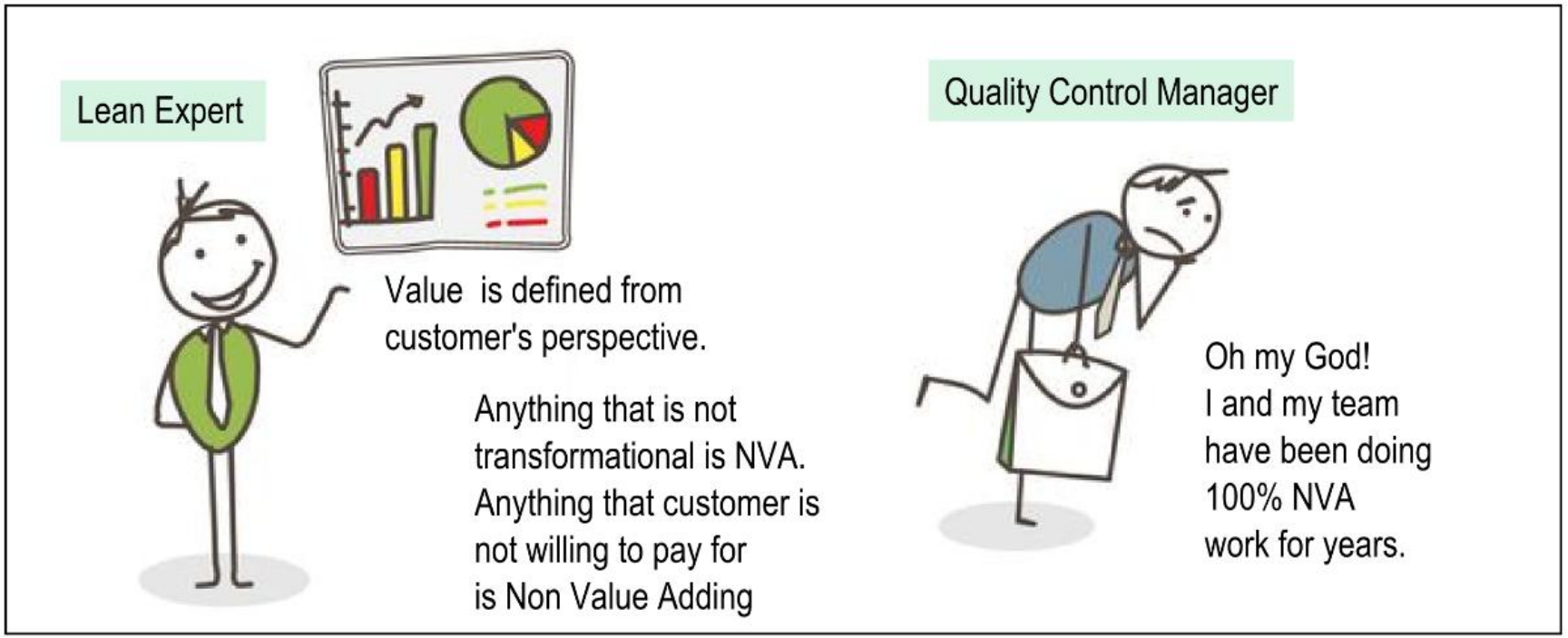
Warning!

Continuous improvement

https://www.youtube.com/watch?feature=player_embedded&v=LOJbM0aXZp0

What is Value

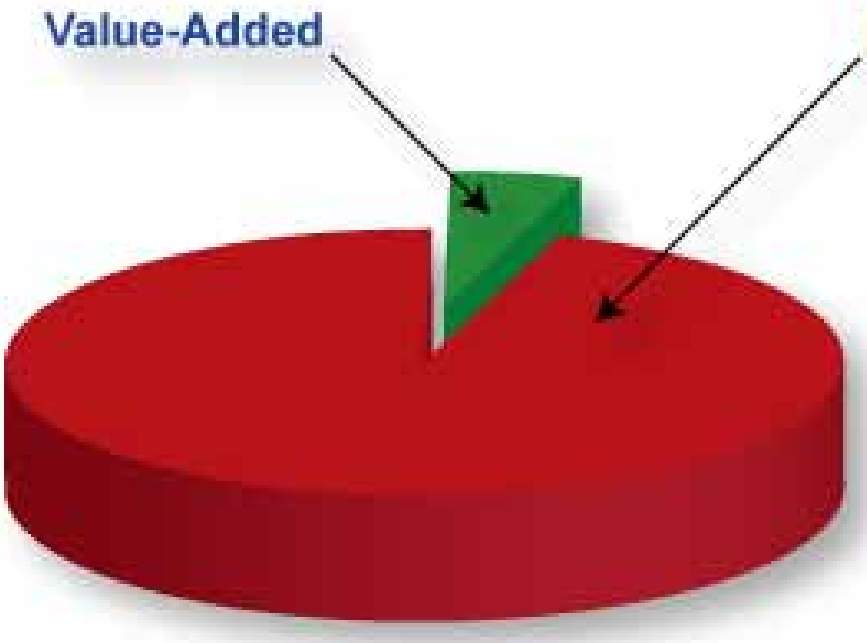
Value-added activities



Non value-added activities – needed activities

Non Value-Added - Not Needed Activities

What is waste

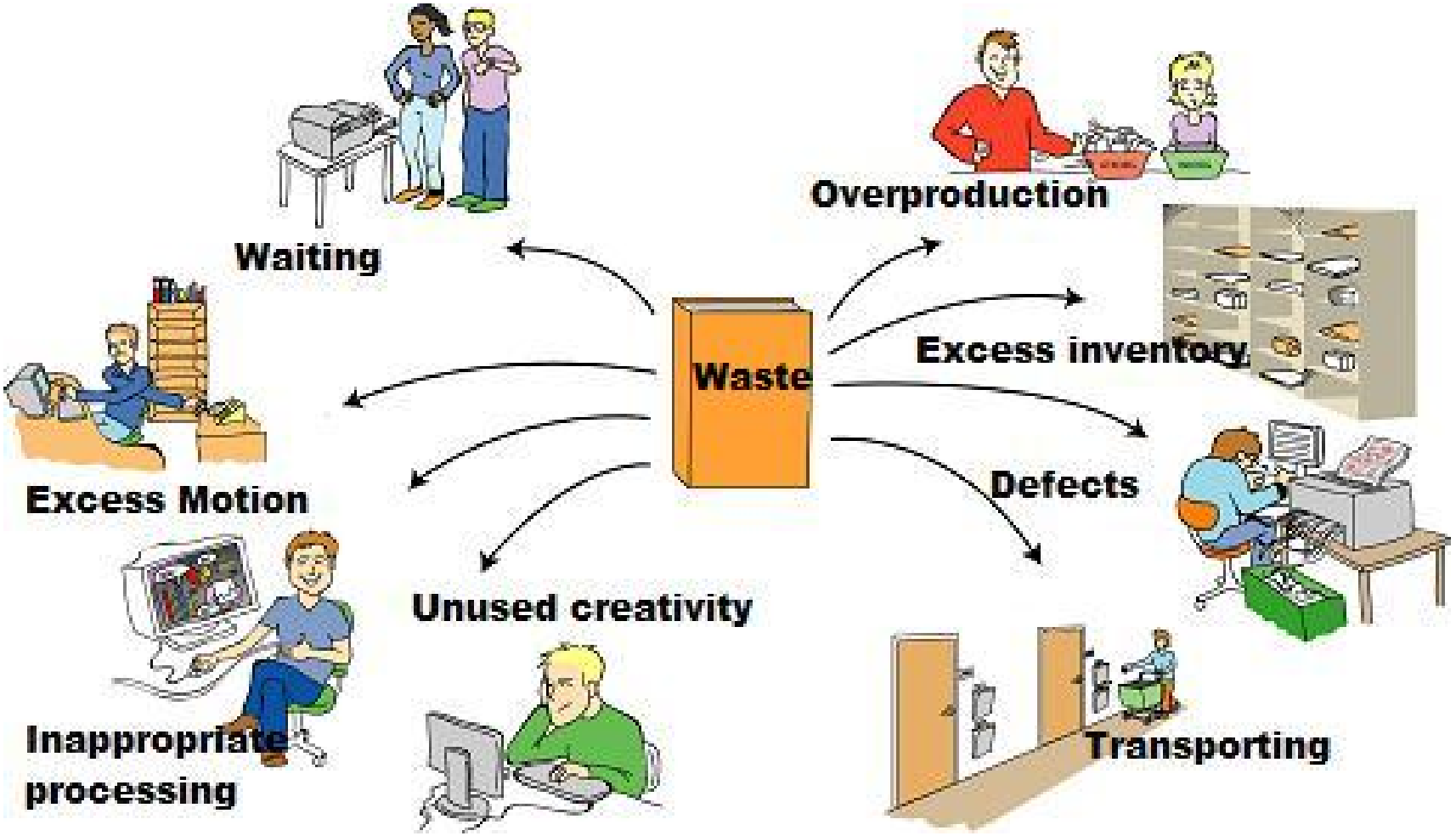


- Overproduction
- Waiting
- Transportation
- Non-Value Added Processing
- Excess Inventory
- Defects
- Excess Motion
- Underutilized People

Resources

Lost opportunity

8 different types of waste



Overproducing

- 1) **Overproducing**- Producing too much of something or producing it before it is required.

Waiting

- 2) **Waiting**-Waiting for anything: people, materials, machines, or information.
  - Examples include:

Extra processing

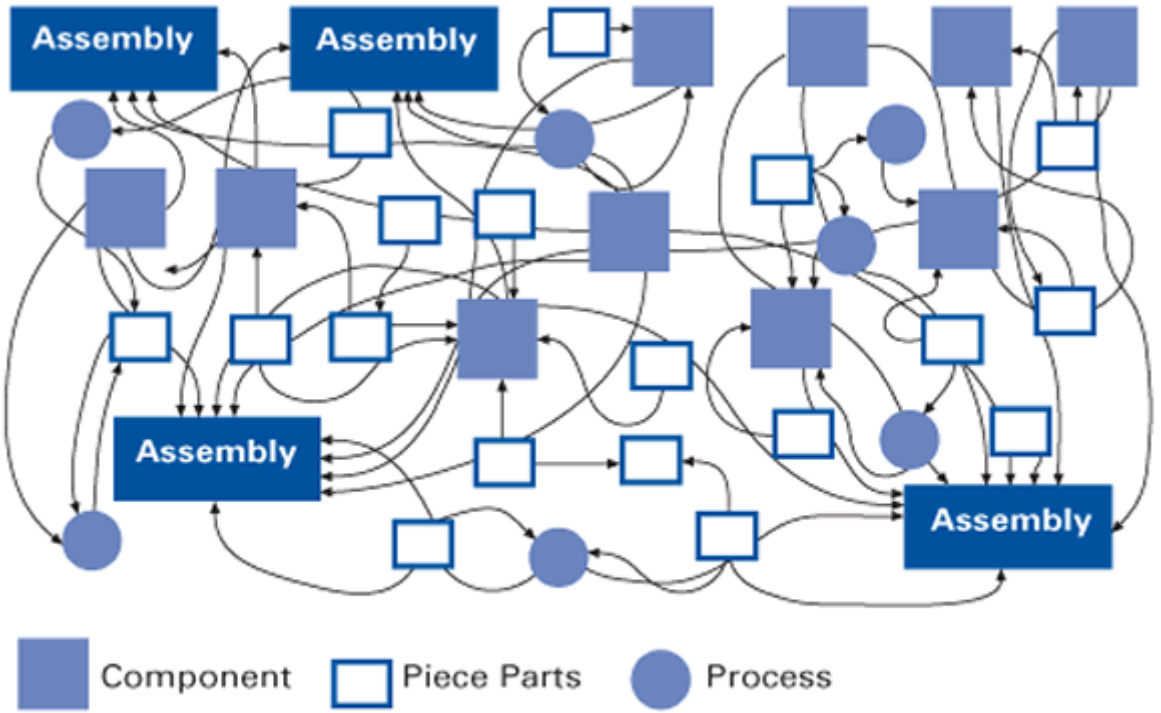
- **Extra Processing-** Processing things that the customer does not want or that do not add value for the customer

Excess inventory

- **Excess Inventory-** Excess stock of anything that takes up space, can hurt safety, or may become obsolete.

Excessive motion

- **Excessive Motion-** Any motion that is not necessary to the successful completion of an operation is waste.



Example of a spaghetti chart for product flows along value streams.

Defects and corrections

- **Defects and Corrections-** Producing defective work that needs to be redone is waste.

Transportation

- **Transportation-** Transporting something further than necessary or temporarily locating something is waste.

Behaviours and underutilized people

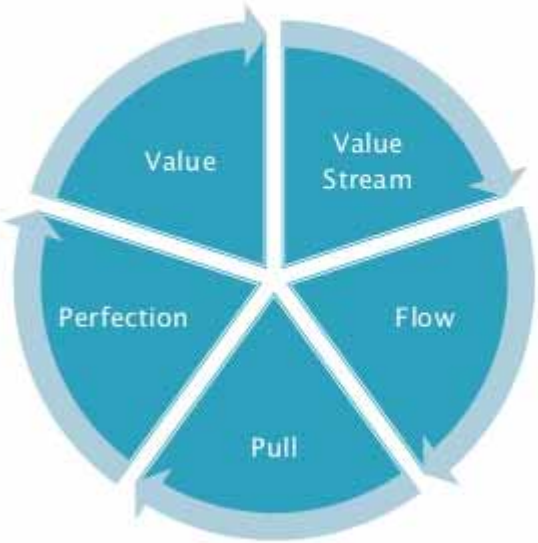
- **Behaviours and Underutilized People (creativity)-**Not striving to improve process, rather maintaining status quo, is waste.

"This really is an innovative approach, but I'm afraid we can't consider it. It's never been done before."

Implementing Lean

5 Principles of Lean

- 1. Identify and Map the Value Stream
- 2. Create Flow by Eliminating Waste
- 3. Respond to Customer Pull
- 4. Pursue Perfection
- 5. Identify Customers and Specify Value



KANRI 管理 consulting

(c) Bwan Pettigrew 36

Implementing lean

Kaizen Report

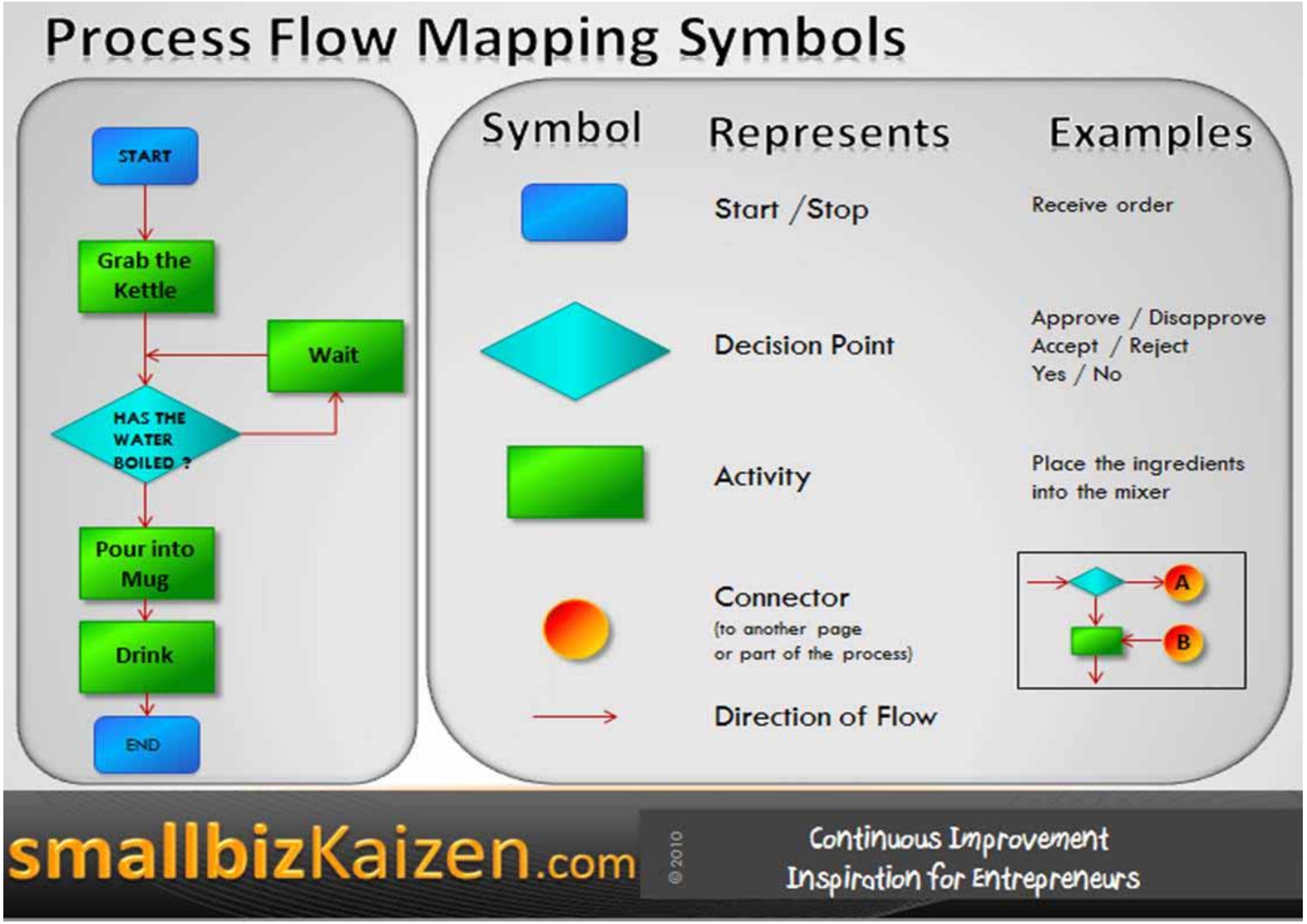
Subject	Process / Project

Before (Include pictures, diagrams, etc.)	After (Include pictures, diagrams, etc.)

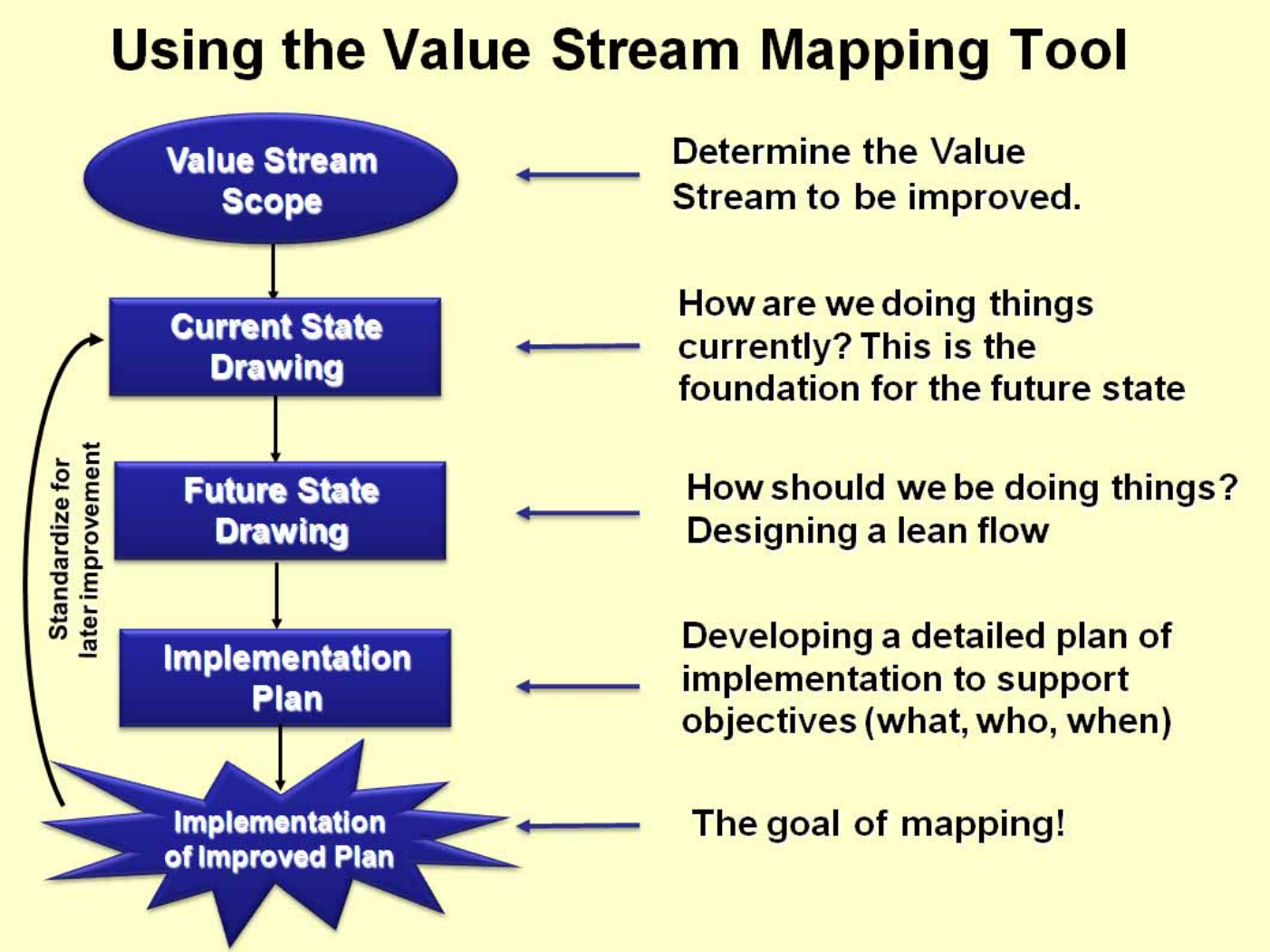
Benefits ☐ Quality ☐ Cost ☐ Delivery ☐ Efficiency ☐ Waste ☐ Safety ☐ Energy ☐ Moral ☐ Other

Originated By	Validated By	Approved By	Contact Details

Process mapping

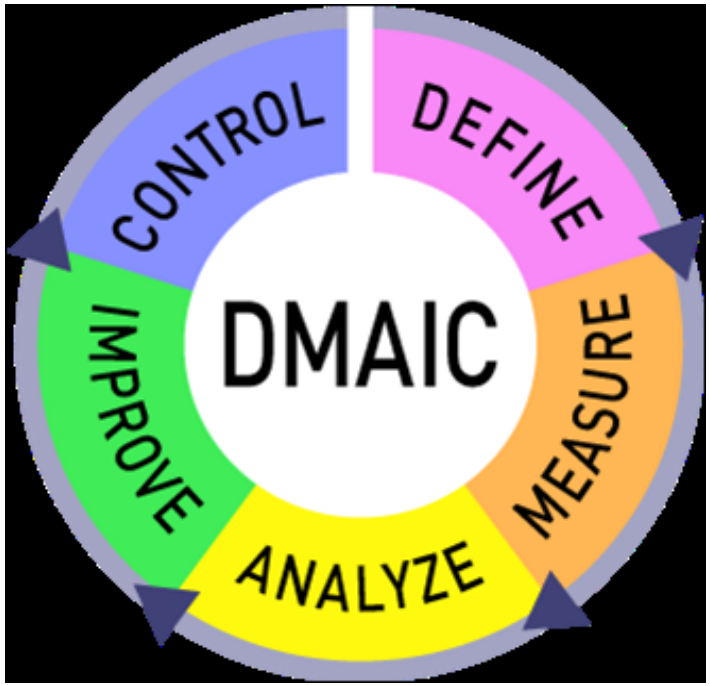


Value Stream mapping

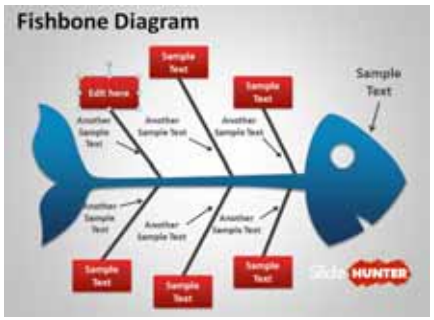


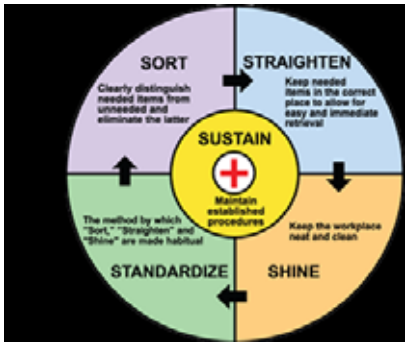
DMAIC Cycle

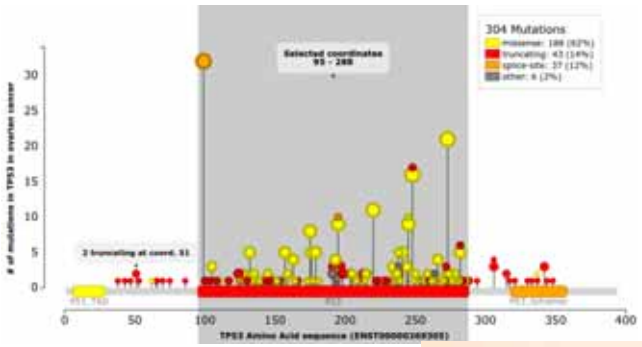
- Define
- Measure
- Analyze
- Improve
- Control



Other useful tools





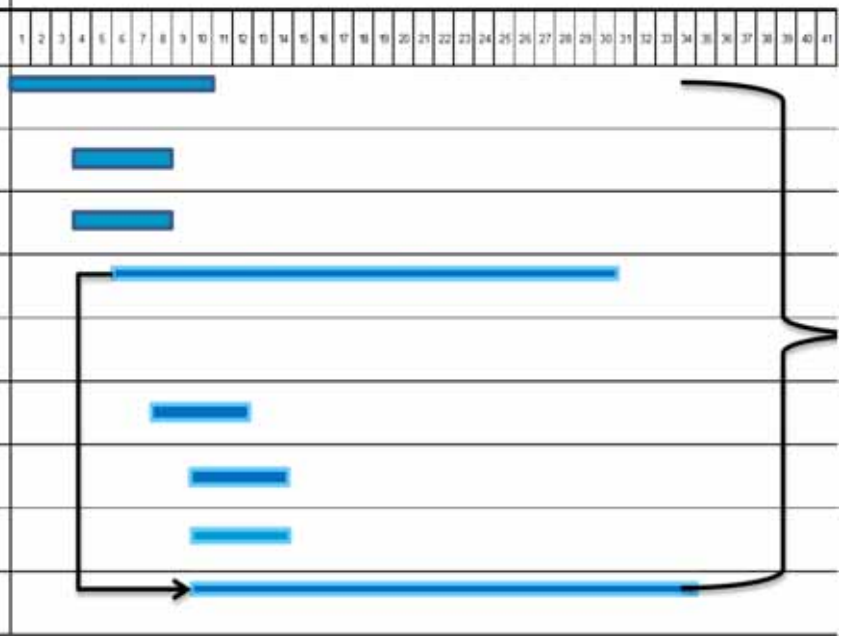


Case study HCS production

United Precast Concrete

HCS - Production Activities & Process

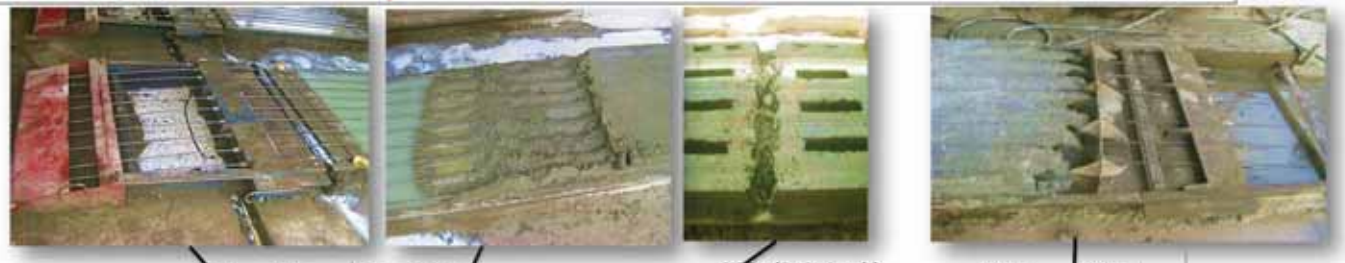
Value	Activity	Equipment	Man-power	Duration (Minute)
	Step-1			
NVA	Bed Dry Cleaning(Manually)		Lab- 1	10
VA	Setting of Cleaning Machine	Bed Cleaner & OH Crane	Lab-1 & 2	5
NVN	OHC - for shifting		Lab-3	5
NVA	Bed Cleaning by Machine		Lab-2	25
	Step-2			
VA	Pouring/spreading Oil		Lab-1	5
NVN	Setting of Cleaning Machine		Lab-1	5
NVN	OHC - for shifting		Lab-3	5
NVA	Oil Applying by machine		Lab-2	25

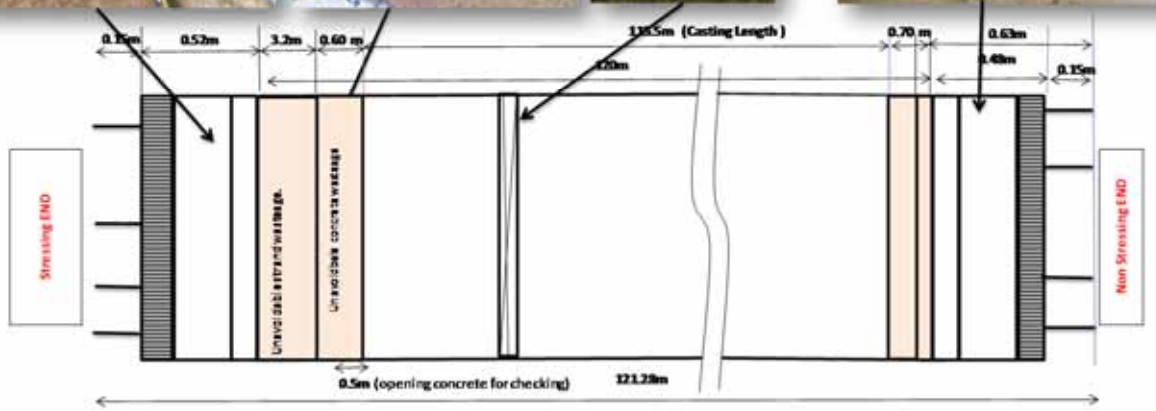


Define

Diagram of HCS Waste Measurements - DUBAI Factory

BAY- 1





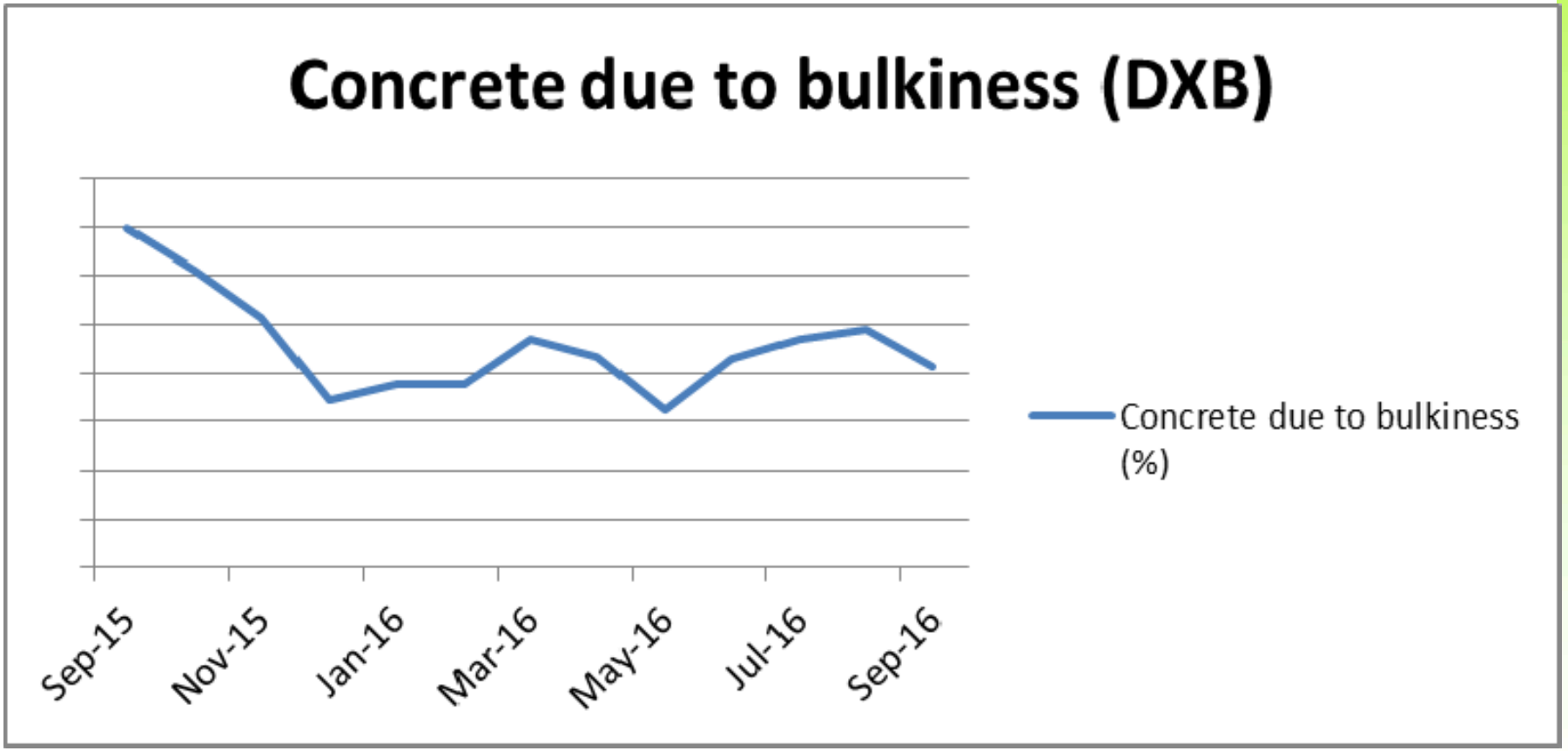
Over all Length - 121.30 mtrs
Usable Length - 114.60 mtrs

thickness		useable length	Unavoidable strand wastage %	Unavoidable Concrete Wasteage
150	N	115.5	4.78%	1.28%
	T	115	5.19%	1.30%
200	N	115.5	4.78%	1.35%
	T	115	5.19%	1.37%
265	N	115.5	4.78%	1.54%
	T	114.6	5.52%	1.57%

Brainstorm

number	identified challenge	proposed action	Benefits	updates	sponsor	owner	start date	completion date
1	**Proper detailed Planning**: Detailed planning with Resource including time scale is required, site staff are not aware of the USM allocation with regards to comercial aspects allowable with regards to manpower/materials for the project, specific inclusion/exclusion for scope of works, time duration for project completion as per LOI/SC.	detailed planning is required by SE/PM Before starting jobs- need more training TO SE/sup/Foremens Allocated SE to be educated by concerned PM of all the identiied challenges (highlighted besides)parameters in cordintation/assistance of the concerned project Manager prior to commecemnet of the project. Allocated SUP/FOREMEN to be clearly educted (by PM/SE) with regards to daily targets (for all activities) requiered to be achieved with optimum use of allowable material to control project labour/materal cost . Project manhour and materal montioring to be implemented on a weekly basis and necessary measures to contol the same to be taken up as and when required. Proper detailed site estimate to be prepared by the SE (in cordination/assistance with relevant Project Managers) and relevantly track the daily weekly and monthly manhour/material spent across the project duration.Finally SE/Sup. to prepare detailed three days look ahaed programme with element mark/loads/times etc. to avoid any etc time waste & one adavnecreconfirm the same to all concerens .	Long terms cost benfits -like productivity will be high, less ideal time for erection & trailors etc.labour and material expenses will be incontrol which will yeild profits at project completion , This will help to achive more than 4 pcs an hour.					

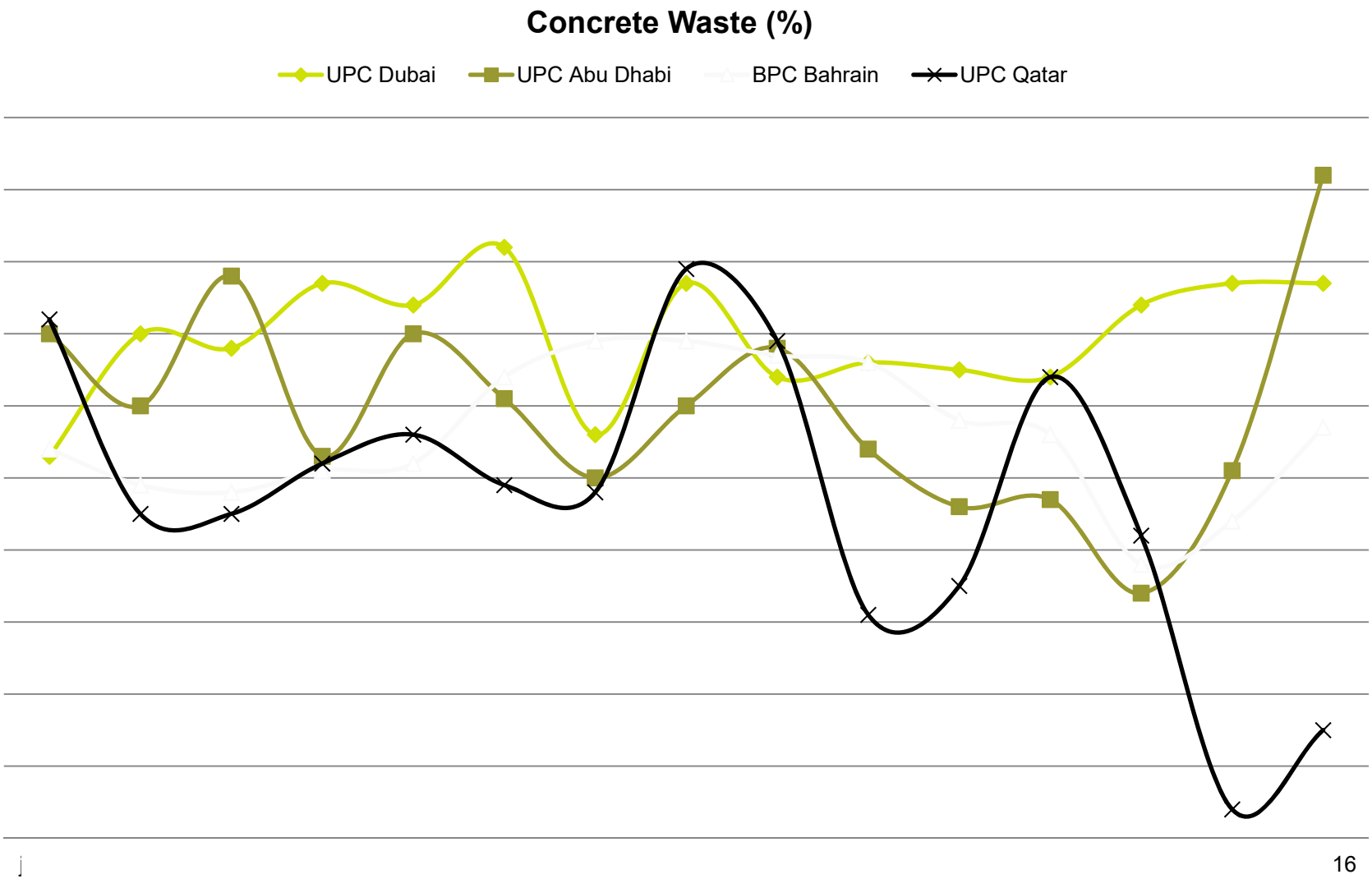
Bulkiness example



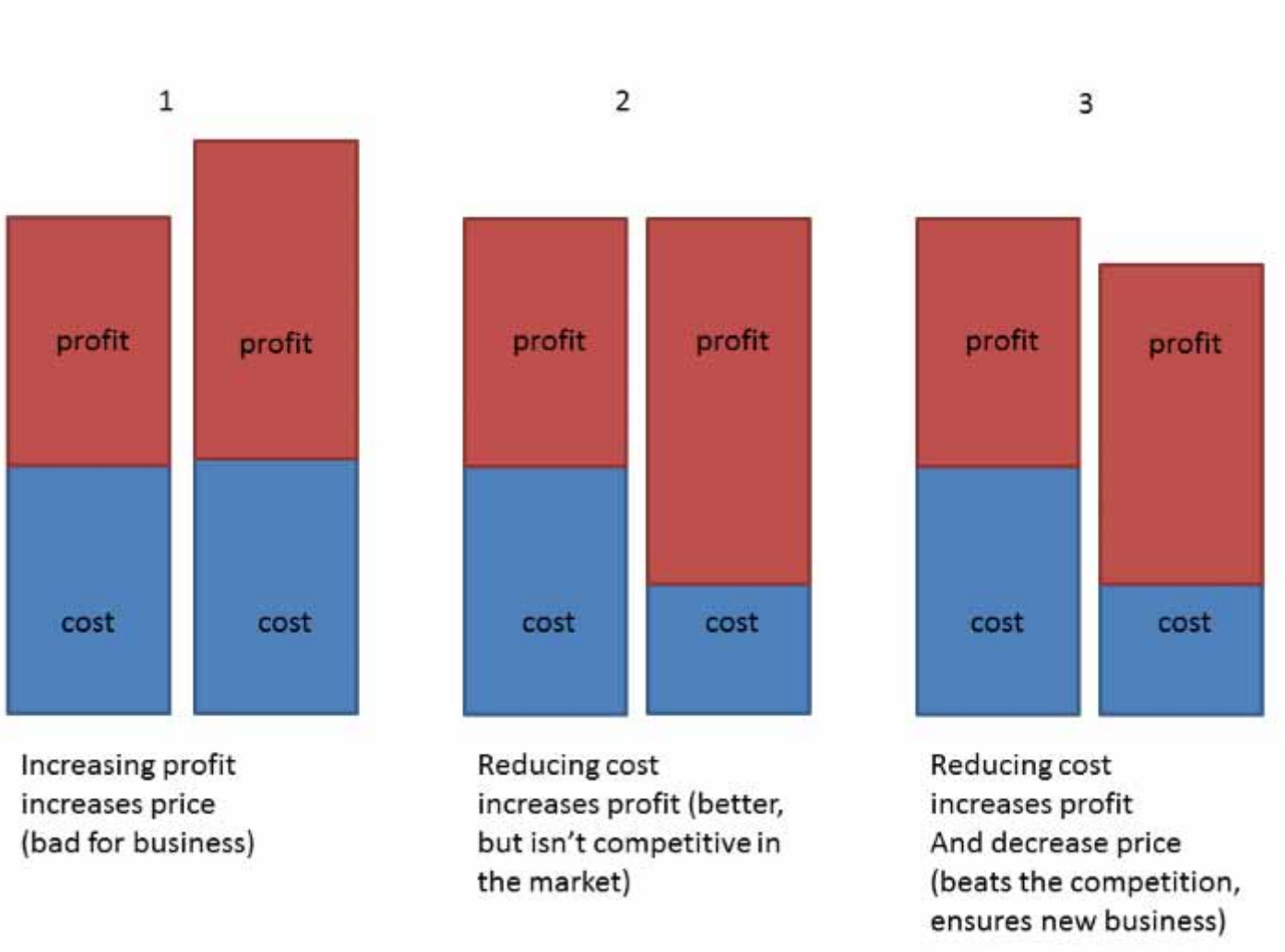
Benchmarking

FACTORY >>>		Unit	DUBAI		ABU DHABI		BAHRAIN		QATAR	
			Last 12 Months	Last Month	Last 12 Months	Last Month	Last 12 Months	Last Month	Last 12 Months	Last Month
CONCRETE VOLUME	Allowable Theoretical Volume.	m^3								
	Actual conc. Volume	m^3								
	Total Concrete waste	m^3								
		%								
	Concrete due to bulkiness	m^3								
		%								
	Concrete used for corefill.	m^3								
		%								
	Concrete waste due to Machine break down	m^3								
		%								
STRANDS	Allowable Theoretical	ton								
	Actual consumed	ton								
	Total strand waste	ton								
		%								
	Unavoidable waste	ton								
		%								
	Design waste	ton								
		%								
	Due to rejected	ton								
		%								
	Due to optimising	ton								
		%								

Checking trends monthly



Closing



Increasing profit increases price (bad for business)

Reducing cost increases profit (better, but isn't competitive in the market)

Reducing cost increases profit And decrease price (beats the competition, ensures new business)

Where will your journey take you?