1 – WHAT IS LEAN? (TRAINING STRUCTURE)

LEAN TRAINING

1. WHAT IS LEAN?
2. WHY LEAN?
3. TRAINING MODEL.
4. MODULES DESCRIPTION.

1. What is Lean?

DEFINITIONS: THERE IS NO COMPLETE DEFINITIONS

- DICCIONARY:
… Lean = without much flesh or fat; not plump or fat; thin.

- OUR DEFINITION:
…Philosophy oriented to do activities at the customer rate, focusing on the elimination of everything which not add value.

- FOR CHILDRENS:
… To do more with less!!!!! -> EFICIENCY.

LEAN TRAINING

1. What is Lean? - HISTORY

1885

Craft production

- Low automatization leve
- High product customization.

- Mechanics high qualification level.
- Unitary production
- High cost per product.

1913

Mass production

- Modular components.
- Production lines working in a fixed rate.
- Engineering manufacturing production.

- Mechanics low qualification level.
- A lot of unit of the same product.
- → Low unitary cost.
- Recurrente quality problems.
- Non flexible models.

1955-1990

Toyota Production System - TPS

- Mechanic is the "process owner"
- → Training.
- Quality in the process.
- Minimum inventory.
- Just-in-time (JIT)
- Waste elimination.
- Changes response (demand, product,...)

- Low unitary cost.
- Continous improvemnt culture.
- High quality products.
- Flexible models.

2000-...

Lean Enterprise

- "Lean" applied to all the enterprise functions.
- Value optimization in all the enterprise processes.
- LEAN DESIGN

- Low unitary cost.
- Continous improvemnt culture.
- High quality products.
- Flexible models.
- More value for all the stakeholders.

1. What is Lean? - VALUE

ADDED VALUE
Process activities that would be payed by the customer

I.E. Product transformation, document signing moment, consultant knowledge, …

NON ADDED VALUE (NEEDED)
Non added value process activities, but necessary to do due to technology and equipment limitations.

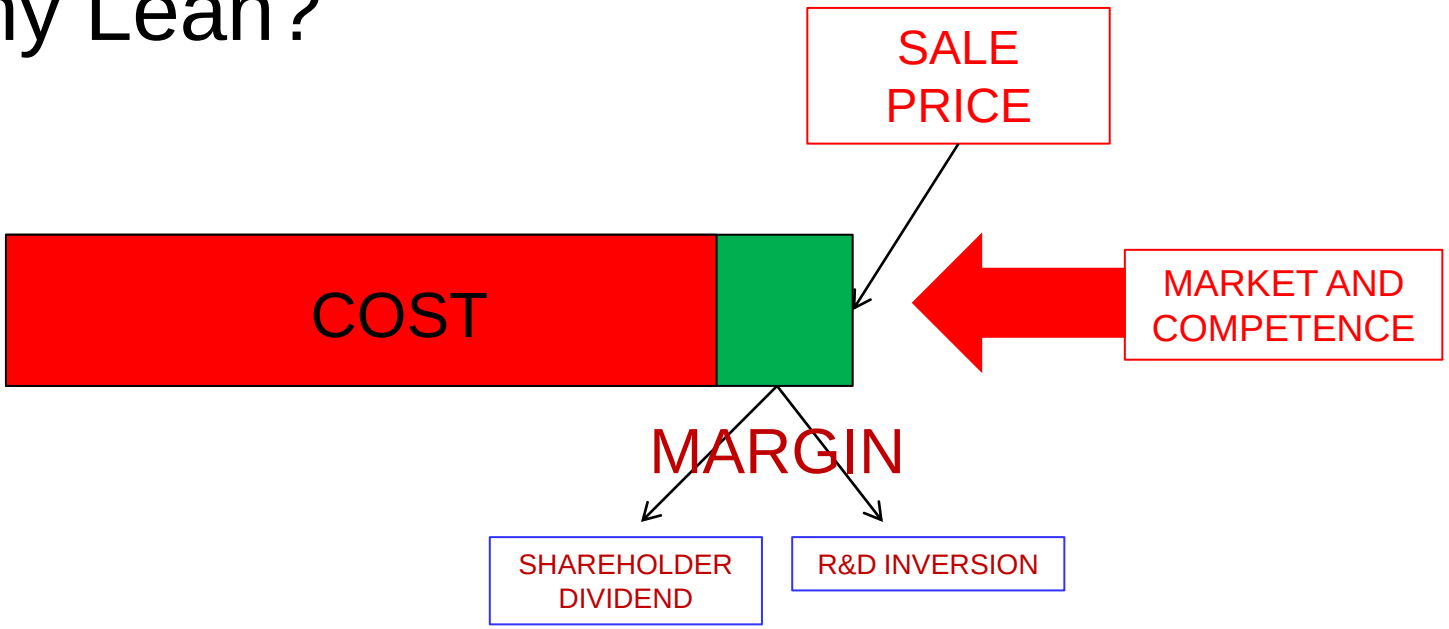
I.E. Automatic tool change process, human rest time, digital transmission line speed, …

WASTE
Everything not limited by technology and equipment limitations for which the customer does not want to pay.

I.E. Waiting time, tools and material searches, non quality rework, …

There are different opinion to categorize a process activity, specially between non added value and wastes.

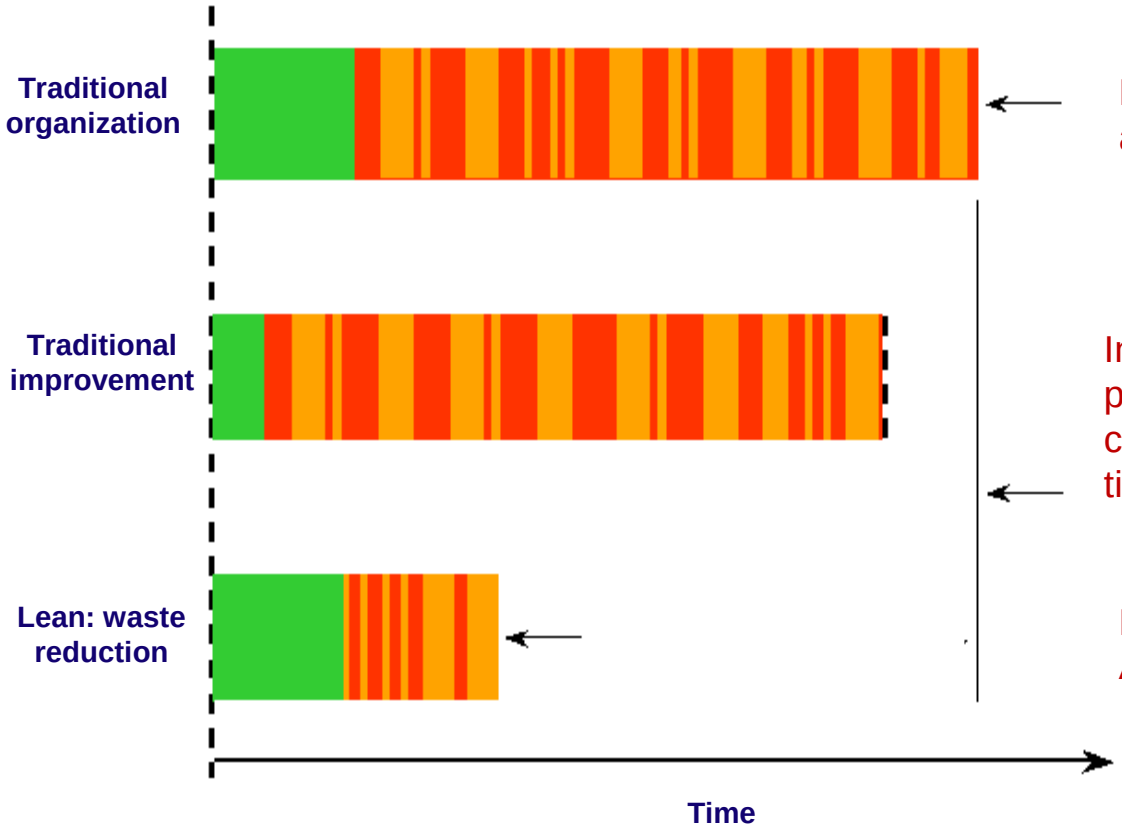
2. Why Lean?



- Generally, the price and the sales volume is limited by the market and the competitors.

- Consequently, the only possibility to increase the margin and continue developing new products (and continue remunerating the shareholders) is the reduce costs – **EFFICIENCY.**

2. Why Lean?



High percentage of non added value and waste.

Inversions in new machines o resources prepared to work quicker, and consequently to reduce to added value time.

Non aded value and waste reduction. Added value time is not touched.

2. Why Lean? – OTHER BENEFITS

- Customer satisfaction to deliver the product or service at the agreed quality at the right moment.

- Better adaptation capacity to the environment changes.

  - Demand changes.
  - Product type.
  - Competitors response.

- High improvement and innovation capacity, due to staff engagement in these activities.

2. Why Lean? – TRADITIONAL vs LEAN

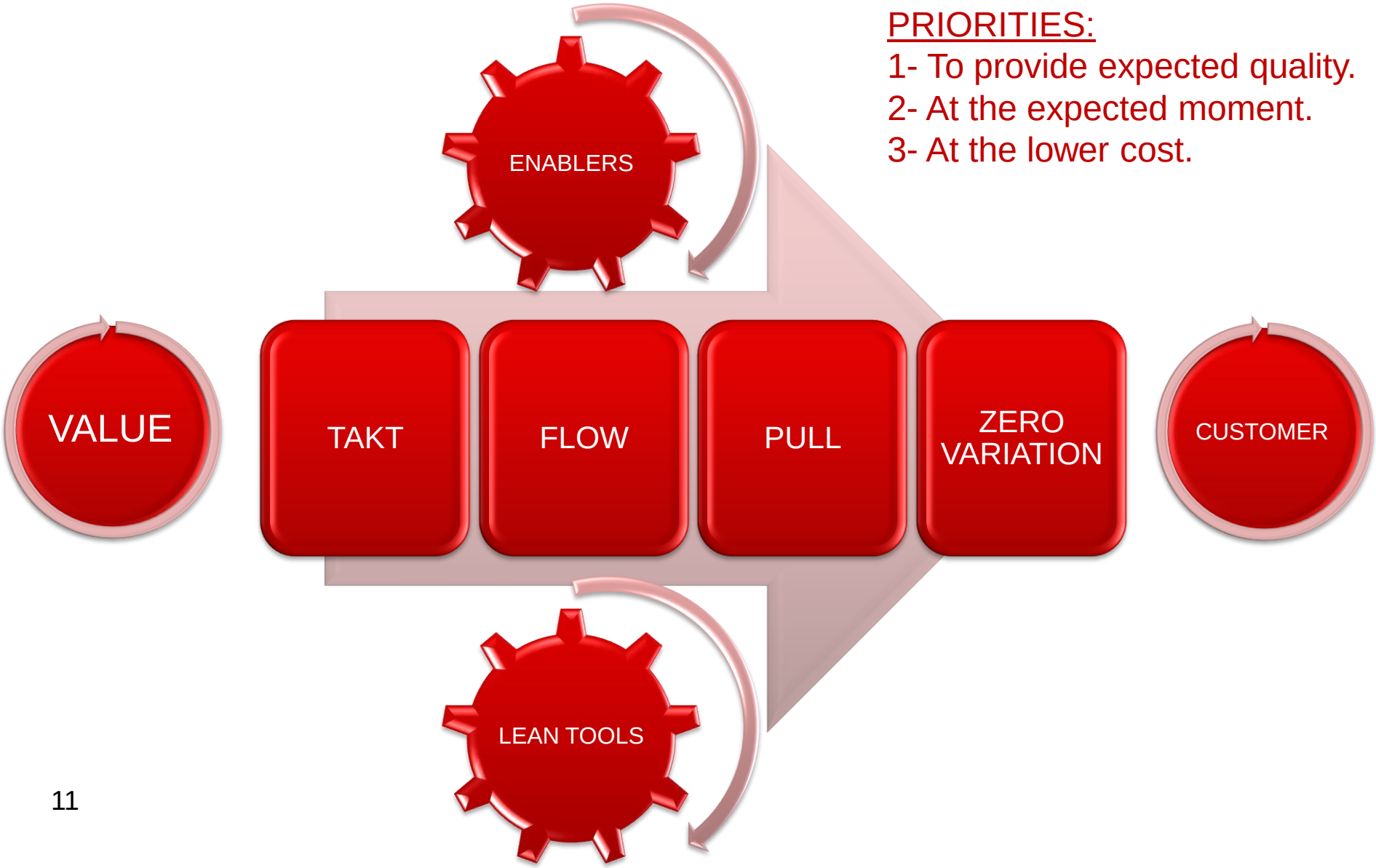
	TRADITIONAL	LEAN
Business strategy	Oriented to deliver products. Stable product designs	Focus on the customer: continue changing to mantain competitive advantages
Customer satisfaction	To produce what engineers wants and in high volumens	To produce what customers wants, when they need, in the ordered quantity and without deffects
Leadership	Based on executive commands	Based on the vision and wide participation
Culture	Loyalty and obedience, laboral effort imposed	Armony based on the engagement and the development of the staff
Production model	PUSH (Predicted demand)	PULL (Real demand)
Production rate	To saturate productive capabilities	To cover customer demands
Organization	Department oriented	Process flow oriented

2. Why Lean? – GENERAL MOTORS VS TOYOTA

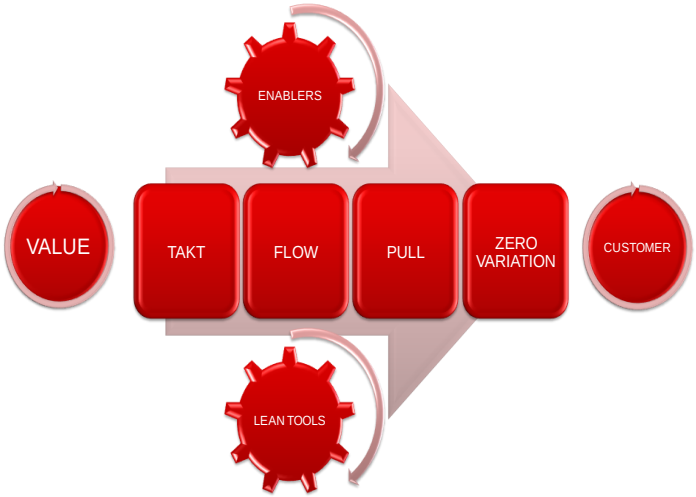
	GM	
Gross Assembly Hours	40.7	18.0
Assembly Defects per car	1.3	0.45
Assembly Space per car	8.1	4.8
Inventories of parts	2 weeks	2 *hours*
Engineering hours per new car	3 million	1.7 million
Lead Time for new car	60 months	46 months

3. TRAINING MODEL

PRIORITIES:
1- To provide expected quality.
2- At the expected moment.
3- At the lower cost.



3. TRAINING MODEL



VALUE FOR CUSTOMER:

Customers (internal or external) expect to receive a product or service with the expected quality at the agreed moment.

To provide this value to the customer, we need to focus the attention in the Lean Principles (Takt, Flow, Pull and Zero Variation).

It is supposed that Lean Tools implementation are the way to put Lean Principle into practice, but we need to work with the enablers to be success.

PRIORITIES:

1- To provide expected quality.
2- At the expected moment.
3- At the lower cost.

To work only with the Lean Tools is the most often cause of failure during the lean implementation.

4. MODULES DESCRIPTION

MODULE	MODULE NAME	CATEGORY
M1	What is Lean - TRAINING STRUCTURE	INTRODUCTION
M2	7 Wastes	INTRODUCTION
M3	TAKT / FLOW	LEAN PRINCIPLES
M4	PULL	LEAN PRINCIPLES
M5	ZERO VARIATION	LEAN PRINCIPLES
M7	Policy Deployment	ENABLERS
M8	Change Management	ENABLERS
M9	Lean Leadership	ENABLERS
M10	5Ss + VM	LEAN TOOLS
M11	Standardisation	LEAN TOOLS
M12	CVSM	LEAN TOOLS
M13	Line Balancing	LEAN TOOLS
M14	FVSM	LEAN TOOLS
M15	Kaizen + PDCA + A3 Report	LEAN TOOLS
M16	TPM+OEE	LEAN TOOLS
M17	Process Confirming + Go-Look-See	LEAN TOOLS
M18	SQCDP Level Meetings	LEAN TOOLS
M19	Practical Problem Solving	LEAN TOOLS
M20	Quality Management (FMEA)	LEAN TOOLS
M21	ANDON / SMED	LEAN TOOLS
M22	Steps to do a Lean Implementation	EXPERIENCES
M23	Lean in Support Functions	EXPERIENCES
M24	Lean Automotive sector	EXAMPLES
M25	Lean in other sectors	EXAMPLES

ENABLERS
PRINCIPLES
TOOLS

4. MODULES DESCRIPTION