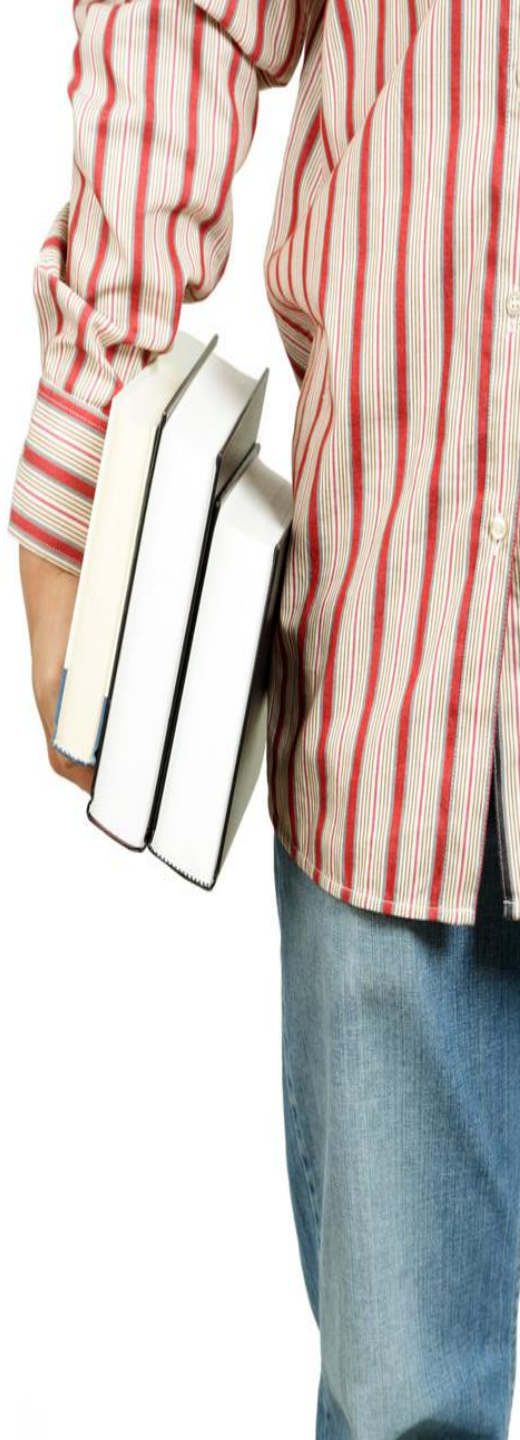
Manufacturing Excellence – Lean & Digitalization

Training Agenda

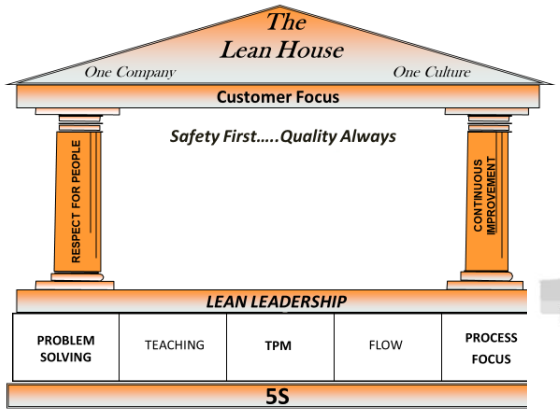
1. What is ManEx - Lean
2. Why ManEx
3. Main principles (Type of Waste)
4. What is digitalization
5. Link between digital and lean
6. How to generate use cases



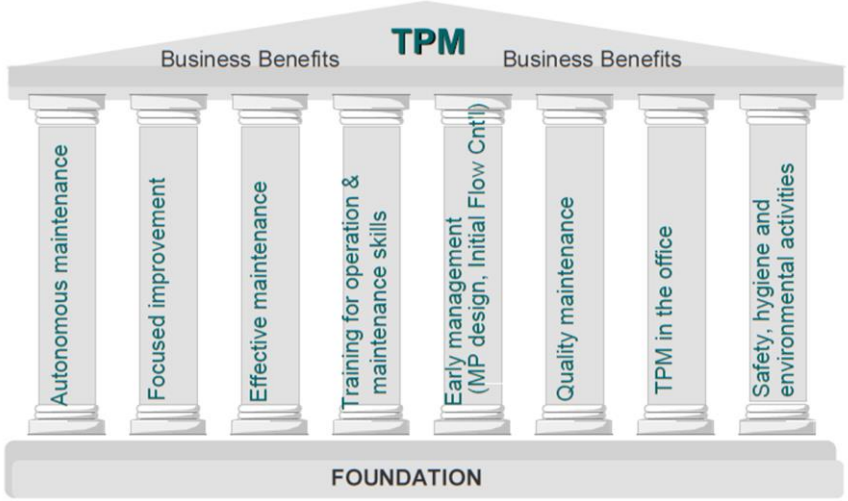
What is Manufacturing Excellence

What is ManEX

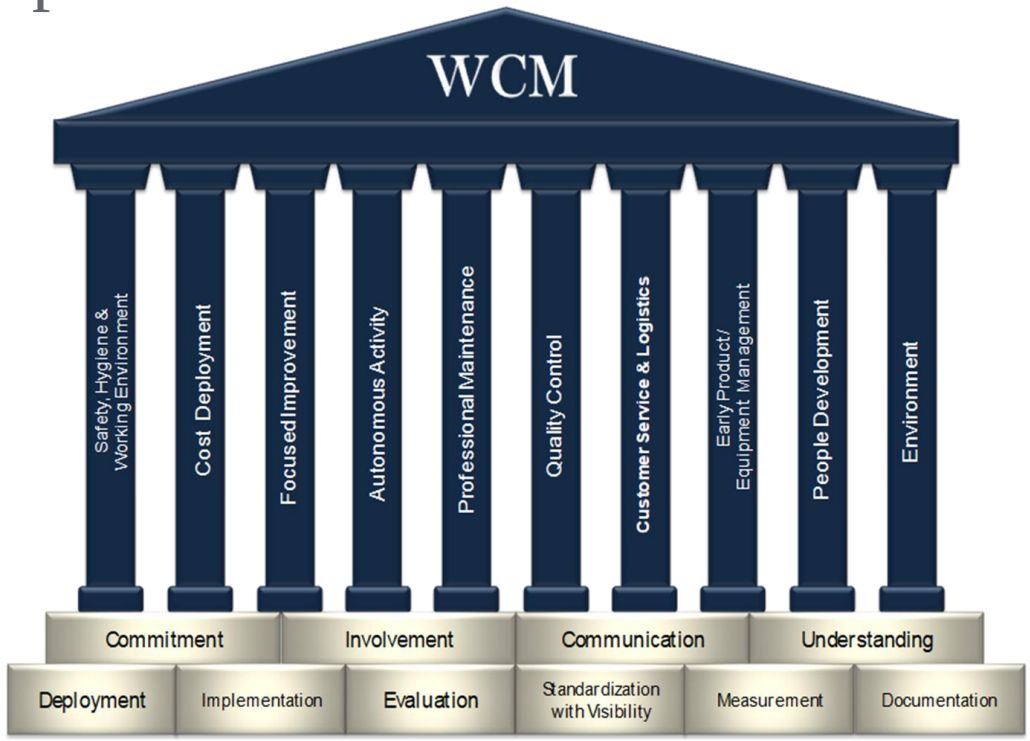
Manufacturing Excellence Systems “lean, TPM & WCM” is a systematic approach to eliminate the non-value added activities (wastes) by flowing the product at the pull of the customer for pursuit of perfection



Lean



Total Productive Management



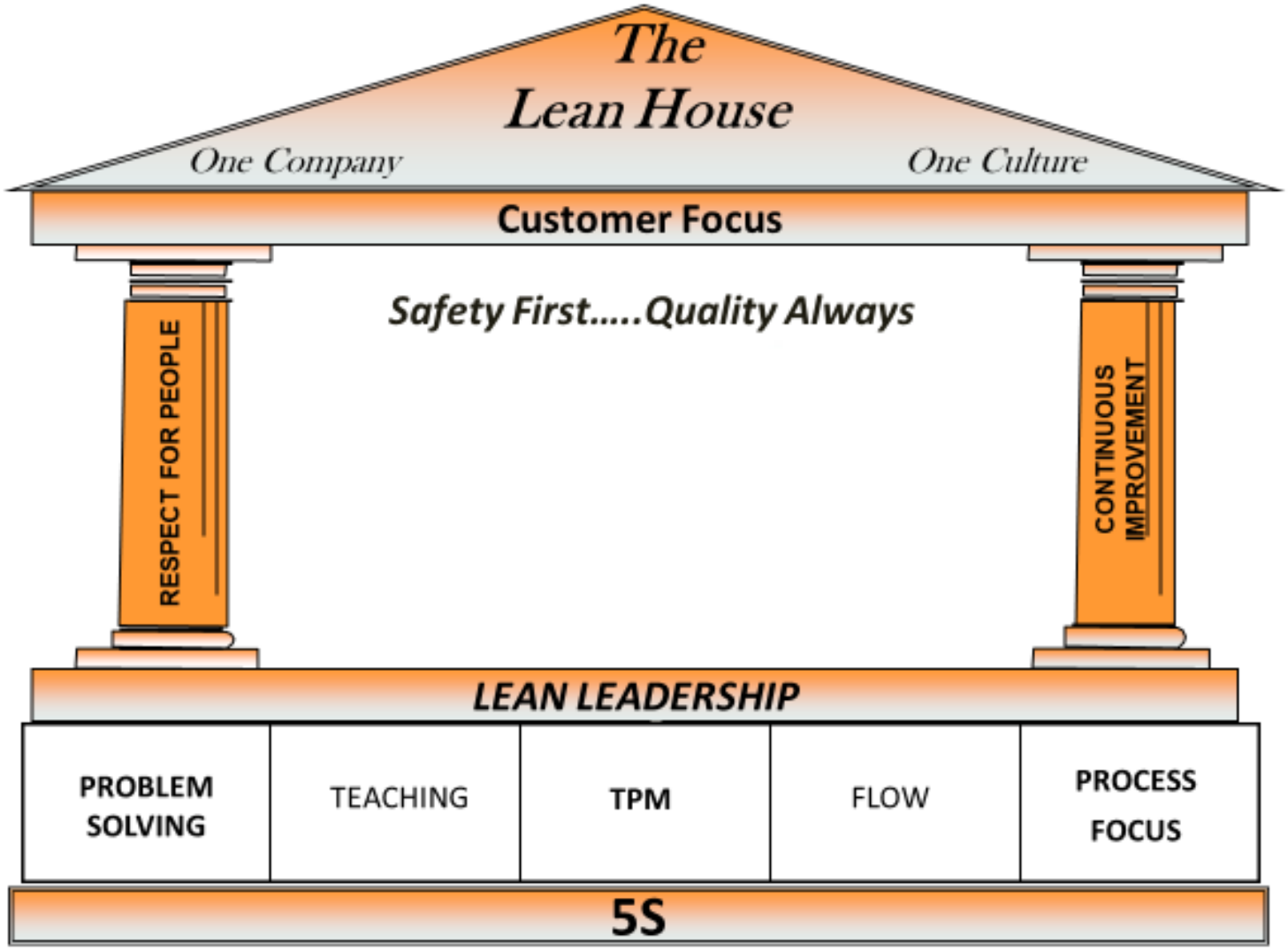
World Class Manufacturing

What is Manufacturing Excellence

Lean

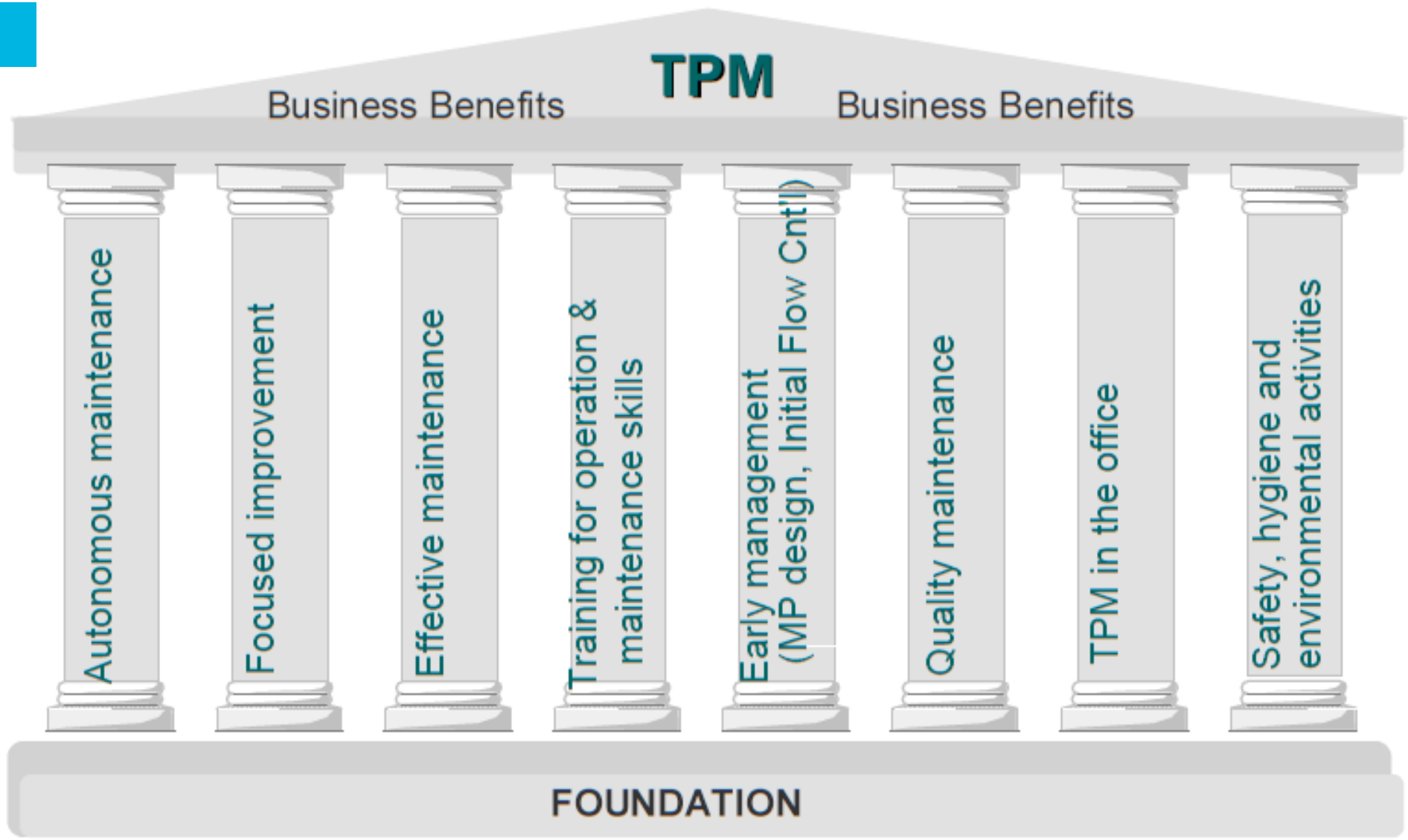
Very simply, LEAN is producing and delivering what the customer needs, when it is needed, with the highest quality and the lowest total cost.

To do that, all processes (manufacturing or administrative) must be linked from the final customer back to the supplier and all non-value added activity must be eliminated.



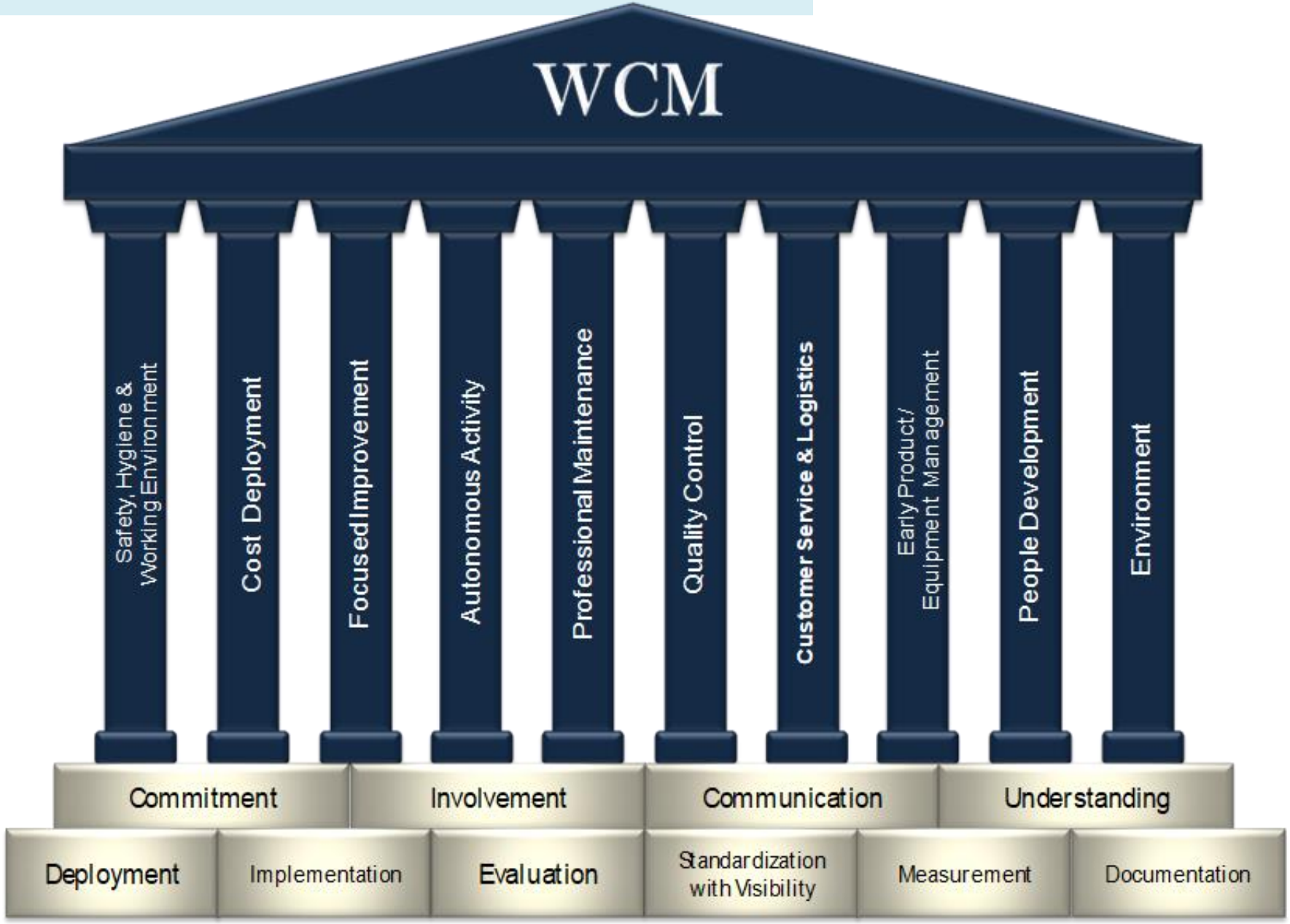
Manufacturing Excellence – Example

TPM



Manufacturing Excellence – Example

WCM



Why ManEx?

Four Main Goals

- Improve Quality
- Eliminate waste
- Reduce lead time
- Reduce total costs

Founded On

- Continuous Improvement
- Respect for People

What Should we Have:

- Well communicated Standard
- System for following up with clear accountability communicated
- Don’t judge Don’t blame

Main Principles

Value

Value represents Anything that the Customer is willing to pay for.

Types of Activities

- Value Added
- Non-Value Added
- Non-Value Added Required

Type of Wastes

1. Over production
2. Inventory
3. Motion
4. Waiting (time)
5. Defects
6. Transportation
7. Over processing
8. Waste of talent

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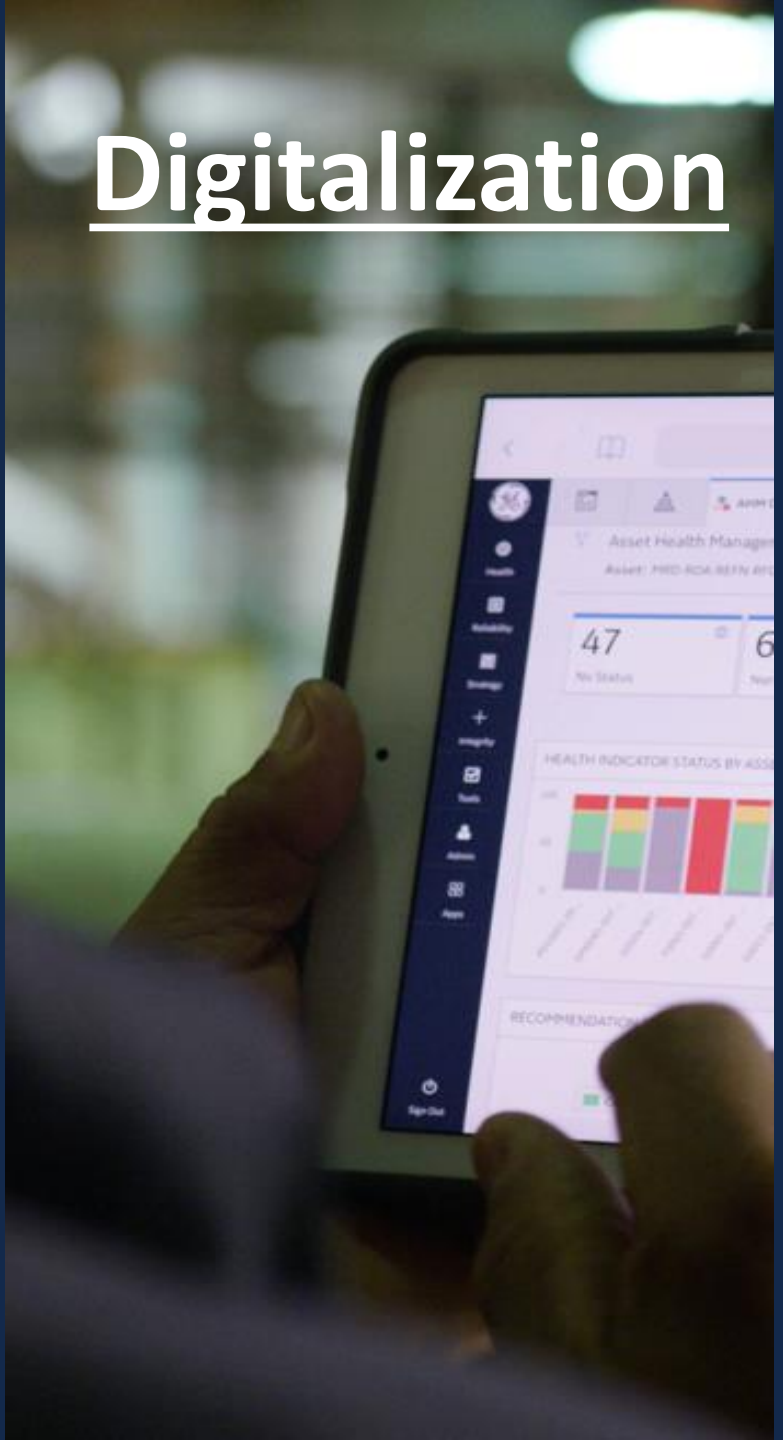


Digitalization

Bring simplicity, speed and scale to our customers' digital transformation initiatives with software that helps them to better operate, analyze and optimize their business processes.

GE Digital. Putting industrial data to work.

- Beginning with $1 billion + in annual software revenue
- +300 Unique Asset Digital Twin Blueprints
- 21,000+ existing global industrial customers
- 40% of the world's electricity managed by our Digital Energy portfolio

GE Digital in GE

GE Power

Equipping 90% of transmission utilities worldwide

GE Renewable Energy

Installed 400+ GW capacity globally

GE Aviation

Powering two-thirds of commercial aircraft departures*

GE Healthcare

17,000+ babies born every day with the help of our equipment

*Including CFM International, a 50-50 joint venture between SNECMA (Safran) and GE.

GE Digital

More than 30 years' experience delivering industrial software and services for more than 21,000 customers including GE businesses and four key external markets:

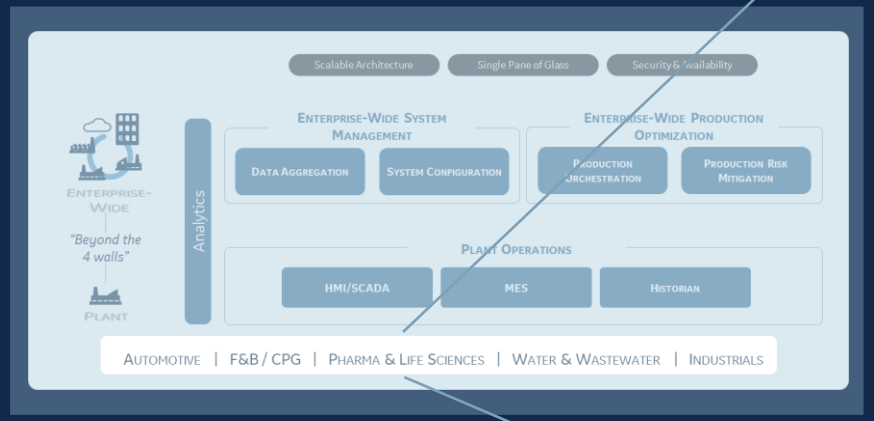
Grid
40% of the world's electricity is managed by our software – from generation to transmission & distribution.

Manufacturing
40% of Fortune 500 companies – including automotive; CPG/F&B and water utilities.

Power Generation
More than 950 plants in 75 countries use our Asset and Operations Performance Management software.

Oil and Gas, Chemical Manufacturing
Four of the top five supermajors in O&G rely on our Asset Performance Management solutions.

Our Key Verticals



- Automotive
- Food & Bev CPG
- Pharma Life Sciences
- Water Wastewater
- Industrials Heavy

Toughest Industrial Challenges

Agility & Adaptability
Respond to Demand Variations

Productivity
Maximize Efficiency and Throughput

Reducing Costs
Minimize Material and Operating Costs
Optimize Supply Chain

Safety & Compliance
Consumer Satisfaction and Product Quality

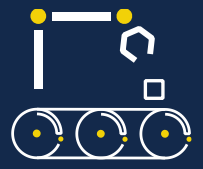
Software is mission critical for industrial companies

Manufacturing

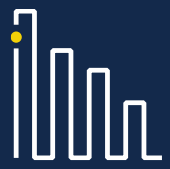
Software is at the heart of modern manufacturing operations and supply chains. Digital is enabling new benchmarks for throughput, quality, yield and waste.

How GE Digital is helping:

20% ⬆
Overall equipment effectiveness improvement



25% ⬇
Reduction in defects



30 - 40% ⬇
Raw and work in progress reduction

The Opportunity

Operate

Better enable customers to **operate** industrial equipment and systems, delivering higher ROI

Analyze

Analyze customer and industry data to derive unique, actionable insights

Optimize

Optimize our customers' assets, operations, and people, improving business outcomes

Operational data fuels analytics

Analytics drive optimization

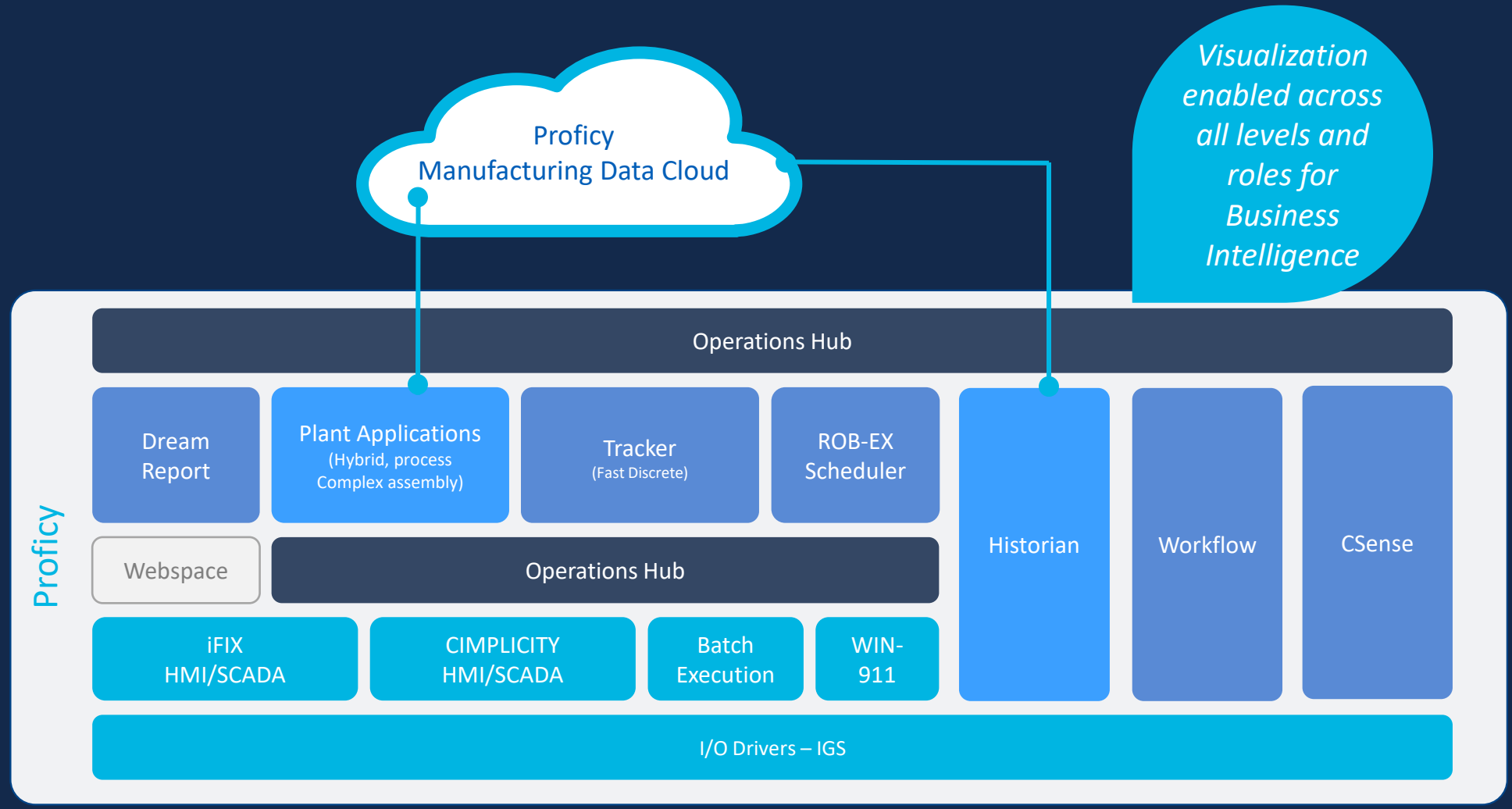
Closed loop control & automation

The *traditional* industrial software landscape

ISA 95 Hierarchy

Digital Plant

Digitizing processes and democratizing digital tools to enable collaboration & continuous improvements

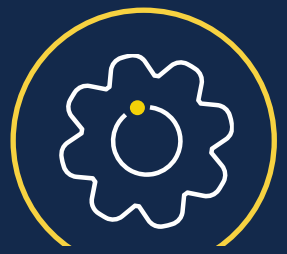


Level 4
Enterprise / Business Operations

Level 3
Manufacturing Operations Management

Level 2,1,0
Industrial Automation

The Opportunity



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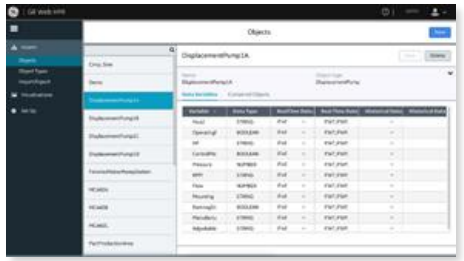
Collect, analyze, share real-time production information

iFIX & CIMPLICITY
HMI/SCADA CORE

- High performance UI
- Real-time and historical trends
- Powerful alarming strategies
- Full data collection
- Full-featured HMI from any device

HMI/SCADA Extended Capabilities

Reporting	Dream Report
Alarming	WIN-911
Remote/mobility	Operations Hub
Connectivity	IGS Drivers
Work process mgt	Workflow
Local data storage	Historian

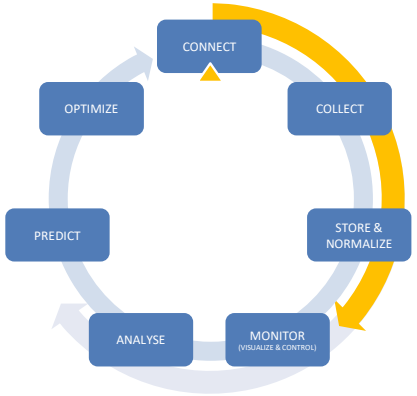


Proficy Historian

an Enterprise Data Management Platform

Connect, collect, store & distribute data at extremely high speed, securely, across the organization

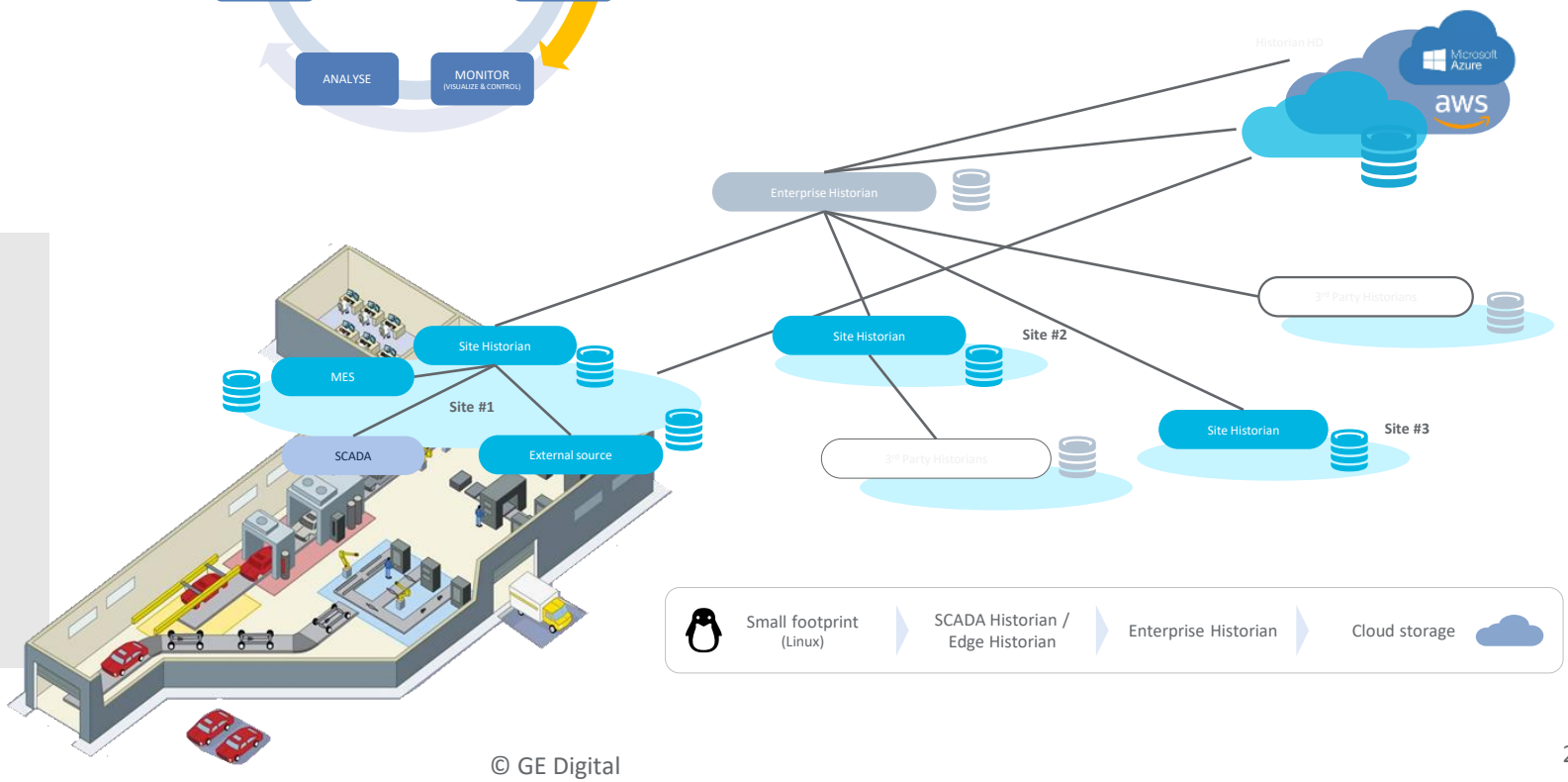
- High performance data collection – no data missed
- Optimized data retention algorithms for faster response time
- Efficient access to information
- Reduced IT support and systems downtime
- Flexible & scalable



- Relational databases can't match our performance
- Embedded in GE Digital's HMI/SCADA products
- Easy to configure, deploy & maintain - Low TCO
- Support for compliance – e-signature

New in version 9.0 / 9.1

- Simplification of collector installation & management
  - New Configuration Tool – Multi instance of collectors
  - Remote Collector Management (w/ UX)
- Simplifying data access across large scale deployments
  - Enterprise Management Tool
  - Horizontal Scalability enables enterprise-wide data visibility
- Increased connectivity
  - OPC-UA Server, Azure IoT Hub end point



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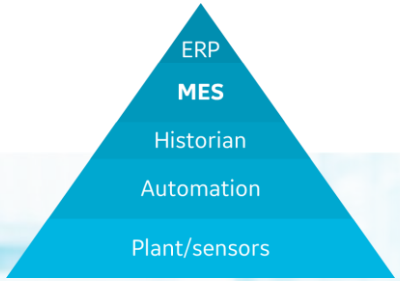
What an MES does …



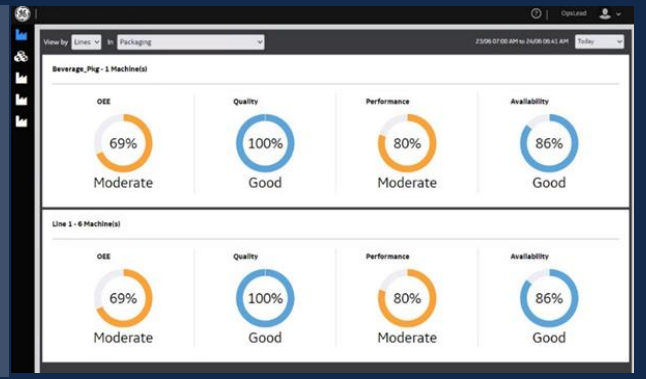
"Manages, monitors and synchronizes the execution of real-time, physical **processes** and **people** involved in transforming raw materials into intermediate and/or finished **goods**."

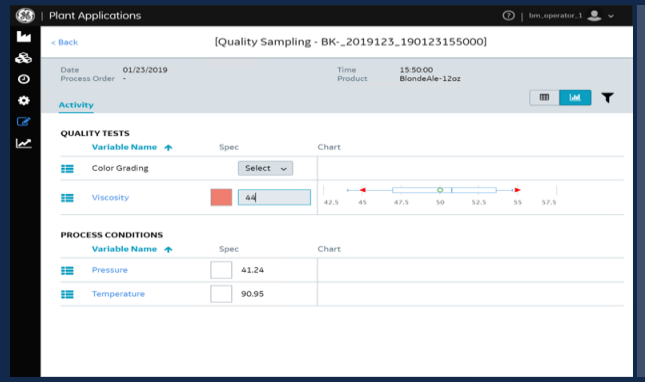
Operations Management

Maximize operations management, improve production performance, and drive product quality

Efficiency Management

- Track downtime & waste
- OEE and root causes
- Standard and ad-hoc reports & dashboards



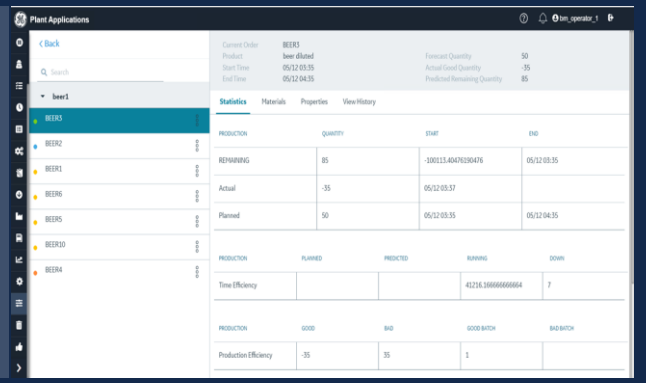


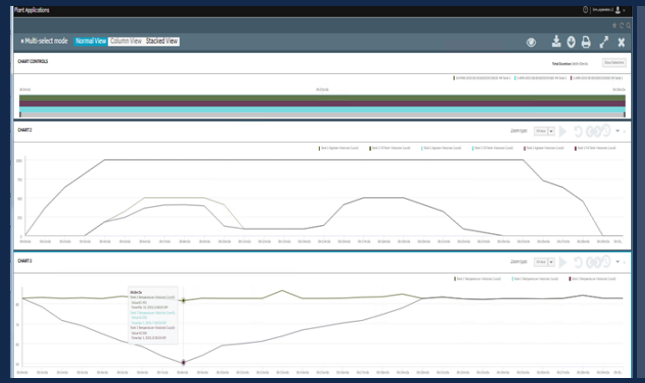
Quality Management

- R/T product & process quality analysis & control
- Alarm to conformance limits
- Lower production waste, scrap & recall cost
- Right First Time

Production Management

- Track and trace genealogy of products
- Production schedule execution & tracking
- Order dispatch from schedule
- Monitor consumption of resources





Batch Analysis

- Batch analysis & reporting according to ISA-88
- Electronic batch records
- Add to both new and existing systems
- Analysis of scheduled and completed batches

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Operational data fuels analytics

Analytics drive optimization

Closed loop control & automation

Scheduler improves your operational efficiency

Dynamic and robust planning

- Optimizes production with better planning
- Delivers a total visibility & removes/minimizes the impact the production changes
- Easy to use, visual and intuitive

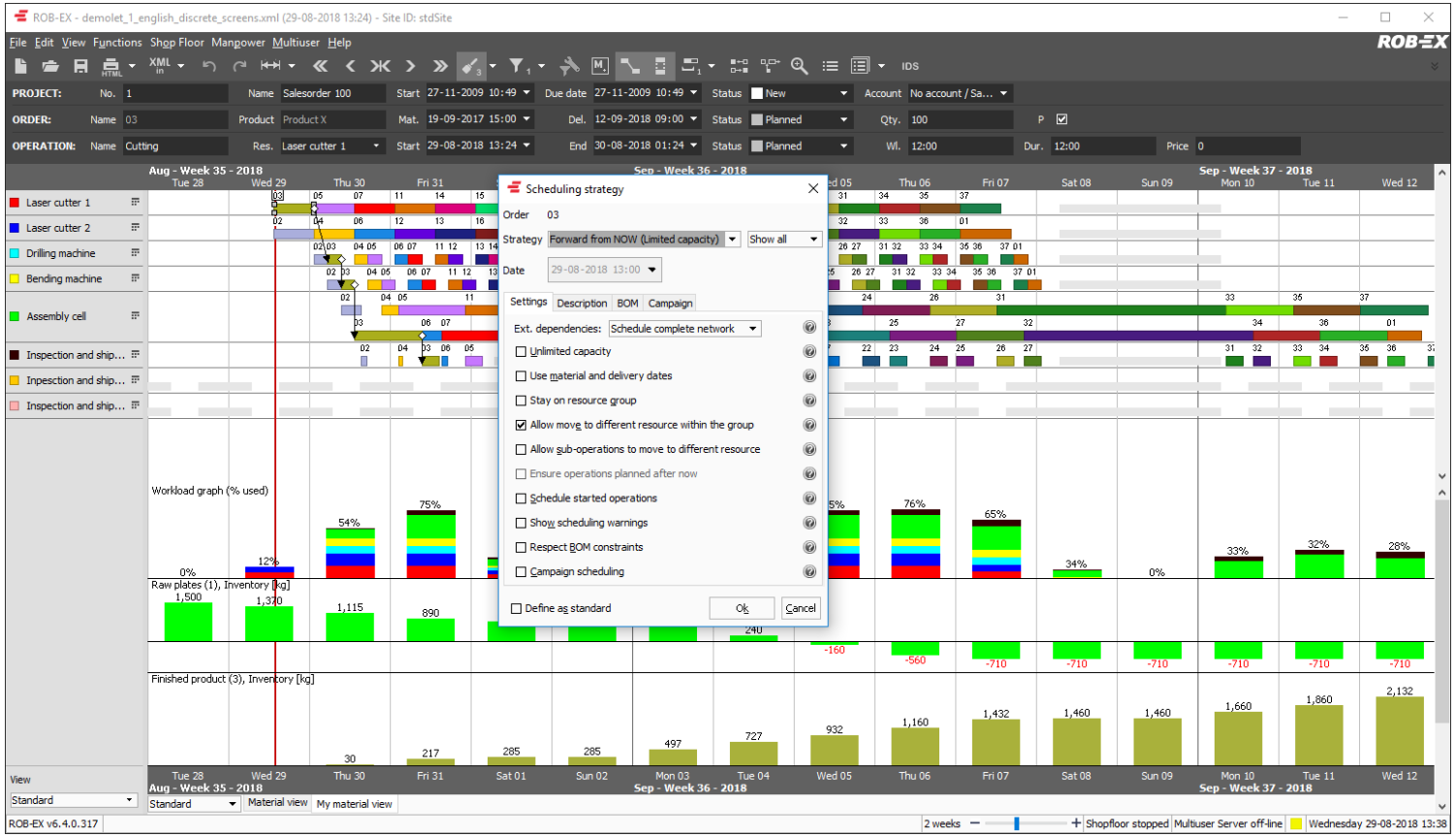
Scalable

- From single user to enterprise
- Integrates with other systems

Perfect for discrete manufacturing, batch processing, and project manufacturing

Top 3 outcomes

- Reduces labor costs
- Optimizes capacity
- Increases revenue



Use Case Charters

Client Owner: Johnny Appleseed

Description	A system that will determine how closely work orders align to defined data standards and initiate a review when required.
Requirements	• Determine how closely individual work orders align with the internal data quality standard • Provide a visual indication of which parts of the organization are most compliant • Initiate manual review of records that are below acceptable limits.
User Stories	1. As a person respo data collection pr

Objectives & Key Results:

Compliance	• % of total work o quality manager
Effectiveness	• % of work orders standards
Efficiency	• Amount of time data

Enable

Internal Resources	• People respon on work order enable asset m
Knowledge, Skills & Abilities	• Basic user leve • Knowledge of t • Configuration
Communications & Change Mgt.	• Basic MES Trai • Internal Work • Work Order Ac

Client Owner: Johnny Appleseed

Description	A system that enables internal personnel to evaluate the criticality and classification of assets and systems using a consistent assessment aligned to risk matrix and classification criteria.
Requirements	• Configurable to incorporate risk matrix and classification criteria • The team making the assessment and the basis for the assessment are stored in the system • The analysis is routed for review and approval in the system before being applied • Criticality code can be written back to SAP FLOC or Equipment Record if desired
User Stories	1. As a person responsible for asset management processes I need a system that will enable a standard approach to determining and assigning classification or criticality to assets and systems. 2. As a person responsible for asset management processes I need a system that will maintain a common classification or criticality value with the CMMS system.

Objectives & Key Results: Measuring the Use Case

Compliance	• % of Assets and Functional Locations with approved criticality analysis
Effectiveness	• Failures or poor performance due to assets being improperly classified
Efficiency	• Average time required to assess criticality of an asset or functional location

Enablement

Internal Resources	• People responsible for assessing criticality • People responsible for approving criticality assessments
Knowledge, Skills & Abilities	• Basic user level capabilities • Knowledge of the criticality process
Communications & Change Mgt.	• Awareness of the new system of record • Training for participants

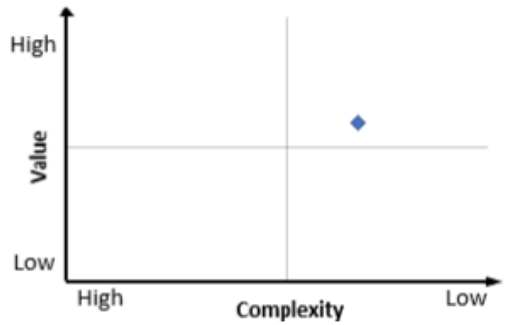
Anticipated Benefits: Impact on the Business

Risk	Consistent awareness of the criticality of all assets and systems helps to ensure that the proper risk-mitigating strategies are in place.
Revenue $0	No Impact
Reduced O&M Expense $25k/year	• Labor reduced work which requires manual effort to complete.
Capex $0	No Impact
Employee Effort	• Resource Required: Reliability Engineer • Number of Resources: 1 • Duration: 1 week • Time Allocation: 100%

Technical Dependencies

Architecture	• Application Framework • EH01
Applications	• Foundation • Health
Integrations	• SAP Extraction • SAP Criticality Write-Back

Value & Complexity Scoring



Main Principles

The Ideal of Single-Piece Flow

Always remember that the ideal is single-piece flow where the

- Order Point is 1
  - The supplier makes another unit as soon as the customer uses the one unit they had
- Order Quantity is 1
  - The supplier makes only one unit to replace the unit the customer just used

ManEx– Implementation (Tools / Application)

1. 5S
2. Pull system (Kanban area)
3. Visual Controls
4. Gemba / Gembutsu / Genshou (Learning To See)
5. Capturing process losses
6. Problem solving technique
7. Kaizen: Small K & Big K
8. % Kaizen Participation- Total/Salary/Hourly
9. OPLs
10. CIP
11. Poka – Yoka Mistake Proofing
12. Mean time between touch MTBT
13. PDCA
14. Standard Work
15. SOPs & WI
16. Team Building & Leadership
17. YOKOTEN
18. Process focus/parameters
19. Value Stream Mapping
20. Six Sigma
21. Customer focus
22. Business Process Redesign
23. Quick Changeover
24. Policy Deployment
25. Line schedule system optimization

5S

Definition:

The 5S System is a systematic approach that organizes and standardizes the workplace.

5S promotes safety, improves work flow, reduces scrap and over-usage, reduces inventory waste and, above all, creates a sense that “the user” is in control of the work area

“5S” Levels

1)SORT

Eliminate the unnecessary

2)SET IN ORDER

Workplace organization: ***everything*** has a place

3)SHINE

Thorough cleaning and perpetual housekeeping

4)STANDARDIZE

Establish Standards, Guidelines and Procedures for maintaining the first 3S’s.

5)SUSTAIN

Develop discipline to respect & improve the standards “following the rules & procedures”

Pull System

An information system for:

- Controlling the flow of materials and information
- Allocating resources based on actual consumption… not on forecasted demand

It is a Scheduling system NOT a Planning system

How to Implement Pull System

- Pull product through the entire production process in quantities and at a rate demanded by the downstream customer
- If there is no demand for the product or if the demand slows then the production line stops or slows down to meet the need.

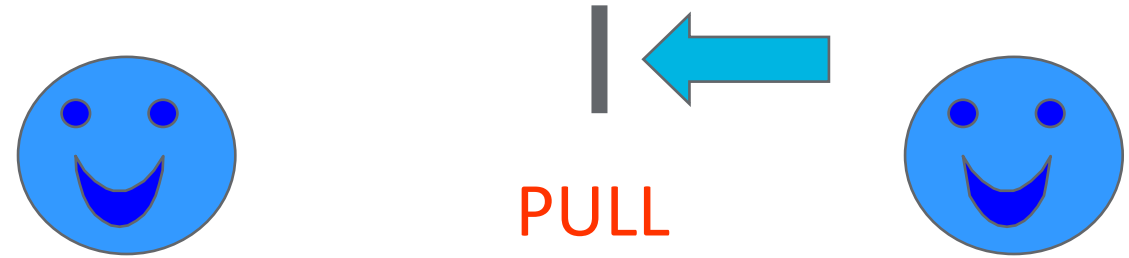
The Test - Pull vs. Push

CUSTOMER

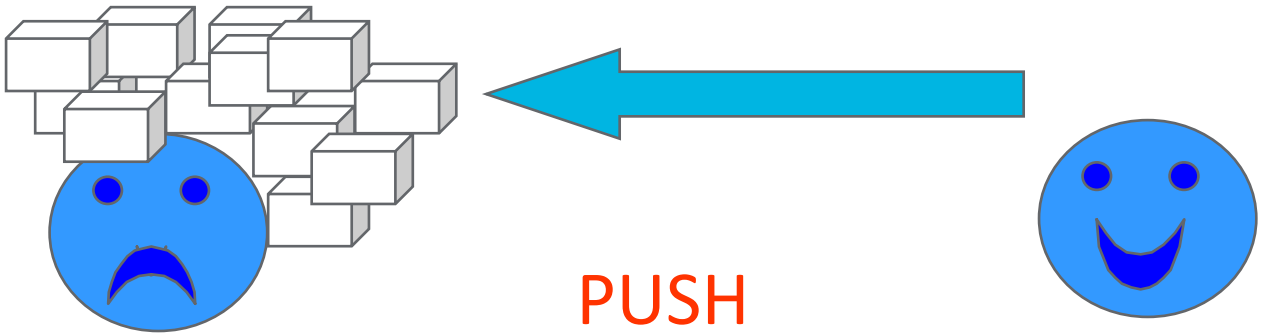
SUPPLIER

I STOP USING

I STOP BUILDING



PULL



PUSH

I STOP USING

I KEEP BUILDING

Pull Techniques

Type	Function
Kanban	Card which signals consumption
Order Point	Replenish fixed quantity when inventory reaches this level
Min/Max	Replenish to max when inventory reaches min
Two-bin	Fills one container while working out of the other
Reorder Point	Triggers replenishment based on a perpetual inventory record
Breadman	Refills depleted shelf inventory
Vendor Managed	Outside vendor replenishes inventory
Trigger Board	Accumulates kanbans at a supplier
Virtual Kanban	Electronic versions of trigger boards
FIFO Lane	Visual control of first in first out at secondary processes
Heijunka box	Visual load leveling technique
Kanban Post	Accumulates kanbans in order received

Visual Controls

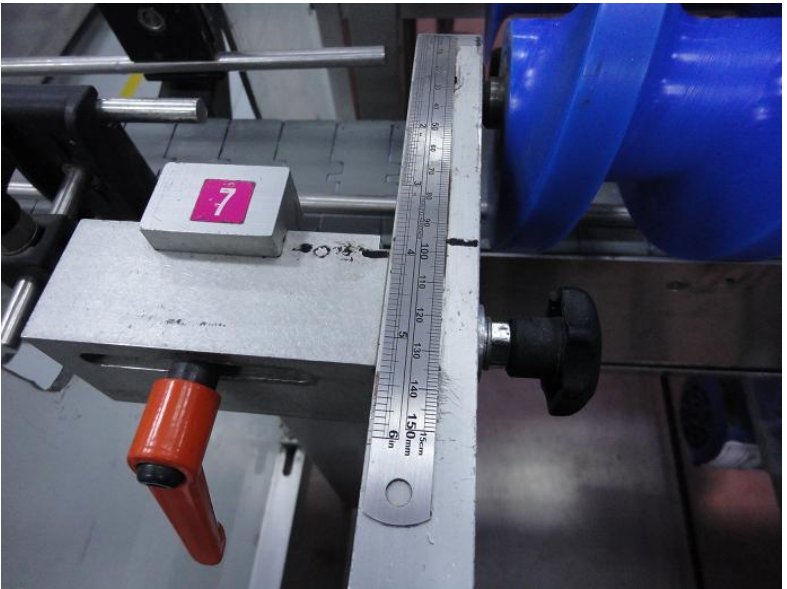
TPM Visual Board

Team boards illustrates teams KPIs (OEE- MTBF- D-Incident- AM Checklists- team meetings action plan – OPL & kaizen no.) and it's updated on daily basis by team members

KPIs on Visual Board:

- OEE
- D- INCIDENT
- MTBF
- OPL Numbers
- Kaizens Numbers
- Team Meeting action plan
- Loss tree


EP46
PP Factory
PM 200990
Filling line Thomason
01/01/05
380 V
AC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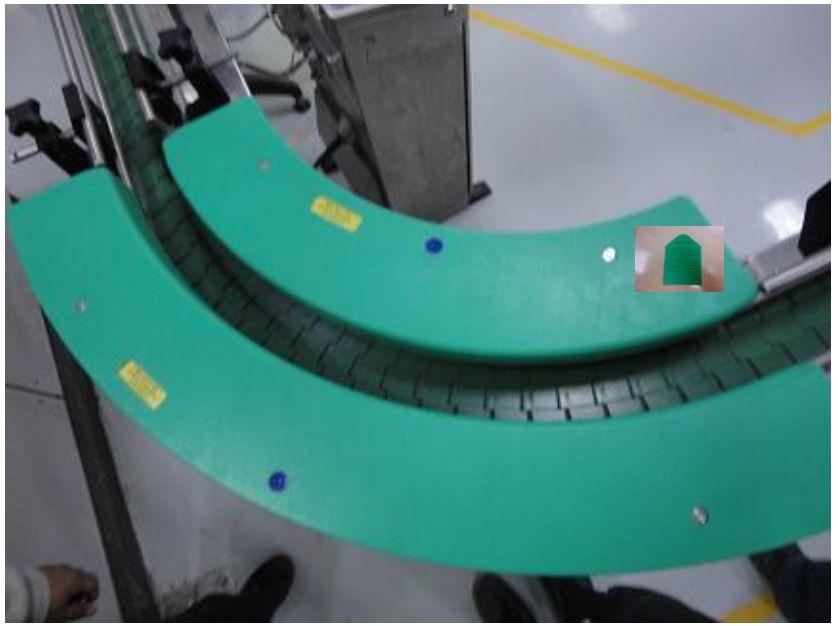



PP Factory
PM 200904
Thomason Fl Machine 2
01/10/04
UNILEVER
380 V
AC

Before improvement, this equipment is hidden behind metal panel

Why we need to change to transparent panel?

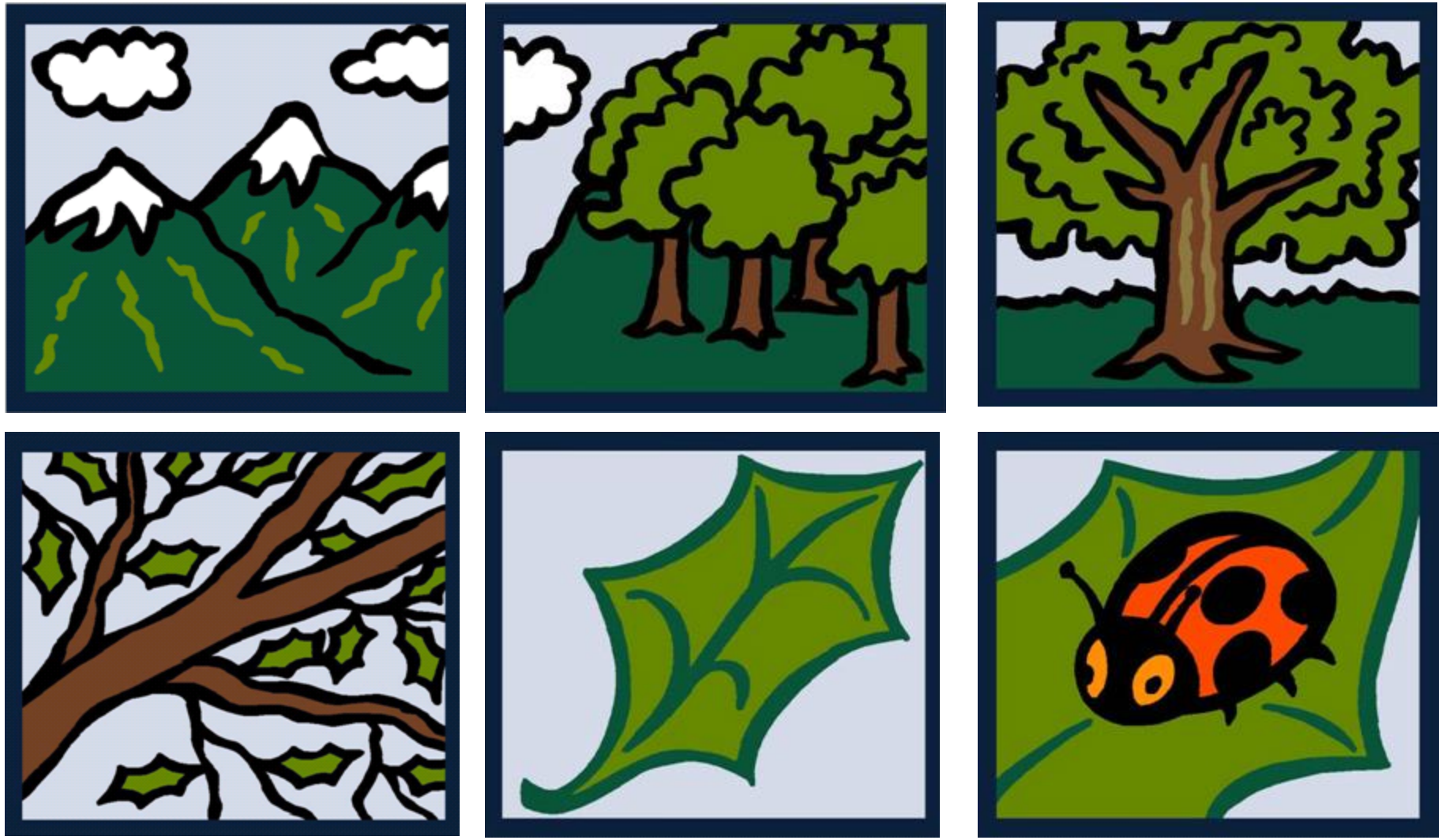
Gemba / Gembutsu / Genshou

3 keywords:

- Gemba: GO TO actual place / Go to the spot
- Gembutsu: OBSERVE actual things or activities
- Genshou: Phenomena
  (logics / reasons why things occur the way it is)

Go to actual place to observe things and activities at that place. If you find “abnormal” situation, apply problem solving techniques (5 Whys’) to get to the root cause

Learning To See



What is Learn To See

- Learning to see is a training to build capability to identify improvement opportunity
- Learning to see capability should be developed through Gemba / Gembutsu / Genshou exercise

What we are looking for on the learn to see ?

Opportunity for improvement

- Learn to see is increase capability on identify opportunity for improvement.
- Learn to see is increase capability on self diagnostic and self improvement.
- Learn to see is increase capability on continuous improvement → how to make a good things better.

Why we need to be able to “SEE”

- Self Diagnostic, Self improvement
- To Understand the opportunities for improvement
- 1st step towards Continuous Improvement (kaizen) efforts !

Tips on Learn To See

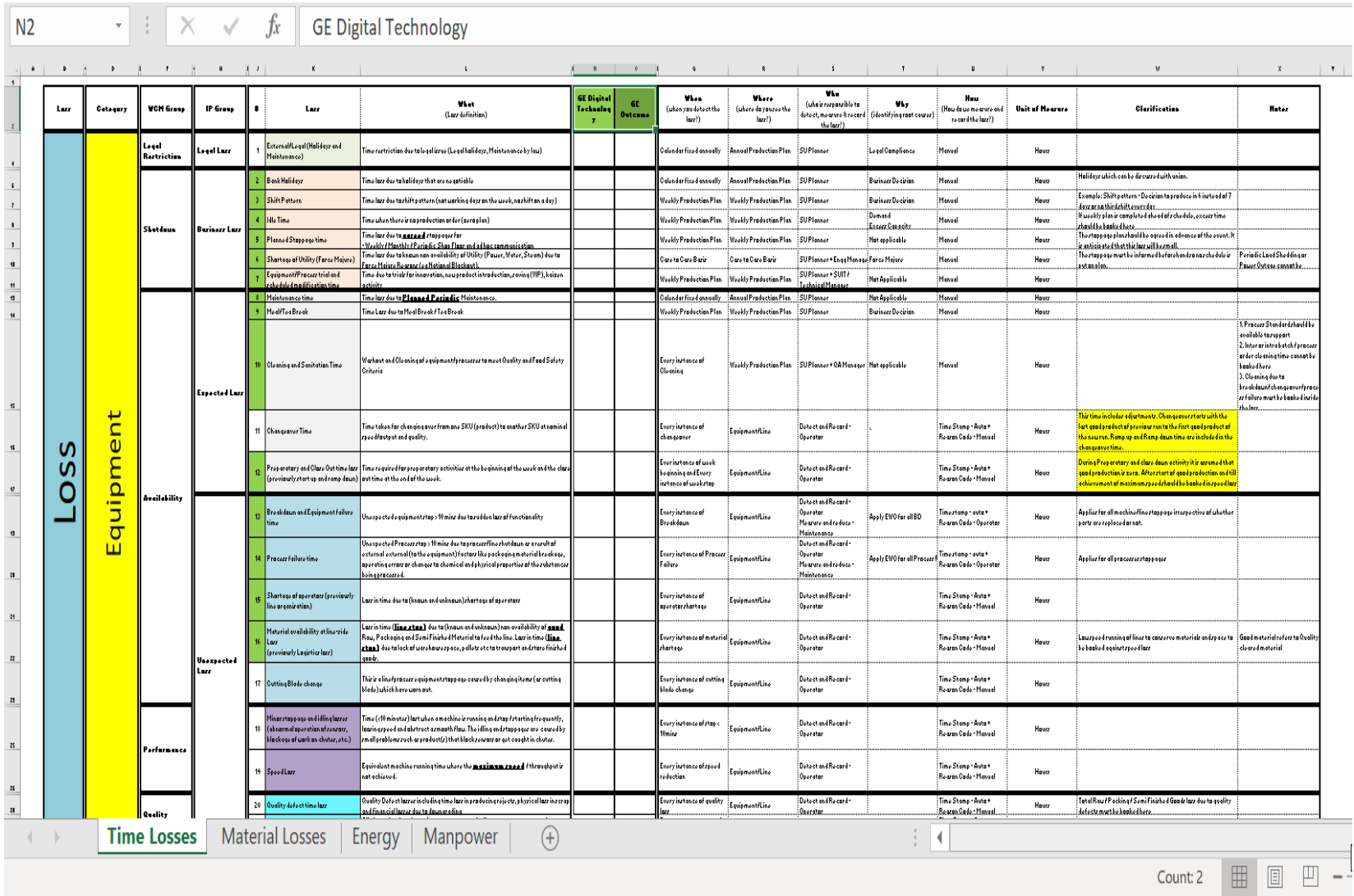
- See the actual fact, see closer
- Use your finger to point out and for detail
- Make comparison by
  - Asking what is the purpose ?
  - Why should be like this ?
  - Is there anything‘s that can make a difference ?
  - Is there a better way ?
  - Is customer happy ?
  - Is it the cause of reject ?
  - Asking the chains of whys?
- Compare to similar things / things that has similar function and see which one is more beneficial
- Use your logic / common sense
- Learn to see will lead you to a conclusion what the control (visual control) need

39 Losses

FI – Focus Improvement Pillar

The 39 losses Time, Material, Manpower & Energy

[Files add in\01 Production Losses.xlsx]



4- Problem Solving Methodology:

Team:

Formed to solve problems (expertise + fresh with systematic approach) + leaders should be aware with systems and has leader qualifications

Way of Working

- 80/20 (Pareto) (Problem impact & Difficulty for solving)
- Colleagues Problem Solving
- 4 step Management **Files add in\02 GE 4 Step Template.xlsx**

Result Required:

- Why I should predict this problem
- The optimum time for solving
- The rout cause of this problem
- How to prevent this problem from the reoccurrence
- Standardize & Roll out

4- Problem Solving Methodology - Tools:

- Fish Bone Diagram (brain storming tool) should e used with Why Why tool …….
- 5W + 1H
- Why Whys
- WWBLA
- PM Analysis
- FMEA (Sustain & Improve) (Quality, Safety & Early Management)
- 8D
- 6 Sigma
- 3M (Muri, Mura, Muda)

Kaizen

Its any action promotes **Improvement**

In applying safety, 5S levels, eliminating one of the 8 wastes.....etc.

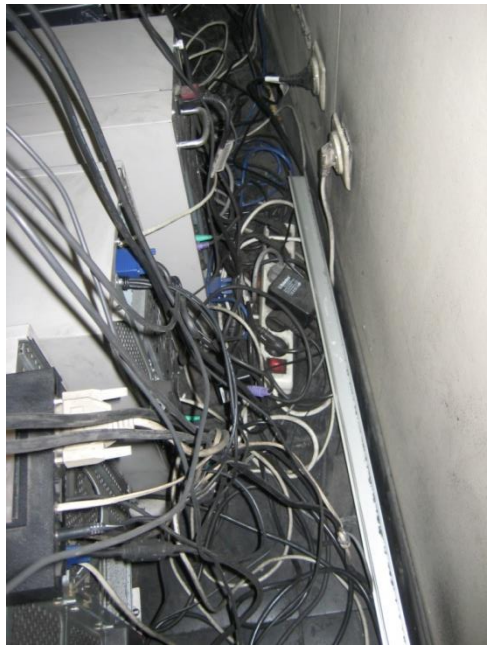
Small K

- Idea for Improvement = Opportunity Tag (Green)
- Defect = Red Tag (Red)

Big K

Before

- Idea for Improvement = Opportunity Tag (Green)
- Defect = Red Tag (Red)



Big K

After

% Kaizen Participation

Files add in\GE Kaizen record.pub

OPL

Files add in\GE OPL Template.pptx

CIP - Saving

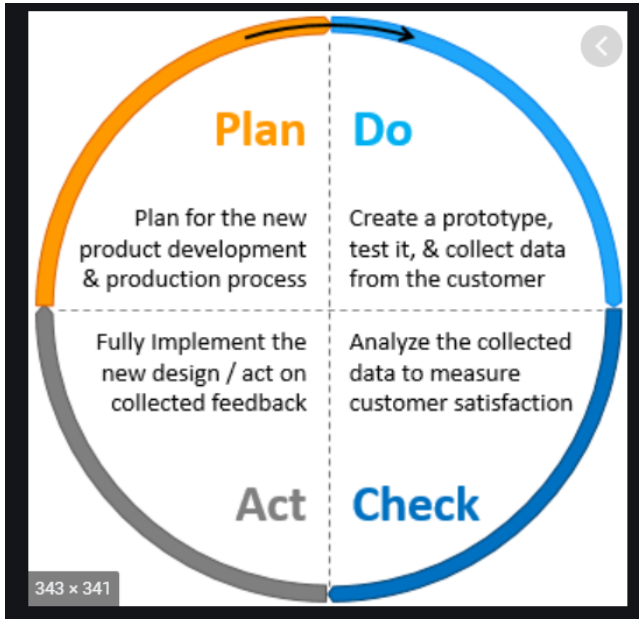
- Soft CIP
- Hard CIP

Poke Yoke

Poka-yoke (ポカヨケ, [poka joke]) is a Japanese term that means "mistake-proofing" or "inadvertent error prevention". A poka-yoke is any mechanism in any process that helps an equipment operator avoid (yokeru) mistakes (poka).

Mean Time Between Touch MTBT

PDCA



Standard Work

Files add in\07 LSW Template.xlsx

SOPs & WI

Team Building & Leadership

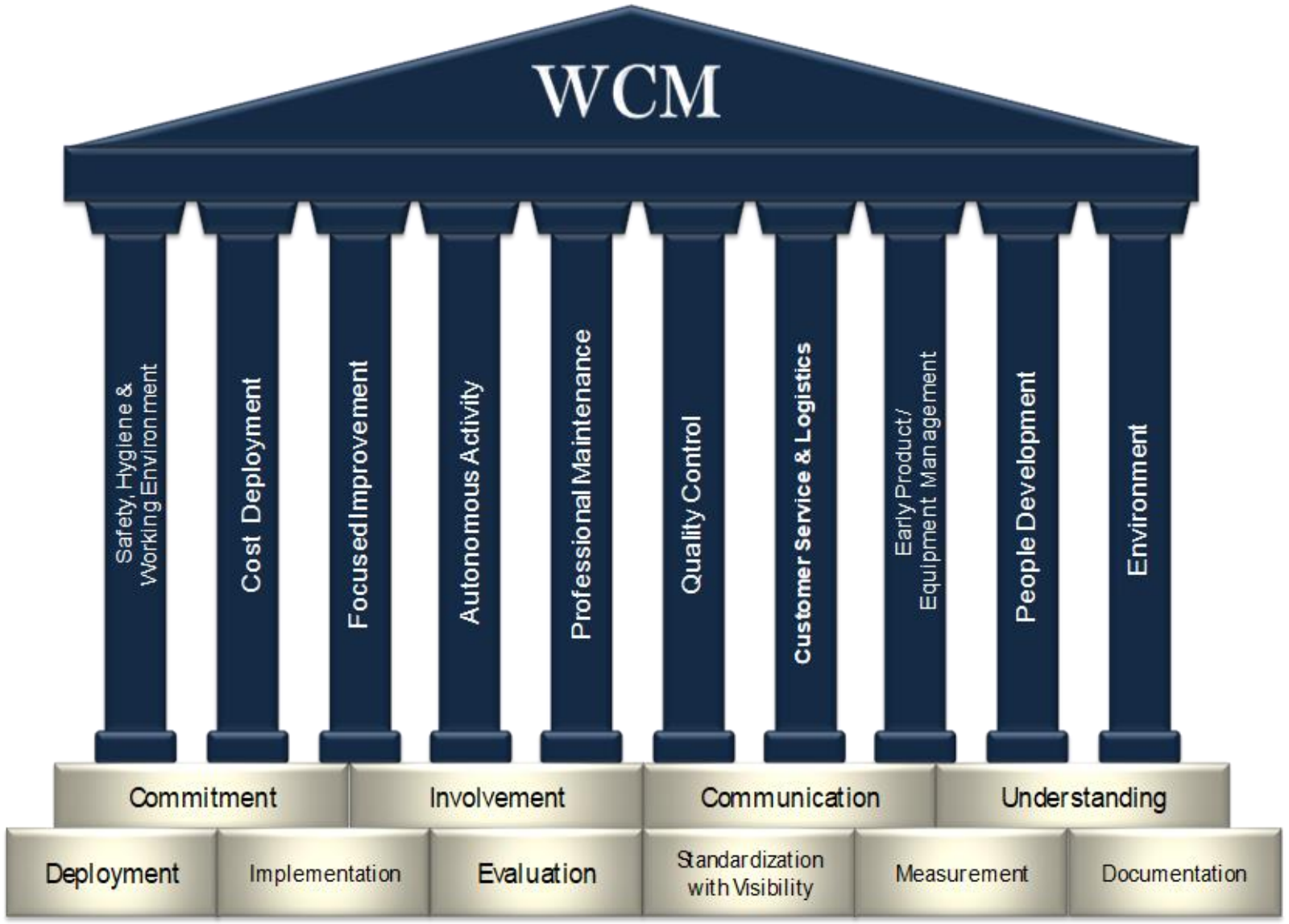
1. Passion (الشغف)
2. Involvement (اشترك مع الآخرين)
3. Explain benefits (اشرح الفوائد)
4. High standard (ضع دائما معيار عالي)

YOKOTEN

Sharing information, new ideas.....

Manufacturing Excellence – Implementation & Digitalization

WCM



Manufacturing Excellence – Implementation & Digitalization

Safety Implementation Steps	CD Implementation Steps	FI	AM
Emergency work order	A Matrix – C&R	The 39 losses Time, Material, Manpower & Energy	
Incident reports	B Matrix – Link between machines	Problem solving Methodology	
SCAT	C Matrix - Cost		
5W+1H	D Matrix		
RCA	E Matrix		
Analysis of countermeasures against incidents roots causes. Countermeasures must be taken understanding Human Nature.			
	CD Matrices CD_Tool.xlsm	Files add in\01 Production Losses.xlsx	

Manufacturing Excellence – Implementation & Digitalization

PM Implementation Steps	GE Digital Technology APM	GE Outcome
Step One		
Mainly working with the AM pillar (Linking between AM)		
• Initial cleaning		
• Restoring basic condition		
• CILR/T (both Re-fastening & tinning)		
• Develop Tags system		
• Develop Work order system (these data will be used to the required analysis on breakdown & machine health)		

PM – Professional Maintenance Pillar

PM Implementation Steps	GE Digital Technology APM	GE Outcome
Step Two		
Still working with AM & start the RCA		
• Develop machine criticality analysis		
• Develop group & mechanism criticality analysis		
• Develop Pareto for breakdown		
• Start developing the machine ledger		
• CILR/T (Done)		
• Start doing the Centerline/Standardize (all measurements speed st, (change over standards))		

PM – Professional Maintenance Pillar

PM Implementation Steps	GE Digital Technology APM	GE Outcome
Step Three		
Stabilization for performance		
• Spare part management system		
• PM plan (should start with time based maintenance) (need money)		
• Machin leger = machine book = Divided the Machine to: **Group, mechanism, parts** For each there should be: Description, number, criticality, supplier, location in WH, tool need for both assembly & de-assembly , maintenance type (time, condition,…), duration of maintenance, assembly de-assembly The calendar column will have 4 triangles PM plan (date, time…) yellow PM done on time Black PM done on breakdown PM done not on time		
• Maintenance plan on place – check working or not		
• Check that team is using the developed “Centerline/Standardize (all measurements speed st, (change over standards))		

PM – Professional Maintenance Pillar

PM Implementation Steps	GE Digital Technology APM	GE Outcome
Step Four		
• Start to improve the maintenance plan → Work to increase "time base" needed to maintain each per spare parts By doing inspection & some by Kaizen (using better material)		
• The Centerline/Standardize (all measurements speed st, (change over standards)) → should reach to Poka Yoka (mistake proofing) level		

PM – Professional Maintenance Pillar

PM Implementation Steps	GE Digital Technology APM	GE Outcome
Step Five		
Condition based (more involvement from production team)		
PM Implementation Steps	**GE Digital Technology APM**	**GE Outcome**
Step Six		
Predictive		
PM Implementation Steps	**GE Digital Technology APM**	**GE Outcome**
Step Seven		
• Stander is there (time, breackdown,00000) (operator level) operator to maintain		
• Data used to go EQM		

QC – Quality Control Pillar

QC Implementation Steps	GE Digital Technology	GE Outcome
Step Zero		
Create "Quality Emergency work order" per each quality incident/defect		
5W+1H		
Why Why analysis – 4M analysis		
Develop QA Mtrix using the 4M		
Select project per M		
For Machine		
1. Investigation for the current condition		
2. Restore the basic condition		

QP Matrix

QP Matrix.xlsx

QC – Quality Control Pillar

QC Implementation Steps	GE Digital Technology	GE Outcome
Step Zero		
Create "Quality Emergency work order" per each quality incident/defect		
5W+1H		
Why Why analysis – 4M analysis		
Develop QA Mtrix using the 4M		
Select project per M		
For Machine		
1. Investigation for the current condition		
2. Restore the basic condition → Either go to step five or conduct a PPA		

QP Matrix

QP Matrix.xlsx

PPA

QC – Quality Control Pillar

QC Implementation Steps	GE Digital Technology	GE Outcome
For Method, Man & Material		
1. Select the topic		
2. Understand situation & set target RCA		
3. Plan activates		
4. Analyze causes		
5. Consider & implement countermeasure		
6. Check result		
7. Standardize & establish control		

Manufacturing Excellence – Implementation & Digitalization

L&CS– Logistics & Customer Service Pillar	EEM & EPM Pillar	PD - People Development Pillar	EN – Environment Pillar
Scheduler			

Manufacturing Excellence – Implementation & Digitalization

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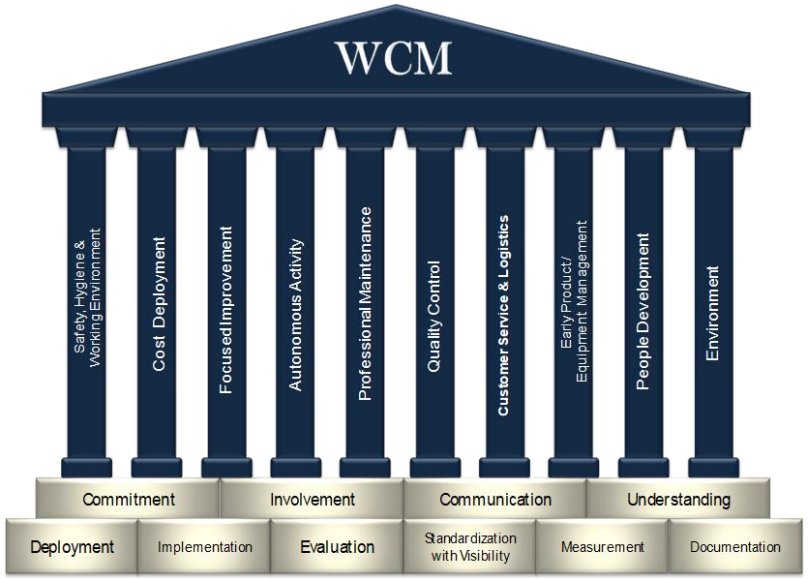

[WCM Pillars KPIs & KAIs.xlsx]

Pillar KPIs "Key Performance Indicator" & KAIs "Key Activity Indicator"

Pillars KPIs & KAIs

Pillar	Cat.	No.	KPIs & KAIs	UoM	Frequency	GE Digital Technology	GE Outcome	Definition
Safety	KPIs	1	Factory Worked Hours	h	Monthly			(From Unilever Occupational Health & Safety Glossary of Terms) Total number of paid hours worked by all site employees.
		2	Number people	#	Monthly			Total number of employees, considering also sub-contractors, in the model area. This is absolute number in all shifts
		3	Fatalities (Absolute)	#	Monthly			(Please refer to Unilever Occupational Health & Safety Glossary of Terms)
		4	LTA - Lost Time Accidents (Absolute)	#	Monthly			(Please refer to Unilever Occupational Health & Safety Glossary of Terms)
		5	RWC - Restricted Work Cases (Absolute) -	#	Monthly			(Please refer to Unilever Occupational Health & Safety Glossary of Terms)
		6	MTC - Medical Treatment Cases (Absolute)	#	Monthly			(Please refer to Unilever Occupational Health & Safety Glossary of Terms)
		7	FAC - First Aid Cases (Absolute)	#	Monthly			(Please refer to Unilever Occupational Health & Safety Glossary of Terms)
		8	NM - Near Misses (Absolute)	#	Monthly			(Please refer to Unilever Occupational Health & Safety Glossary of Terms)
		9	UC - Unsafe Condition (Absolute)	#	Monthly			An UC is a condition or a situation, which may expose people to potential injury, or has a potential to cause damage or loss. May be caused by faulty design or engineering, or inadequate maintenance and subsequent
		10	UA - Unsafe Act (Absolute)	#	Monthly			An UA is an act or an action by a person or persons which has a potential for injury (an LTA, RWC, MTC, FAC or NM) or a loss due to damage.
		11	TRFR Rate					
		12	FAC Freq index					
	KAIs	1	IRC (% actions closed on time)					
		2	IQ Index (incident investigation quality criteria)					
		3	RPR: % (high & medium risks before/after actions)					
		4	SBO/DCA compliance					
		5	#of LUTI					
yment	KPIs	1	WCM Cost Perimeter	M€	6 Months			WCM Cost Perimeter is the yearly conversion cost, adding Raw & Packing Materials Waste considered in the Bill of Materials (BOM), for the Model Area. WCM Cost Perimeter = Conv. Cost + R&P M waste in BOM
		2	Identified Losses (Absolute)	M€	6 Months			Identified Losses Rate is the yearly conversion cost rate, not adding any value to the conversion process, e.g. breakdowns, changeovers, micro stoppages, quality checks, absenteeism, etc, converted into cost. Identified Losses Rate= ∑Losses converted to cost MA Cost Perimeter
		3	Losses Covered by Projects	M€	6 Months			It is the total amount of loss in terms of cost with on-going project in E-matrix. In order to consider one loss is covered by a project, the project needs to be started.
		4	Identified Savings	M€	Monthly			It is total amount of forecasted savings in F-matrix
		5	Carry-over in savings	M€	Monthly			This is the amount of savings coming from last year projects, still impacting in current year.
		6	Actual Savings	M€	Monthly			This is the actual savings according to F-matrix.
		7	Savings Forecast	M€	Monthly			This is the amounts of savings forecasted in F-matrix.
		8	% Perim/Id.Losses					
		9	% Ident/Covered					
		10	Losses Civ/Ident Sav					
								Raw Material Waste (RMW) is waste related to raw materials and ingredients in the Model Area, incorporated in the product sold during the period and must relate to the product in the form it leaves production.

WCM Pillars KPIs & KAIs | ManEx Tools