

# VISUAL MANAGEMENT



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## 3 KEYS TO LEAN

1. Create an environment in which the abnormal can be distinguished from the normal.
2. Develop a workforce that knows the right thing to do when they encounter the abnormal.
3. Empower the workforce to do the right thing.

Standard work & Visual management

John Shook  
Chairman and CEO  
Lean Enterprise Institute



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## VISUAL MANAGEMENT

What:

- To have all important information in a highly visible & accessible place, in a such way that supports people to make quick, factual decision.

Objectives:

- Visualise the process status, in order to identify immediately the deviations of standards and solve them.
- Create and reinforce routine management standard work and support the implementation of lean tools and philosophy.

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## VISUAL MANAGEMENT IN DAILY LIFE

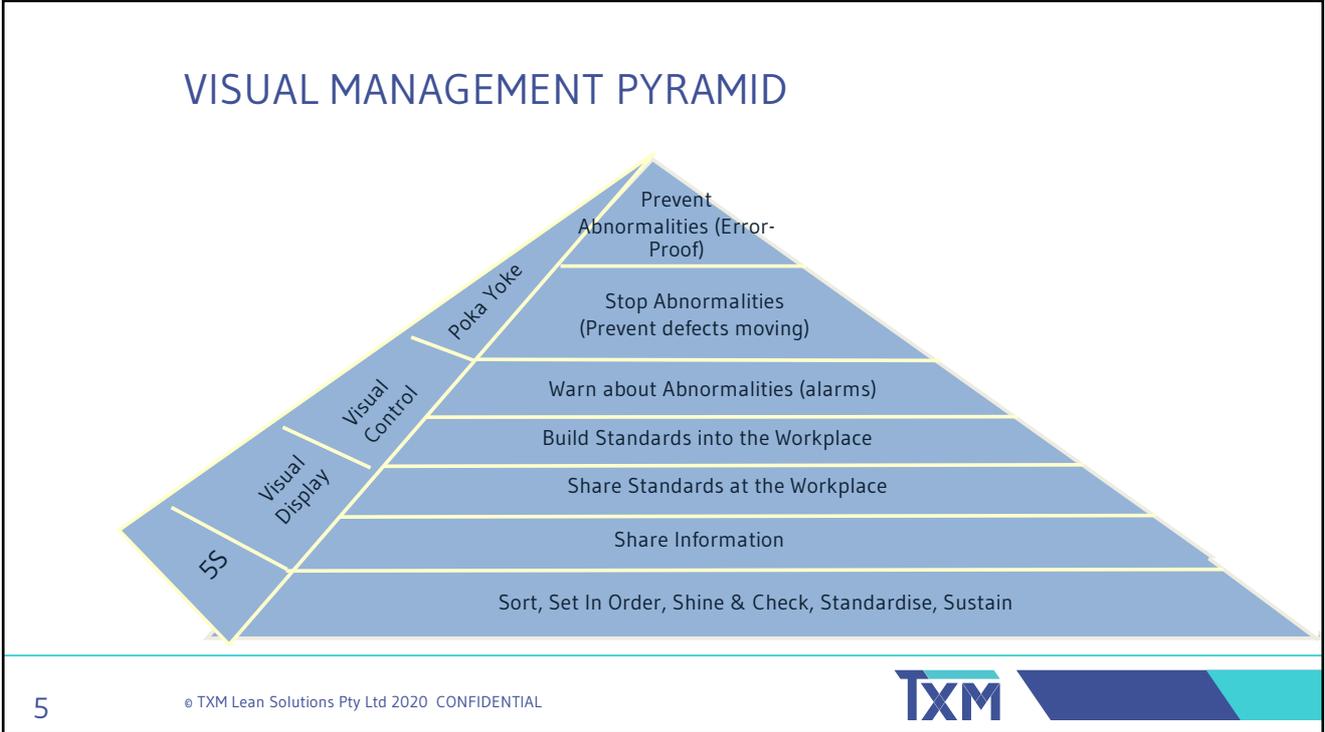


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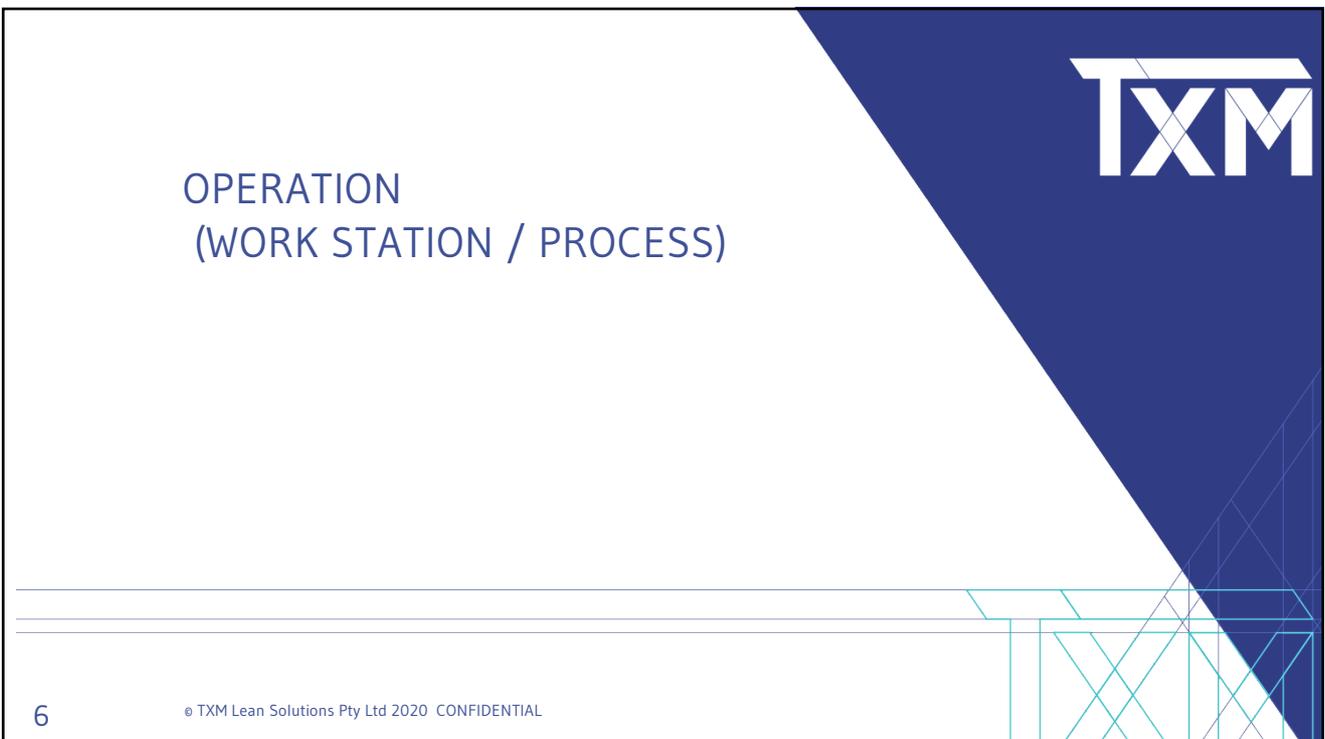
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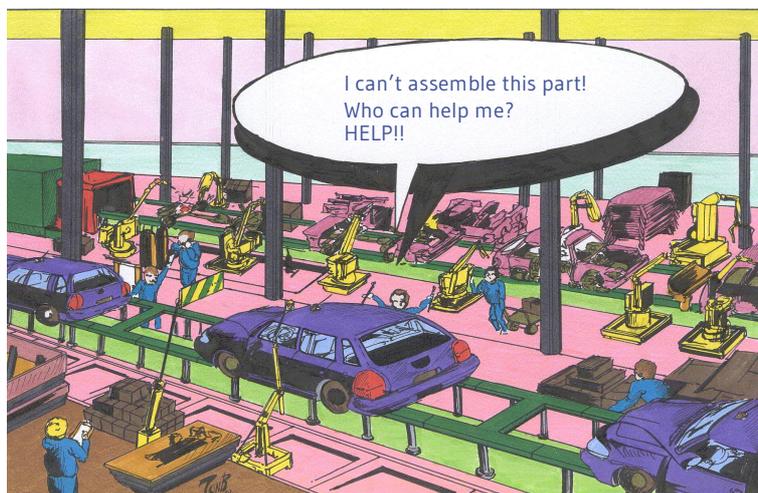


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## OPERATION



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## ANDON

### Purpose:

- Show in a clear way where a problem is happening

### How it works:

- When the operator detects a problem they press a button or pull a chord that turns on the alert light both in the work station and on the Andon Board
- Supervisor takes the immediate action and turns off the light

### System:

- Procedure to help the operator when the light is on should be clearly defined
- A response time target to reach the work station and to fix the problem quickly

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## ANDON



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## STANDARD WORK

### Purpose:

- Guide the operator regarding WHAT to do, HOW to do, HOW long each step takes, HOW MANY to do, WHEN to do an operation

### How it works:

- It shows step by step the tasks that the operator must do, through drawings, or diagrams to make a immediate understanding possible
- The words and sentences in this document should use the “operator language”
- Achieving task times and Quality outcomes determines competency and help identify the best method and adjudicate alternative methods

### System:

- A frequent review and update schedule should be established
- New and changed products and processes need to be standardised

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## WORK INSTRUCTION



## STANDARD WORK SHEET

Tools		Part: MPH-001 Rev A		Sheet: 1	
Tool Number	Rev	Version	1	2	Operation Cycle Time:
123		Approved Date	1/10/20	1/10/20	
D-156	A	Initials	JM	RM	

Figures	Step	Steps	Symbol	Manual Time	Waste Time	Cumulative Time
	1	Prep PPE	🚫			
	2	Stage Shipping Locks	🔒			
7	3	Linear Stage Prep	🔧			
12	4	Clip Center Limit	📏			
14	5	Clip other two wires	🔗			
15	6	Strip Insulation	🔪			
17	7	Cut White Wires	✂️			


4.0 Standardized\_Work\_English&Chinese 2008-10-17.ppt [Compatibility 14.0.0.0]

# FLOOR LINE MARKING AND SIGNAGE



**STANDARD SIGNS USED ACROSS THE SITE**

**THIS PROTECTIVE EQUIPMENT MUST BE WORN AT THIS AREA**

**GROUP PPE SIGNAGE**

**FLOOR DEMARCATION**

Code	Description	Color
1.1.1	Clearance Markings	Blue
1.1.2	Work Area	Blue
1.1.3	Storage Area	Blue
1.1.4	Demarcation (Unidirectional)	Blue
1.1.5	Demarcation (Bidirectional)	Blue
1.1.6	Demarcation (No Entry)	Blue
1.1.7	Demarcation (No Parking)	Blue
1.1.8	Demarcation (No Access)	Blue
1.1.9	Demarcation (No Entry/No Parking)	Blue
1.1.10	Demarcation (No Access/No Parking)	Blue
1.1.11	Demarcation (No Entry/No Access)	Blue
1.1.12	Demarcation (No Access/No Access)	Blue
1.1.13	Demarcation (No Entry/No Access/No Parking)	Blue
1.1.14	Demarcation (No Access/No Access/No Parking)	Blue
1.1.15	Demarcation (No Entry/No Access/No Access)	Blue
1.1.16	Demarcation (No Access/No Access/No Access)	Blue
1.1.17	Demarcation (No Entry/No Access/No Access/No Parking)	Blue
1.1.18	Demarcation (No Access/No Access/No Access/No Parking)	Blue
1.1.19	Demarcation (No Entry/No Access/No Access/No Access)	Blue
1.1.20	Demarcation (No Access/No Access/No Access/No Access)	Blue

**WASTE BIN COLOURS**

Code	Description	Color
2.1	General Waste Bin	Green
2.2	Metal Waste Bin	Red
2.3	Oil Waste Bin	Blue
2.4	Flammable Waste Bin	Yellow
2.5	Flammable Waste Bin	Orange
2.6	Oil Spill Kit	Red
2.7	Radio	Blue

**EQUIPMENT COLOUR CODING & IDENTIFICATION**

Code	Description	Color
3.1	Rotary gear frame	Blue
3.2	Rotary gear frame	Blue
3.3	Rotary gear frame	Blue
3.4	Rotary gear frame	Blue
3.5	Rotary gear frame	Blue
3.6	Rotary gear frame	Blue
3.7	Rotary gear frame	Blue
3.8	Rotary gear frame	Blue
3.9	Rotary gear frame	Blue
3.10	Rotary gear frame	Blue
3.11	Rotary gear frame	Blue
3.12	Rotary gear frame	Blue
3.13	Rotary gear frame	Blue
3.14	Rotary gear frame	Blue
3.15	Rotary gear frame	Blue
3.16	Rotary gear frame	Blue
3.17	Rotary gear frame	Blue
3.18	Rotary gear frame	Blue
3.19	Rotary gear frame	Blue
3.20	Rotary gear frame	Blue



# PRODUCTION PLANNING AND CONTROL



## PRODUCTION PLANNING AND CONTROL



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## PRODUCTION STATUS BOARD

### Objective:

- Promote PDCA in real-time, in order to allow quick production recovery.

### How it works:

- At the beginning of shift (or day) the production plan is established and displayed on the boards. At each interval, the production outcome is written on the board as well as any problems that occurred.
- The supervisor / leading hand should help the team problem solve, in order to recover the production in next interval and prevent recurrence.

### System:

- The routine update needs to be part of the Operators standard work
- The routine review needs to be part of the Leaders standard work
- Periodic review needs to be part of the Managers standard work

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## PRODUCTION STATUS BOARD



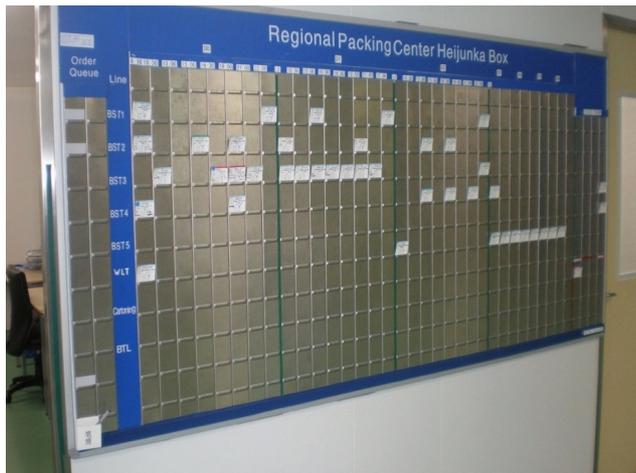
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## PRODUCTION STATUS BOARD - LEVELLING



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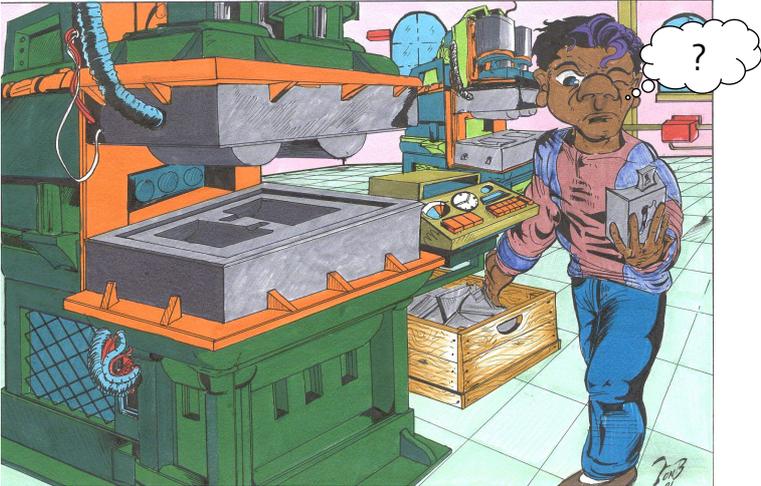
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QUALITY



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QUALITY



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## QUALITY STANDARDS

### Purpose:

- Make the operator decision making easier regarding the product quality

### How it works:

- Standard parts or devices are created to be used as a reference for the operators check the product quality during the process, after a setup or a after maintenance

### System:

- Constant update.
- Standards should be near to the workstation that uses them

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## QUALITY STANDARDS- GO & NO GO



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## QUALITY STANDARDS



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## MACHINE AND MAINTENANCE

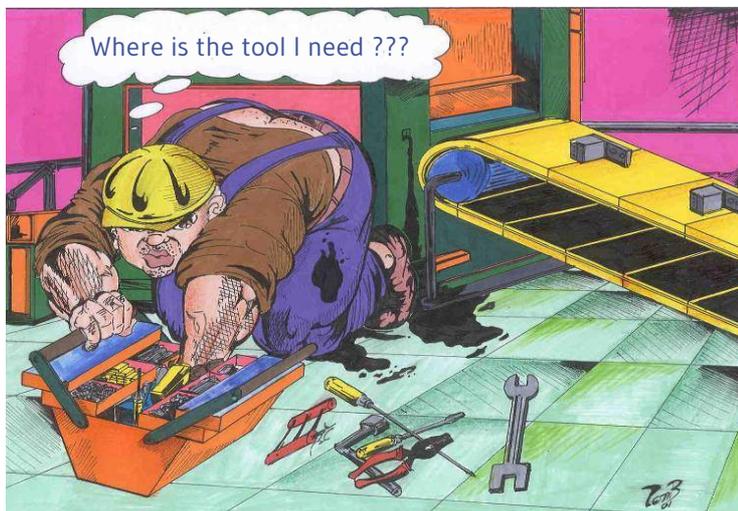


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## MAINTENANCE



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## TOOLS BOARD

### Purpose:

- Optimize the time to look for a tool during some activity

### How it works:

- As a mirror, because any lack of tools is easily identified
- Some boards for common use tools have cards to inform if the tool is being used and where, by whom

### System:

- Clearly define the involved people role
- Create a check process

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## TOOL BOARD



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## MACHINE ANDON LIGHTS

### Purpose:

- Show in a clear way a machine problem
- The machine might continue to operate, or could be stopped

### How it works:

- When a machine is in trouble one light is turned on (automatically or manually)
- Supervisor take immediate action and turn off the light

### System:

- Create an immediate system to support the call from shop floor
- Establish the target of maintenance response time
- Have a reaction plan for the machine defining what immediate action to take for foreseeable events

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## MACHINE ANDON LIGHTS



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## LUBRICATING OIL

### Purpose:

- Facilitate the feeding process for lubricating machines

### How it works:

- The tanks and feeding places area painted on the floor to make the identification and the filling in process easier

### System:

- Create standard to all lubricating oils
- Train users in lubricating systems

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## LUBRICATION OIL AREA



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## LUBRICATION POINT



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## VISUAL MACHINE

### Purpose:

- Facilitate how to identify abnormal machine operating conditions
- Make maintenance more agile

### How it works:

- The main functional positions are explained in an acrylic windows, acrylic protection, turning blades

### System:

- Operator must be trained to perform the inspection in the machine
- Maintenance notice trigger system must be efficient

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## VISUAL MACHINE



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## VISUAL MACHINE



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## MATERIALS & LOGISTICS



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## PRODUCTION STATUS BOARD



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## FIFO – VISUAL

### Objectives:

- Control material work in progress inventory quantity's and traceability of supplied items.

### How it works:

- Create visual signs, which allow anyone to correctly add or withdraw material.
- Ideally use flow racks. Alternatively use visual aids (such as arrows, stands)
- Create a behaviour to not over produce beyond the FIFO buffer

### System:

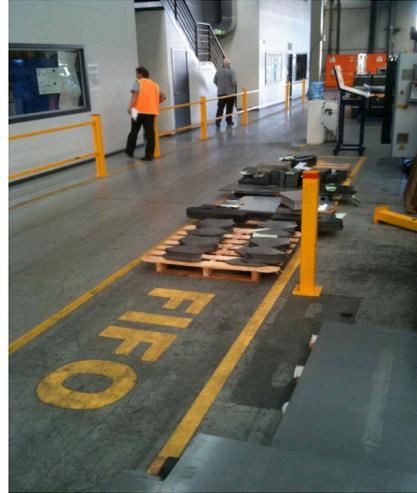
- The physical control allow that any abnormality might be easily identified
- The quantities and the frequency of feeding should be calculated according to the consumption rhythm.

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## FIFO – FIRST IN FIRST OUT



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## VISUAL SUPERMARKET

### Objective:

- Create an effective visual control for parts.

### How it works:

- The control is done through CARDS (Kanbans), where each card represents a part or a pack, that goes along with the material until the place of storage.
- The control board works with a reverse logic, that means, if there is a card on the board, then a part in the stock area needs replenishing.

### System:

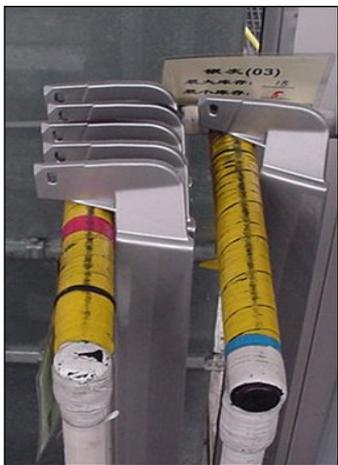
- We should calculate the quantities of cards, based on the demand, feeding capacity and rhythm of withdrawn.

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## VISUAL SUPERMARKET



Fonte: DaimlerChrysler - SBC

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## KANBAN BOARD



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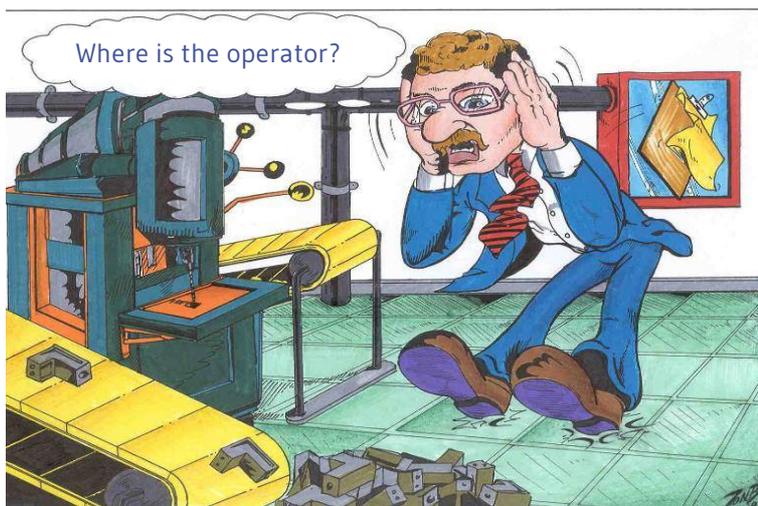
# PEOPLE MANAGEMENT

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# PEOPLE MANAGEMENT



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## PEOPLE VISUAL MANAGEMENT

### Objectives:

- Communicate who can and is doing each task.
- Effective personal and team performance

### How it works:

- The board indicates those operators working in the area
- If an event requires people to move positions the board will enable decision-making

### System:

- Define a communication strategy.
- Establish trainings sessions to increase the versatility of operators (multi-skills)

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## PEOPLE MANAGEMENT BOARD



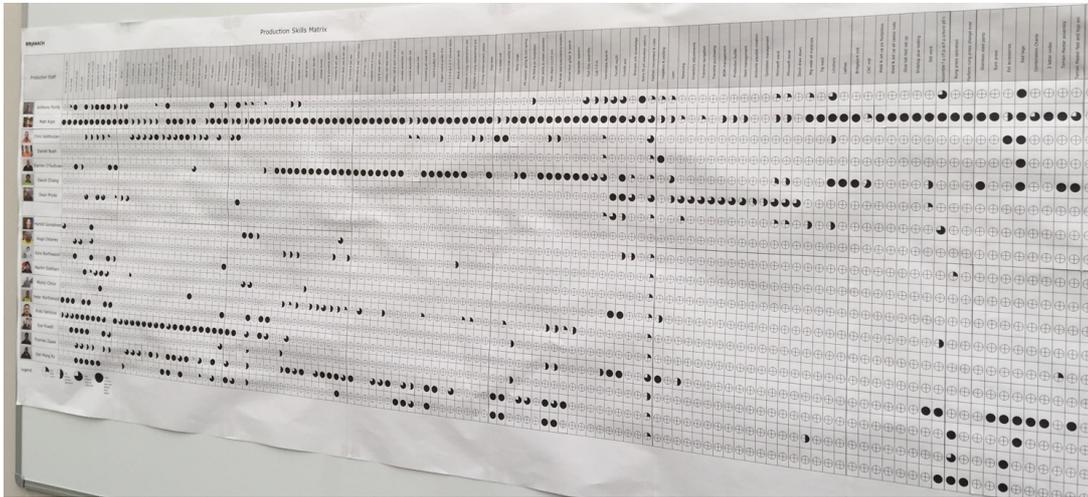
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# SKILL MATRIX



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# FRONT LINE LEADER ROUTINE TASKS - KAMISHIBAI



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## DAILY AREA MEETING BOARD

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## DAILY AREA MEETING BOARD



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## DAILY AREA MEETING BOARD

### Objectives:

- Key communication forum for teams to set expectation and solve problems.

### How it works:

- Usually in a centralised place, very near the place where the actual work is done
- Be frequently updated with the latest results.
- Often whiteboards, with metrics updated by hand and the use of colour coding, such as a “traffic light” system to enable the team to tell at a glance how things are going, as well as what is being done when things aren’t going well
- Define which Indicators add value to the team.
- Create an efficient way to update.

### System

- Link targets to strategic and tactical goals
- Review the performance and coach the teams

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## DAILY AREA MEETING BOARD



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## PROBLEM SOLVING (CONCERN STRIPS)

**PLAN**

TXM	Date	Area	Concern	Permanent Corrective Action
54			TRADES NOT NOTIFYING N. WORKS COMPLETED.	TRADES NOTIFYING MAINT N. WORKS COMPLETED.
Reason For			Ken-	
COMPLETED WORK REQUIREMENT			17/4.	

TXM	Date	Area	Concern	Permanent Corrective Action
154			ACCESS KEYS.	SETS OF KEYS FOR AHA TM & MAINTENANCE
Reason For			RACH	
1/2 lock box -			23/4	

**DO**

TXM	Date	Area	Concern	Permanent Corrective Action
214			TIMESPENT chasing information for warranty claims.	- negotiate with GJ King for copy of Warranty docs
Reason For			LEONIE	
Follow existing process for now.			21/4	

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## SUMMARY

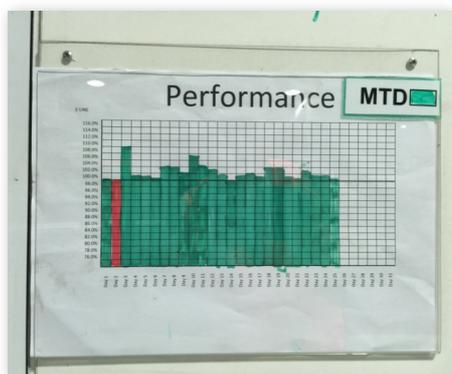


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## TXM 32 SECONDS RULES ABOUT VISUAL MANAGEMENT



- 2 seconds to know good or not
- 10 seconds to understand what's wrong
- 20 seconds to know Who is doing what and how is it going

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## CONCLUSIONS ABOUT VISUAL MANAGEMENT

- Visualise waste;
- Shorten the time to find out information, materials, etc.;
- Incorrect use of Visual Management results in confusion and visual pollution;
- The application should be integrated with lean system;
- Promotes the management of "GEMBA", teams self-management and engages people in greater participation.

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## THE LIFE WITHOUT VISUAL MANAGEMENT



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