FMDS

Training to Suppliers

Supplier Advancement Engineer
Karen Stapleton
Yuri Garcia B

August 2018

Agenda

AGENDA		
Welcome Statement	Alex Thomas	8:30 – 8:45
Introduction to FMDS Concepts/JTEKT Expectations of Suppliers	Karen Stapleton	8:45 – 9:45
Break	All	9:45 – 10:00
Guidelines for Implementation of FMDS	Yuri Garcia B.	10:00 – 12:00
Lunch	All	12:00 – 12:45
Plant Tour and Review FMDS in the Plant	All	12:45 – 2:30
Closing Comments/Wrap Up	Alex Thomas	2:30 – 2:45

FMDS CONCEPT AND SUPPLIER EXPECTATIONS

Supplier Advancement Engineer
Karen Stapleton
Yuri Garcia B

Introduction to FMDS

JTEKT

What is FMDS

Floor **M**anagement **D**evelopment **S**ystem

"Toyota ideal shop floor management method and concept are organized and put into words."

Develop team members into leaders with the ability to:

- Promote a kaizen work environment
- Improve work quality
- Solve problems

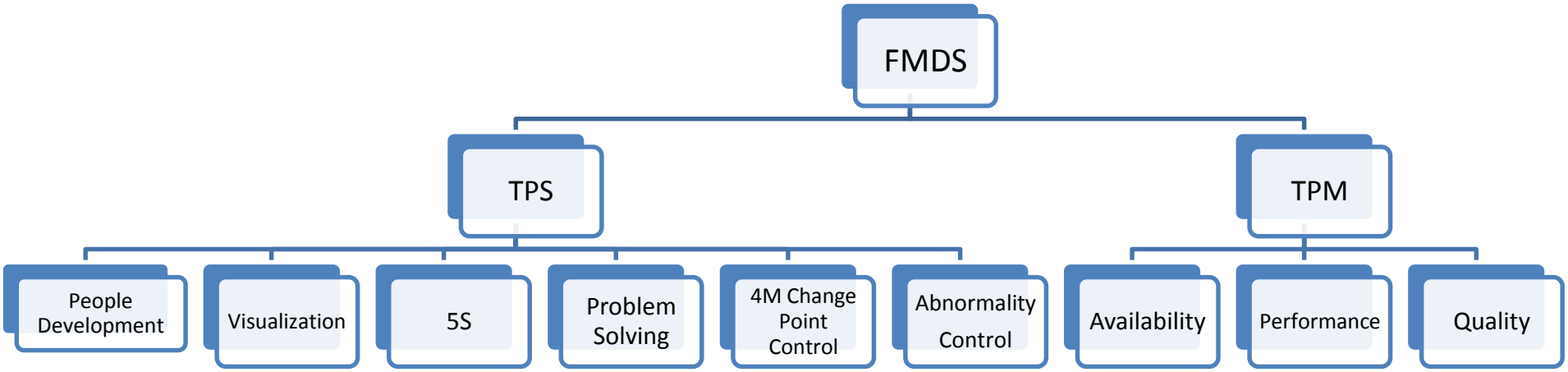
Introduction to FMDS

JTEKT

Toyota based FMDS

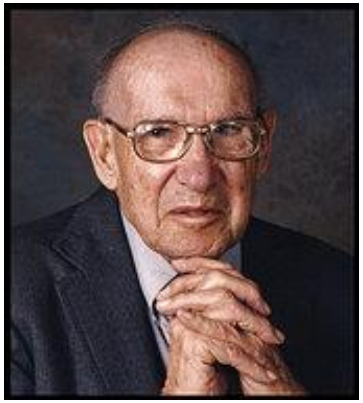
- What is the mission of the Production Shop Floor?
  - To produce better, quality products at lower cost, on-time, and safely.
- What are the production methods to achieve the mission?
  - TPS (Toyota Production System)
  - TPM (Total Productive Maintenance)
- What is the control method including visualization?
  - Abnormality Control

FMDS Structure

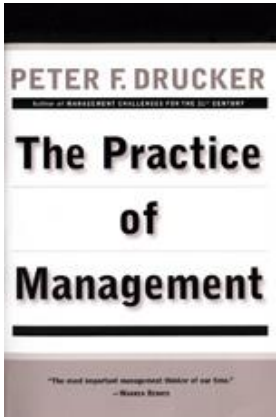


Leaders -Teamwork

The leaders who work most effectively, it seems to me, never say "I." And that's not because they have trained themselves not to say "I." They don't think "I." They think "we"; they think "team." They understand their job to be to make the team function. They accept responsibility and don't sidestep it, but "we" gets the credit…. This is what creates trust, what enables you to get the task done.



- Peter Drucker



FMDS for Visual Workplace

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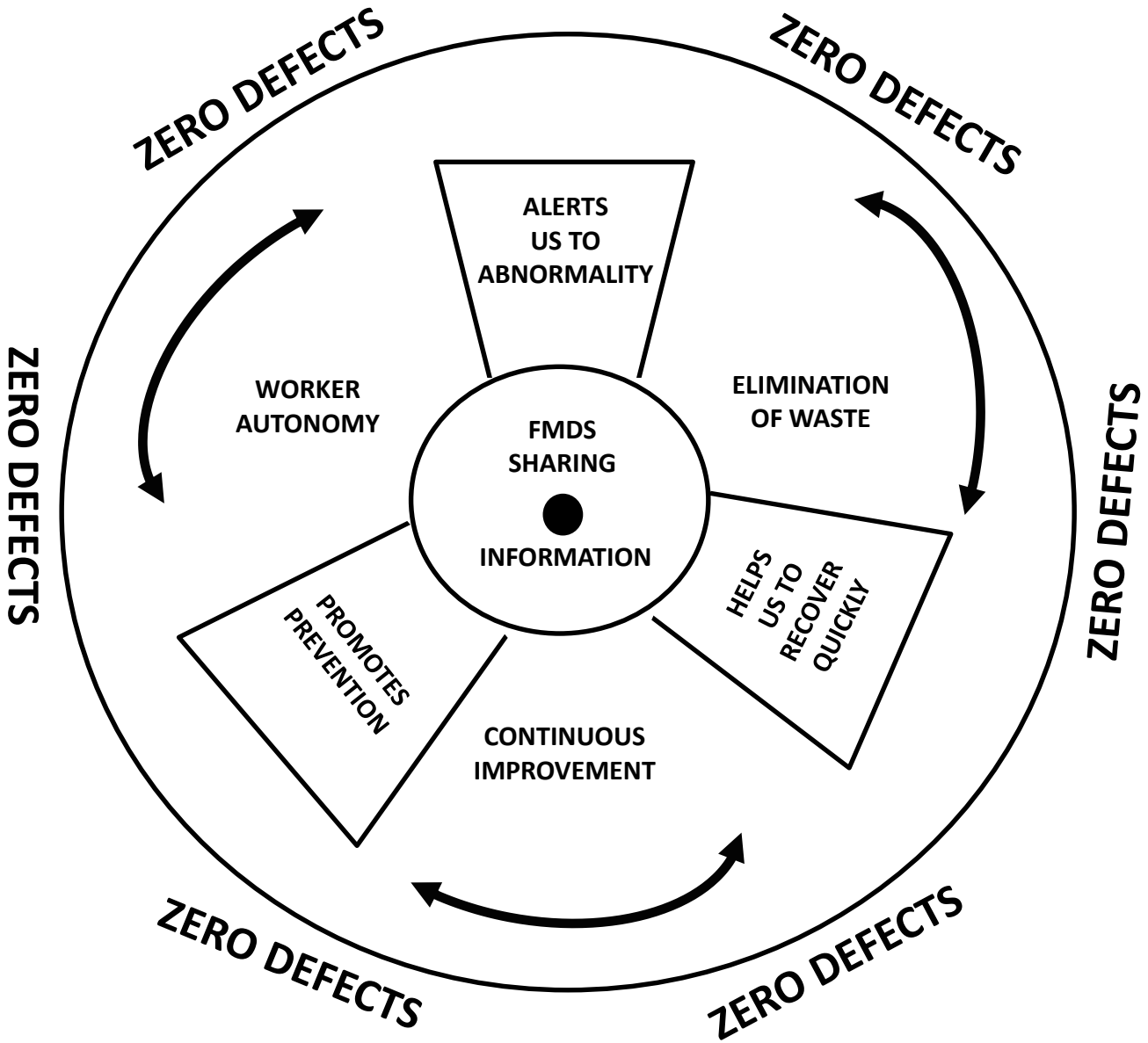
Current Situation

Target Situation

FMDS Visual Control Exercise

FMDS Visual Workplace Objectives

JTEKT



FMDS Levels of Visual Control Pyramid

JTEKT

6
Prevent Abnormalities
i.e., Poka Yoke

5
Detect Abnormalities
i.e., Prevent Defects Moving On

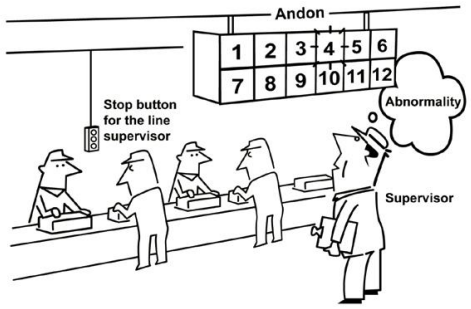
4
Warn about Abnormalities,
i.e. Build in Alarms/Alerts

3
Build Standards into the Workplace

2
Share Established Standards

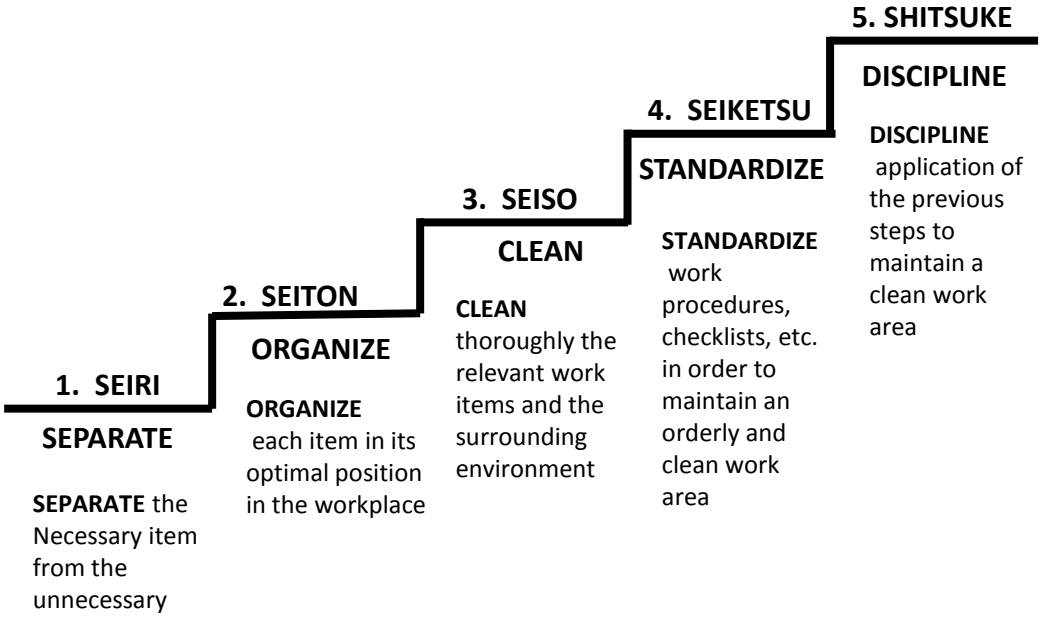
1
Share Information and/or Results of Control Activities

5S
Workplace Organization



FMDS 5S Foundation for Visual Workplace

JTEKT



- There is a place for everything, and everything is in its place.
  - Items, information, schedules, and processes are recognizable at a glance.
- Standard procedures are easily understood and visually clear.
- **It is easy to distinguish immediately between what is normal and what abnormal.**
  - **Waste and abnormalities are immediately recognizable by anyone.**
- Historical and current performance levels are apparent.
- **A zero defect, zero abnormality workplace.**
- **Team members participate in improvement.**

FMDS Problem Solving

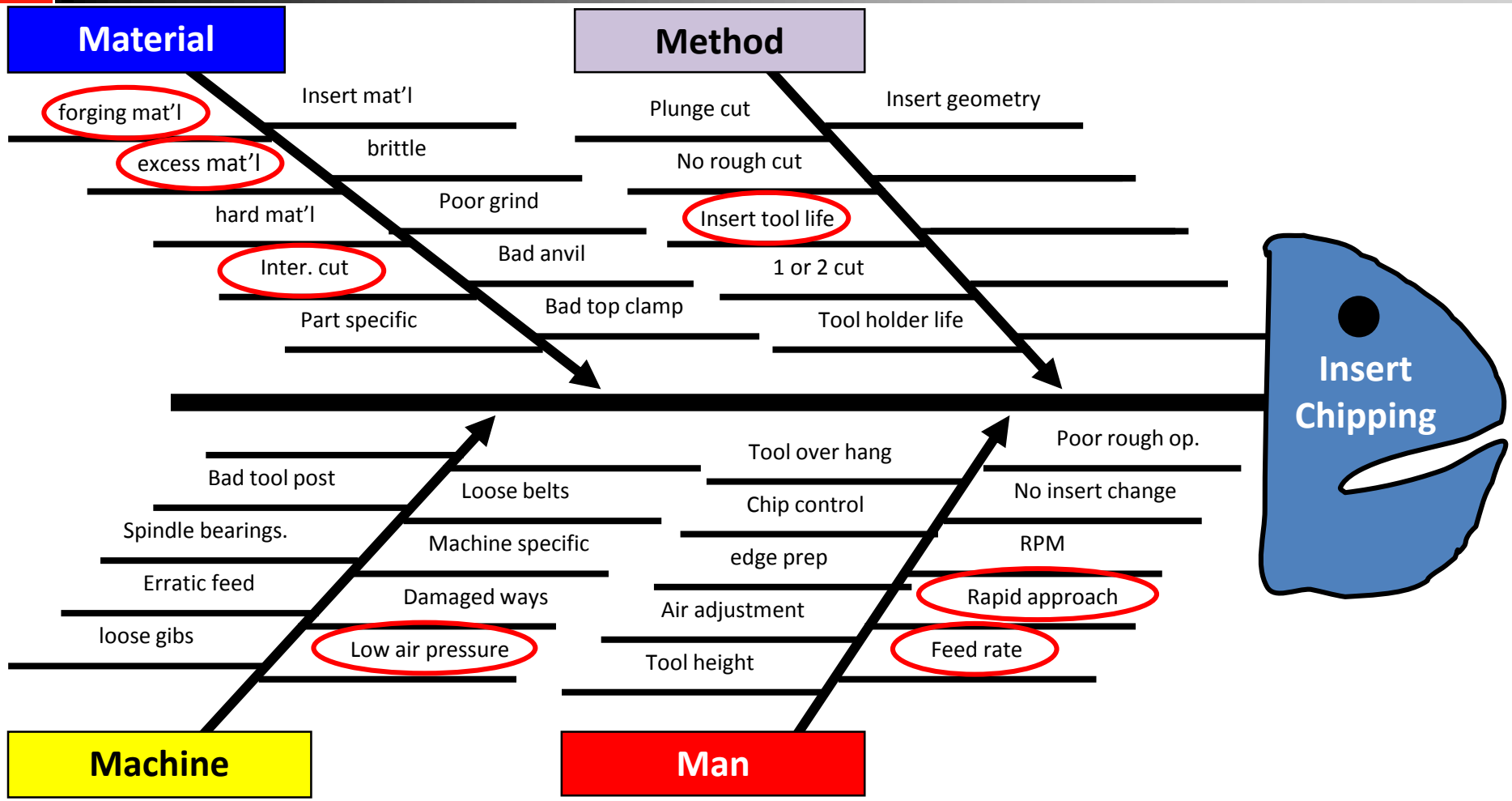
JTEKT

Problem Solving Techniques:

- Fishbone Diagram (Ishikawa)
- 5 Whys
- 8D – A3
- Other

FMDS – Fishbone Problem Solving Method

JTEKT



Next steps assign an improvement for each defect factor, person responsible, due date, and effect.

FMDS - 5 Why Problem Solving Method

JTEKT

- 5 Why Problem Solving
  1) Why has the problem occurred
  2) To the previous answer, cause of the “why”
  3) When you reach the last “why”, trace back to the problem and verify the correctness
  4) Check for missing cause – have you gone far enough?
  5) Take countermeasures against the root cause(s)

- 5 Why Example

Symptom: The machine stopped

Why?

Cause: The circuit overload tripped

Therefore

Why?

The shaft was worn down and seized up

Therefore

Why?

Metal cutting chips penetrated the area

Therefore

Why?

Chips passed through the lubrication system

Therefore

Why?

There was no strainer on the inlet pipe from the tank

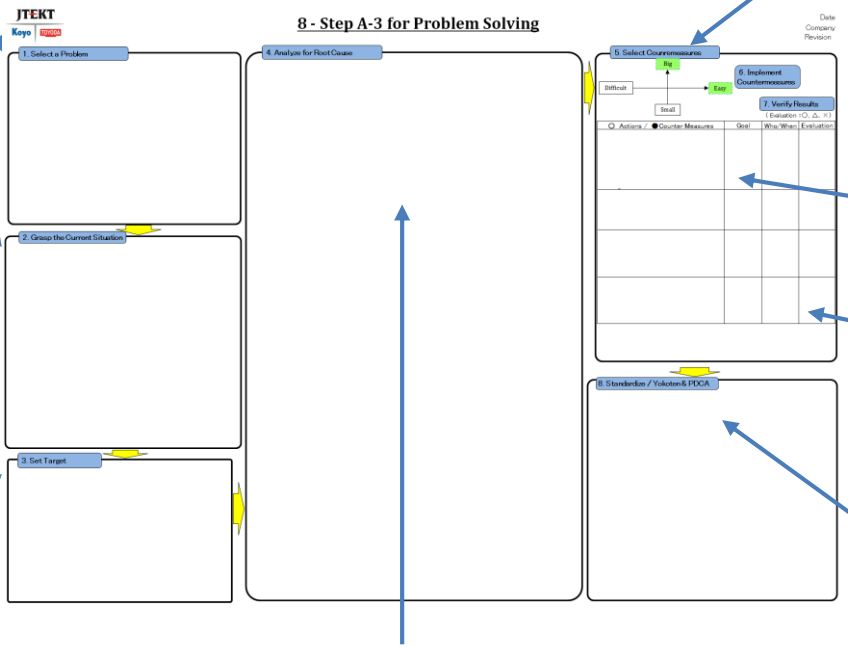
FMDS – 8 Step A-3 Problem Solving Method

JTEKT

1. PROBLEM STATEMENT
Background information regarding the theme of the problem.

2. CURRENT SITUATION
Basic information regarding the problem area: Performance, Bekido, Chokko. Looking for "GAPS".

3. SET THE TARGET
Determine specific target



4. ANALYSIS FOR ROOT CAUSE
5 Why, Ishikawa (fishbone Diagram, 8 Step, etc.
Root Cause Statement is clearly defined.

5. SELECT COUNTERMEASURES
Countermeasures are expected that address root cause. Prioritize by "Big" or "Small", and "Easy" or "Difficult."

6. IMPLEMENT COUNTERMEASURES

7. RESULTS
(**O**) Good impact, (**Δ**) Little or no change, (**X**) Worse condition.

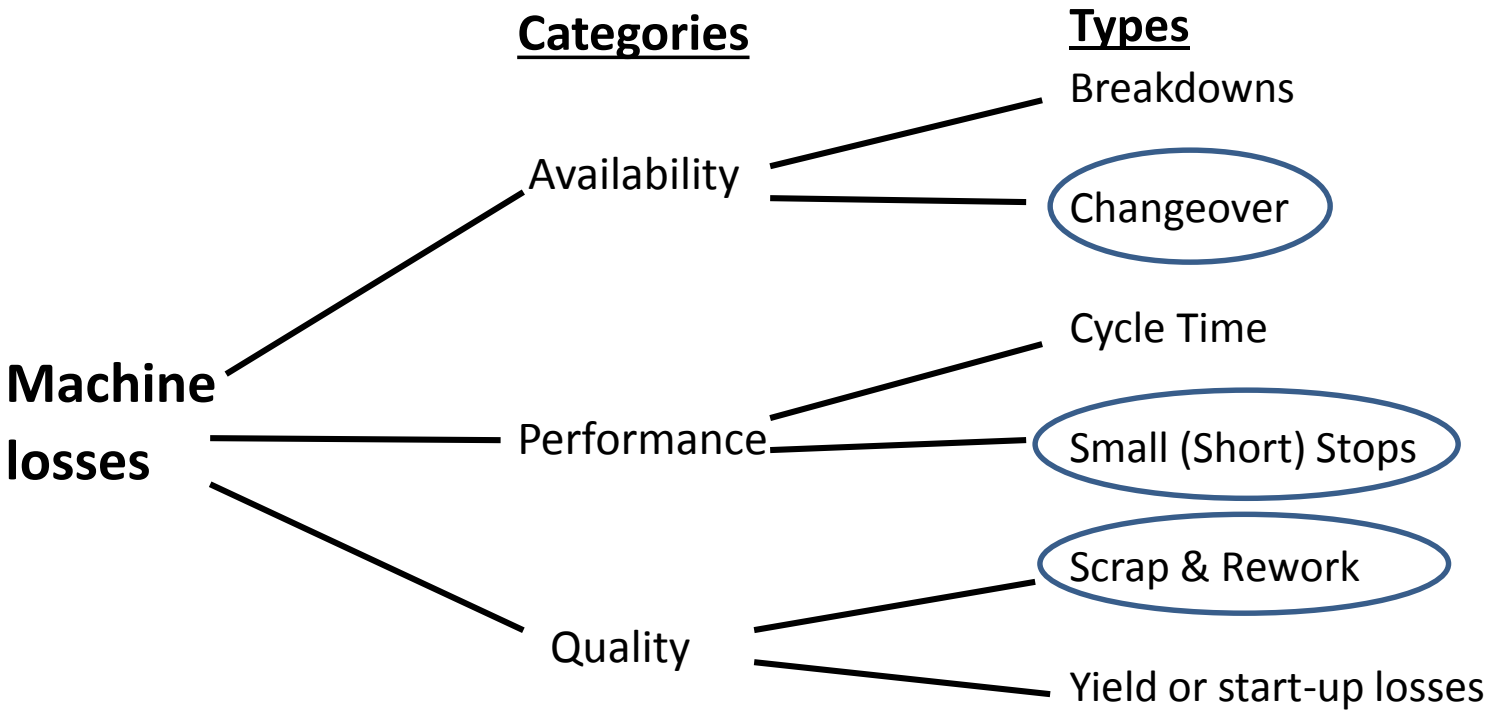
8. MAINTAIN
Establish a PDCA to maintain improvement, Standardize, Yokoten (read across).

Solve Problems Quickly Using PDCA

FMDS Total Productive Maintenance

JTEKT

TPM 6 Machine Type Losses



Typically machines experience losses in these main categories. Each one often needs to be measured in detail.

FMDS – TERMS

Terms		
A3	CL	PDCA
8D	GL	Poke Yoke
Abnormality	FMDS	5S
Bekido	Gemba	Standard Work
Non-Bekido	Ishikawa	Tanzaku
Bekido Cycle	Kaizen	Value Add
Bottleneck	Kitaichi	Non Value Add
Change Point	KPI	Visual Management
Chokko	Morning Market	Yarijimai
8 Kinds of Waste	Muda	Yokoten
4M Change Point	Obeya Meeting	

FMDS – JTEKT Term Bekido

Bekido:

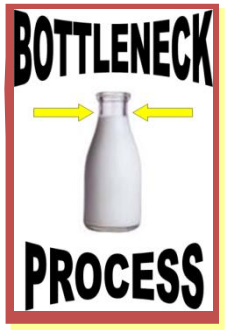
- The rate at which the bottleneck (longest process) or a line performs.
  - (MCT = Man + Auto)

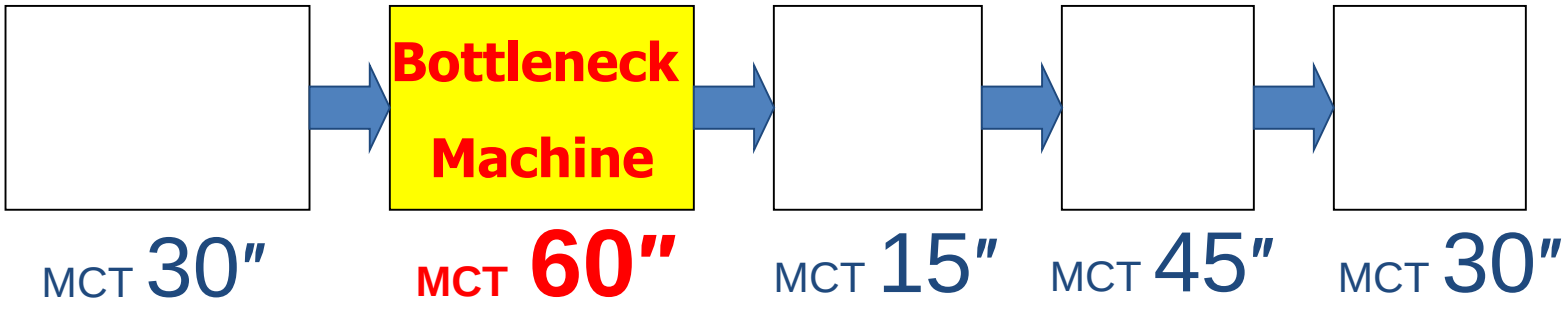
$$\text{Bekido rate} = \frac{\Sigma\,(\text{quality goods} \times \text{Neck MCT})}{\text{Working Hours}} \times 100\%$$

FMDS – JTEKT Term Bekido

Bottleneck:

- The least productive part of a Manufacturing Line
  - Cannot make up for lost production on the bottleneck unless during breaks, lunch, or overtime





For Bekido calculation use the longest MCT

MCT =（Machine Time + Handling Time）**Manual Line**

MCT =（Machine Time ）**Auto Line**

FMDS – JTEKT Term Chokko

Chokko:

- The ratio of finish products exiting a line to total products entering the line.

$$\text{Chokko} = \frac{\text{Total “Good” parts}}{\Sigma(\text{No Good + Good Parts})} \times 100\%$$

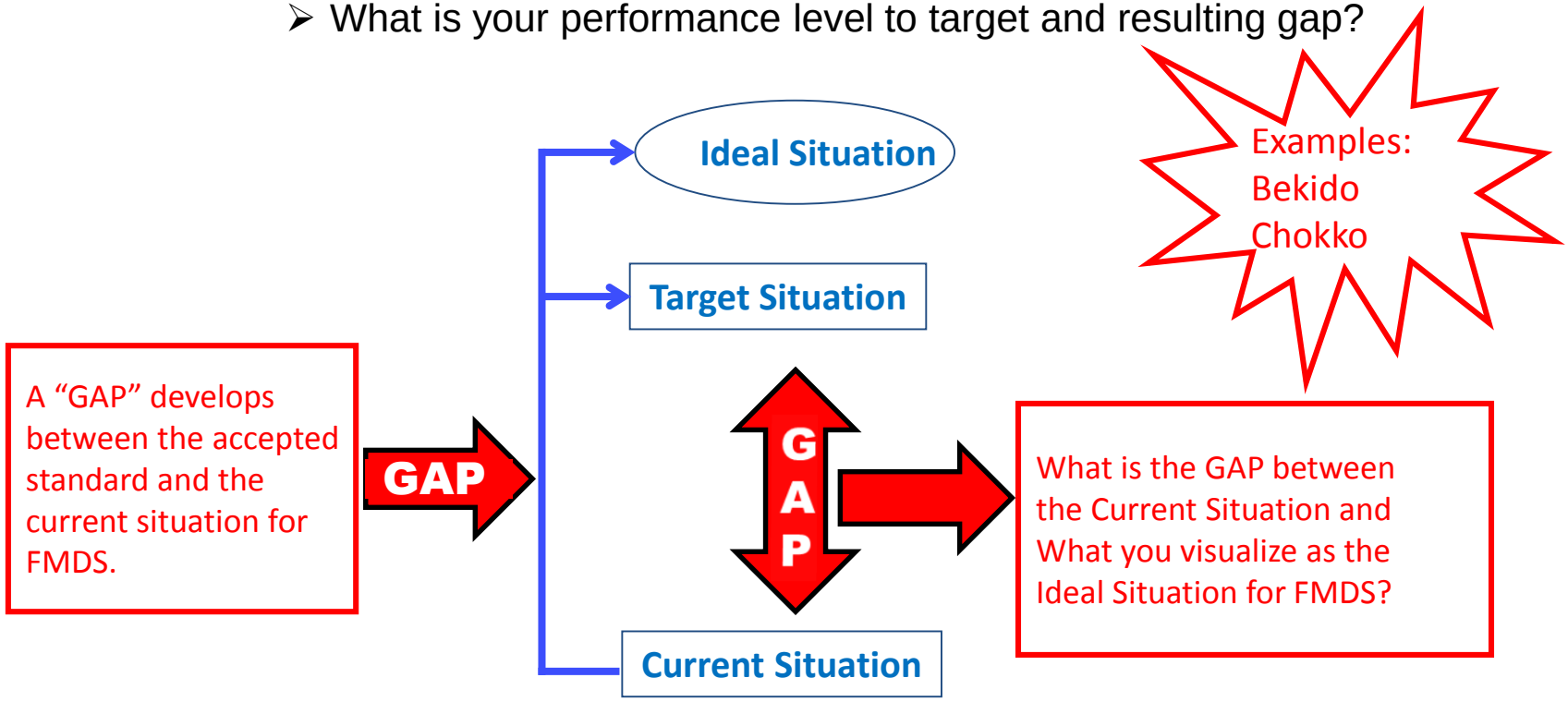
FMDS – Keys to Success

- Schedule daily meeting involving plant leadership and support.
- Cross functional approach, understood by management to shop floor.
- Led by Team/Group Leader.
- Buy in and ownership from shop floor and management!
- Problem Solving to Determine Root Cause
  - **Find, expose, and control what is hidden problems and not visual.**
- True root cause determination – Does it pass the 5-Why test?
  - **The same type of rigor that is used in "quality" problems should be applied to "machine breakdown" problem solving.**
- Corrective actions must address the "root cause" and be "permanent and irreversible".
- Dynamic process that's reviewed and modified.
- **Establish method that forces Yokoten "read across" to all systems and processes.**

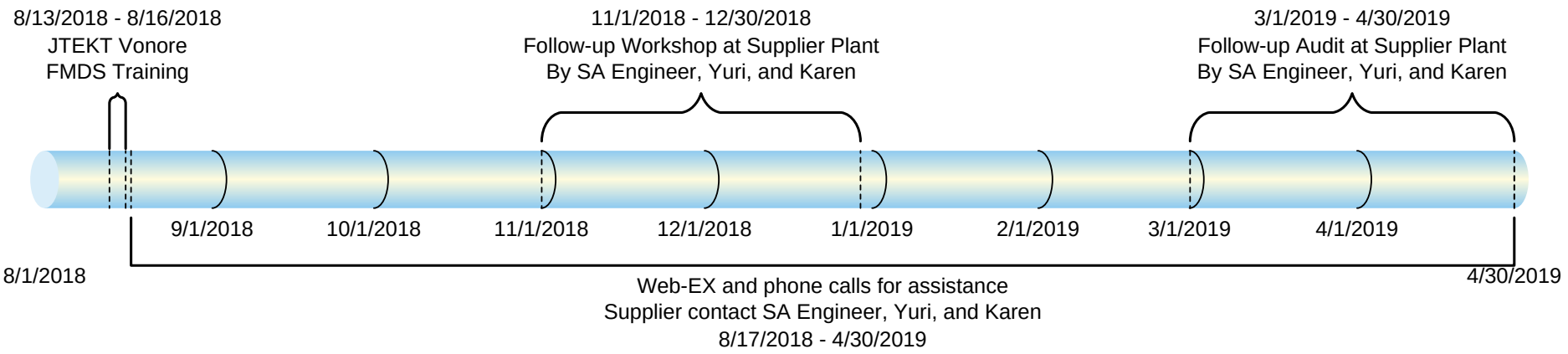
FMDS Supplier Expectations

Supplier requested to implement FMDS

- Determine gap at your plant
  - IF a type of FMDS/visual management system exists at supplier, review and compare with JTEKT FMDS for improvement ideas.
  - If FMDS does not exist at supplier, implement FMDS at your plant.
    - What is your performance level to target and resulting gap?



FMDS Timeline of Next Steps



- Supplier Requests Assistance from JTEKT
  - Web-Ex and phone calls with SA Engineer, Yuri, or Karen for assistance.
    - Yuri's email: Yuri.GarciaBustamante@jtekt.com
    - Karen's email: Karen.Stapleton@jtekt.com
- Follow-up Workshop
  - Three-four months a workshop follow-up of FMDS process at your plant by SA Engineer, Yuri and Karen.
- Follow-up Audit
  - Three-four months a follow-up FMDS audit by SA Engineer, Yuri, and Karen.

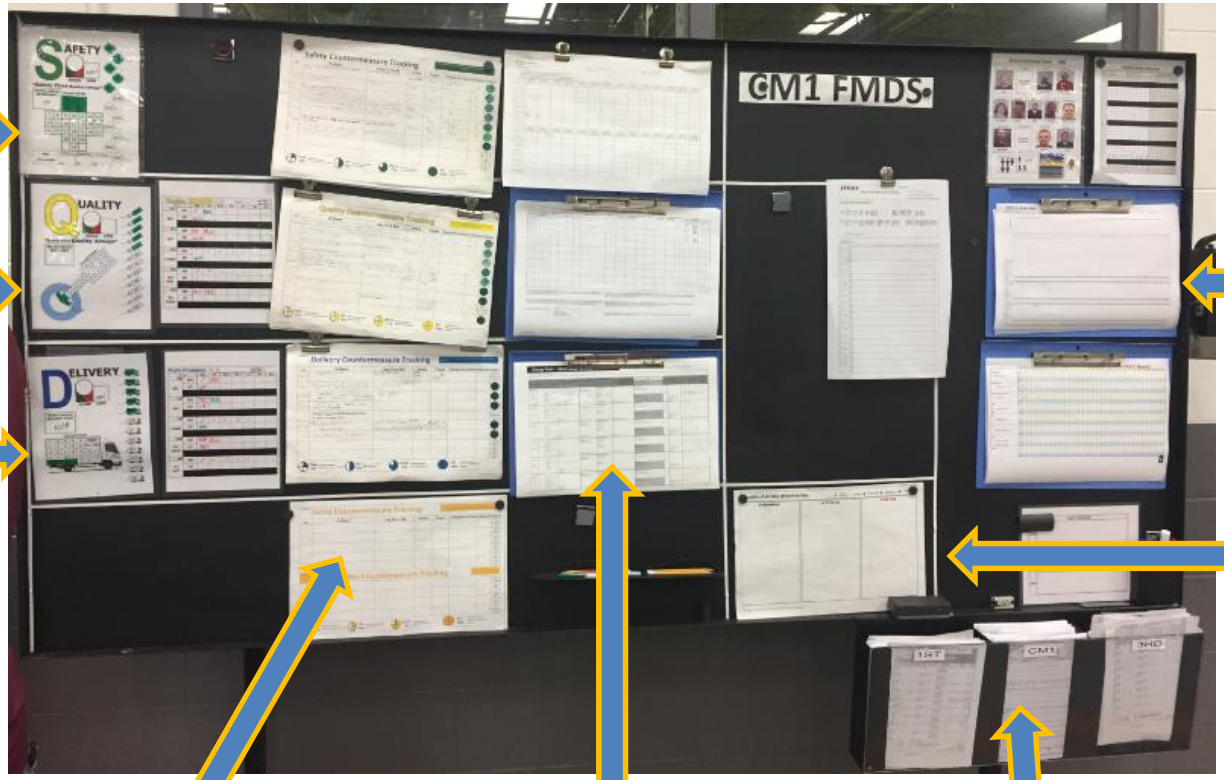
JATV FMDS Board

KPI's

Safety

Quality

Delivery



Bekido & Chokko Charts

Tanzaku

Countermeasures For KPI's

4M Change point control: Planned, Change Point, Abnormality

Daily production reports

Please standby for the next session to review the key elements 4M control and abnormality log.

Q AND A