



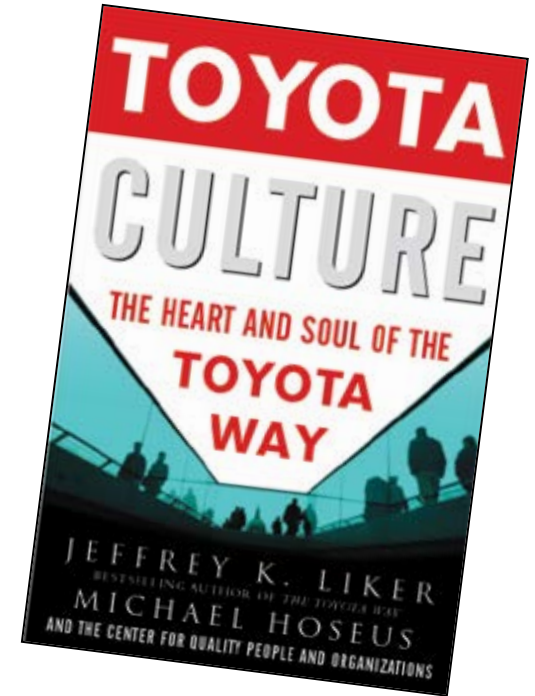
# Lean Enterprise Management Development System & 8 Step Problem Solving

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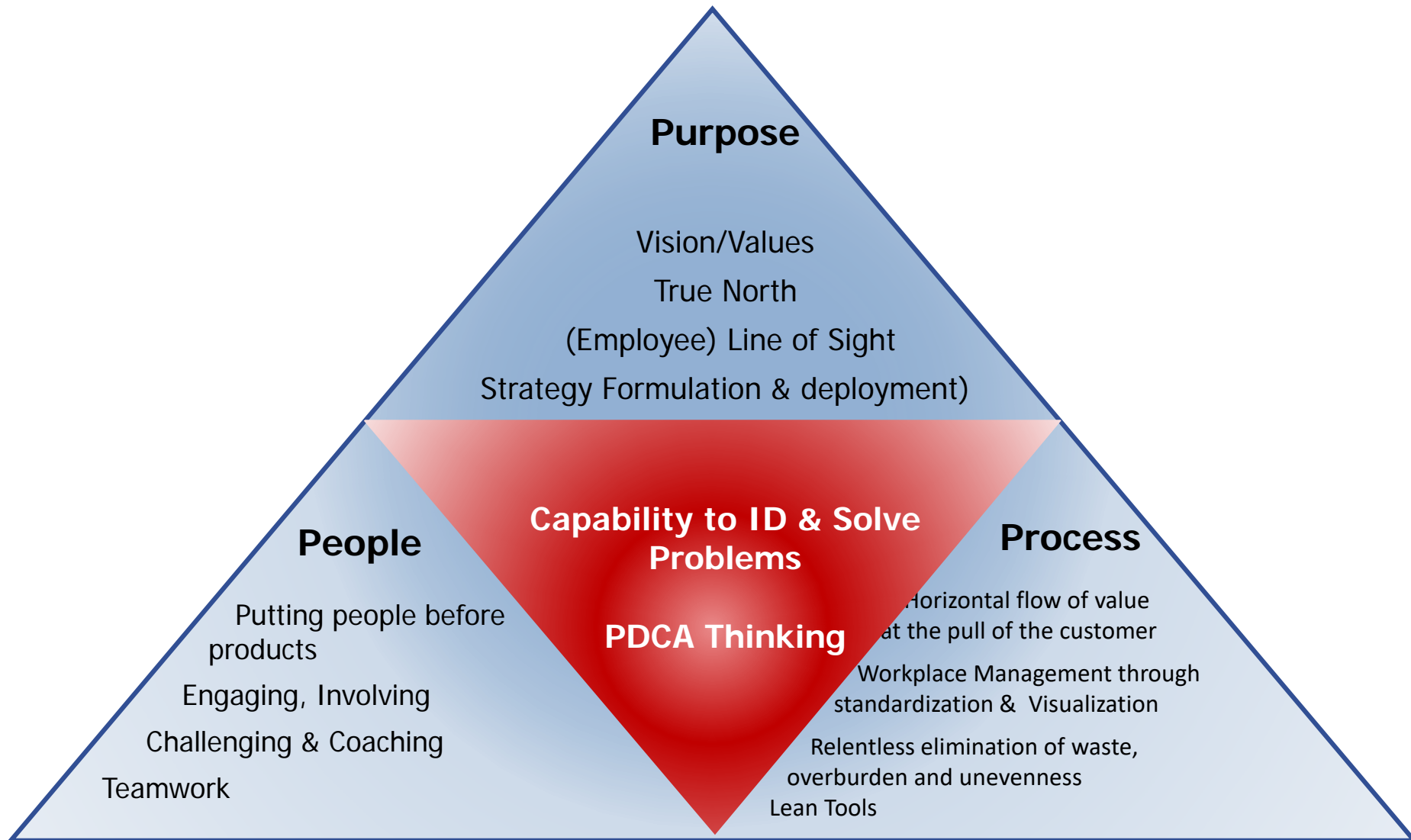
[mike.hoseus@gmail.com](mailto:mike.hoseus@gmail.com) or 859-699-2235



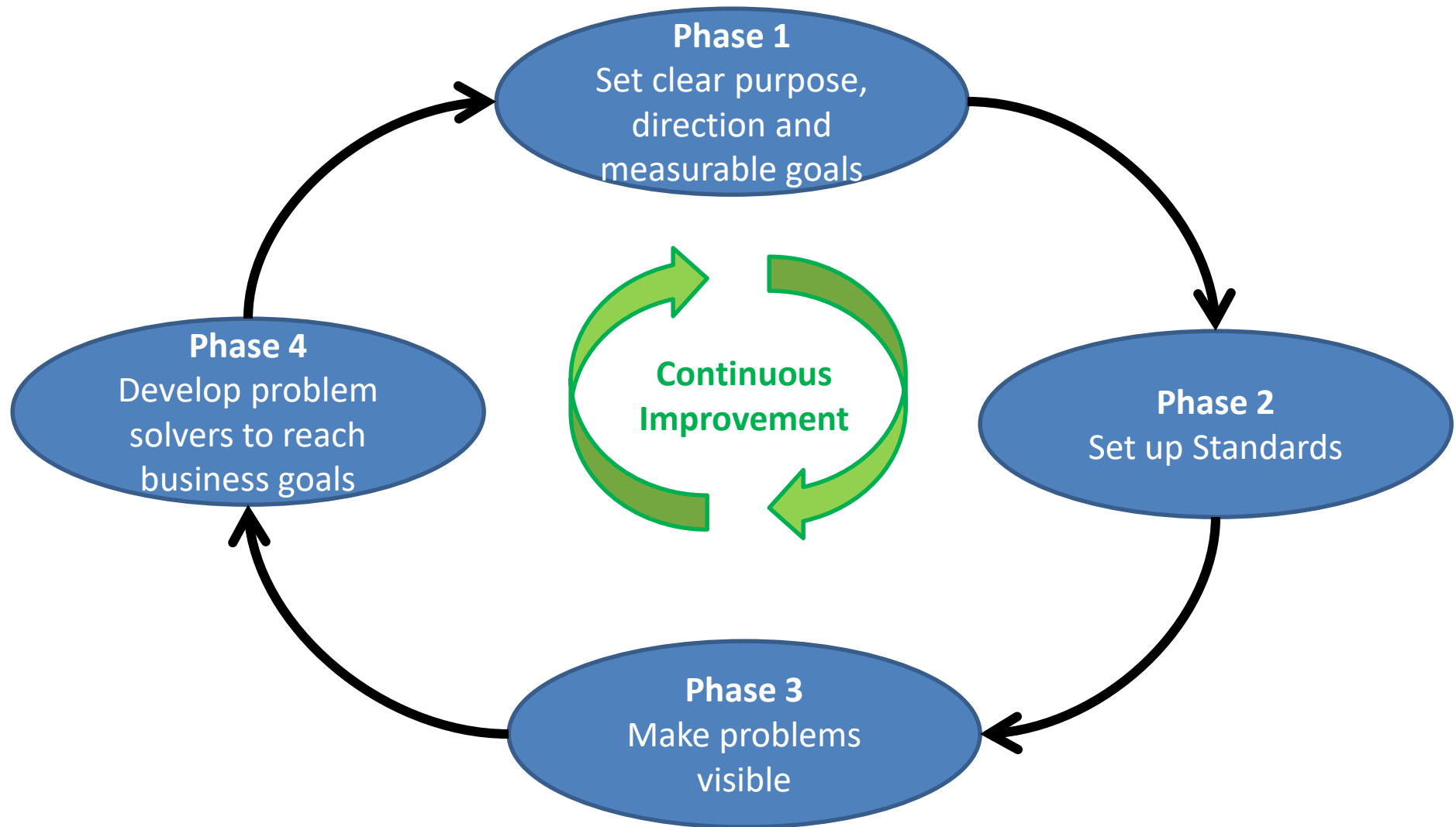
# Ice Breaker: X-Y Exercise

*“Win all you can!”*

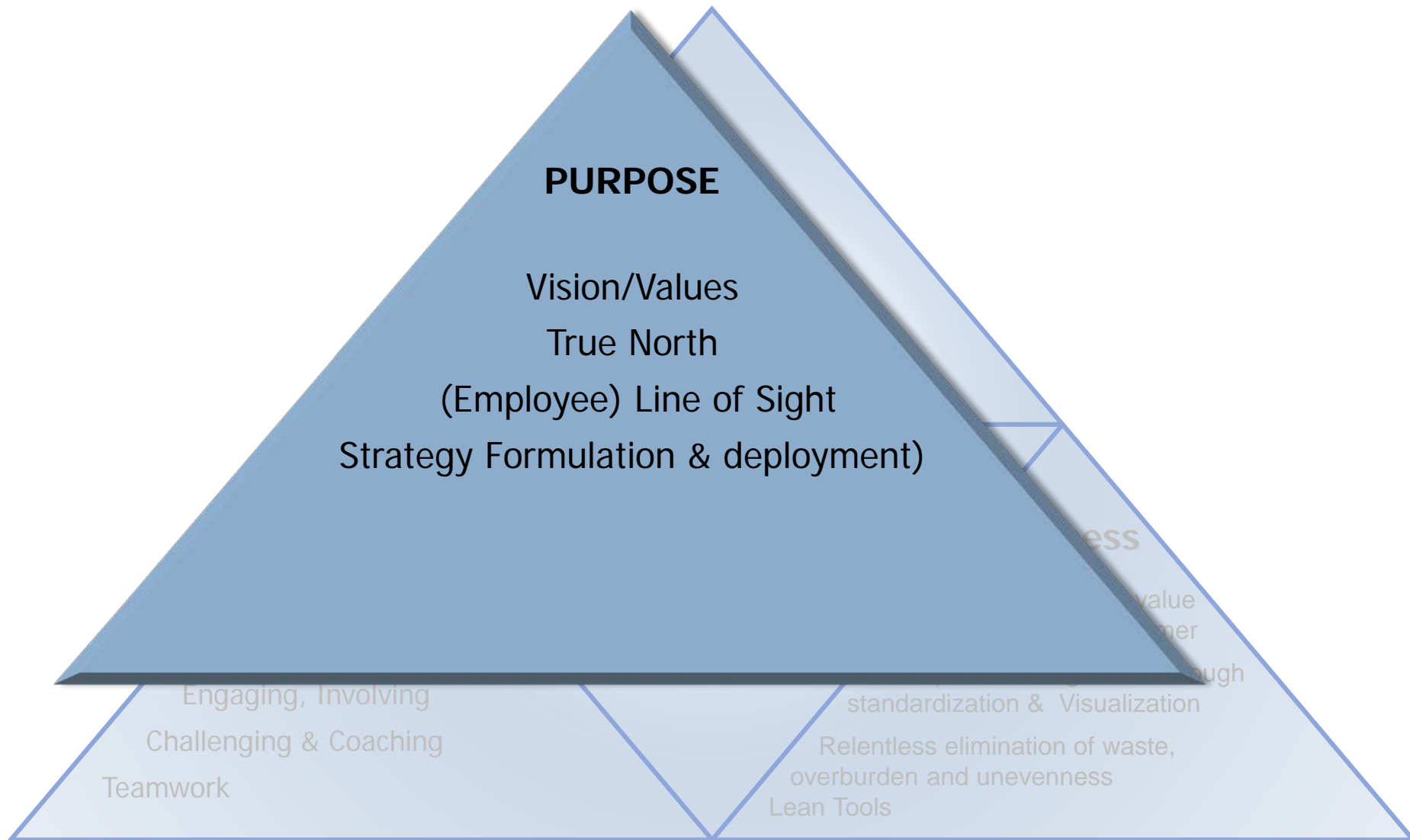
# The Lean Enterprise



# Phases of EMDS

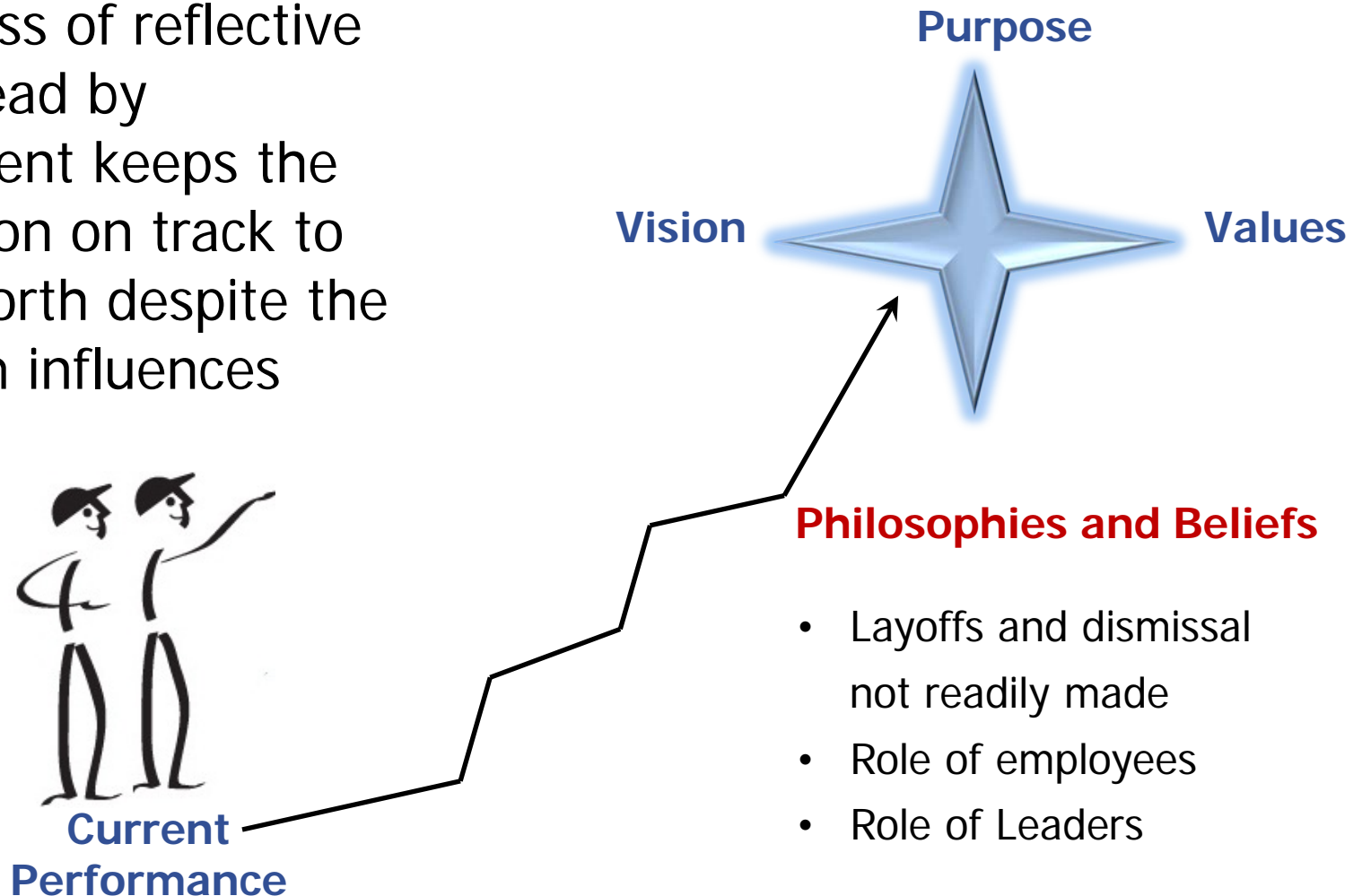


# The Lean Leadership System

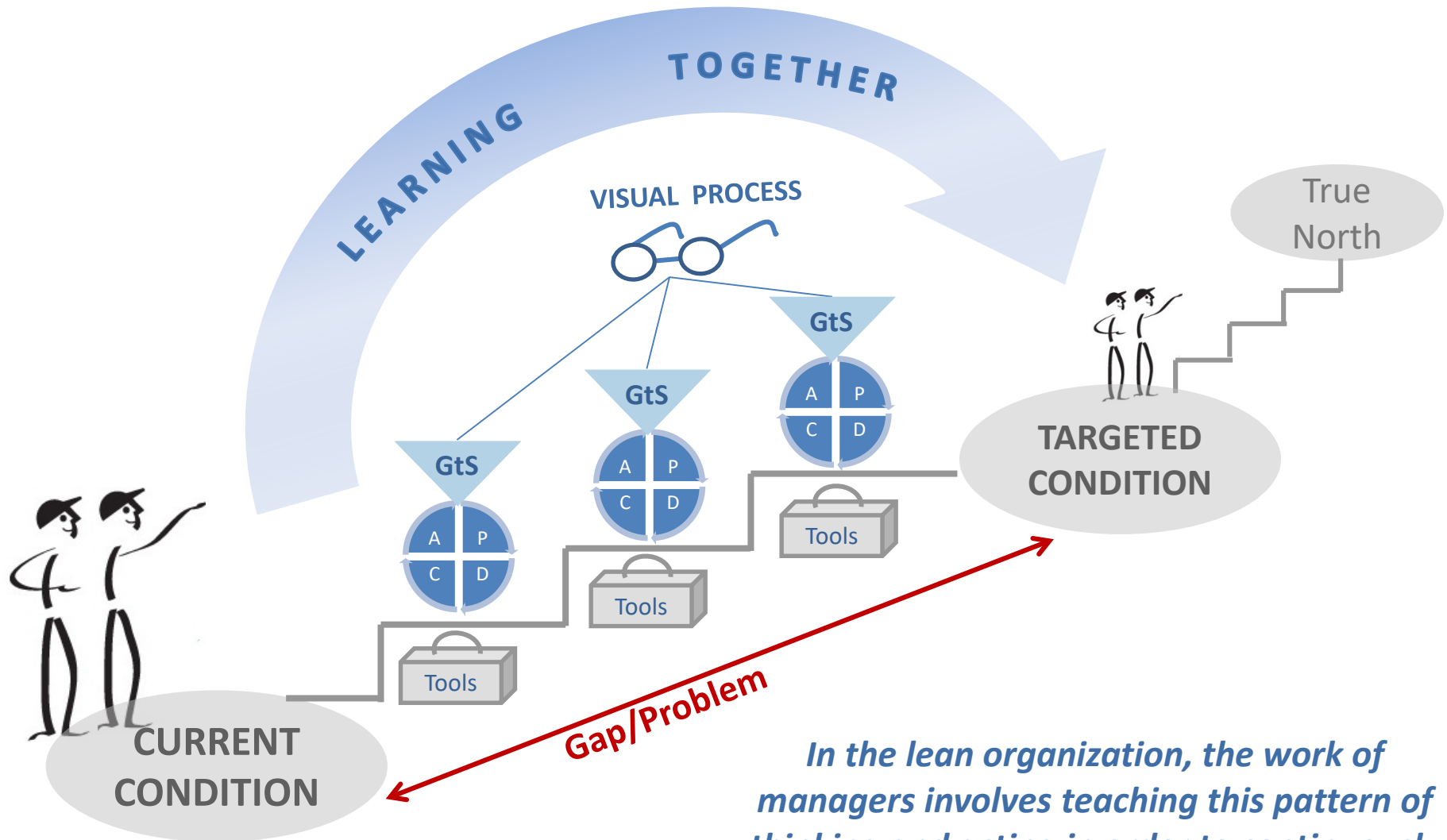


# True North (Hoshin)

The process of reflective learning lead by management keeps the organization on track to its True North despite the short-term influences

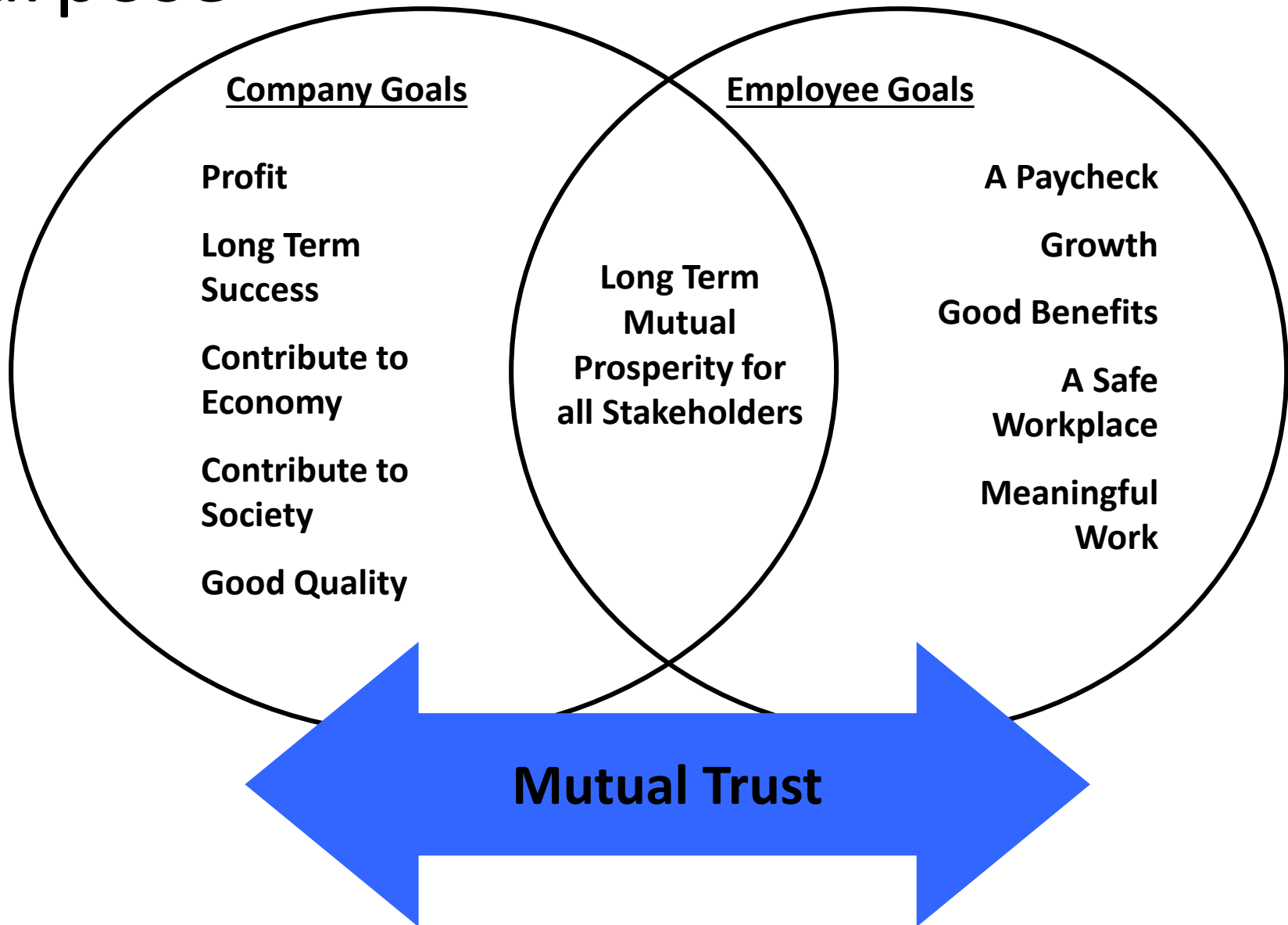


# Managing for Improvement



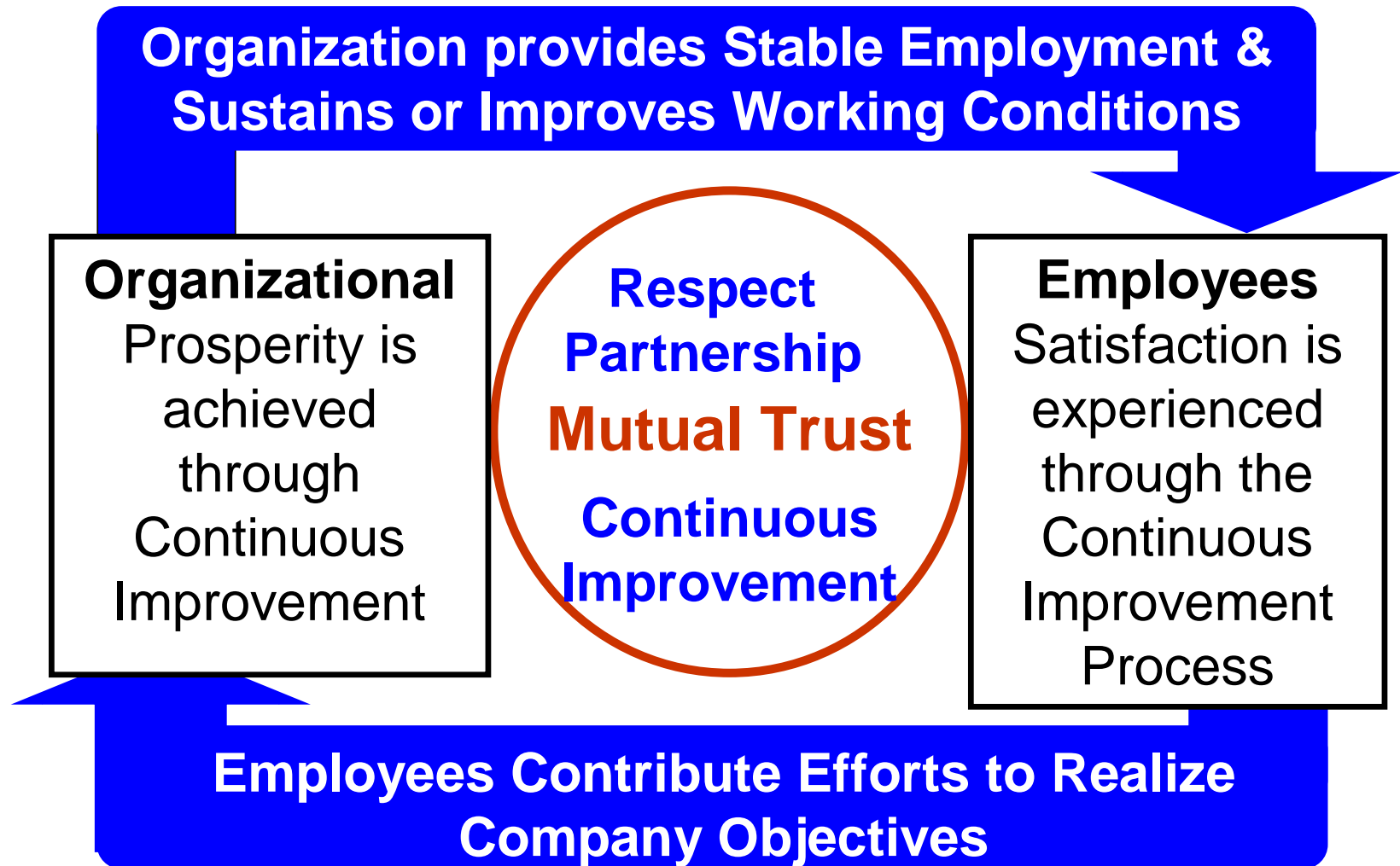
*In the lean organization, the work of managers involves teaching this pattern of thinking and acting in order to continuously improve work.*

# Purpose





# A Partnership between an Organization & its Employees



# Example - Toyota Way



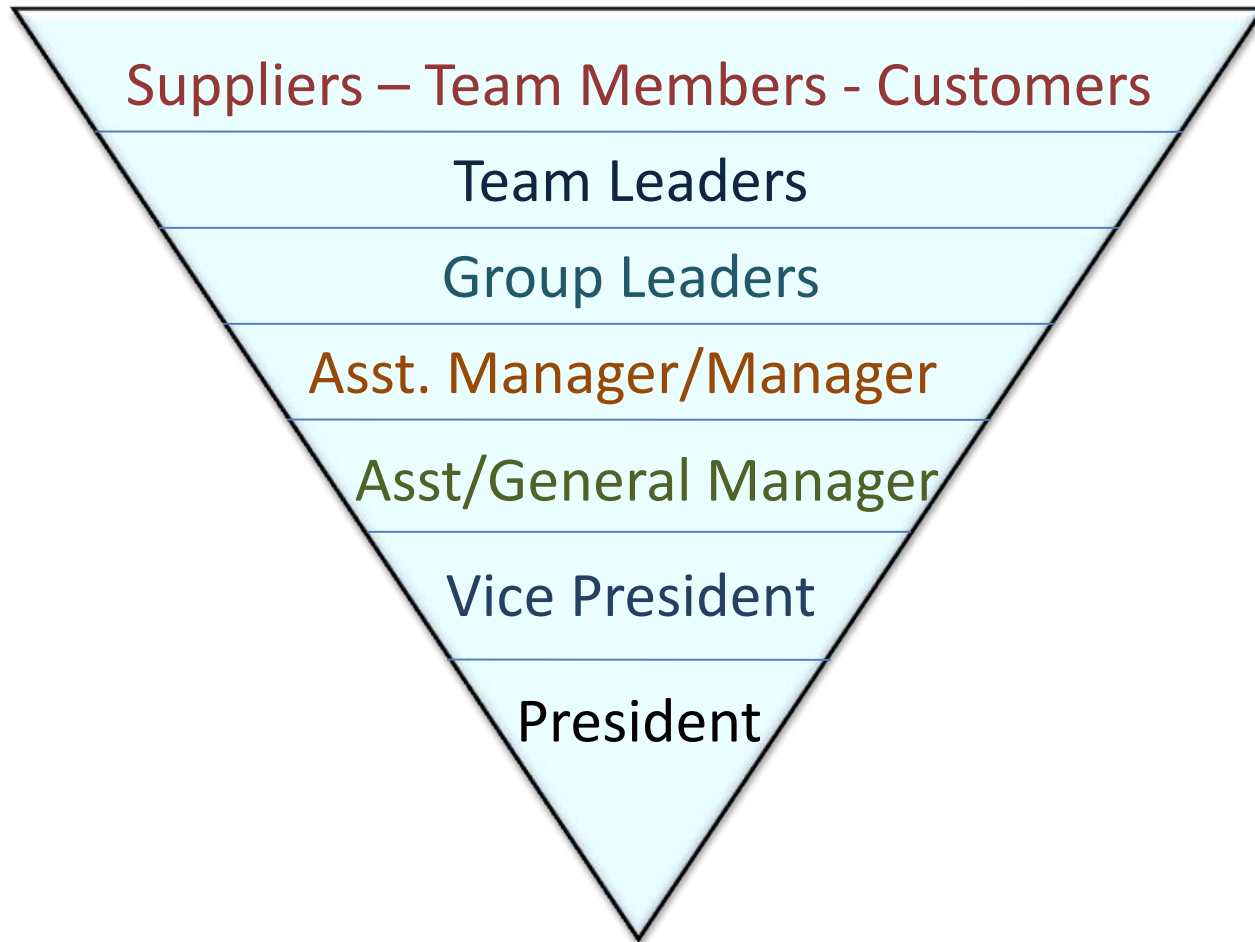
*The Toyota Way 2001 is an ideal, a standard and a guiding beacon for the people of the global Toyota organization. It expresses the beliefs and values shared by all of us.*

# It Starts with Values



# Servant Leadership

Leadership develops the capacity that allows team members to improve what needs to be done



# Toyota True North Example

	<b>Ideal State</b>	<b>Current State</b>
<b>Why (Purpose)</b>	<b>Mutual Long Term Prosperity for all Stakeholders</b>	
<b>How (Values, Production System)</b>	<b>Toyota Way Values Toyota Production System Processes and Tools</b>	
<b>What (Vision)</b>	<b>Build the Highest Quality Car at the Lowest Possible Cost while respecting those who do the work</b>	
<b>Philosophy and Beliefs</b>	<b>Layoff Philosophy, Role of Employees and Leaders, Org Structure</b>	

# “What’s Your True North?”

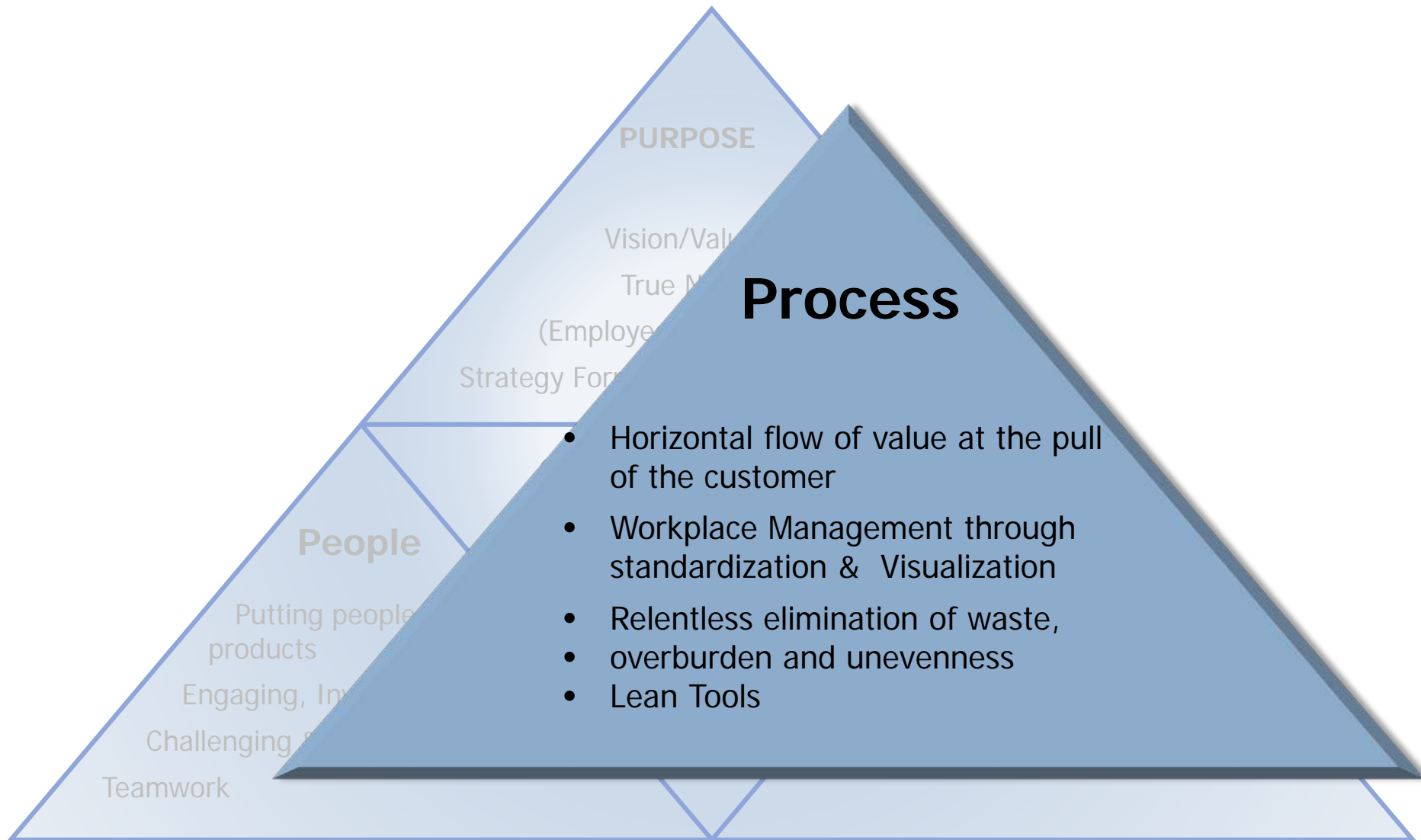
## - Exercise

- Complete the table titled “What is Your True North?”
- Determine both the ideal state and current state of the following:
  - Why (Purpose)
  - How (Values, Production System)
  - What (Vision)
  - Philosophy and Beliefs (Layoff policy and Roles for members, leaders)
- Identify Gaps where you have no Current Standard or where your Current state doesn’t match your Standard

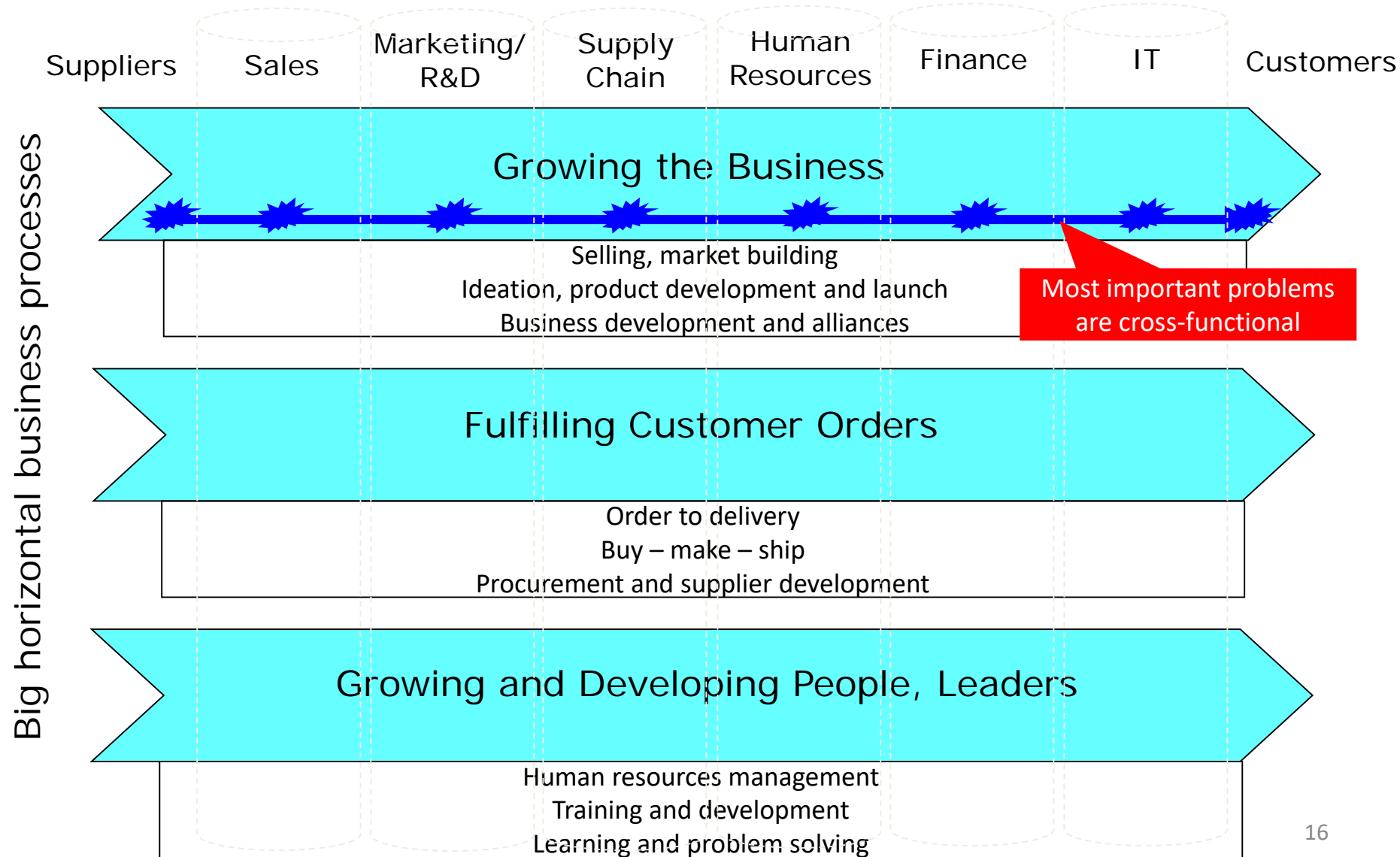
## WHAT IS YOUR TRUE NORTH?

	Ideal State (or Current Standard) (What we “talk”)	Current State (What we “walk”)
Why (Purpose)		
How (Values, Production System)		
What (Vision)		
Philosophy and Beliefs		

# The Lean Work System



# Value and work flows across functions





# Which one describes your Company?



## Vertical

- Focus - Production
- Budgets, SOP's
- Make the numbers
- Leaders separated from the work
- People's ingenuity used to "beat the system"
- Supervisors "manage" people



## Horizontal

- Focus - Process
- Purpose
- Make problems visible
- Leaders focusing on the work
- People's ingenuity used to "improve the system"
- Supervisors work with the people to solve problems

# TPS=

Make problems & opportunities for kaizen visible.

PDCA

Set up  
Standard

Check  
Abnormality

Kaizen

Safety	Quality	Productivity	Cost	HR
Standardized Work, 5-S				
Visual Control & Management				
Problem Solving				

# The Objectives of Standardization

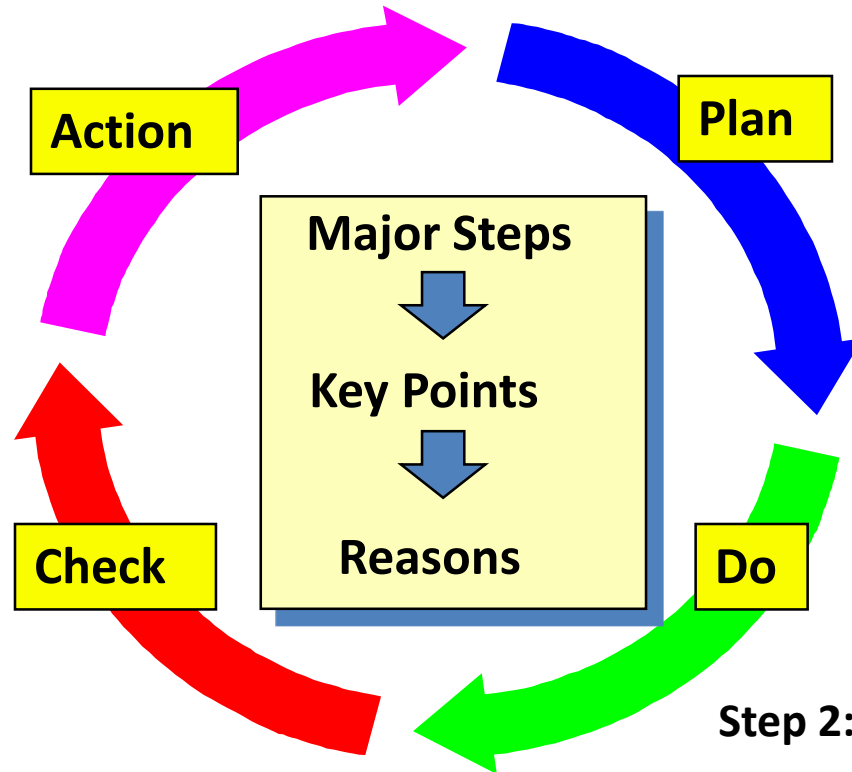
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- *Reduce variability, increase predictability*
- *Enhance repeatability, confidence, consistency*
- *Clarify procedures*
- *Enhance communication*
- *Improve Problem Solving*
- *Set good discipline*
- *Develop awareness*
- *Establish “Problem Consciousness”*
- *Establish a basis for education and training*
- *Establish a baseline for performance*
- *Improve Quality, Safety, Delivery, Cost*
- *Provide the basis for Improvement*

# The Four Steps of JI

Step 4: FOLLOW UP

Step 1: PREPARE  
WORKER



Step 3: TRY OUT  
PERFORMANCE

Step 2: PRESENT  
OPERATION

# Typical Flexibility Chart

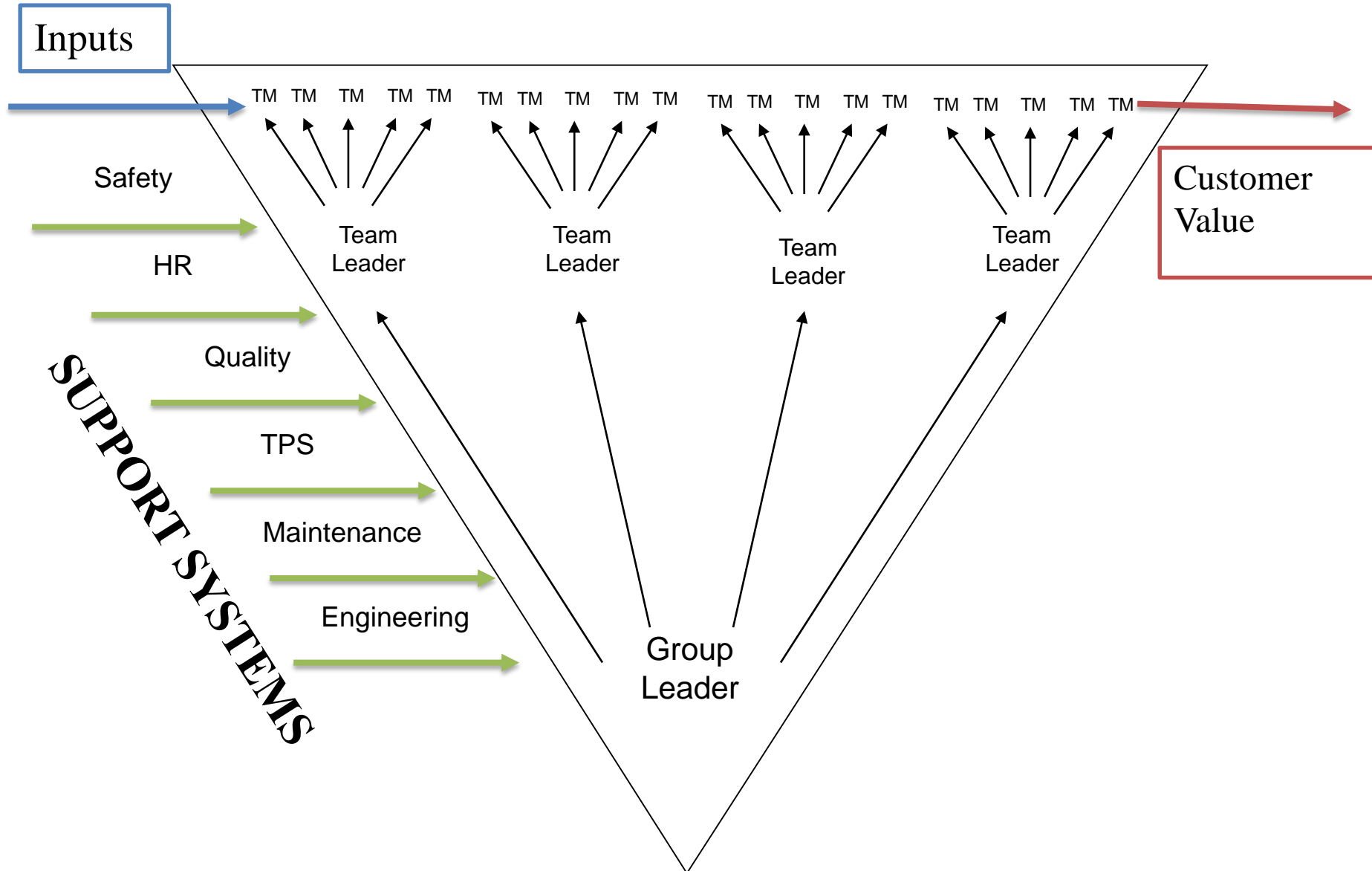
<b>Author:</b> J. Smith	Process Nr	1	2	3	4	5	6	7	8	9	10	11	12							of processe	Target (Man/Job)	
<b>Sectionnr.</b> 10 A	<b>J O B</b>	<b>B</b>																	<b>C</b>	#	%	
<b>Teamnr.:</b> 1	<b>N A M E</b>	ASSEMBLY INSPECTION	TOE IN ADJUSTMENT	HEADLIGHT ADJUSTMENT	ROLL TEST	BRAKE TEST	EMISSION TEST	FINAL DRESS CHECK TEST	WATER LEAK TEST	DVT									<b>D</b>	<b>F</b>		
<b>Date:</b> 6/98																			1M2J	%1M2J		
<b>Name &amp; Position</b>																		Plan	Act			
John Jones																		3	2	✓		
Joe Bates																		3	2	✓		
Wendy Smith																		2	2	✓		
Geoff Smith																		2	1			
Tom King																		3	2	✓		
George Whiteside																		1	1			
Danny Nelson																		1	1			
Tony Abila																		1	0			
Ken Anderson																		1	1			
John Smith (TL)																		9	6	✓		
per process	<b>Plan</b>	4	3	3	3	2	1	2	2	2								s (in training)				
	<b>Act</b>	3	3	3	4	2	1	0	0	2								n job to quality and ot in takt				
Target (Job/Man) 1J2M		✓	✓	✓	✓	✓				✓												
Target % 1J2M	<b>C</b>	66%																				

Plan vs.  
Actual

Monthly  
Evaluation

<b>EVALUATION</b>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Group leader												
Section manager												
Department manager												
GMIO Standard Form (flexchar.xls)												

# Teams and Work Groups are Basic Units of Toyota Organization



# Group Exercise: EMDS Lean Foundations Gemba Walk Reflections

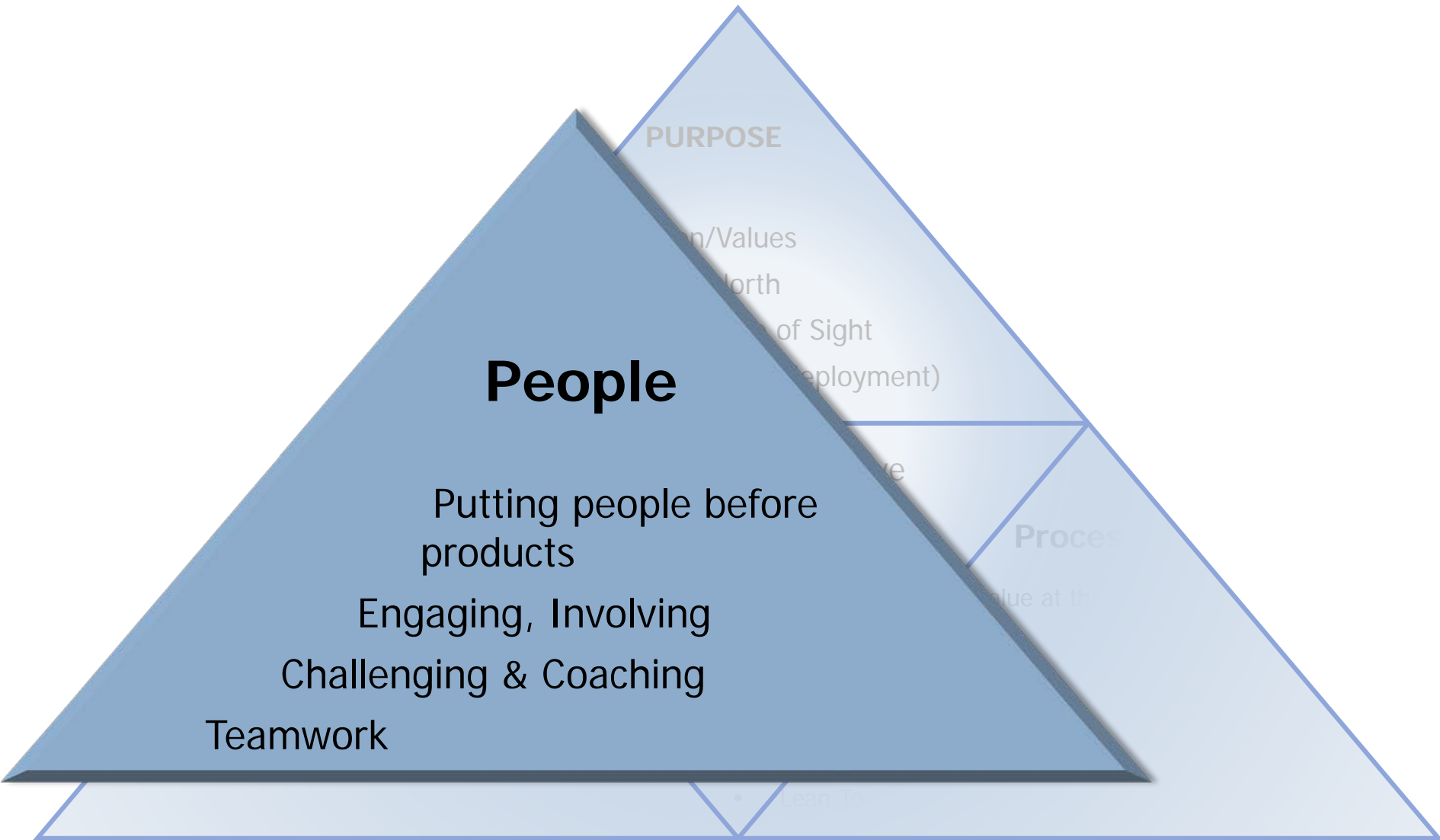


- Title your flipcharts “EMDS Gemba Walk Reflections”
- Identify the “Current State” of Lean Culture in relation to the foundations of EMDS determine gaps in relation to the foundations of EMDS
  - 5S
  - Standardization
  - Training Method
  - Visualization
  - Value Stream Organization
  - Management Structure
- Identify gaps in relation to the same foundations listed above
- Target Cycle Time: 30 minutes

## EMDS Gemba Walk Reflections

Foundation of EMDS	Current State	Identified Gaps
5S		
STANDARDIZATION		
TRAINING METHOD		
VISUALIZATION		
VALUE STREAM ORGANIZATION		
MANAGEMENT STRUCTURE		

# The Lean Development System





# Role of HR

## - “The keeper of the values”

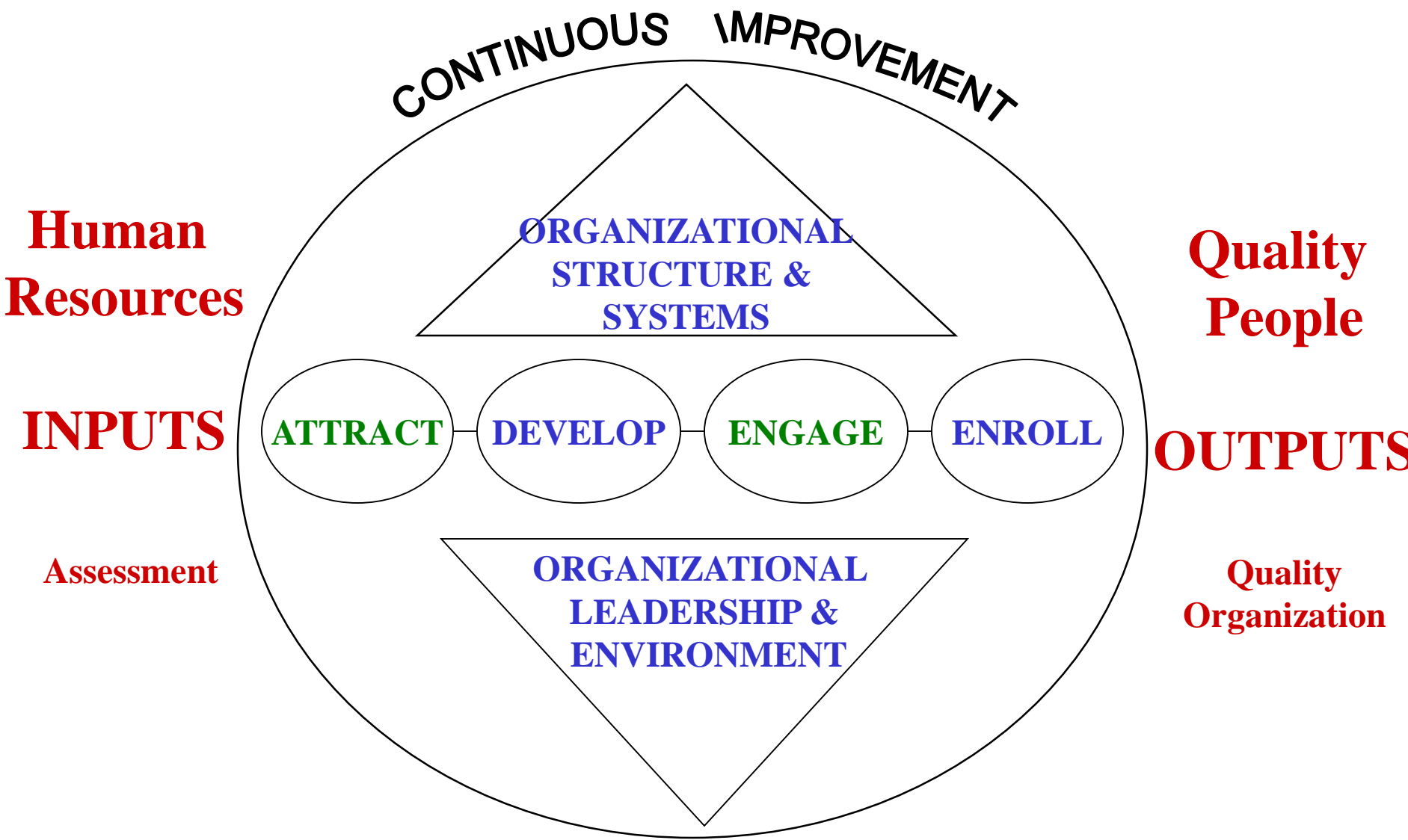
- ♥ Determine organizational competencies
- ♥ Use demonstration of competencies to link hiring, training, evaluation, promotion, recognition and compensation
- ♥ Ensure fair and consistent policies
- ♥ System of “checks and balances”
- ♥ System of “PDCA” culture



# The Toyota Way in Lean & HR Mgt.

“Toyota’s management system is all about each and every employee engaging in kaizen and challenges in his or her own position and seeking a solution, through which human resources develop and management methods are thereby improved. For this reason we hold the belief that human resources are the key to management and determine the success or decline of the company.” TMC

# Lean Culture Overview Model



# Principal Roles – For ALL

## “The Lean Management System”

### 1. Go and See:

Understand the real situation, the real process, from the real people who work it, at the real place of action.

### 2. Define Normal Conditions

Is the Current Condition (ab)Normal? Prove it.

Can you define (ab)Normal? Write it.

Can you SEE (ab)Normal? Visual Management

When is it (ab)Normal? Tracking Metrics

### 3. Solve a Problem

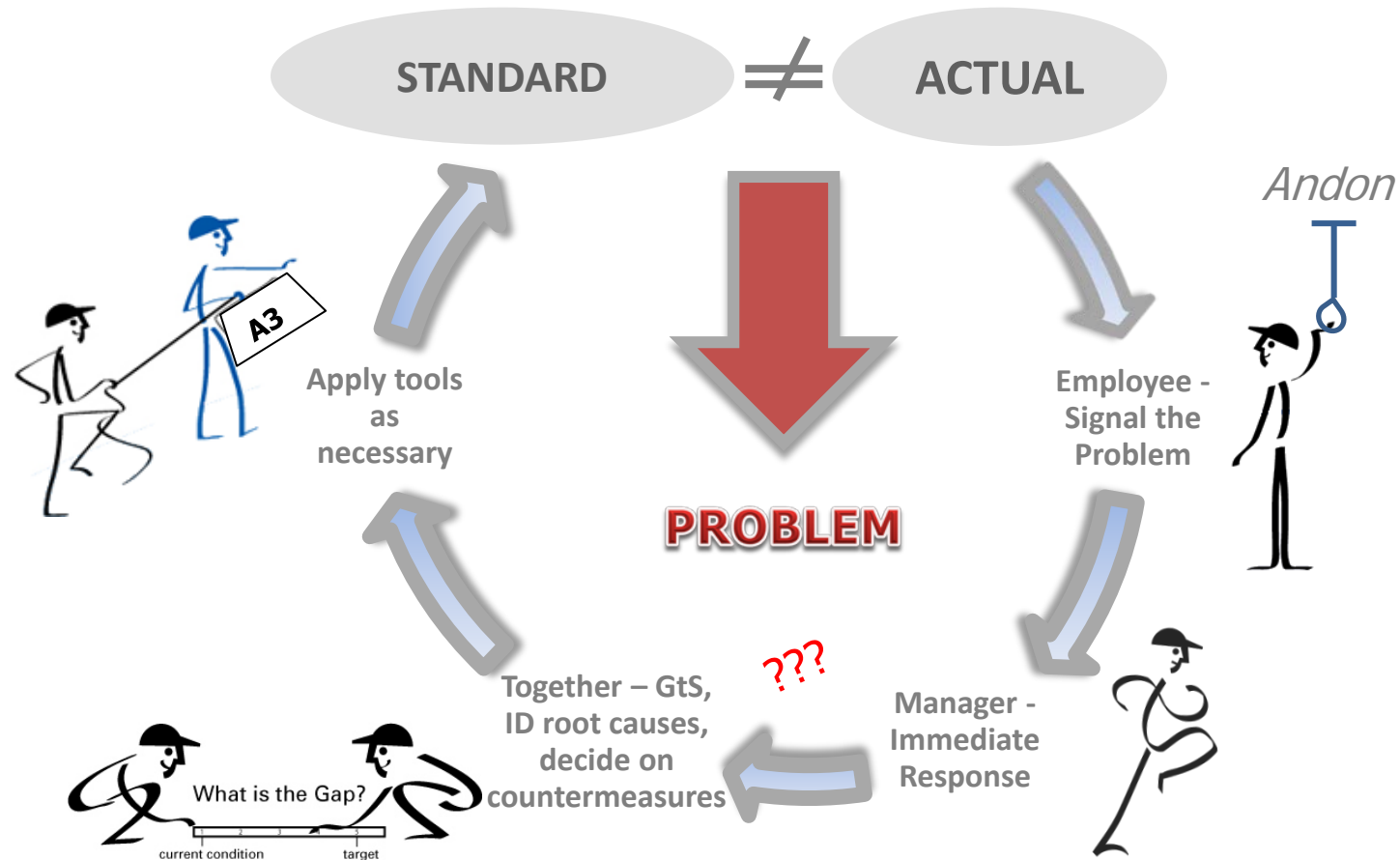
Teach the METHOD for Problem Solving – get involvement.

Implement Solutions / Permanent counter measures.

### 4. Sustain and Nurture the Processes/People

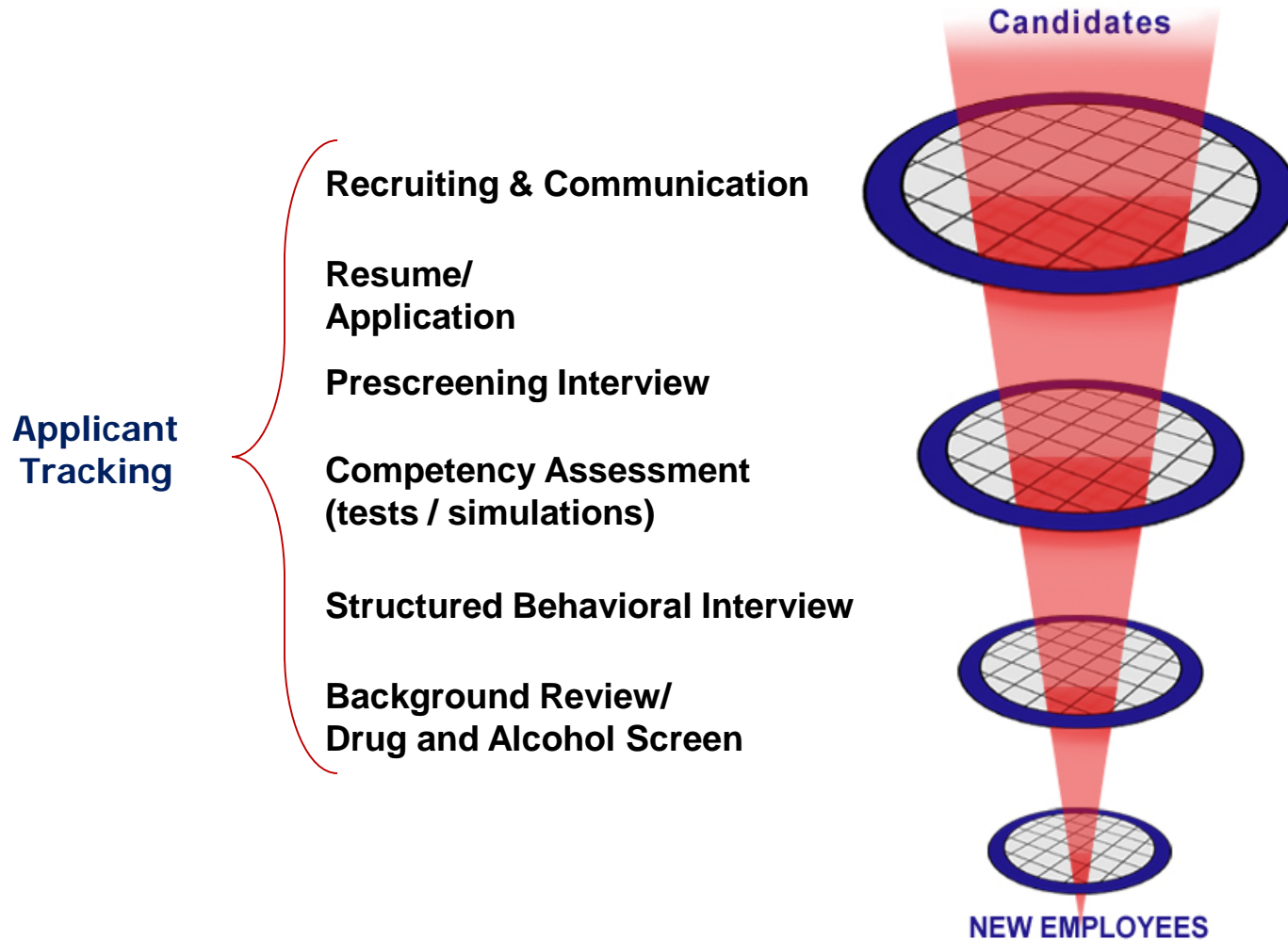
# The Work of Lean Leaders -

*Developing Systems & People to set Standards  
& Identify and Correct Out-of-Standard Conditions*



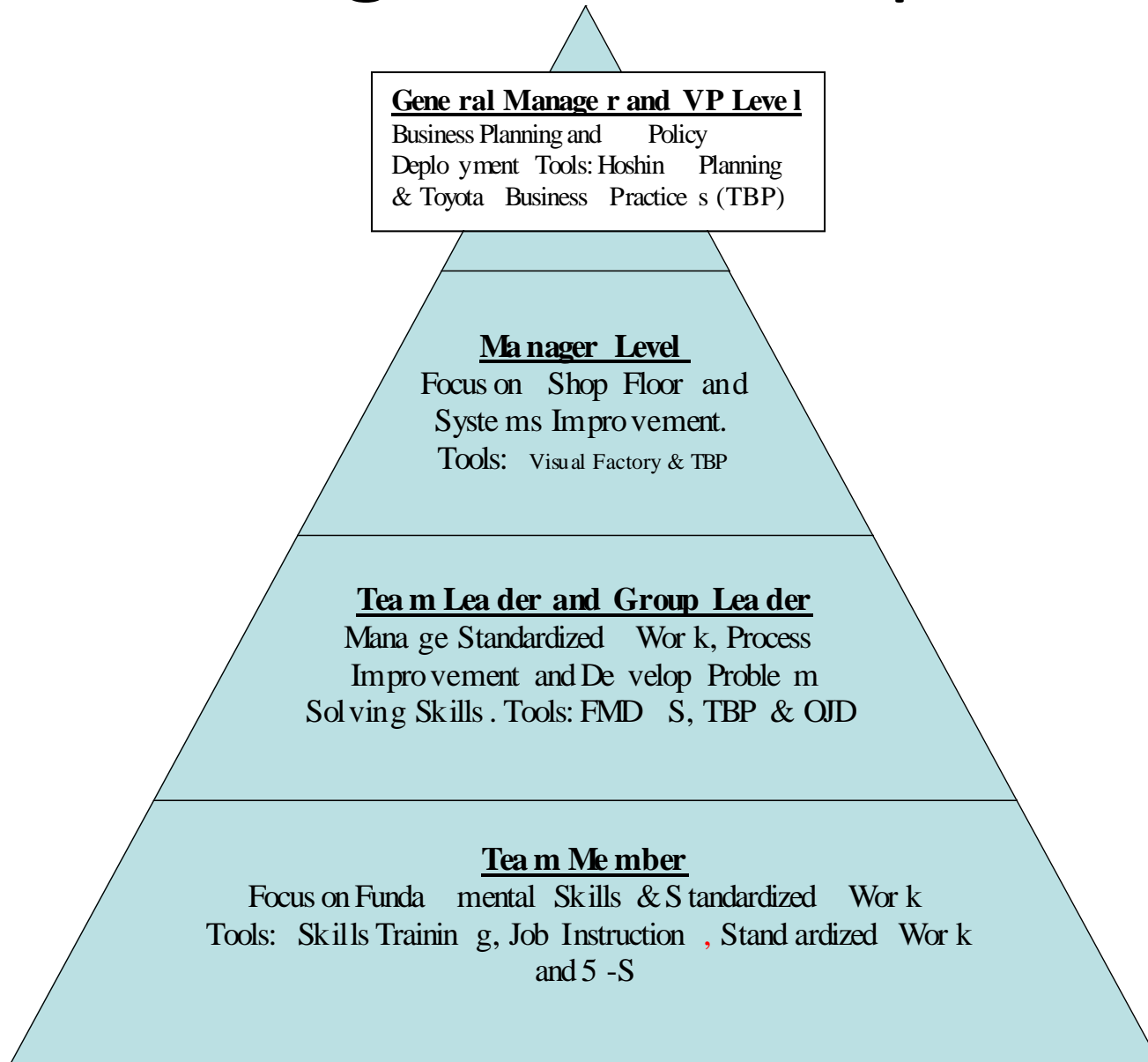
*In the lean organization, the work of managers involves putting in place the system for signaling problems and responding to them.*

# Selection “Funnel”

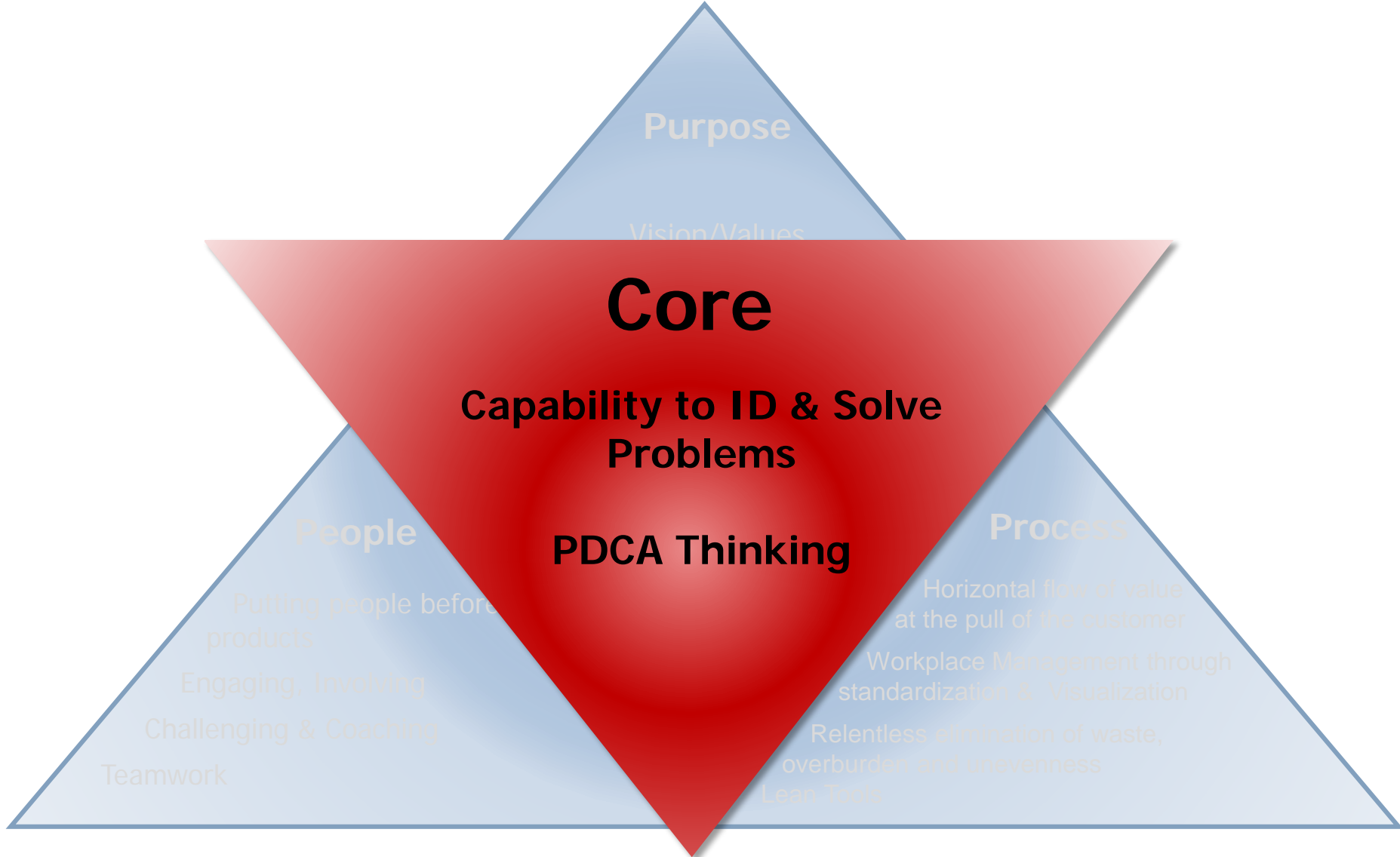


*Each step in the hiring funnel has evaluation content that should be checked for accuracy and consistency across locations.*

# Toyota Training and Development

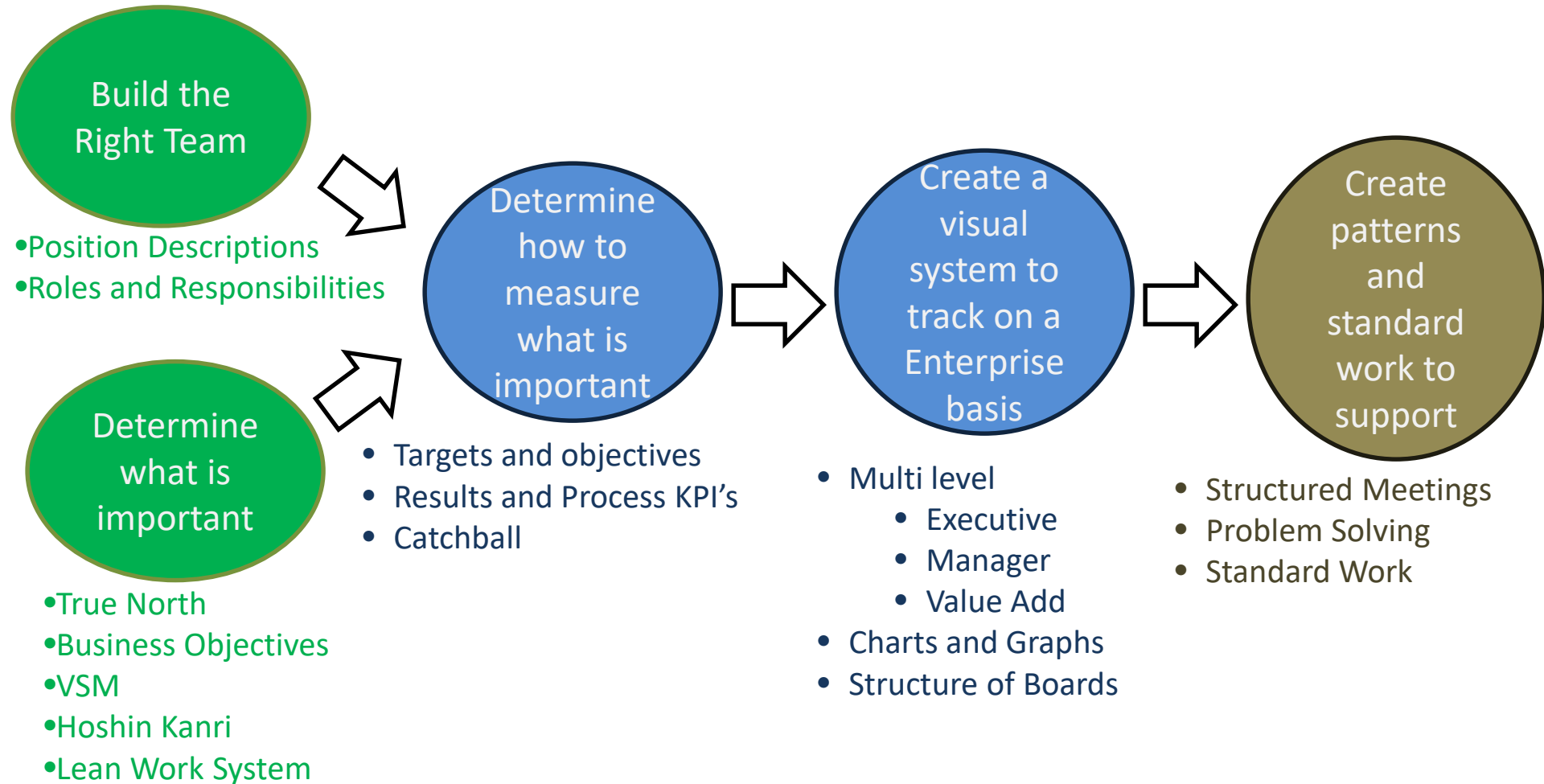


# The Lean Management System



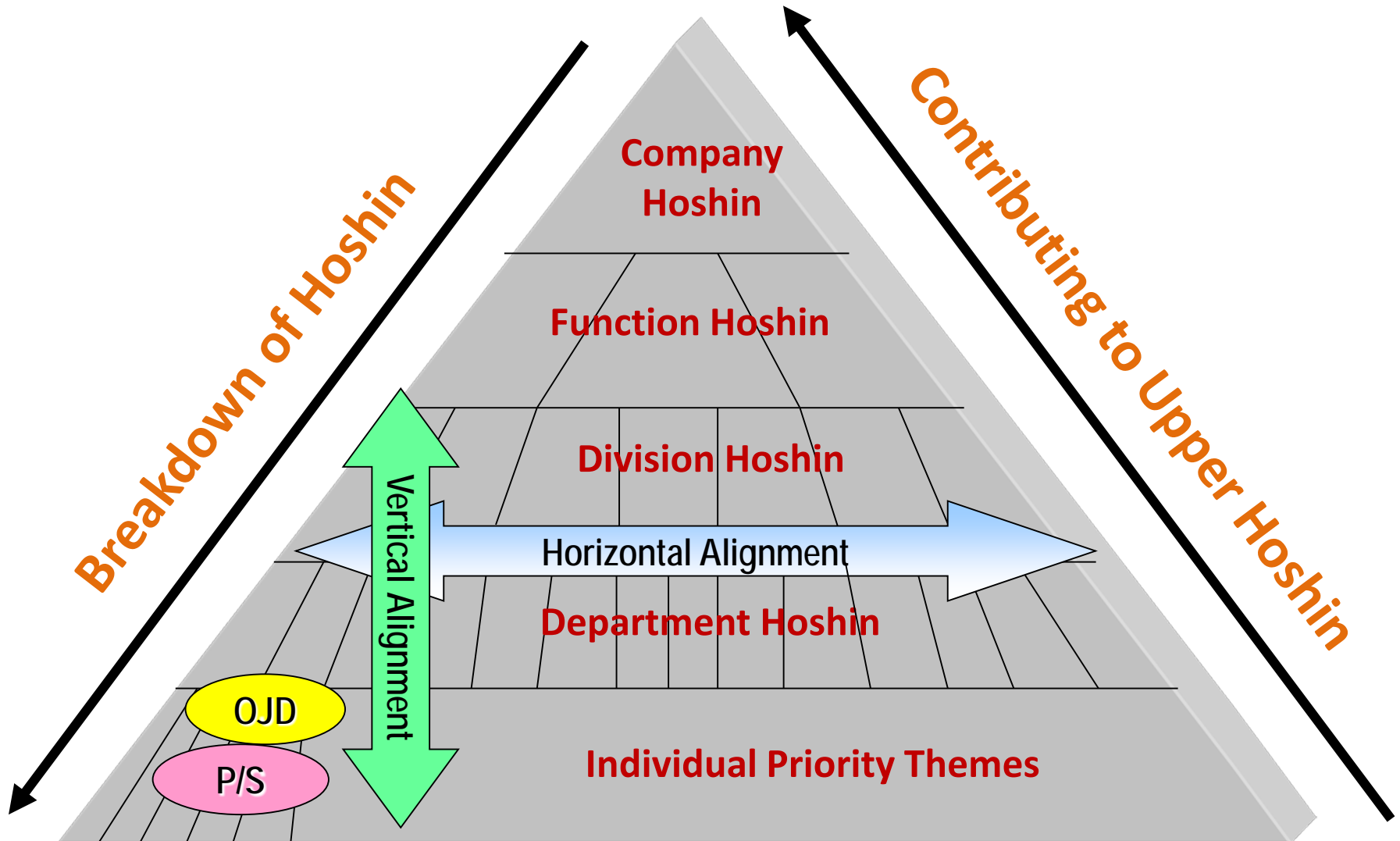
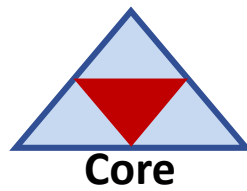


# Simple EMDS Deployment Model

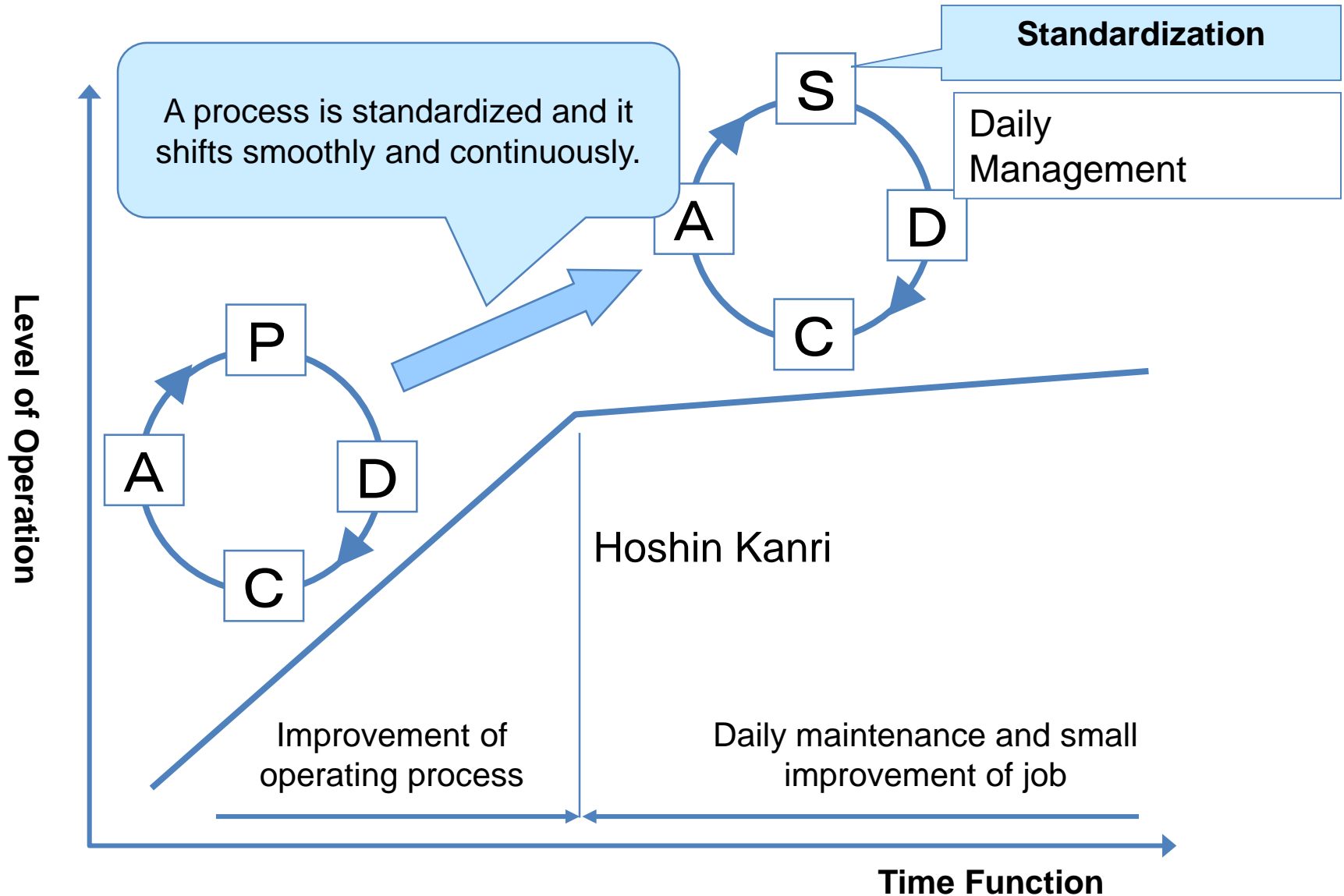


# Hoshin Kanri

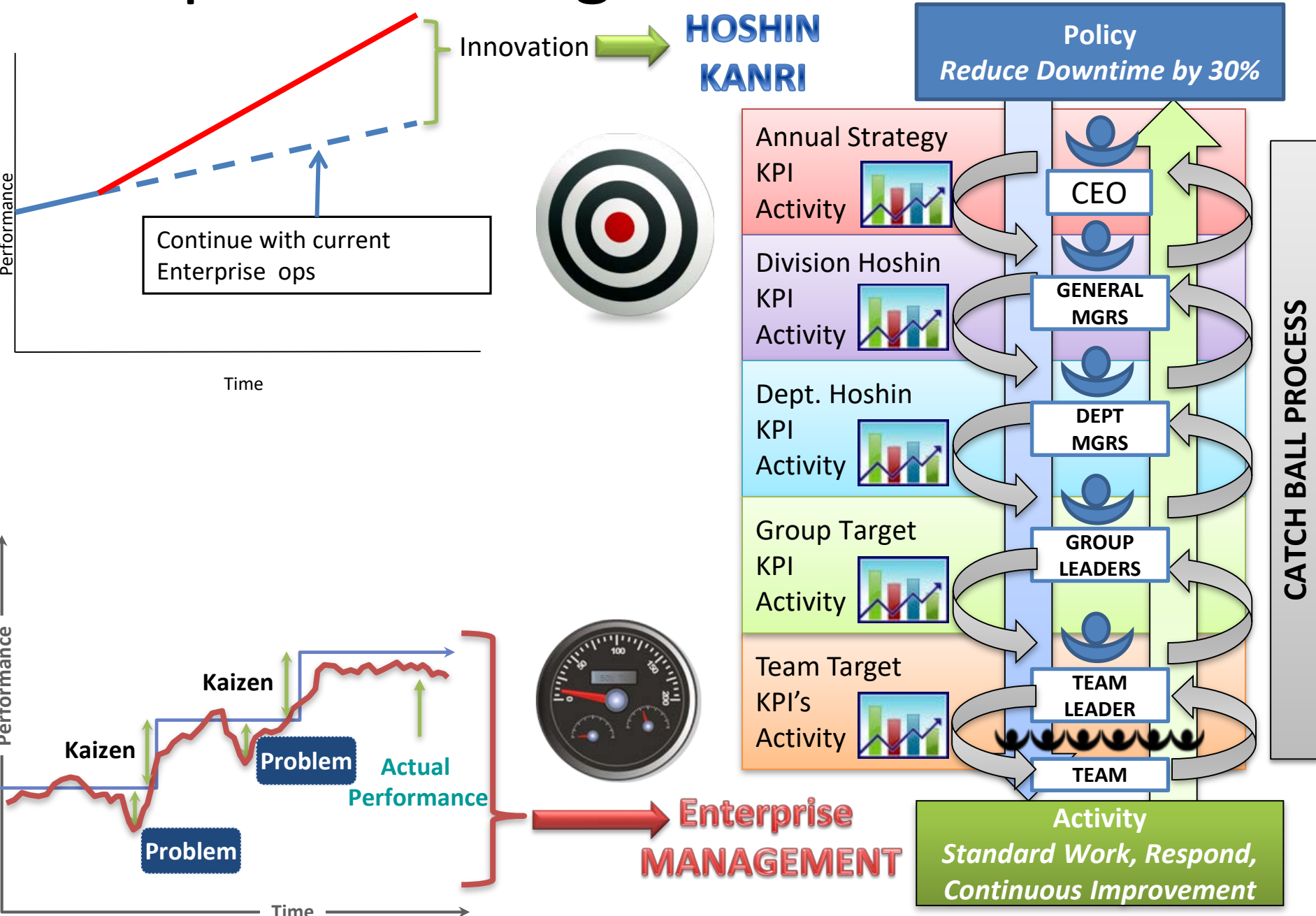
## = Direction Management



# Relationship between Hoshin Kanri and Daily Mgt.



# Enterprise Management and Hoshin

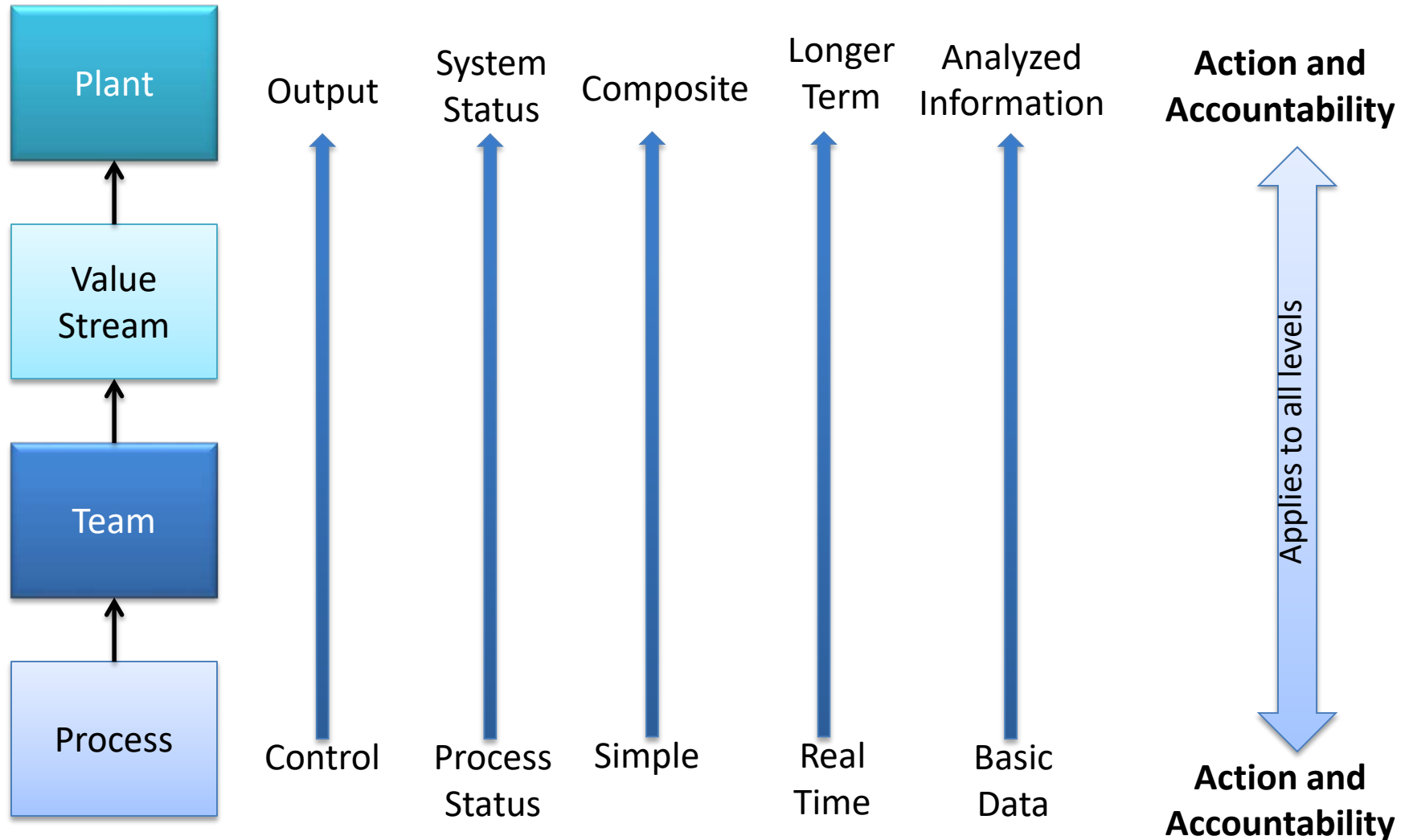


# Features of Good Metric Systems

- ***Balance and sufficiency***

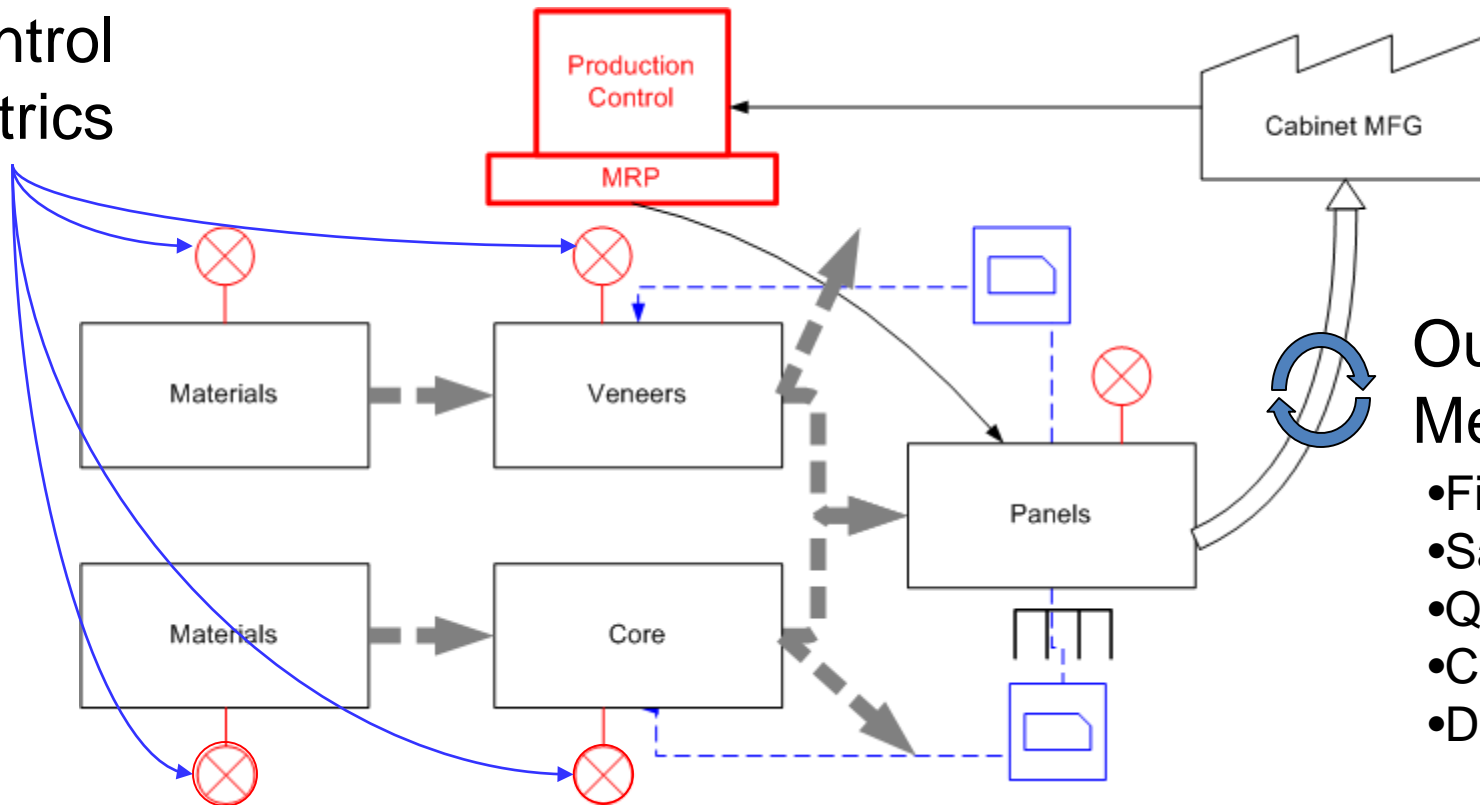
- Metrics should span all important dimensions of performance and weight should be appropriately balanced relative to value creation.
- Example: operations
  - Safety
  - Quality
    - conformance to standards and tolerances
    - value delivery to customer
  - Delivery
  - Production
  - Cost
  - Behavior and Morale
- In general, **we rank order the first five dimensions** above.
- Different metrics structure naturally applies to the Process, Team, Value Stream, and Plant levels.

# How metric focus changes by level



# Control versus Outcome Metrics

## Control Metrics



## Outcome Metrics

- Financial
- Safety
- Quality
- Cost
- Delivery

**Theoretical ideal:** Adherence to control metric standards (e.g. setpoints for m/c parameters, standardized work adherence, WIP levels) insure acceptable outcomes. The outcome metrics need not even be measured.

**Practical ramification:** Focus strongly on building in control and monitor control metrics.

# Visualization and Meeting Management Standards



**Exec  
Mgmt**

**Who**

CEO, Group  
President, EVP

**Frequency**

Monthly

**Regional  
Operations**

**Who**

Group VP,  
Operations Director

**Frequency**

Weekly

**Plant Level**

**Who**

Plant Manager

**Frequency**

Daily

**Production Area**

**Who**

Area Manager

**Frequency**

Every Shift

**Production Line**

**Who**

Team Leader

**Frequency**

Hourly

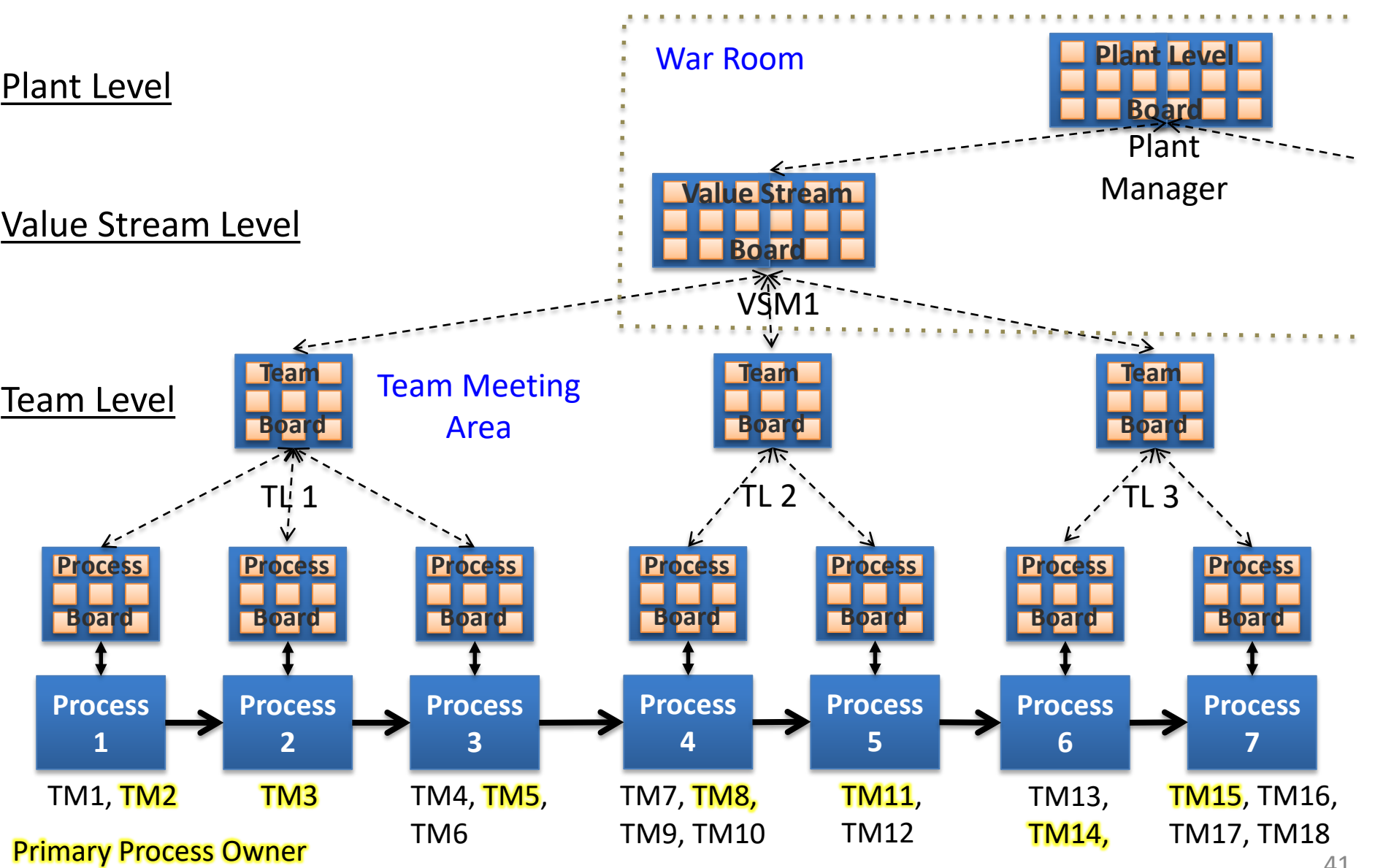


# General Structure of EMDS

Plant Level

Value Stream Level

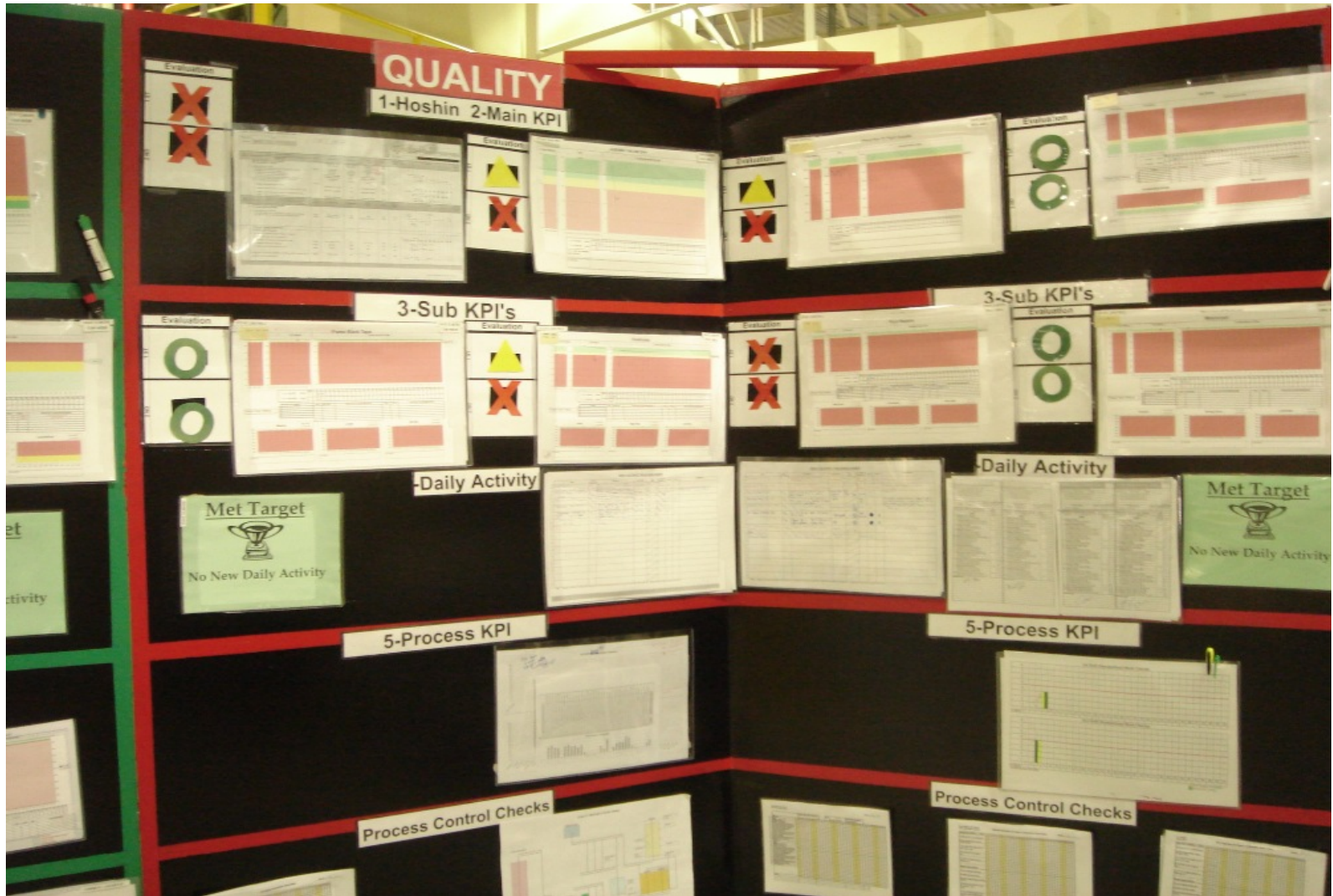
Team Level



# Group Board - Enterprise Management Development System



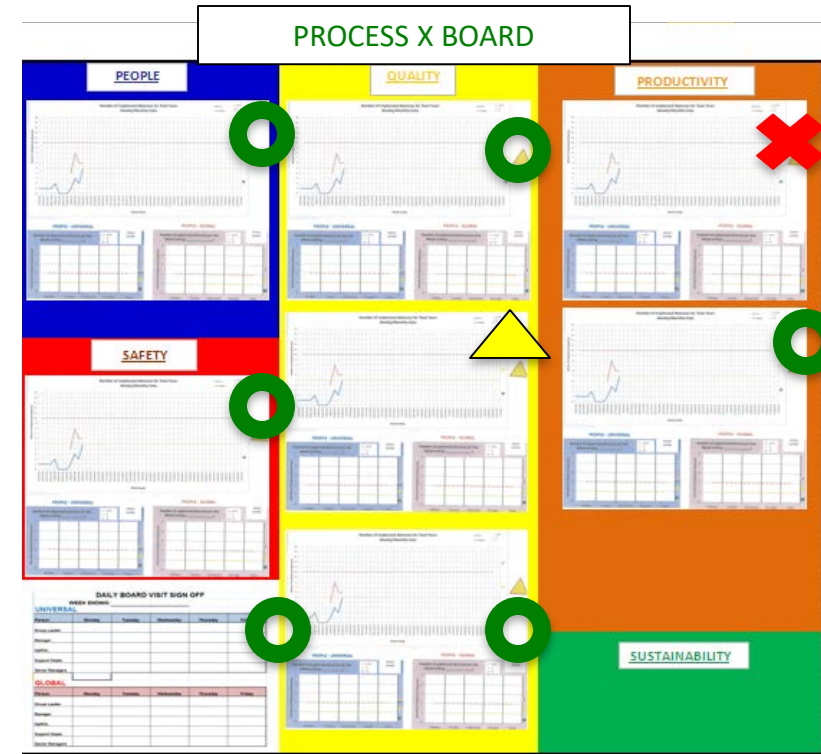
# Quality Section of Group Board





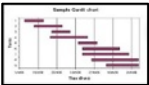
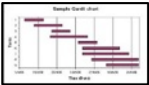
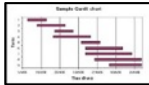
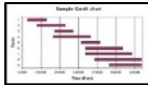
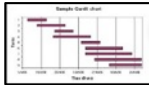



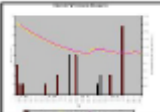
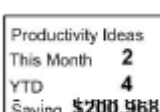
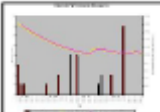








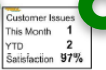











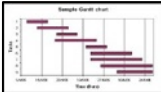
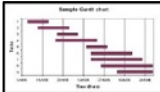
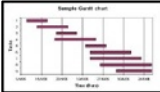
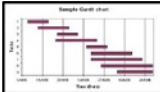
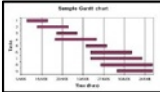
# Process-level Boards

- Deployed per line, cell, or stand-alone process.
- Depicts current local status in all performance dimensions, identifying and driving activity to reduce or overcome abnormal conditions.
- Team leader visits and updates at high frequency (typically 30-60 min. intervals)
- VSMs and Plant manager visit frequently in gemba walks. Perform audits
- Source for data gathering for use in higher level DM Boards. Lead operator collects and posts data.
- Feedback and feed-forward information (e.g. successor inspection and quality gate information) also logged by lead operator and communicated to team.
- Plan vs. Actual data collected, including reasons for discrepancy. Status depicted based on real-time run ratio targets.
- Focus on control metrics, e.g., setpoints, SW audits, 5S audits, etc.
- Shows status of local problem solving activities.



“Insert Title/Position”

ENTERPRISE MANAGEMENT DEVELOPMENT SYSTEM (FMDS) BOARD

<div> <div>Organisation Vision / Mission / Hoshin</div> </div>	MGMT Category	<div>PEOPLE</div> <div>Category Owner (s)</div> <div> <div>Lead</div> <div>Support</div> <div>Support</div> </div>	<div>SAFETY</div> <div>Category Owner (s)</div> <div> <div>Lead</div> <div>Support</div> <div>Support</div> </div>	<div>QUALITY</div> <div>Category Owner (s)</div> <div> <div>Lead</div> <div>Support</div> <div>Support</div> </div>	<div>PRODUCTIVITY</div> <div>Category Owner (s)</div> <div> <div>Lead</div> <div>Support</div> <div>Support</div> </div>	<div>ENVIRONMENT</div> <div>Category Owner (s)</div> <div> <div>Lead</div> <div>Support</div> <div>Support</div> </div>
<div> <div>Division or Department Hoshin</div> </div>	Hoshin Plan					
<div> <div>STANDARD DAILY MEETING AGENDA</div>  </div>	MAIN KPI					
	SUB- KPI's	 		 	 	 
<div> <div>STANDARD WORK FOR USING AND UPDATING BOARD</div>  </div>	Process Indicator Control Check	 	 	 	 	 
	Activity / Standard Work					

BOARD REVIEW SIGN OFF

Date: _____	Monday	Tuesday	Wednesday	Thursday	Friday
Team Leader					
Group Leader					
Manager					
General Manager					

Concerns

1. ~~~~~~

2. ~~~~~~

3. ~~~~~~

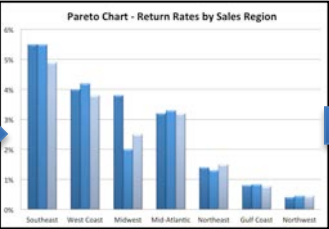
4. ~~~~~~

5. ~~~~~~

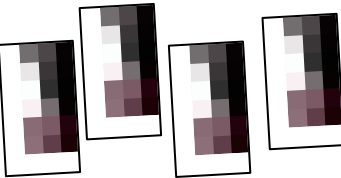
6. ~~~~~~

PRIORITY CONCERNS

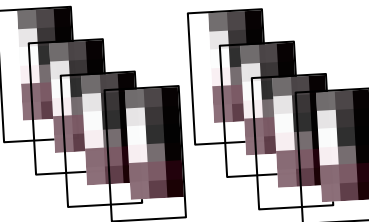
Pareto Chart - Return Rates by Sales Region



C4 CARDS IN PROGRESS



C4 CARDS COMPLETED



# Enterprise-wide Business Management Development System

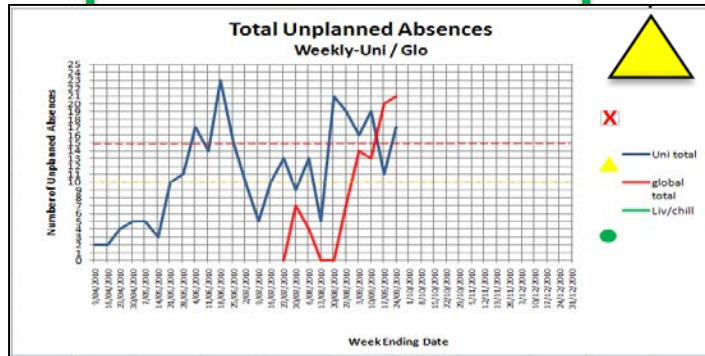
Sales	Product Development	Supply Chain	Execution Operations	Execution Support	Finance
Revenue	Quality	Order Fulfillment	Safety	HR Turnover	ROI
Growth	Time to Market	Forecast/ Actual%	Quality	Safety Medical Cost	EBITDA
Customer Satisfaction	Cost to Budget	Material Shortage	Service/ Delivery	QA	Direct Margin
Sales Pipeline	Productivity/ Delivery to Target	Supplier Report card Quality	Cost		COGS Margin
Sales Forecast to Actual	Problems ID'd timely	Order to Cash Lead Time	People		Debt
Business Acquisition Process	Problems solved timely	Inventory turns	Environment		Accts Rec
Sales, Leads, Calls	Master Plan	Master Plan			

# KPI Development

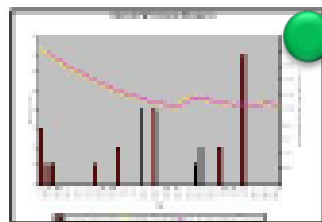
## Hoshin Objective

### PRODUCTIVITY

#### MAIN KPI



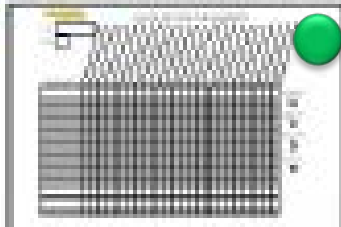
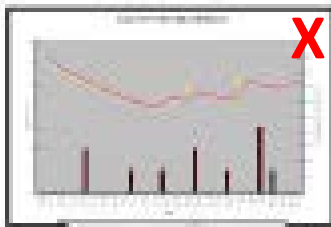
#### SUB KPI



**Main KPI - KPI's selected through catch-ball process that will be primary indicator to align with Hoshin.**

**Sub-KPI's - KPI's that link to main KPI and are important to measure for dept/area/group/team.**

#### PROCESS KPI'S



**Process KPI's – Measuring critical processes and metrics that align with sub-KPI's through to Hoshin.**  
*(dependent on maturity of area for these KPI's)*

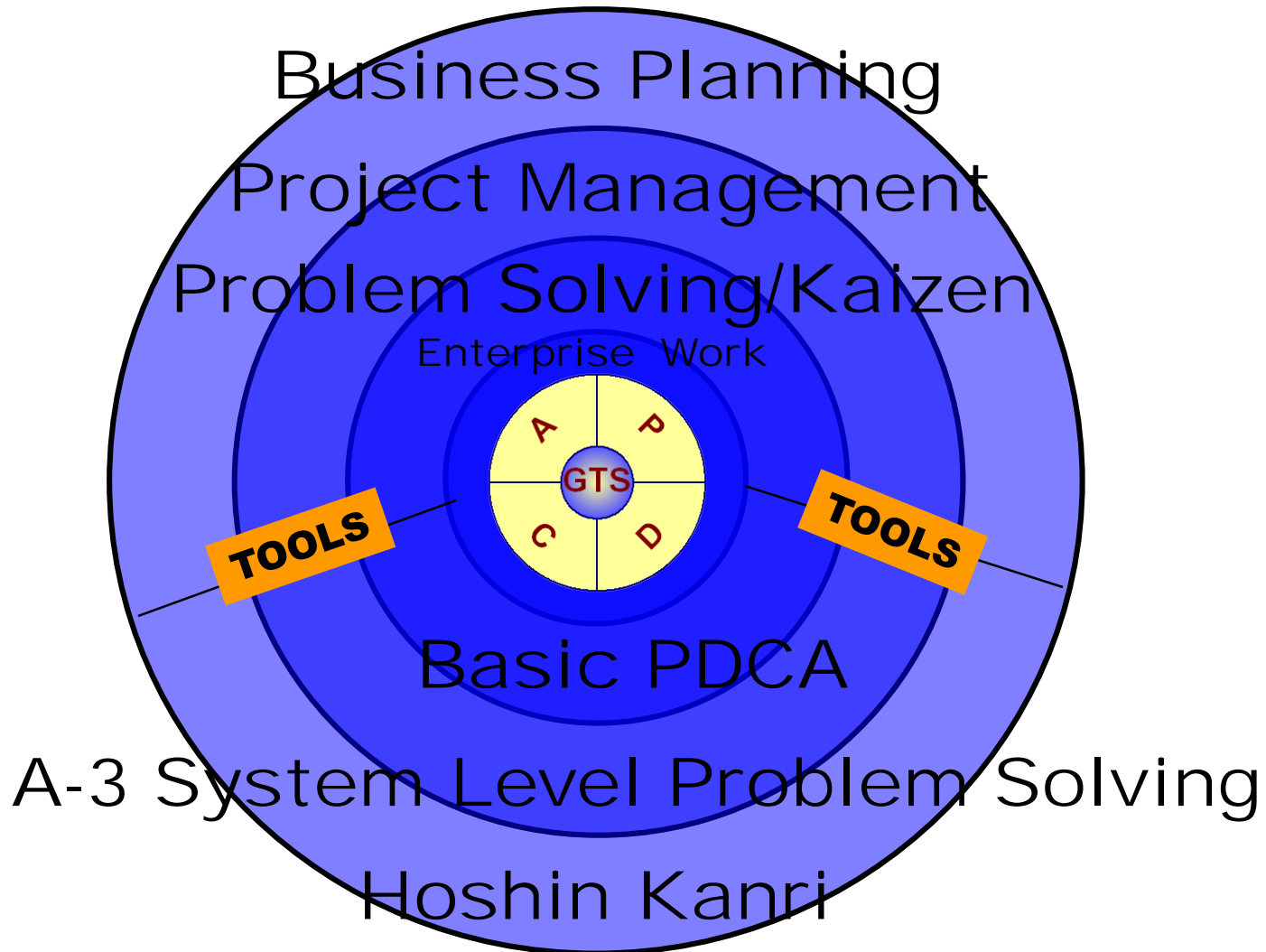
# EMDS KPI Exercise

- Title your flipcharts “EMDS KPI Exercise”
- In your teams, recommend a KPI structure for all three levels of the organisation:
  - Executive
  - Manager
  - Value Added
- Each team will take on one of the pillars of Safety, Quality, Service/Delivery, Cost, and People, (other?)
- Each team will:
  - Recommend enterprise wide KPI (and/or Main KPI)
  - Recommend vertical cascade KPI's (Main, Sub, and Process KPIs for each of the levels listed above)

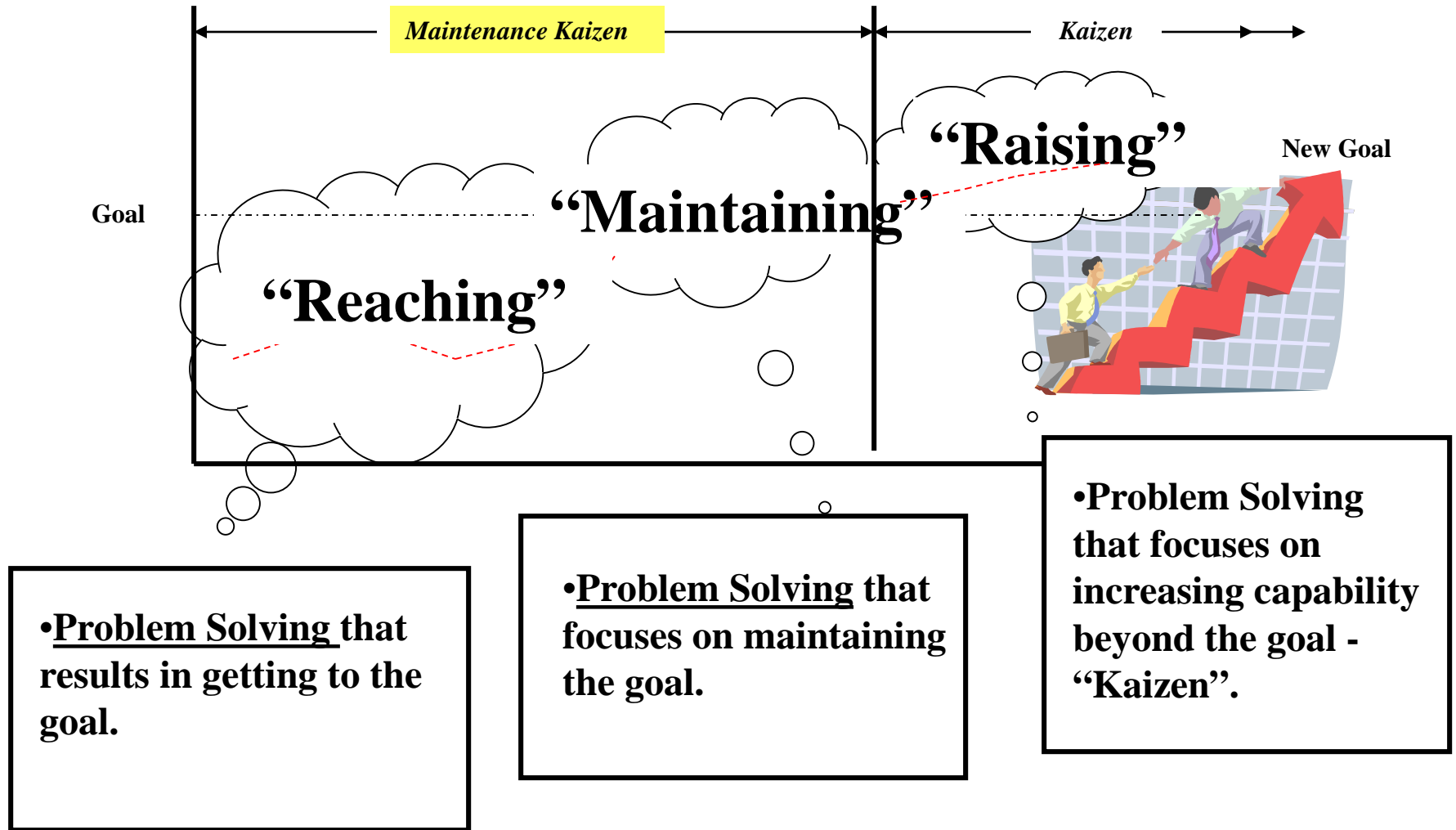
EMDS KPI Exercise			
Pillar	Executive Level	Manager Level	Value Add Level
MAIN KPI			
SUB KPI			
PROCESS KPI			



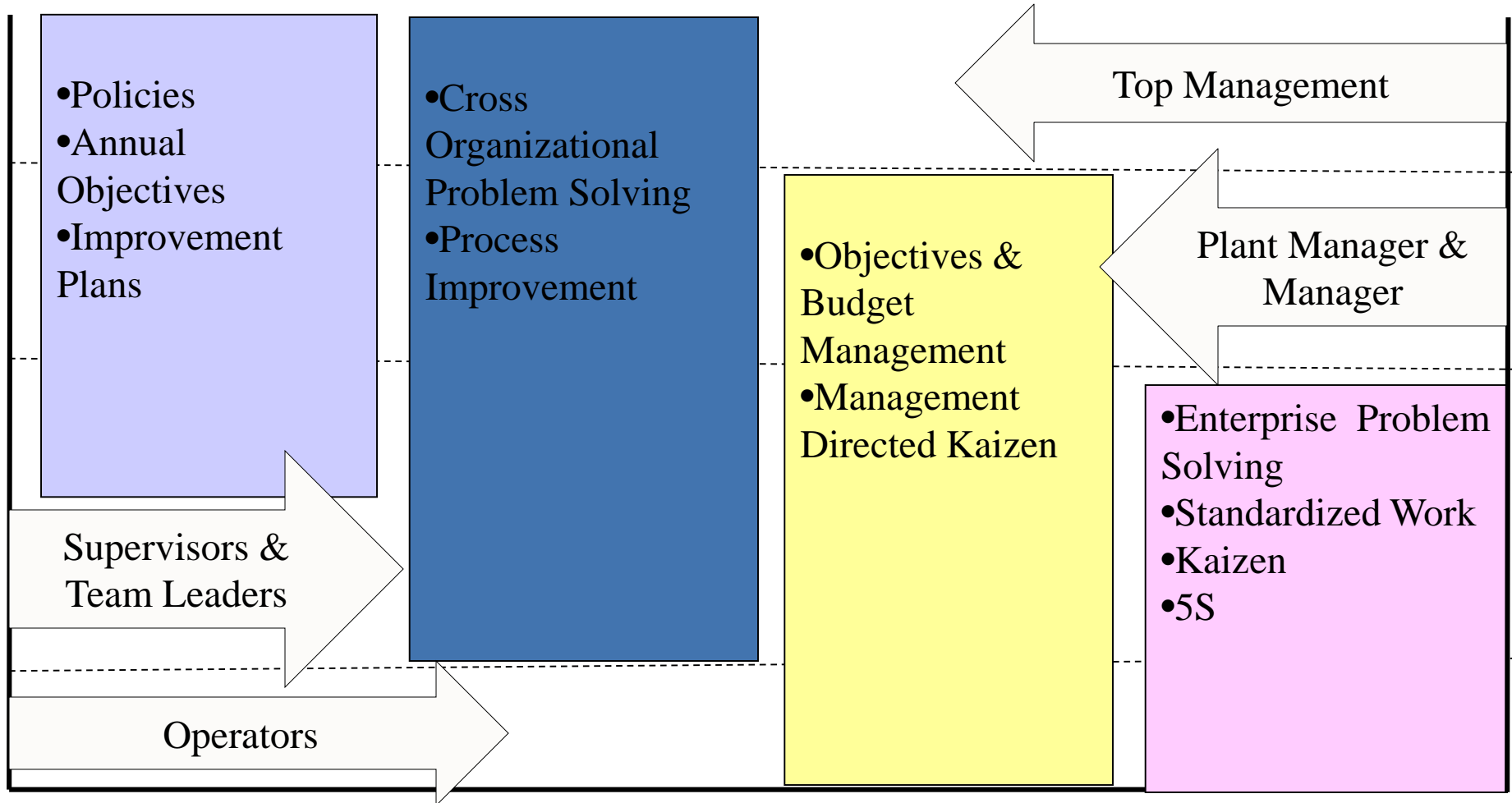
# 3 Levels of Problem Solving



# Three Stages of Problem Solving



# Problem Solving at all Levels



# Goals of Employee Involvement

- To involve and empower the workforce in the continuous improvement process.  
(Team Member Participation)
- To provide opportunities for workers to improve and expand their abilities.  
(Team Member Development)

# Suggestion System

To encourage all team members to look more creatively at what they do and to take an active part in the development of an outstanding company.



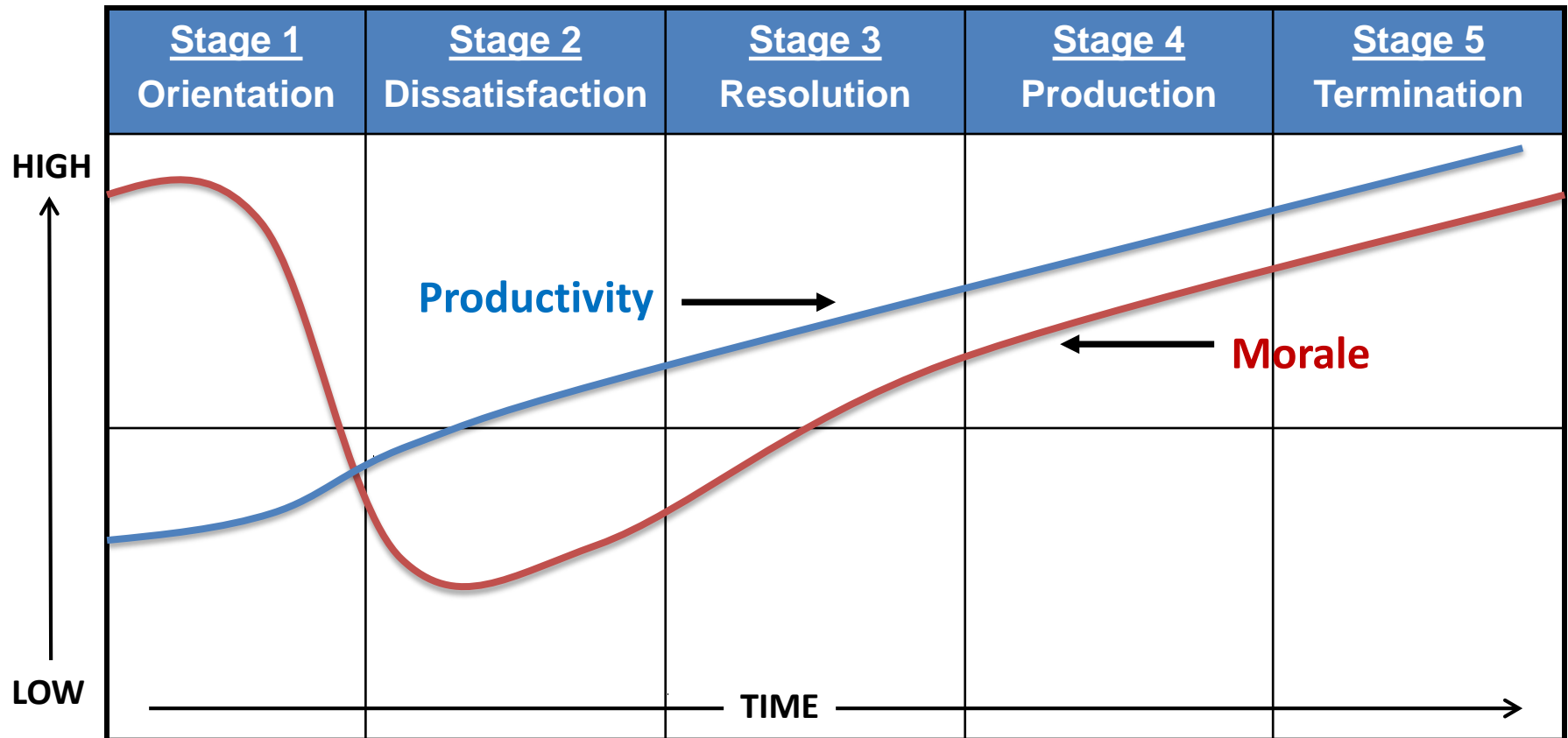
# Quality Circle Summary

**Quality Circles** are a means to encourage such participation while at the same time enhancing the development of each circle participant's abilities (problem solving, leadership skills, and teamwork).

Team members, through Quality Circles, have a means of ensuring safety, enhancing quality, increasing productivity, improving the environment, and reducing costs.

# Employee Involvement Teams

## Team Development Model



Adapted from R. B. Lacoursiere, The Life Cycle of Groups

# Linking the 8 Steps with PDCA and Drive & Dedication

## Concrete Actions and Processes

**P**

1. Clarify the Problem
2. Break Down the Problem
3. Target Setting
4. Root Cause Analysis
5. Develop Countermeasures

**D**

6. See Countermeasure Through

**C**

7. Monitor Both Results and Process

**A**

8. Standardize Successful Processes

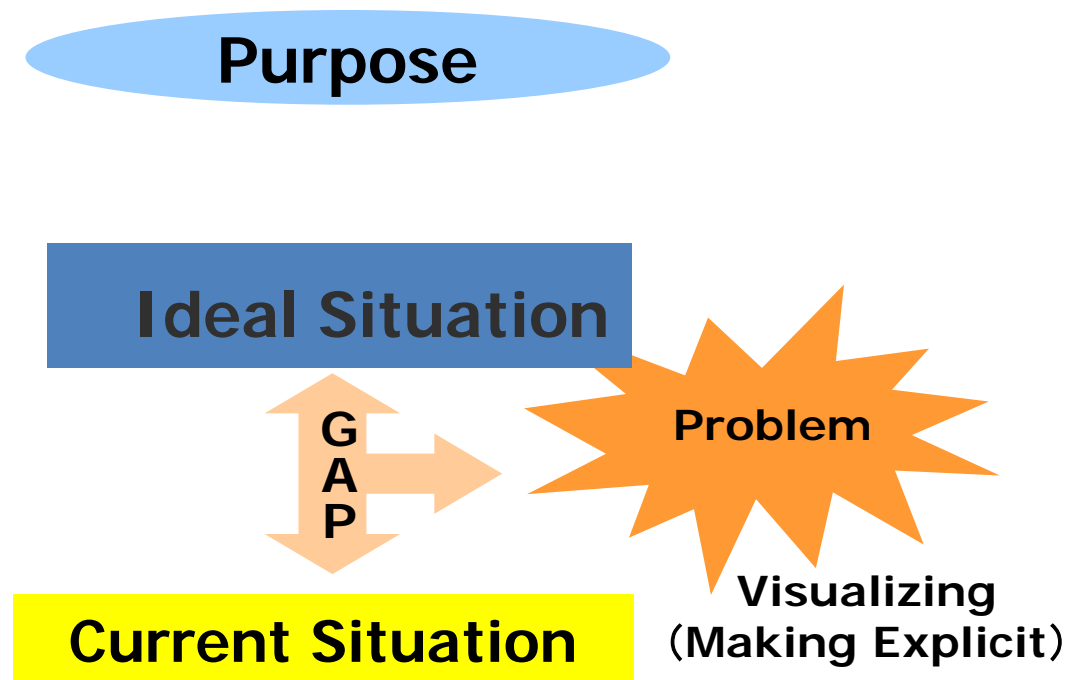
## Drive and Dedication

- Customer First
- Always Confirm the Purpose of Your Work
- Ownership and Responsibility
- Visualization (MIERUKA)
- Judgment Based on Facts
- Think and Act Persistently
- Speedy Action in a Timely Manner
- Follow Each Process with Sincerity and Commitment
- Thorough Communication
- Involve All Stakeholders



# Step 1. Clarify the Problem

## Step 1: Problem Identification

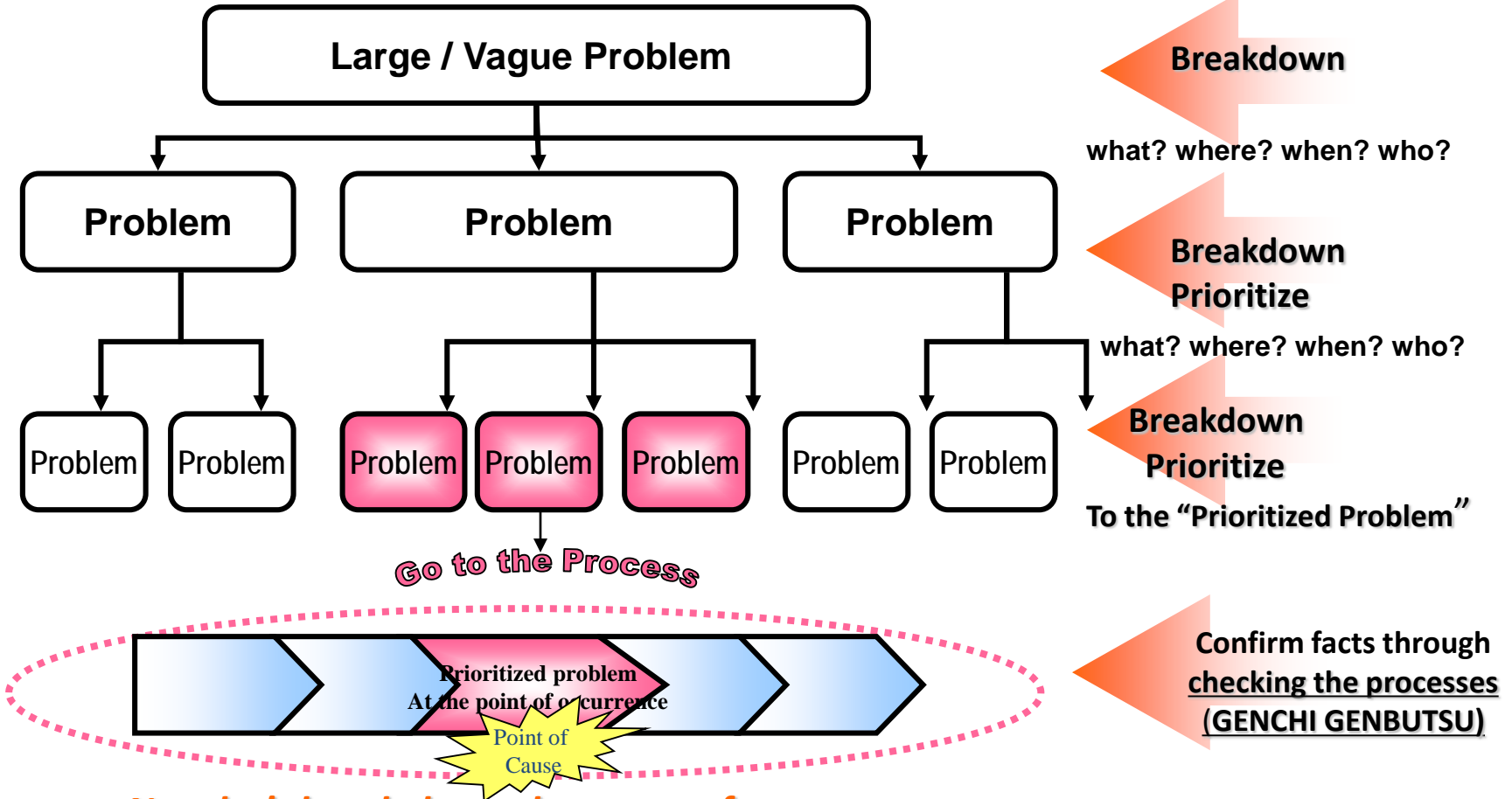


# Step 1- Identify the Problem

- Problem recognition
- Purpose - At each level/role within the company **WE** need to confirm the “*purpose*” of our work, and how when are contributing to the company goals when we solve problems.
- Current situation (what are the FACTS? What is ACTUALLY happening?)
- Ideal situation (what SHOULD be happening?)
- Gap (Problem) (Quantify variance of WIH? vs WSBH?)

## OVERALL IMAGE of Step 2

**~ Based on facts, divide the problem and clarify objectives~**

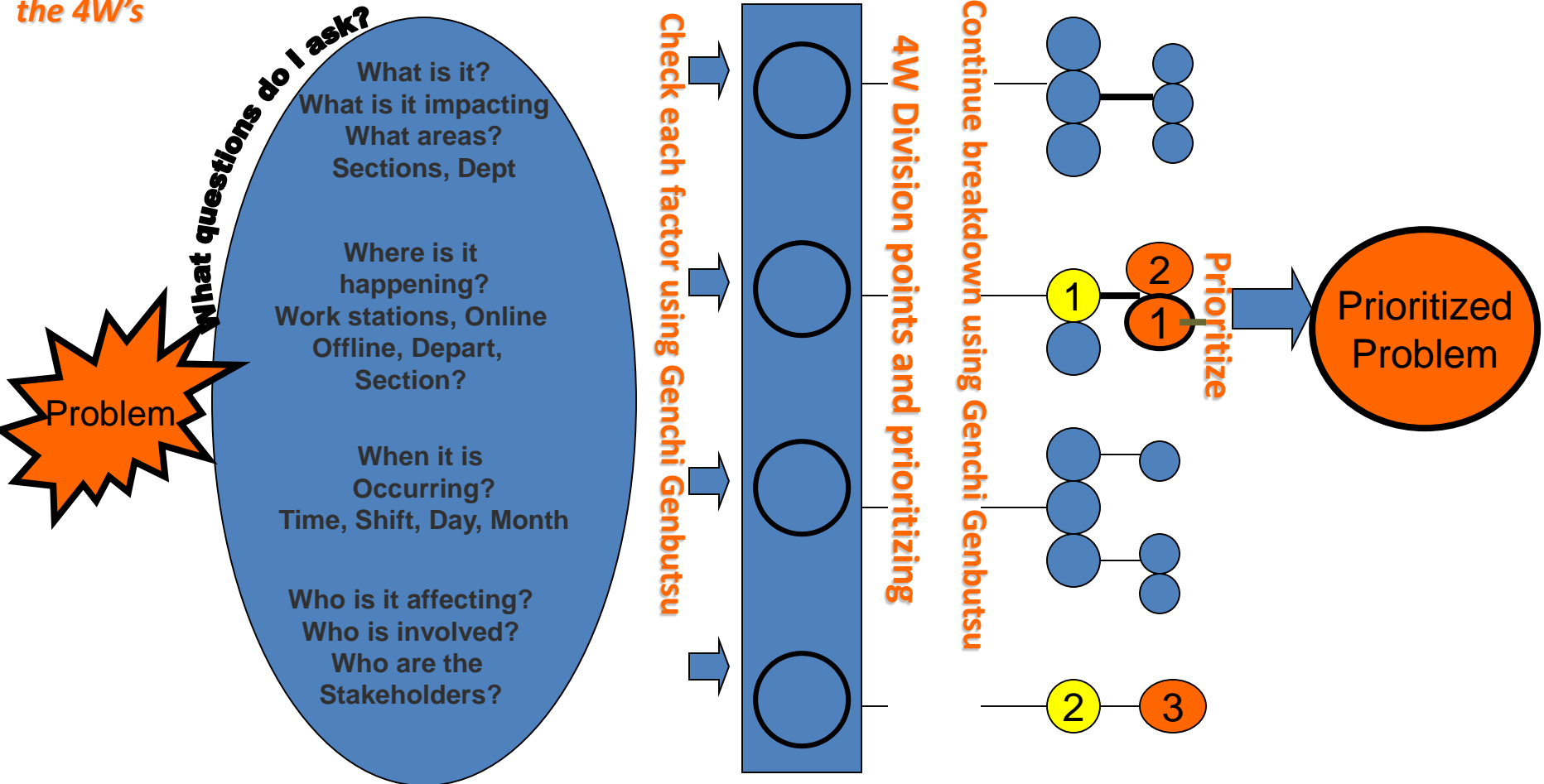


*Now let's break down these steps for you....*

# How to Breakdown The Problem – to focus on the prioritized problem

*Ask yourself “What Is / Is Not Part Of The Gap”*

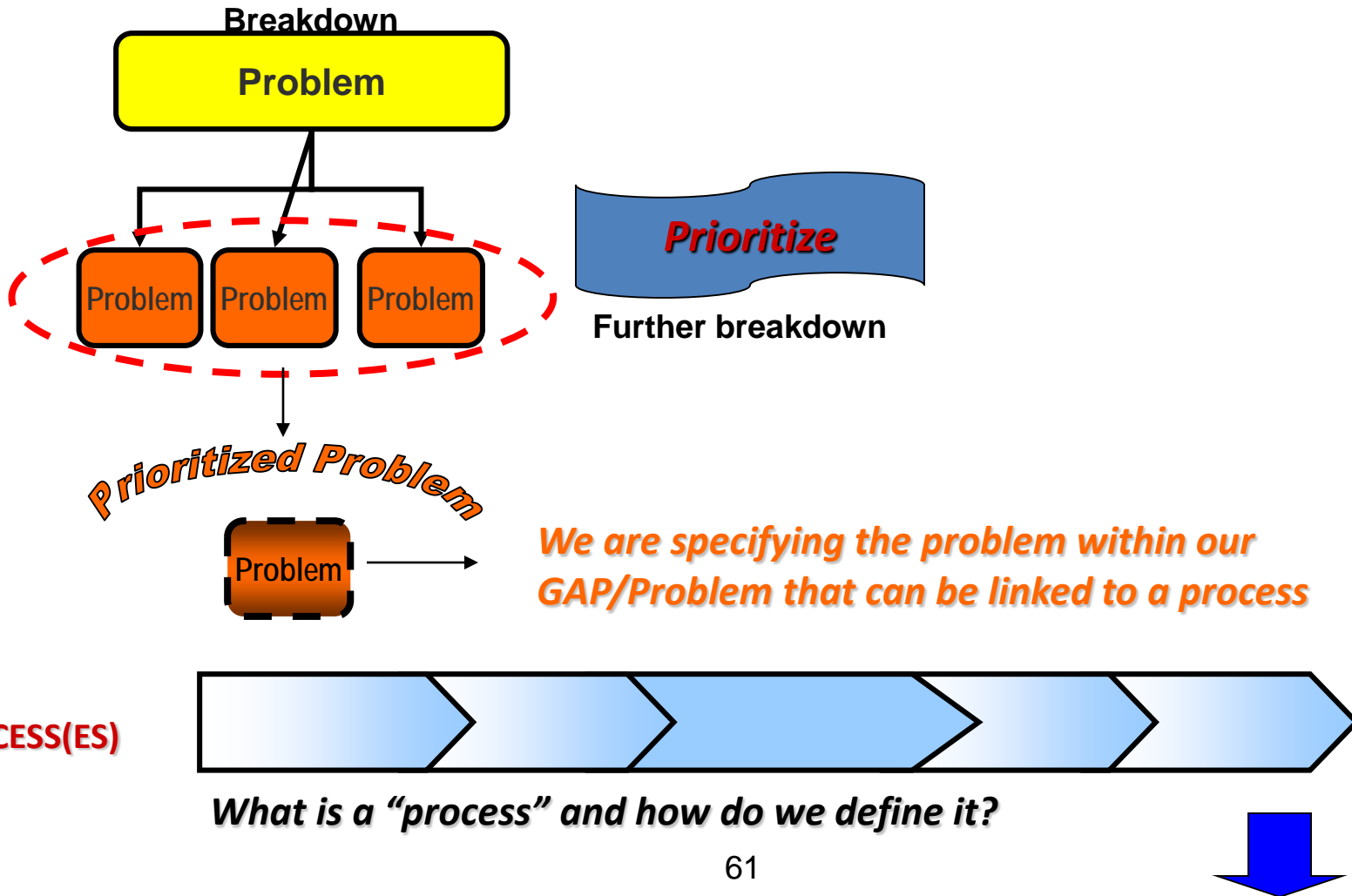
*Separate into division points using the 4W's*



## Step 2: Breakdown the Problem

So now that we have prioritized let's:

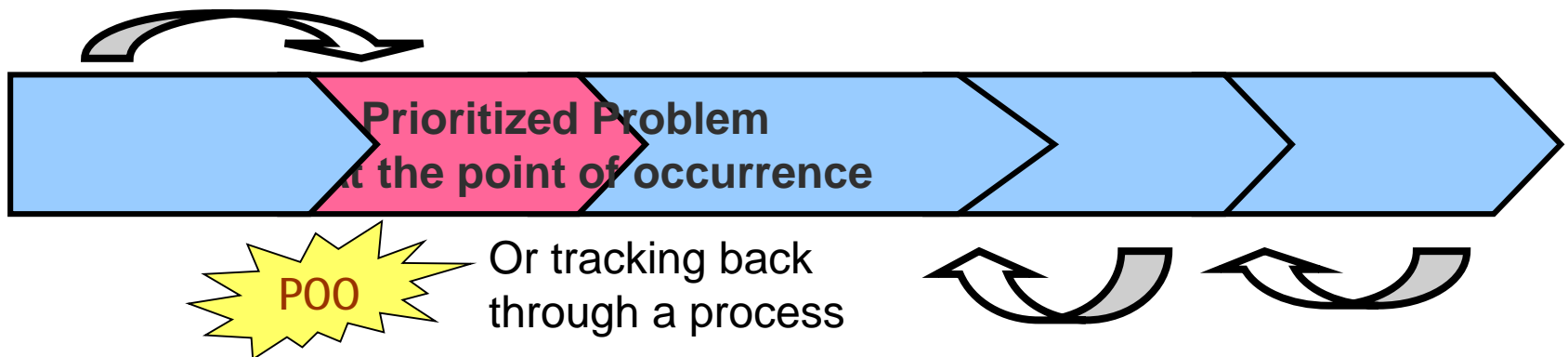
### Select the prioritized problem



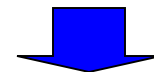
# Breakdown the Problem, Continued

After we have selected the “**Prioritized Problem**” and determine the process in which it’s occurring:

Observe a process through the sequence of steps



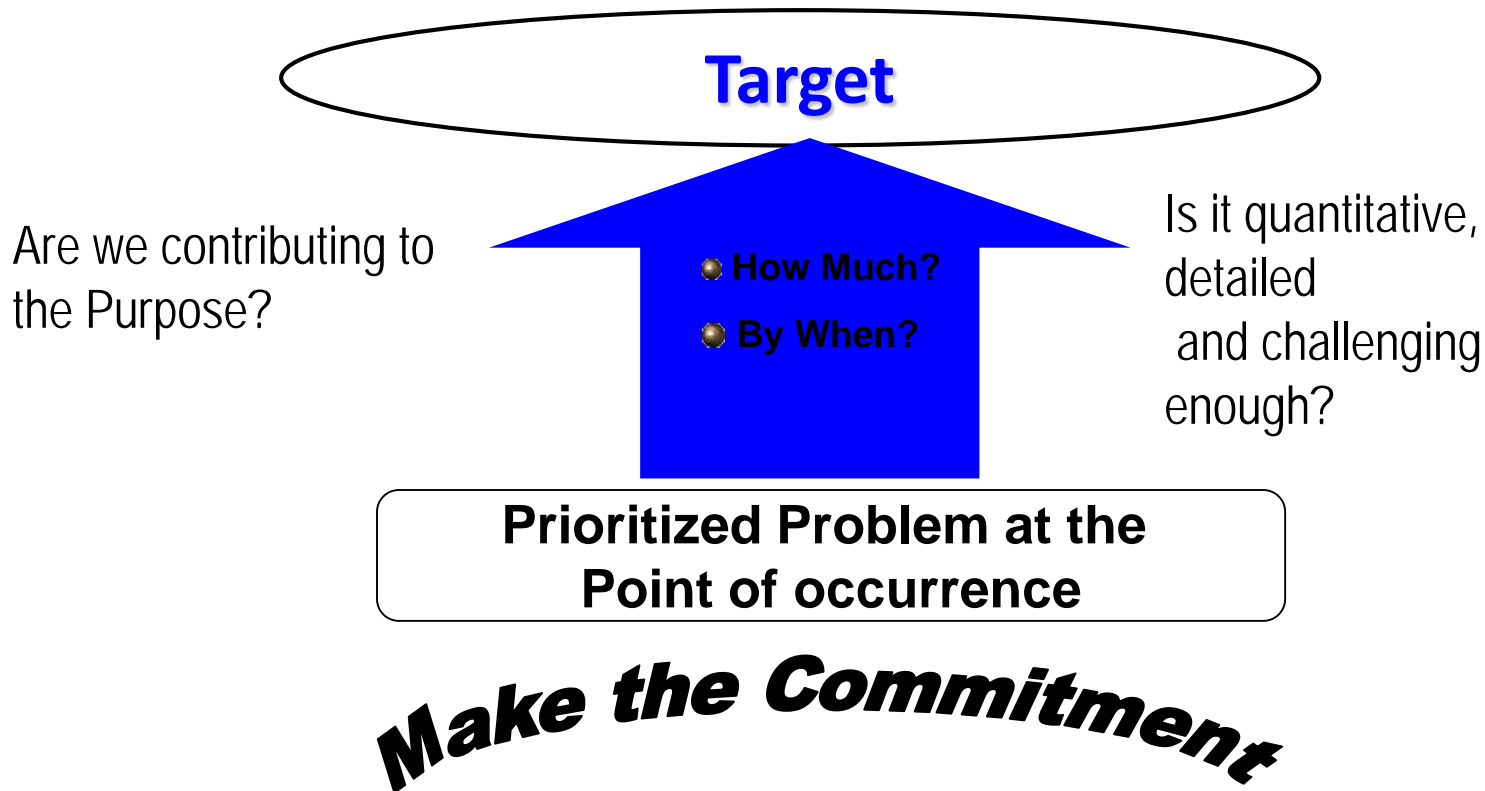
“Where” is the problem occurring within the process? Once we understand “where” the abnormality is occurring this becomes our **Prioritized Problem at the point of occurrence**. Our “POO” is what we set our targets on to address, and then begin to ask *WHY* is this happening.



## Step 3: Target Setting

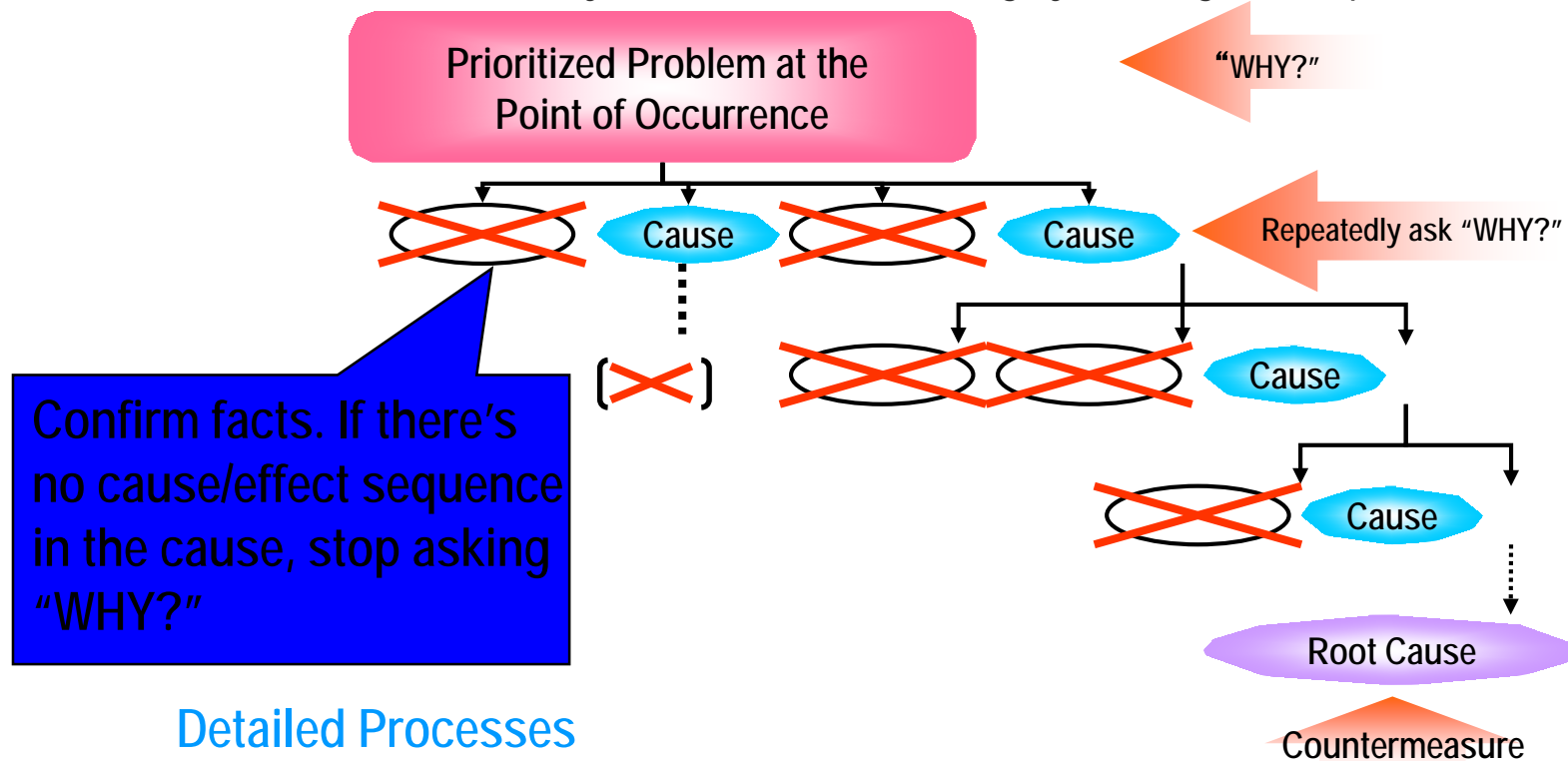
Set the Target for the Prioritized Problem at the Point of Occurrence

~Set challenging but realistic output measurement guidelines~



# Step 4: Root Cause Analysis

In order to clarify the root cause, thoroughly investigate the process involved



## Detailed Processes

- (1) Consider potential causes by imaging the actual situation where the problem occurs
- (2) Based on facts gathered through GENCHI GENBUTSU, keep asking “Why?”
- (3) Specify the root cause



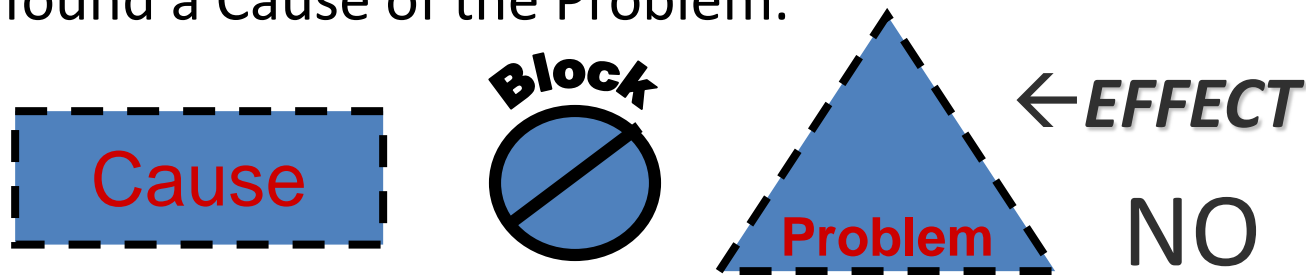
# Cause / Effect Relationships

*Confirm with facts through Genchi Genbutsu*

- You have a cause when you can show there is a link between the existence of your problem and the existence of another occurrence or condition.

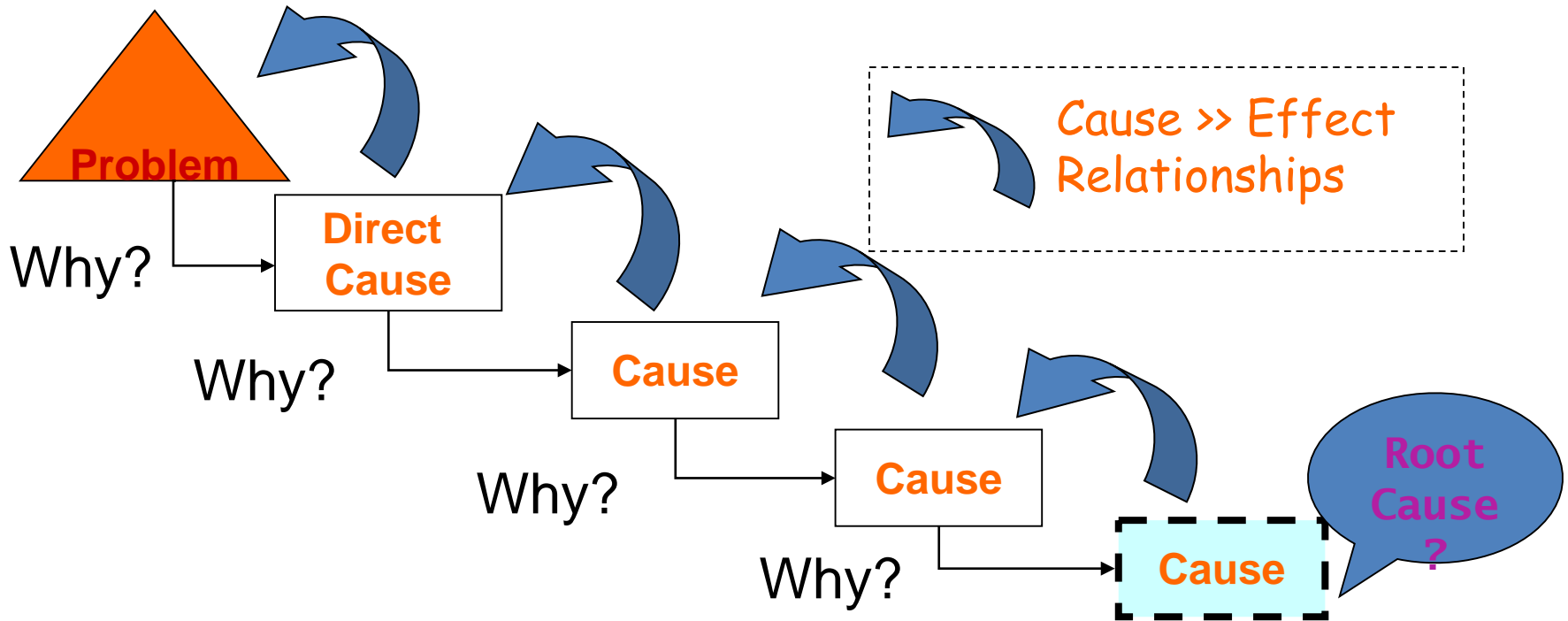


- The best way to demonstrate a Cause / Effect relationship is to remove or block the cause. If the problem goes away you have found a Cause of the Problem.



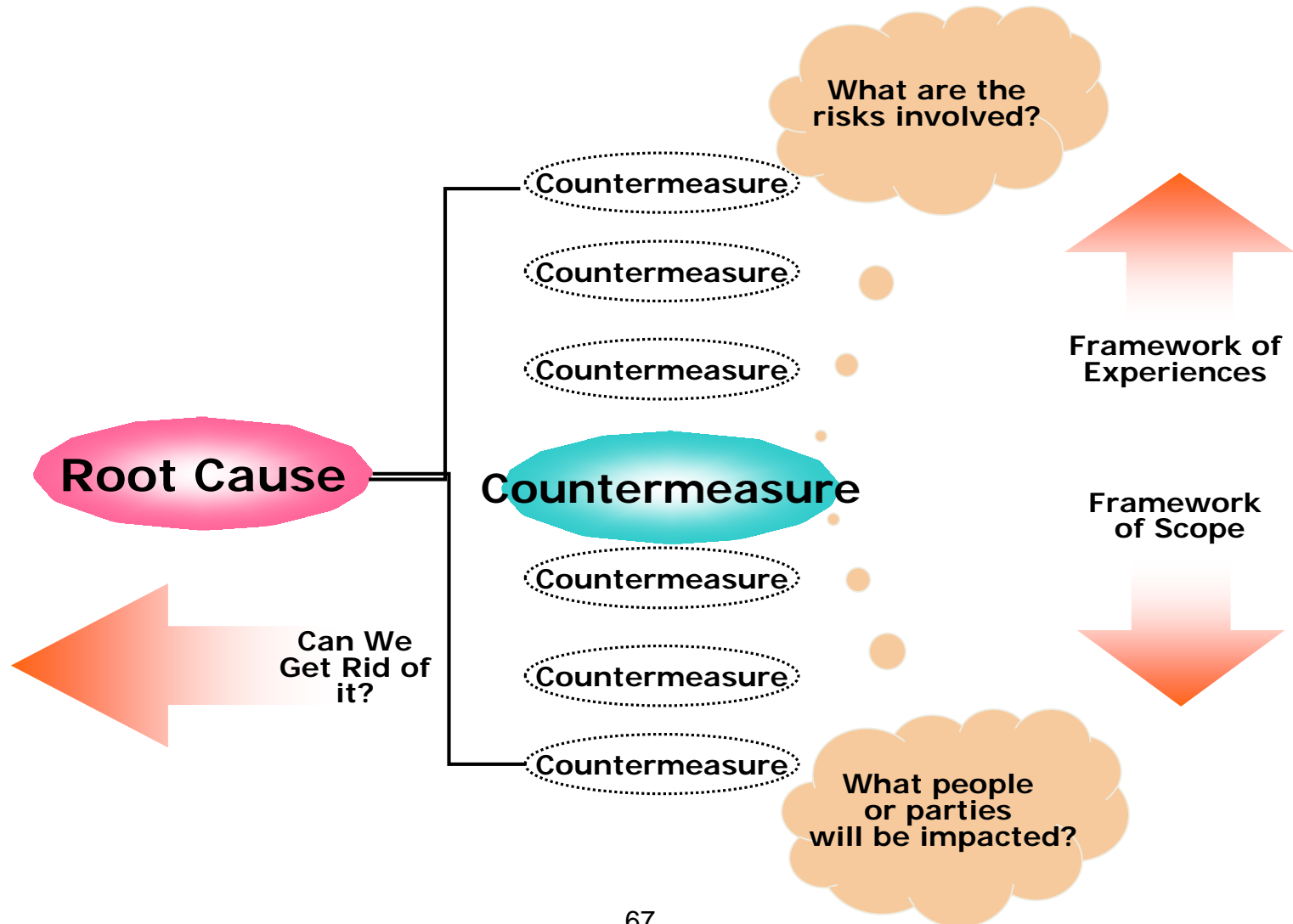
## Root Cause Analysis

Pursue and specify the root cause by repeatedly asking  
“Why?” and building a chain of Cause/Effect  
Relationships to the root cause



Stop when you believe you have reached the root cause  
and check to see if this cause is effectively counter  
measured will it address all the causes up the chain?

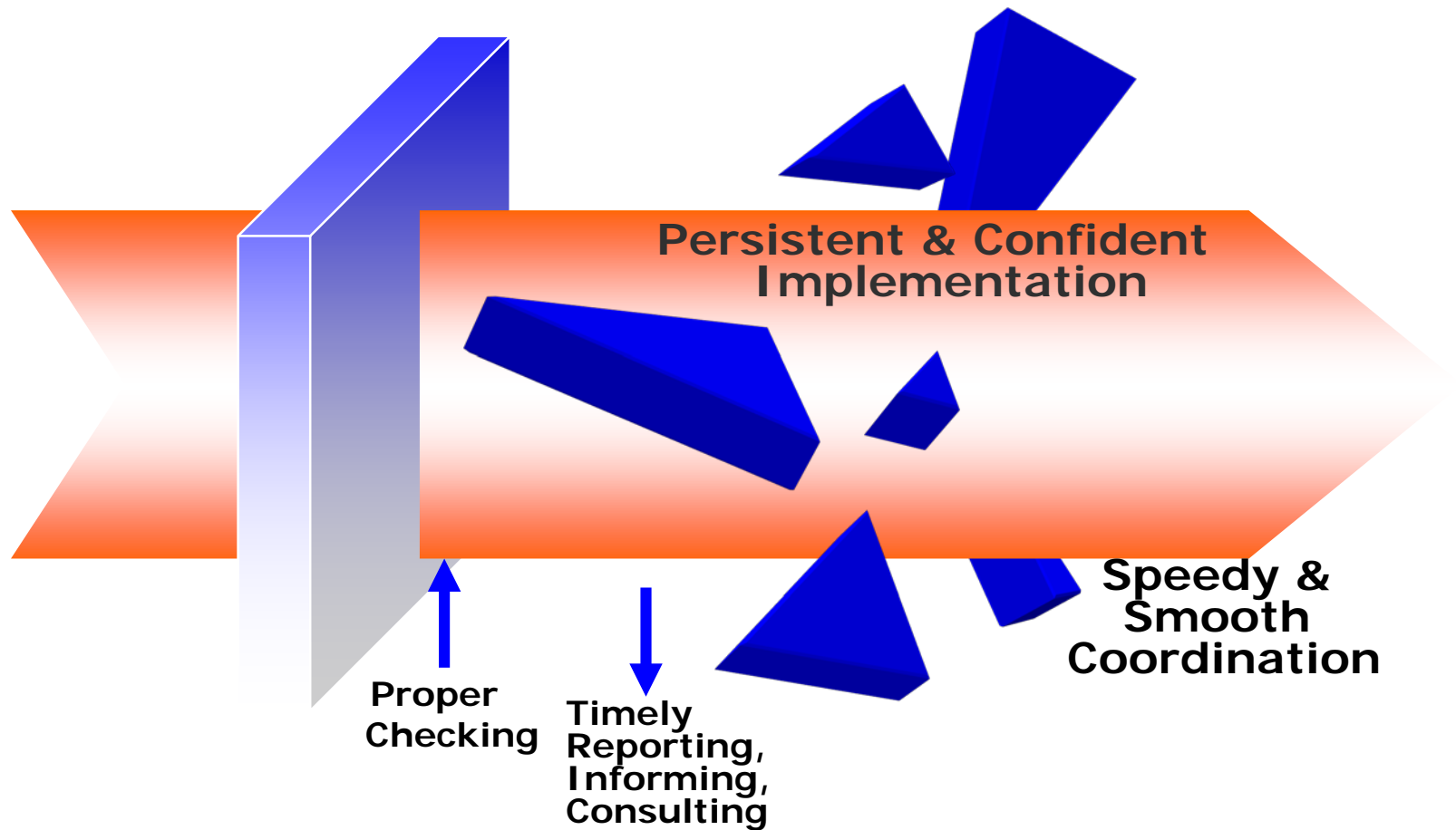
# Step 5. Development Countermeasures



# Step 6.

## Implement Countermeasures

~Coordinated and speedy implementation~



# Step 6: Detailed Process

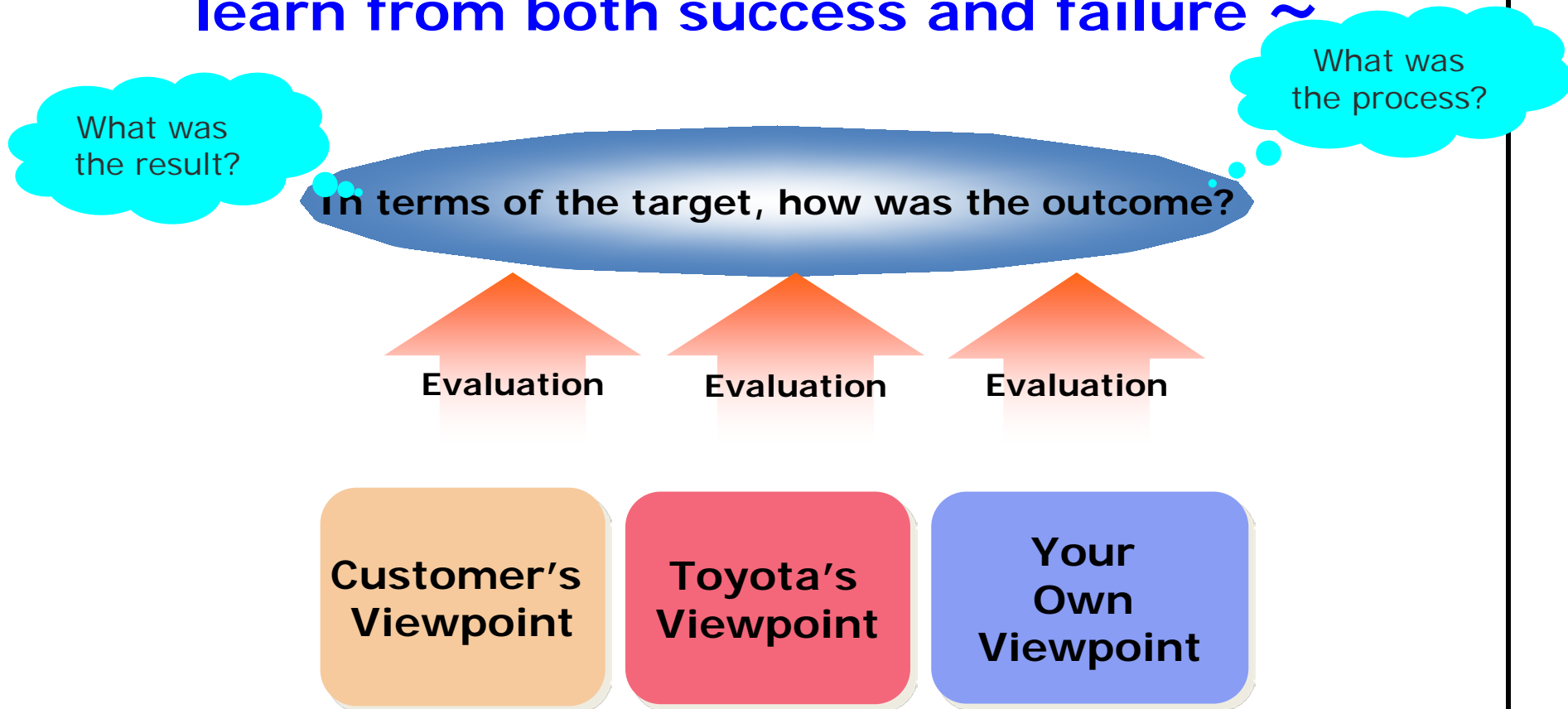
Process 1: Quickly and as a team,  
implement countermeasures

Process 2: Share progress by following the  
correct reporting, informing, and  
consulting communication  
procedures

Process 3: Never give up, and proceed to  
the next step quickly

# Step 7. Monitor Process and Results

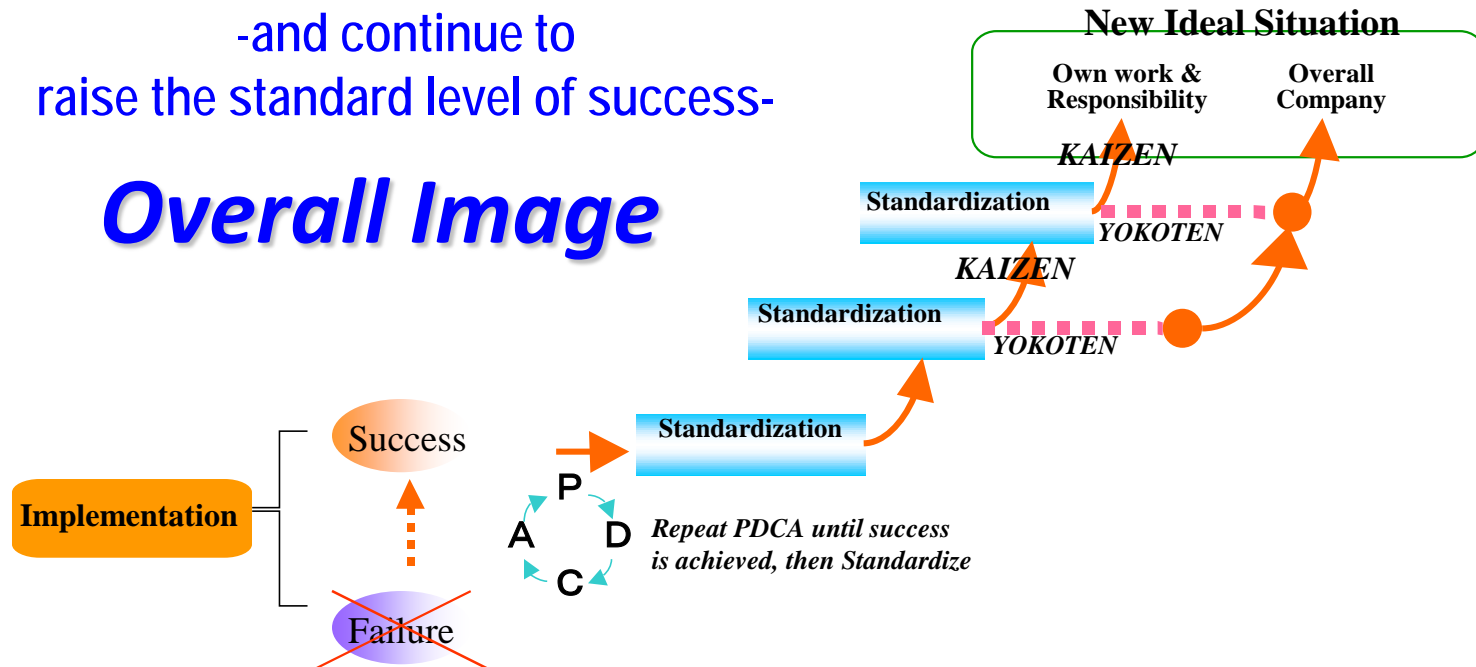
~Evaluate both results and processes and learn from both success and failure ~



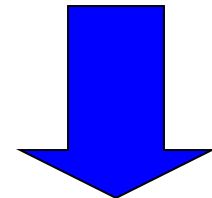
# Step 8: Standardize and Share Success

- Establish the successful process as precedent,
  - and continue to raise the standard level of success-

## Overall Image



- (1) Structuralize the successful processes (Standardize)
- (2) Share the new precedent through YOKOTEN
- (3) Start the next round of KAIZEN



*Let Discuss these points further*

# What is an A3 ?

- Core Communication Tool at Toyota



**Consulting**

**Reporting**



**Informing**



# A3 Applications

- Problem Solving
- Proposal/Approval
- Status
- Strategy

# Standard Work for Leaders

ROLE	% of Work (time) that should be Standard
Executives	10-15%
Value Stream Manager	25%
Support Department Managers	50%
Group Leaders	50%
Team Leaders	80%
Team Members	95+%

# Recognition & Corrective Action

- Company and supervisor recognizing quality work
- Trust economy vs. Entitlement Economy
- Company recognizing sub standard work or unfair work practices and addressing it
- Members having the ability to recognize sub standard performance and unfair work practices and getting it addressed (checks and balances)

# Fujio Cho, Chairman, Toyota Motor

Former President, Toyota Motor Manufacturing,  
Kentucky:

## 3 Keys to Lean Leadership:

### 1. Go See.

- “Sr. Mgmt. must spend plant floor.”

### 2. Ask Why.

- “Use the ‘Why?’ technique daily.”

### 3. Show Respect.

- “Respect your people.”

