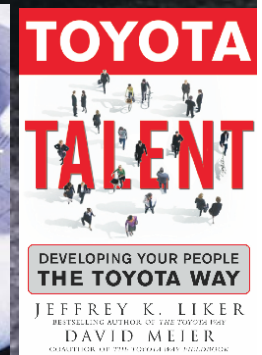
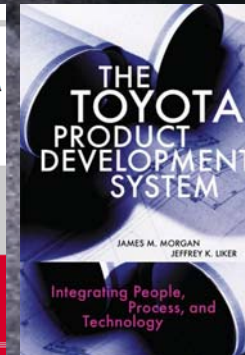
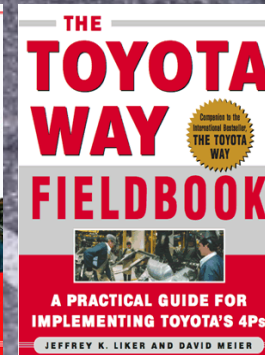
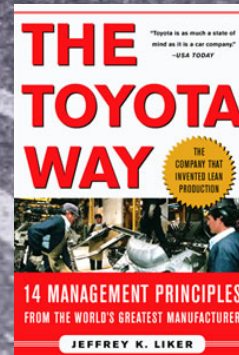
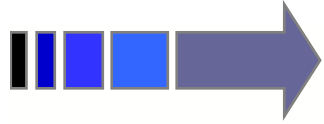


Lessons Learned from the Toyota Way

THE
TOYOTA
WAY





Words of Wisdom

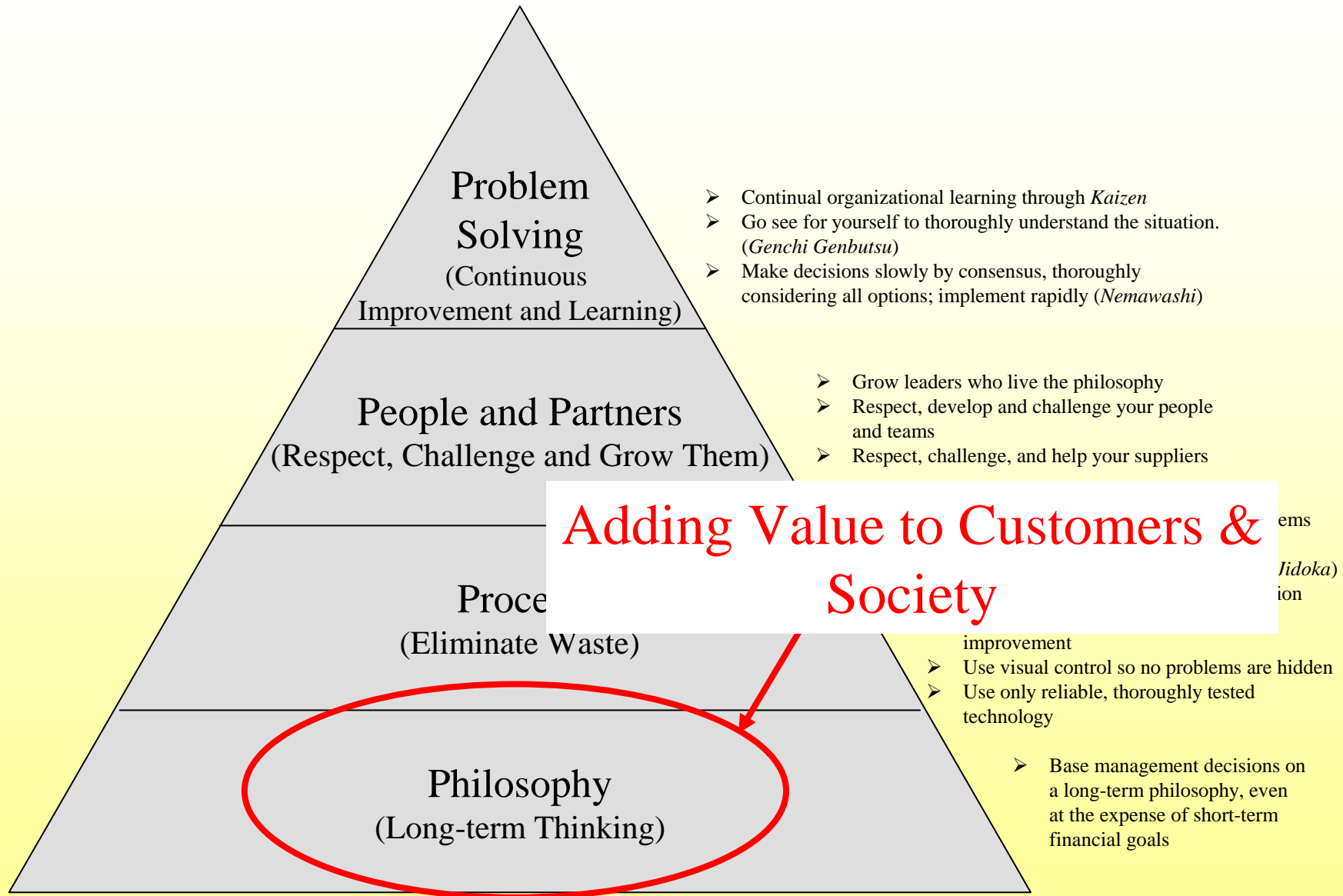


“It is not the strongest nor the most intelligent of the species that survives, but the one that is most adaptable to change”

-Charles Darwin-



“4 P” Model of the Toyota Way



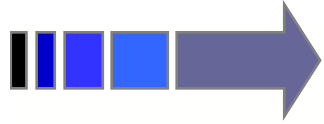
- Continual organizational learning through *Kaizen*
- Go see for yourself to thoroughly understand the situation. (*Genchi Genbutsu*)
- Make decisions slowly by consensus, thoroughly considering all options; implement rapidly (*Nemawashi*)

- Grow leaders who live the philosophy
- Respect, develop and challenge your people and teams
- Respect, challenge, and help your suppliers

Adding Value to Customers & Society

- improvement
- Use visual control so no problems are hidden
- Use only reliable, thoroughly tested technology

- Base management decisions on a long-term philosophy, even at the expense of short-term financial goals



Base management decisions on a long term philosophy, even at the expense of short-term financial goals

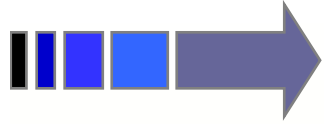


1

Toyota mission:

- Contribute to the economic growth of the country in which it is located (external stakeholders)
- Contribute to the stability and well being of team members and partners (internal stakeholders)
- Contribute to the overall growth of Toyota





Principle One



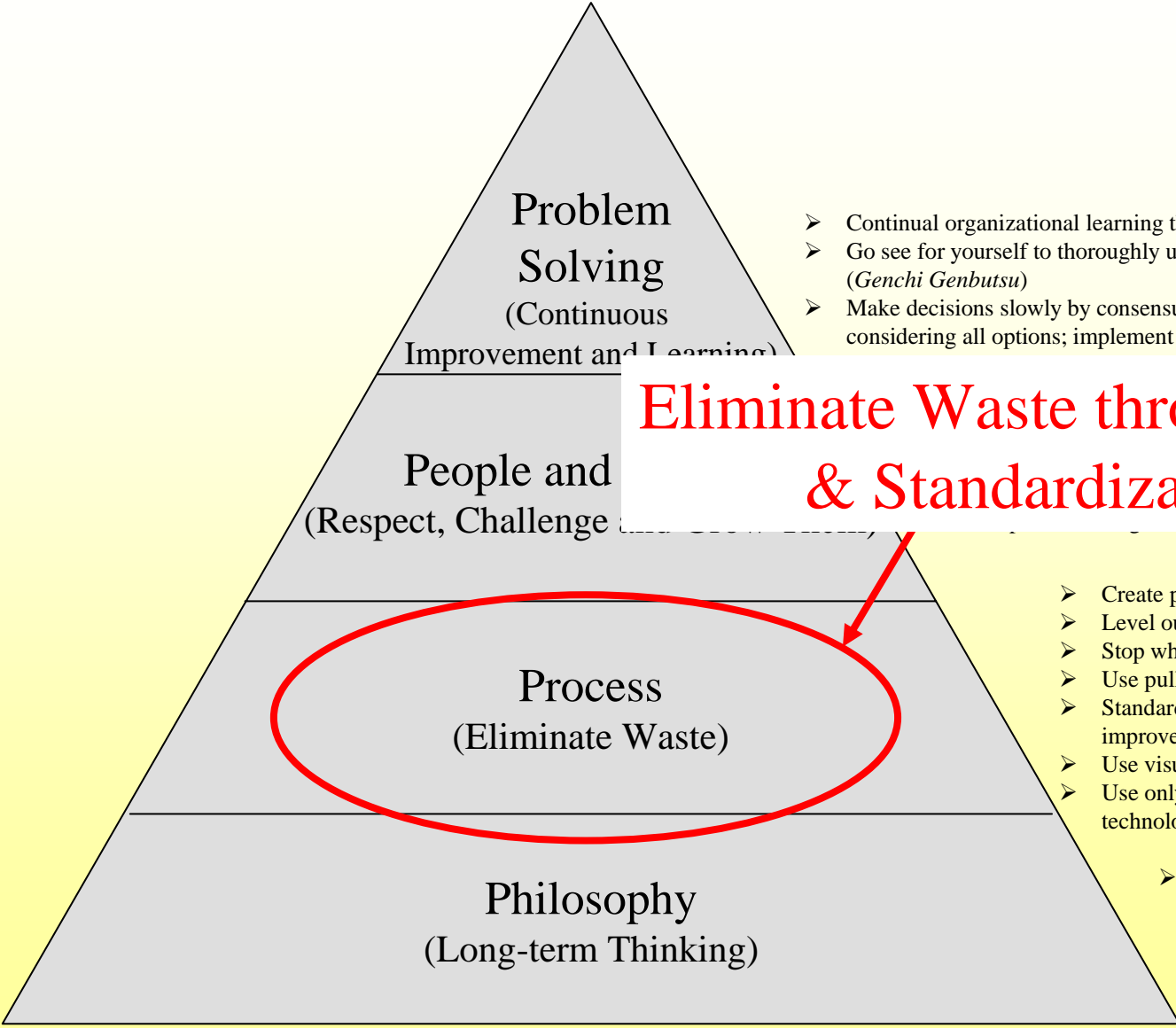
1

“The most important factors for success are patience, a focus on long term rather than short-term results, reinvestment in people, product, and plant, and an unforgiving commitment to quality.”

-Robert B. McCurry,
former Executive V.P., Toyota Motor Sales



"4 P" Model of the Toyota Way

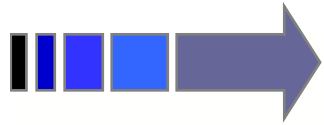


Eliminate Waste through Flow & Standardization

- Continual organizational learning through *Kaizen*
- Go see for yourself to thoroughly understand the situation. (*Genchi Genbutsu*)
- Make decisions slowly by consensus, thoroughly considering all options; implement rapidly (*Nemawashi*)

- Create process "flow" to surface problems
- Level out the workload (*Heijunka*)
- Stop when there is a quality problem (*Jidoka*)
- Use pull systems to avoid overproduction
- Standardize tasks for continuous improvement
- Use visual control so no problems are hidden
- Use only reliable, thoroughly tested technology

- Base management decisions on a long-term philosophy, even at the expense of short-term financial goals



Lean Manufacturing

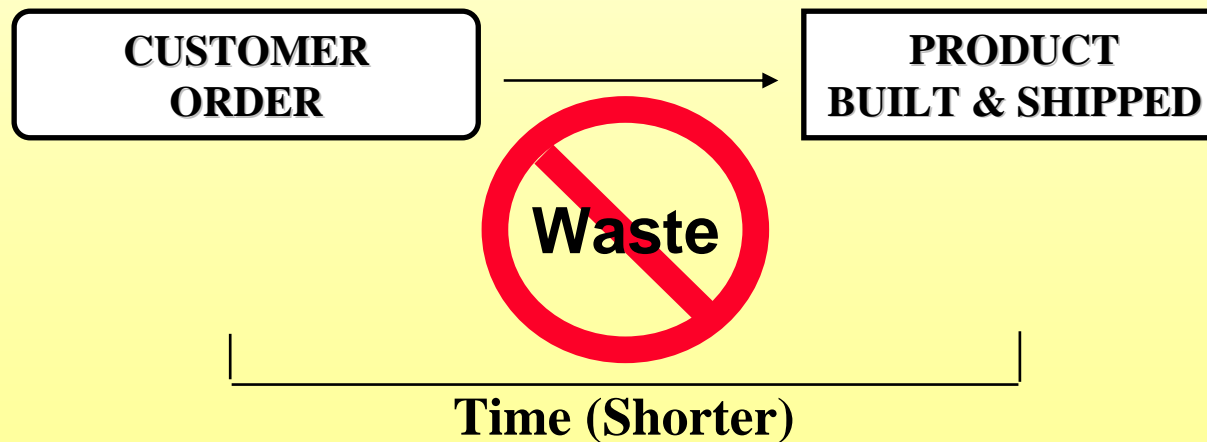


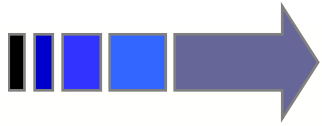
is a manufacturing philosophy which shortens the time between the customer order and the product build / shipment by eliminating *sources* of waste.

Business as Usual

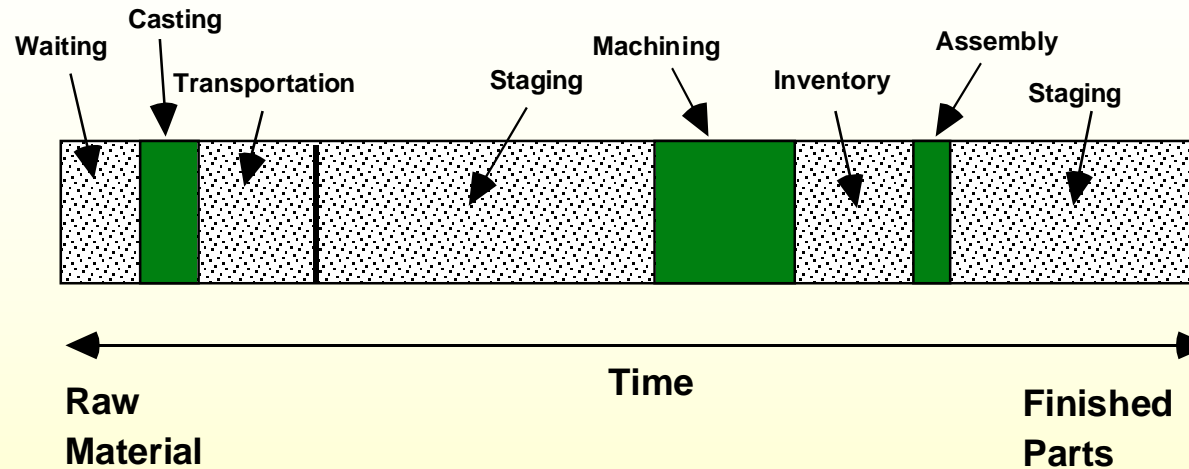



Lean Manufacturing

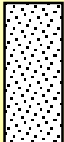




Product Lead Time



 = Value Added Time

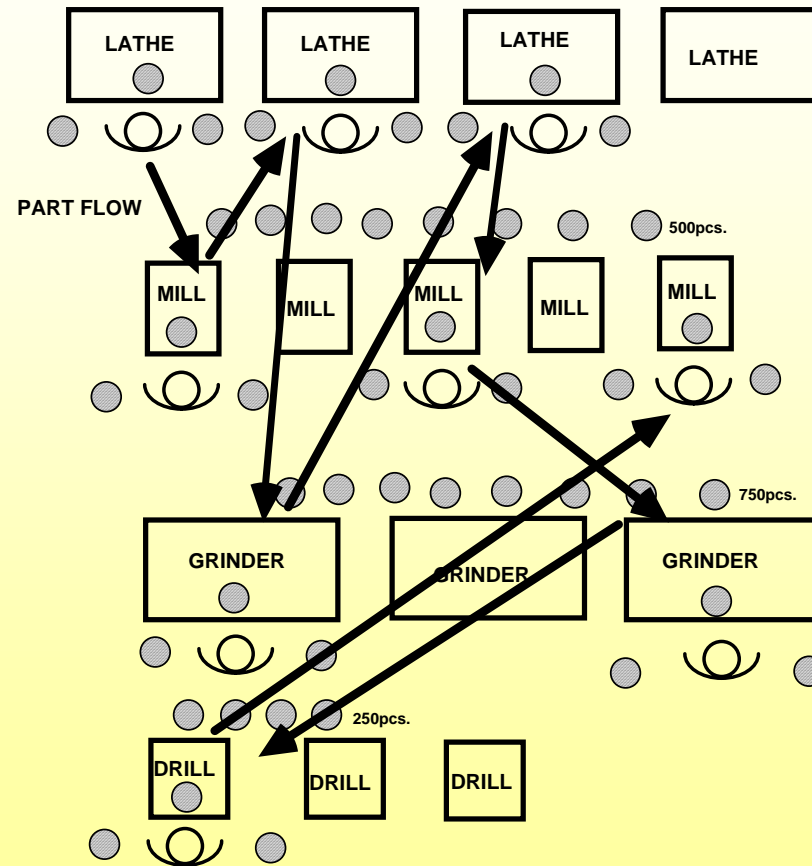
 = Non-Value Added Time (WASTE)

- ▣ Value Added Time is only a very small percentage of the Lead time.
- ▣ Traditional Cost Savings focused on only Value Added Items.
- ▣ *LEAN FOCUSES ON NON-VALUE ADDING ITEMS.*



Before Lean: Organization By Machine Type With Convulated Flow

No Organization and No Control





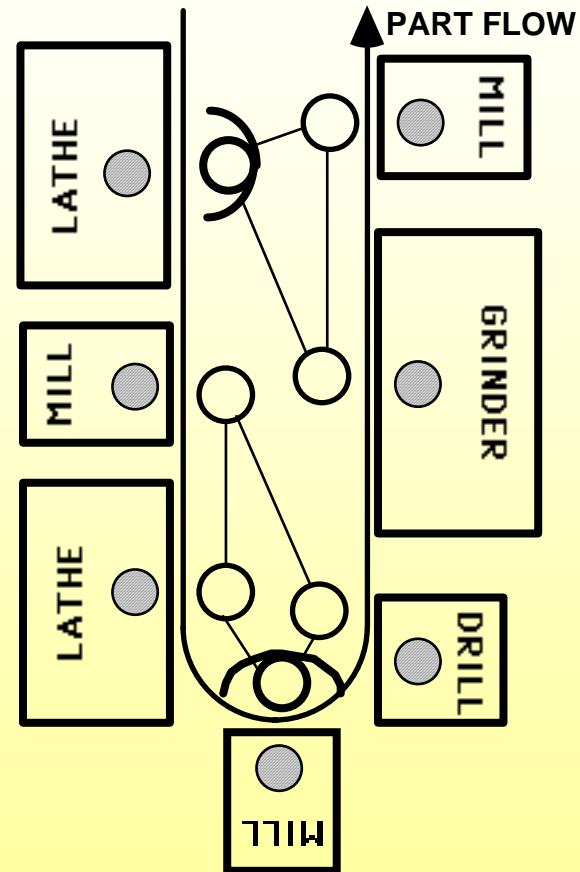
After Lean: U-Shaped One-Piece Flow Cell



Organization and Control

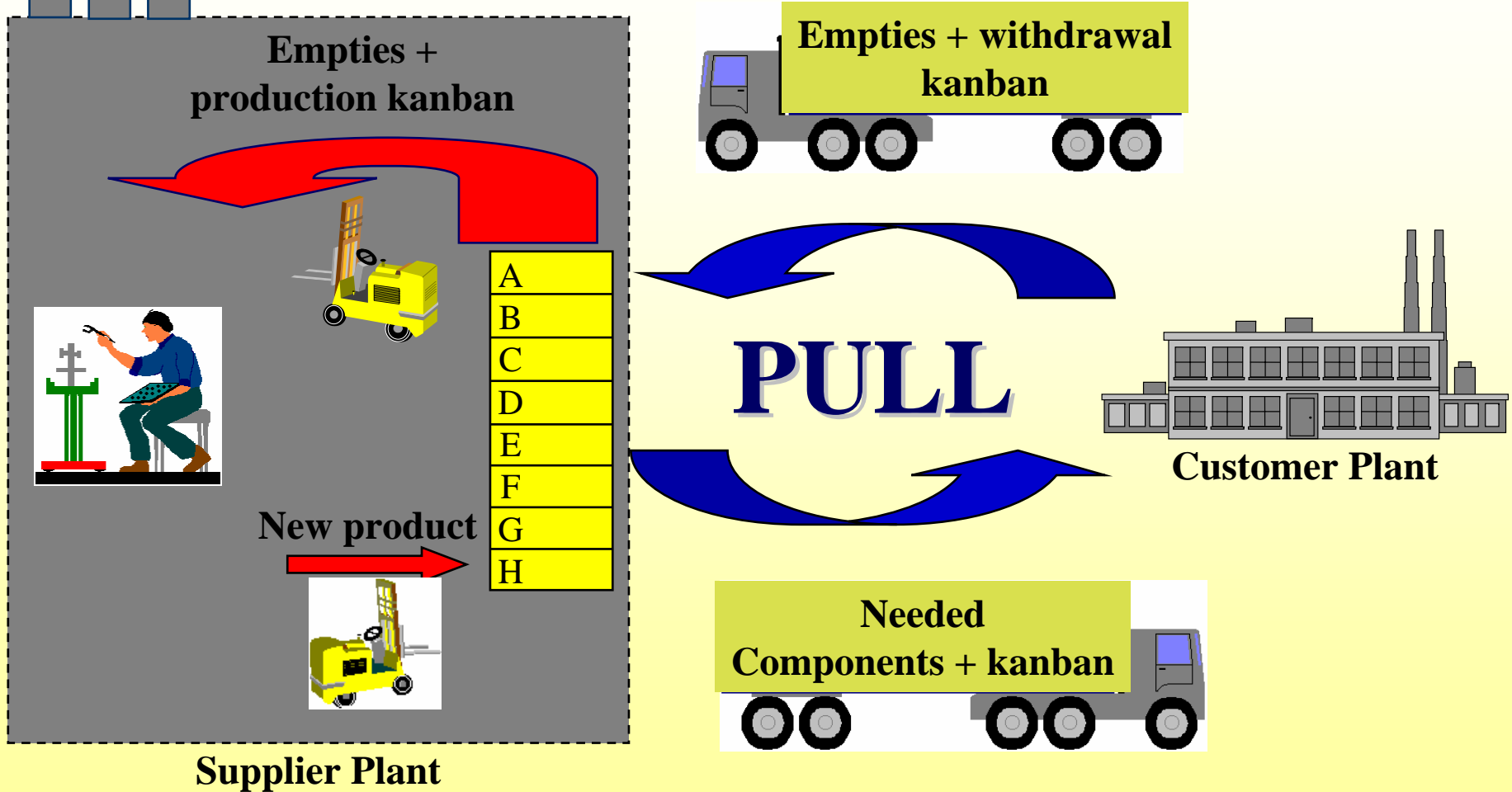


*Build to
Takt Time!*

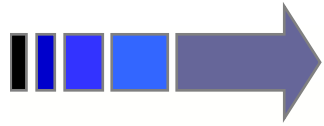


Simplified Pull System

Downstream processes withdraw what they need when they need it.



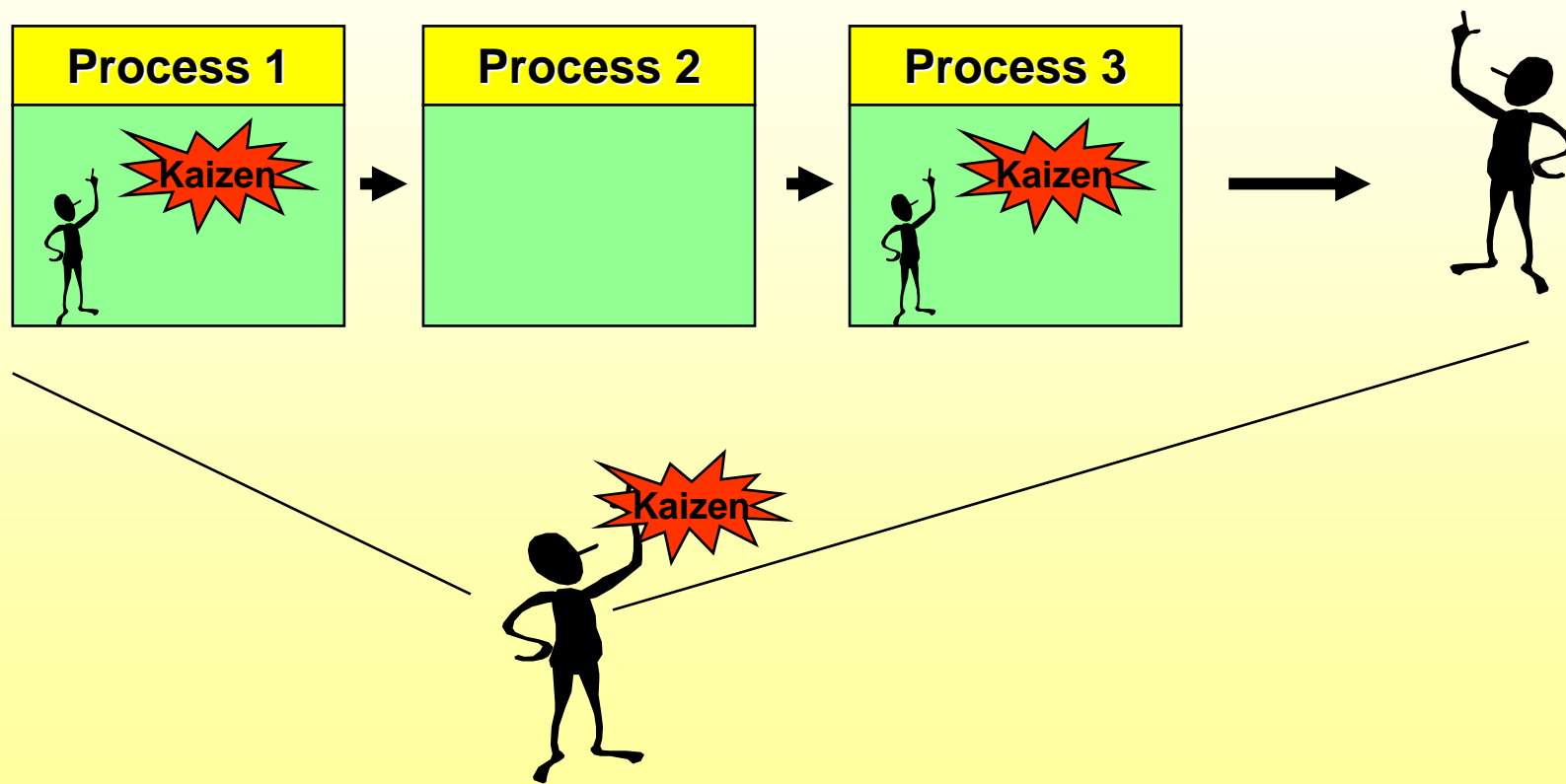
Preceding processes replenish what is taken away.



Value Stream Perspective



Get away from isolated perspective / improvements





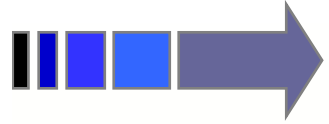
Why Focus on Flow?



“If some problem occurs in one-piece-flow manufacturing then the whole production line stops. In this sense it is a very bad system of manufacturing. But when production stops everyone is forced to solve the problem immediately. So team members have to think, and through thinking team members grow and become better team members and people.”

-Teruyuki Minoura, former President,
Toyota Motor Manufacturing, North America





Lean Tools to Support Flow



- 5S-Visual Workplace
- Total Productive Maintenance
- Quick Changeover
- Standardized Work
- Quality Methods

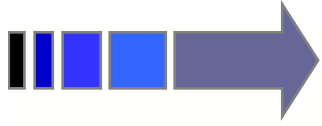




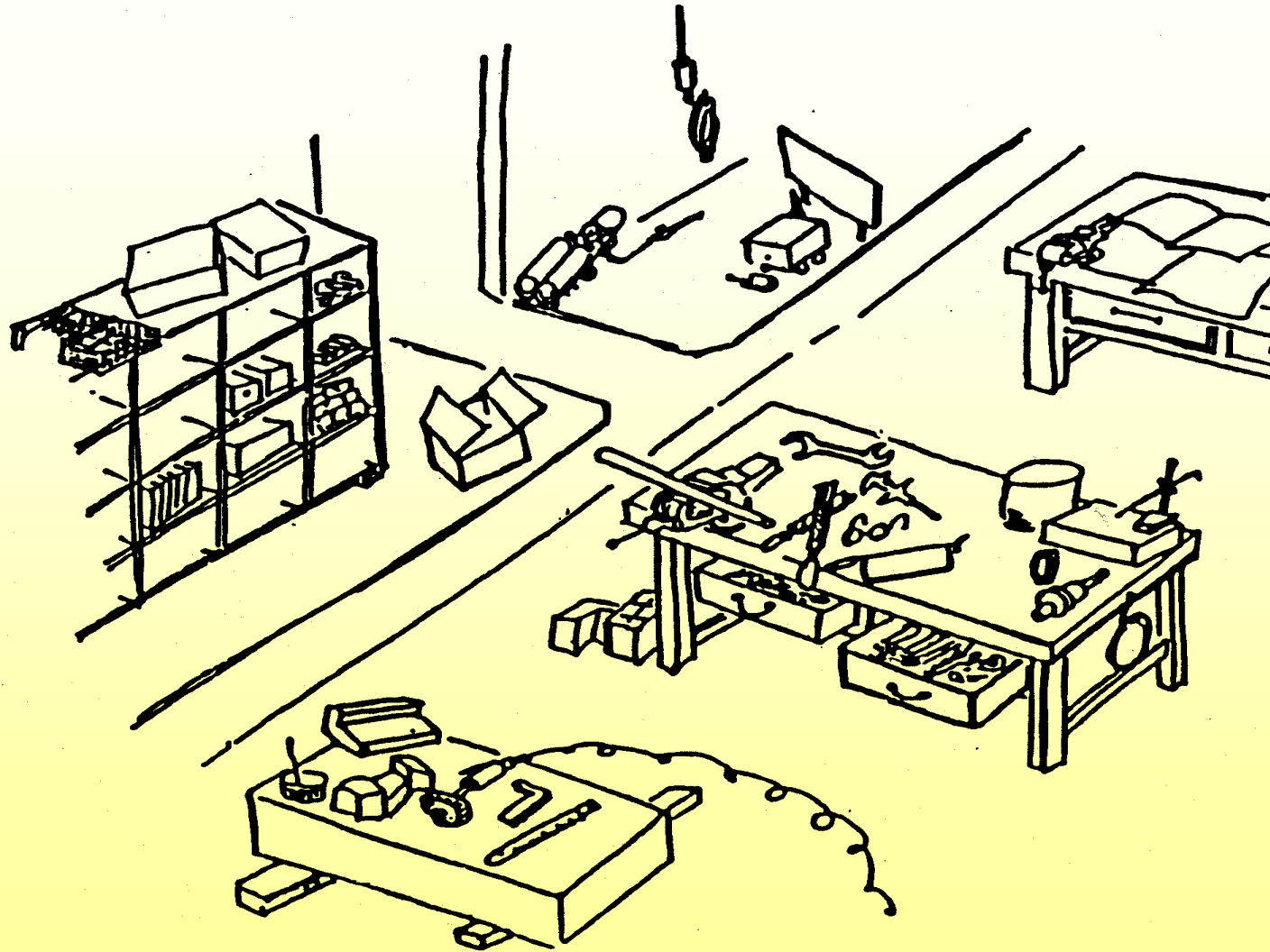
What is a Visual Workplace?

When anyone can walk into a workplace and visually understand the current situation.



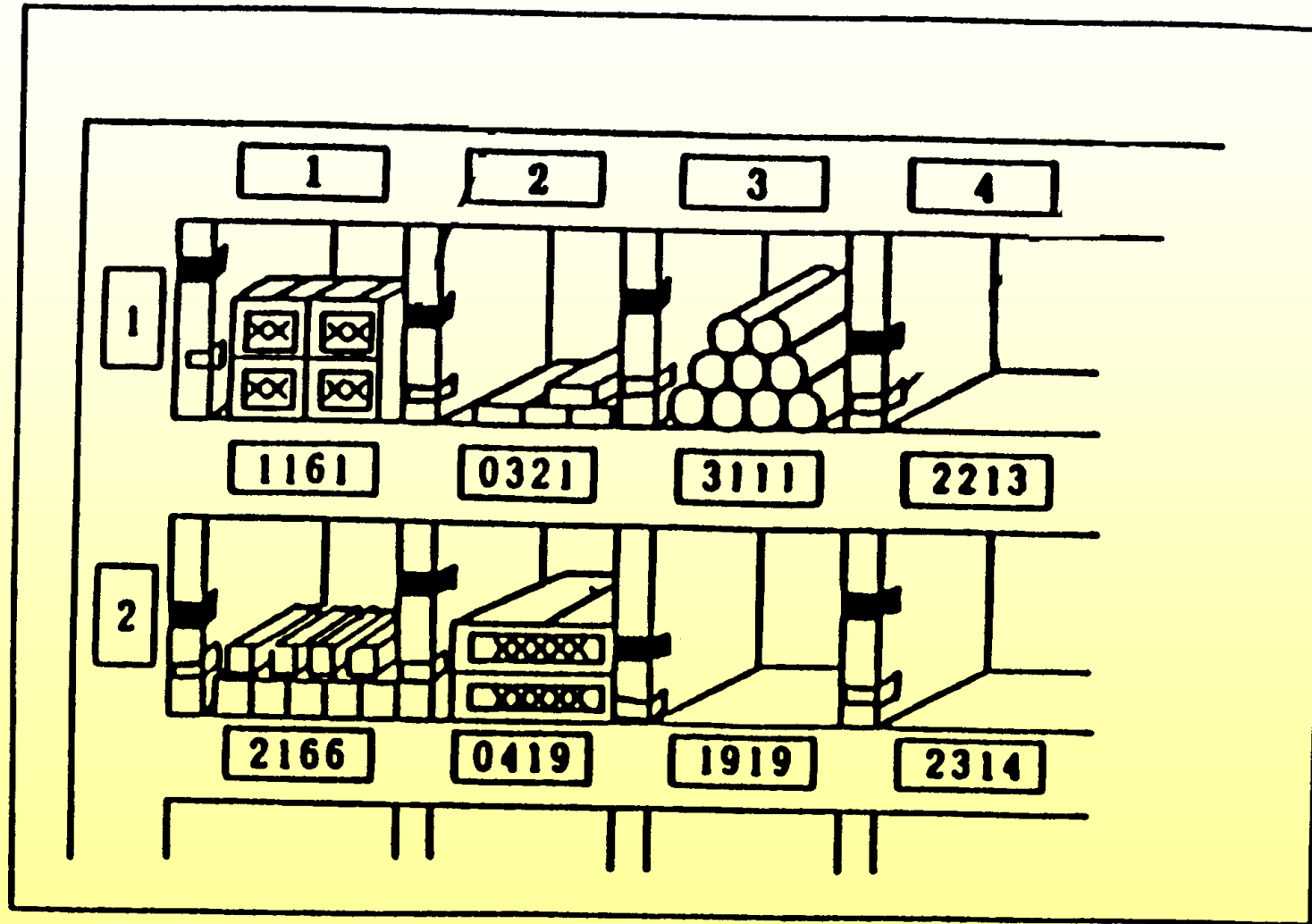


Describe this area...





Describe this area...





What is TPM?

Total Productive Maintenance (TPM)
is

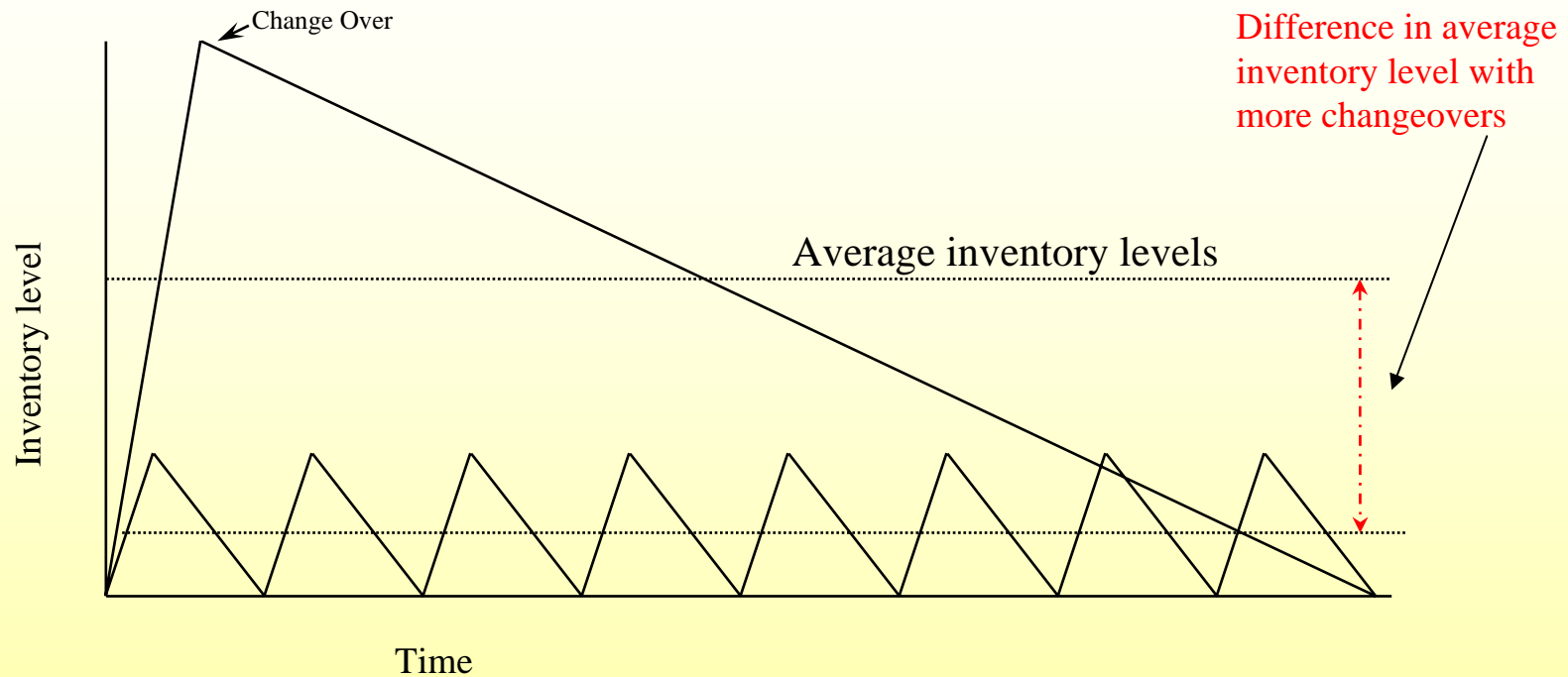
Productive Maintenance with
EVERYONE's participation

Maintenance=Teachers, Doctors of Equipment
Operators=Clean, inspect, routine repair



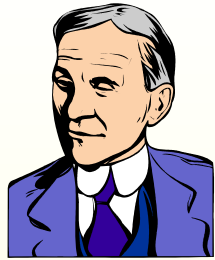
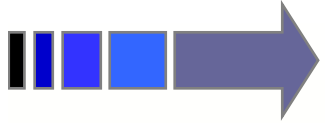


Why Quick Change Over?



The more quickly we changeover, the more our inventory levels decrease. This helps accomplish our goal of waste elimination.



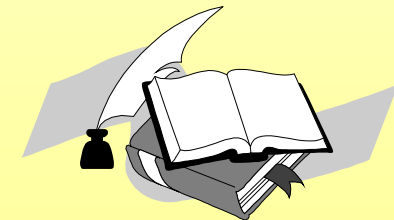


Standardized tasks are the foundation for continuous improvement and employee empowerment

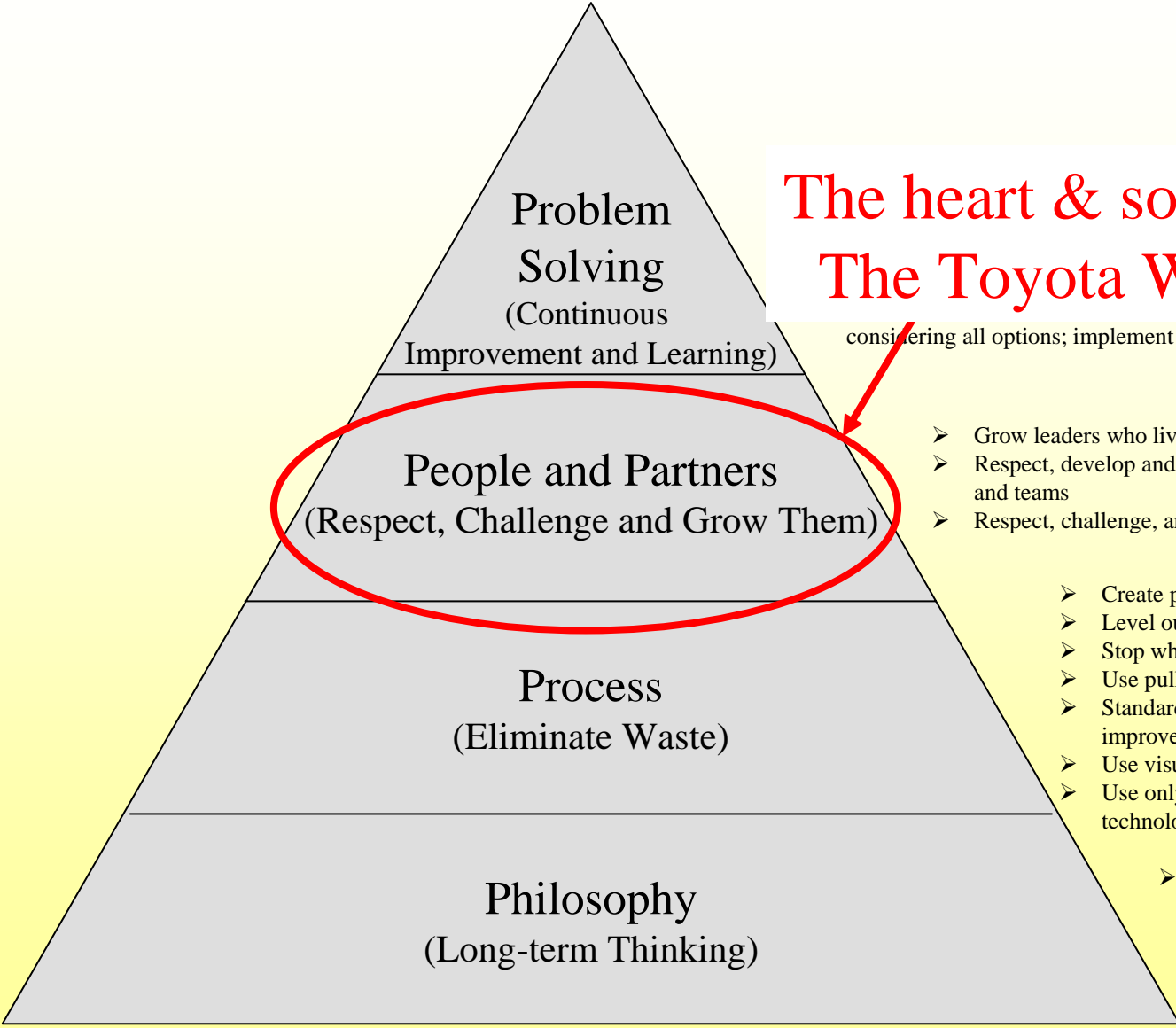


“Today’s standardization...is the necessary foundation on which tomorrow’s improvement will be based. If you think of “standardization” as the best you know today, but which is to be improved tomorrow-you get somewhere. But if you think of standards as confining, then progress stops.”

Henry Ford, Today and Tomorrow, 1926



"4 P" Model of the Toyota Way



The heart & soul of The Toyota Way

...ituation.
...onsidering all options; implement rapidly (*Nemawashi*)

- Grow leaders who live the philosophy
- Respect, develop and challenge your people and teams
- Respect, challenge, and help your suppliers
- Create process "flow" to surface problems
- Level out the workload (*Heijunka*)
- Stop when there is a quality problem (*Jidoka*)
- Use pull systems to avoid overproduction
- Standardize tasks for continuous improvement
- Use visual control so no problems are hidden
- Use only reliable, thoroughly tested technology
- Base management decisions on a long-term philosophy, even at the expense of short-term financial goals



People and Partners



Respect, Challenge, and Grow Them:

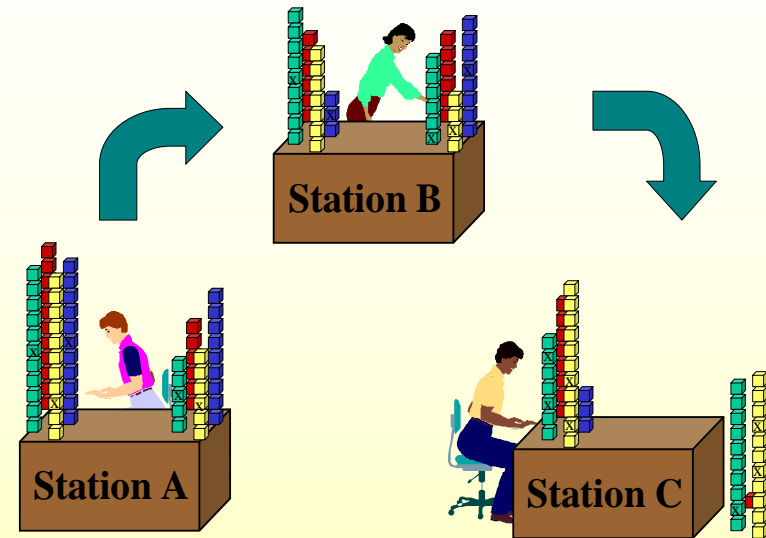
- 9. Grow leaders who thoroughly understand the work, live the philosophy, and teach it to others**
- 10. Develop exceptional people and teams who follow your company's philosophy**
- 11. Respect your extended network of partners and suppliers by challenging them and helping them improve**





One-Piece Flow Demands Team Work!

Traditional Western
Team



Toyota Way Team





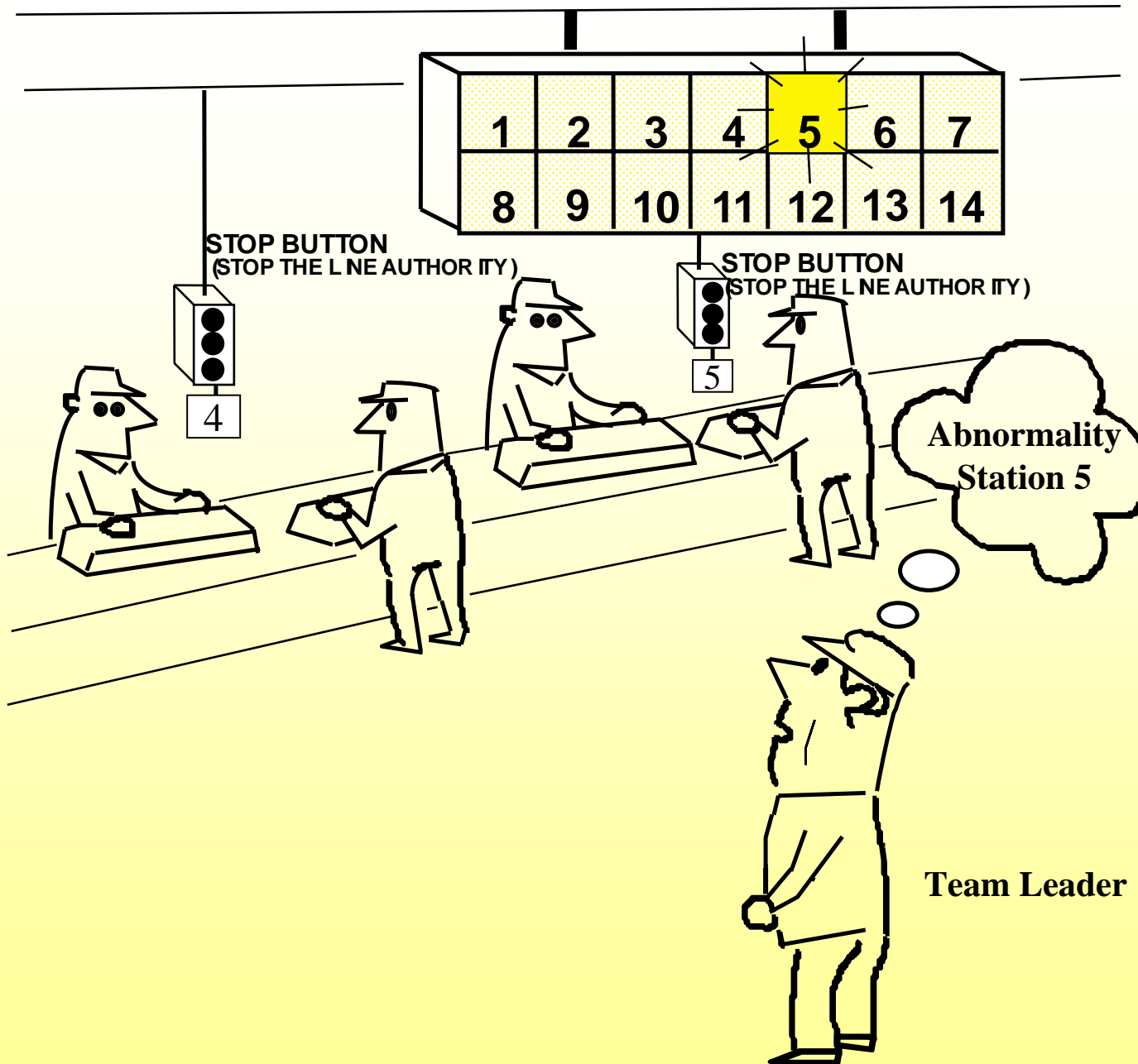
Principle Five: Stop & Fix Problems



“Mr. Ohno used to say that no problem discovered when stopping the line should wait longer than tomorrow morning to be fixed. Because when making a car every minute we know we will have the same problem again tomorrow.”

-Fujio Cho, President, Toyota Motor Corporation





Typical Toyota Organization to support Continuous Improvement

Team Size

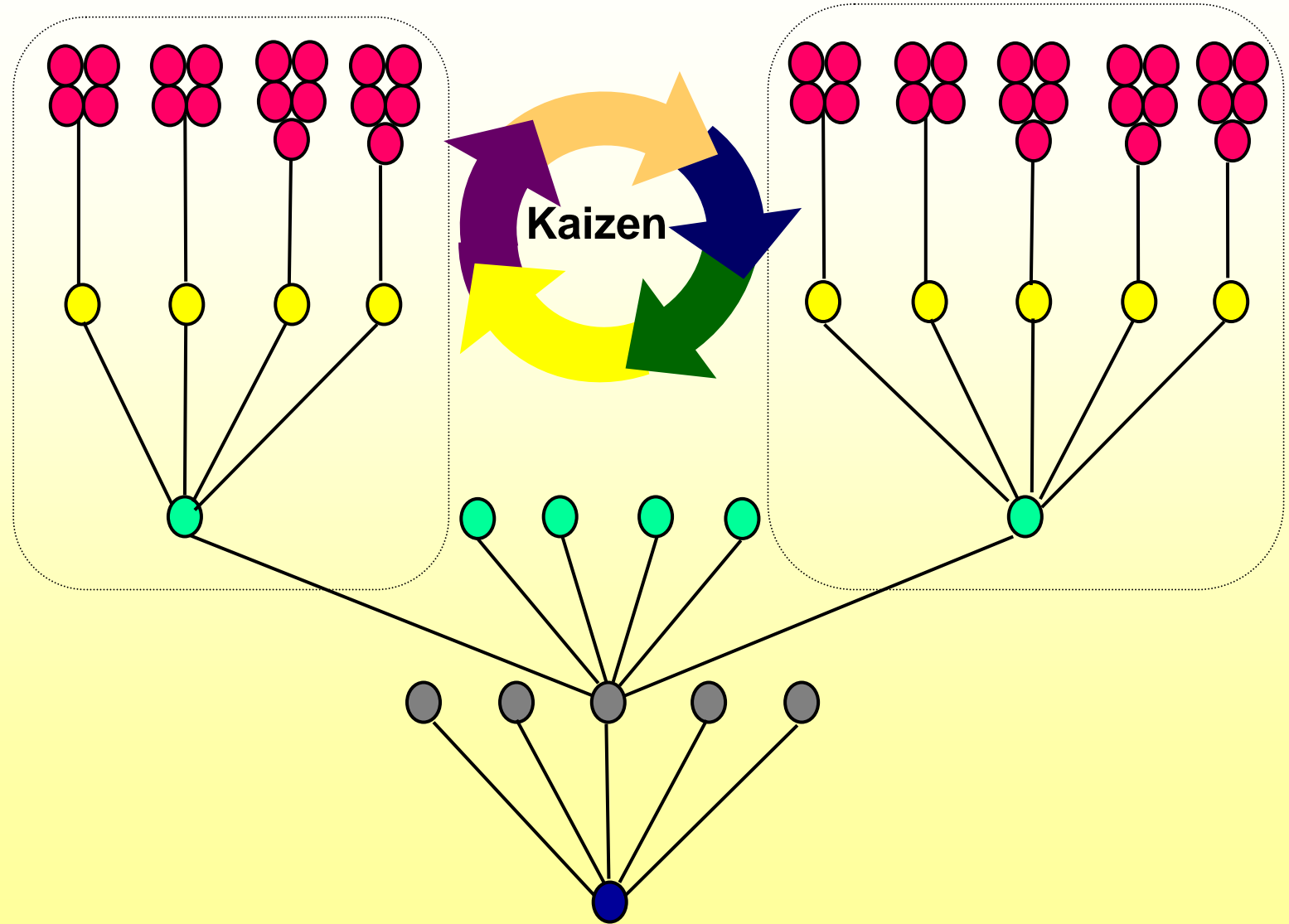
Team Member
{ 5 - 8 }

Team Leader
{ 3 - 4 }

Group Leader
{ 5 - 8 }

Asst. Manager
{ 4 - 10 }

Manager



Source: Bill Costantino, former group leader, Toyota, Georgetown.



*How Do we Develop People?
Research in occupational training
shows that individuals retain about:*

- 10 % of what they **read**
- 20 % of what they **hear**
- 30% of what they **see**
- 50% of what they **hear and use**
- 70% of what they **say**
- 90% of what they **say and do**



- 
- 
- **Job Instruction Training** is designed to teach people how to do a particular job by:

- **Hearing** (what to do)
- **Seeing** (how it is done)
- **Using** (what was learned)
- **Saying** (what was learned)
- **Doing** (the task)

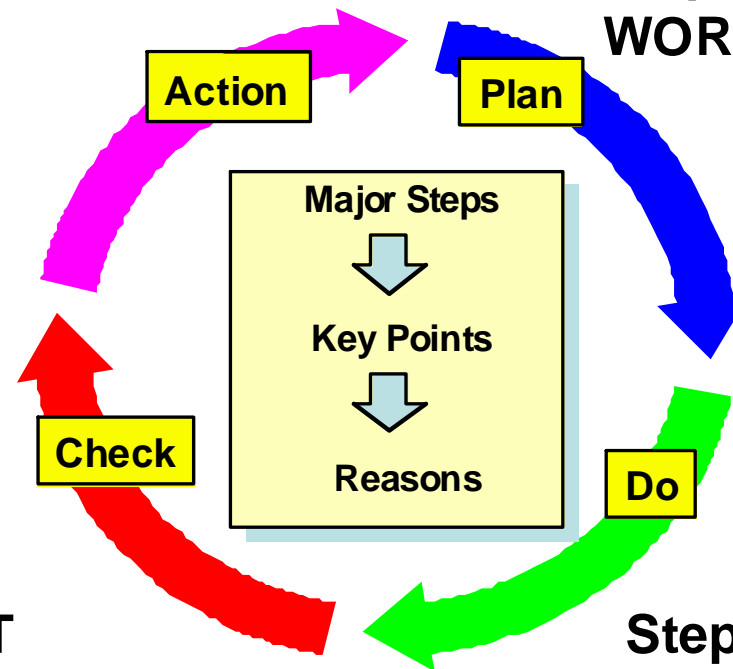
- **REPEATEDLY !!**



The Four Steps of TJI

Step 4: FOLLOW UP

**Step 1: PREPARE
WORKER**



**Step 3: TRY OUT
PERFORMANCE**

**Step 2: PRESENT
OPERATION**

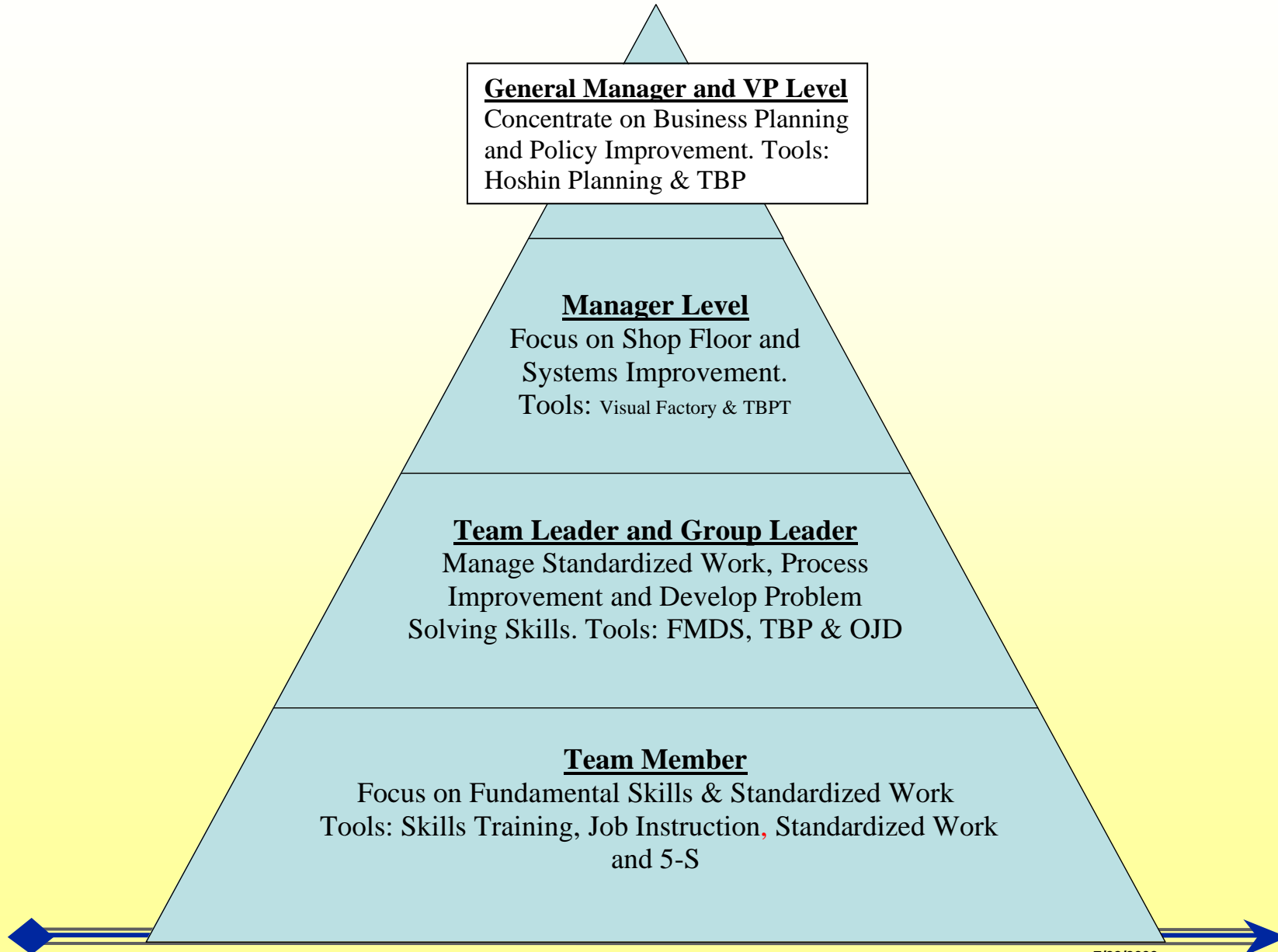


Bumper Trimming Job Breakdown Sheet

JOB BREAKDOWN SHEET		Phil Turek	Todd Chambers
DATE: <u>7/20/2006</u>		Team Leader	Supervisor
AREA: <u>Bumper molding</u>	JOB: <u>Rear bumper molding operator - Trimming</u>	WRITTEN BY: <u>Phil Turek</u>	
MAJOR STEPS	KEYPOINTS SAFETY: Injury avoidance, ergonomics, danger points QUALITY: Defect avoidance, check points, standards TECHNIQUE: Efficient movement, special method COST: Proper use of materials	REASONS FOR KEYPOINTS	
Step # 1	Trim flash ball on left side	1. Hold flash straight up and tight	1. Makes trimming easier
		2. Trim away from body and arm	2. Prevents injury- cuts
		3. Blade flush with top surface	3. Visible surface, flash line 1mm max.
Step # 2	Trim left side core flash	1. Start on trim line- 1 mm variation	1. Visible surface- quality spec.
		2. Blade must be perpendicular	2. Angled cut not acceptable
		3. Follow trim line- 1 mm variation	3. Visible surface- quality spec.
		4. Curving motion while trimming	4. Technique to make trimming easier
Step # 3	Trim gate flash	1. Hold gate up horizontally	1. Prevents twisting of bumper during cut
		2. Rest blade on bumper edge horizontally	2. Helps make cut horizontal and straight
		3. Angle knife handle back (blade is horizontal)	3. Cut is easier
		4. One continuous movement	4. Stopping will cause a jagged cut
Step # 4	Trim flash ball on right side	1. Hold flash straight up and tight	1. Makes trimming easier
		2. Trim away from body and arm	2. Prevents injury- cuts
		3. Blade flush with top surface	3. Visible surface, flash line 1mm max.
Step # 5	Trim right side core flash	1. Start on trim line- 1 mm variation	1. Visible surface- quality spec.
		2. Blade must be perpendicular	2. Angled cut not acceptable
		3. Follow trim line- 1 mm variation	3. Visible surface- quality spec.
		4. Curving motion while trimming	4. Technique to make trimming easier

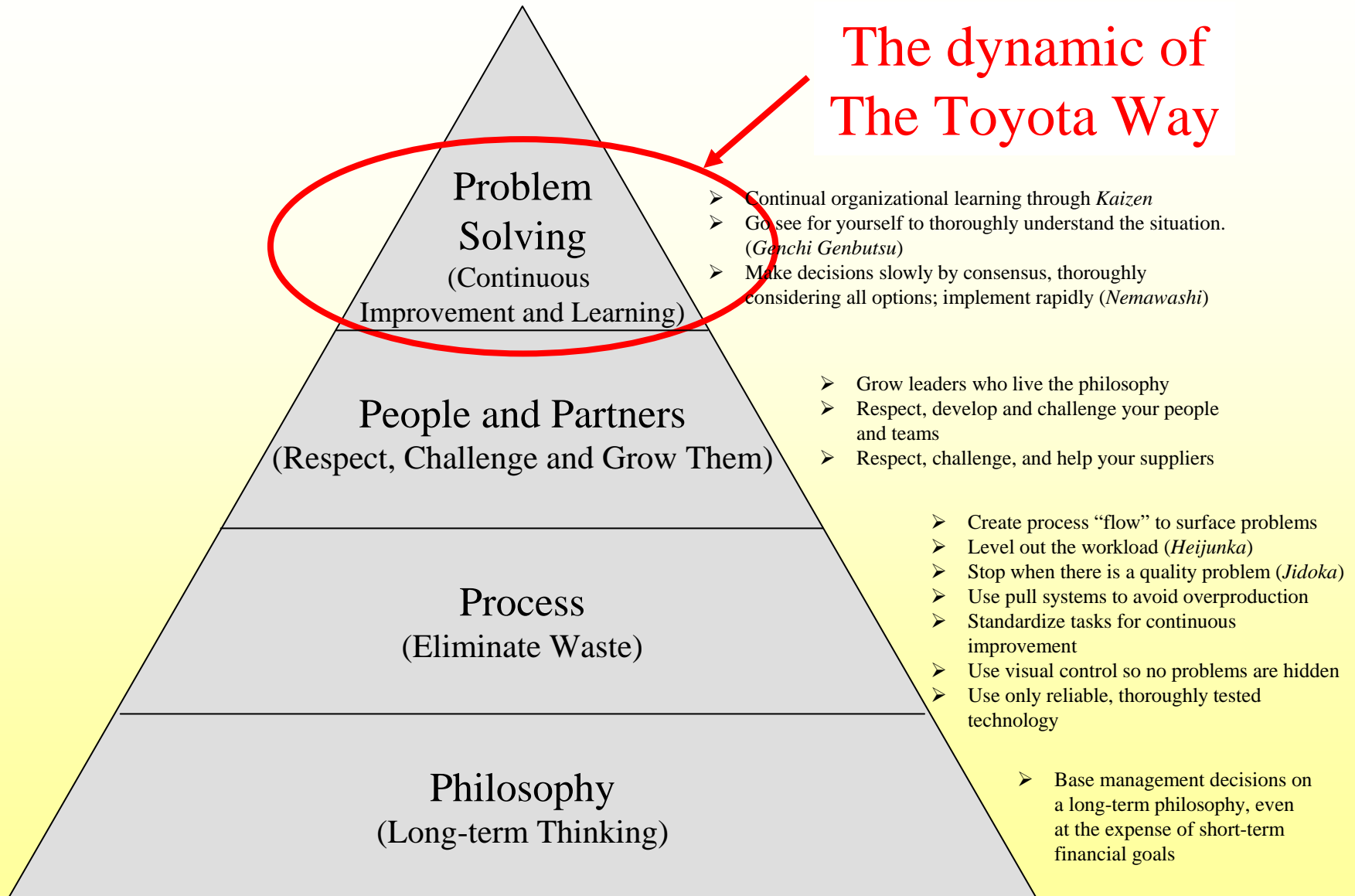


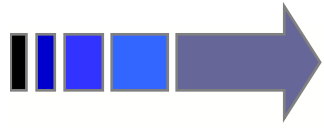
Roles and Responsibilities



Toyota Way Principles in 4P Model

The dynamic of The Toyota Way





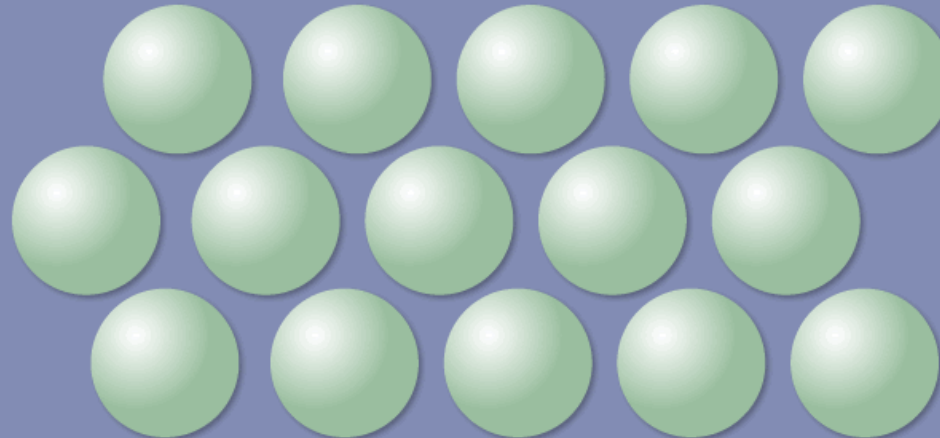
Typical Improvement Opportunities Available



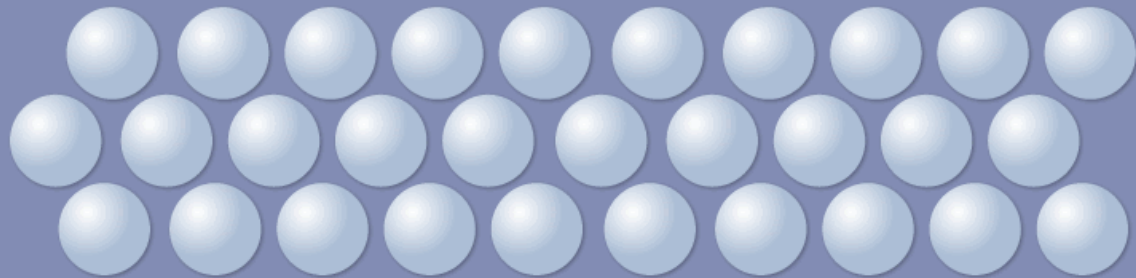
Very few large issues



Fewer medium sized issues

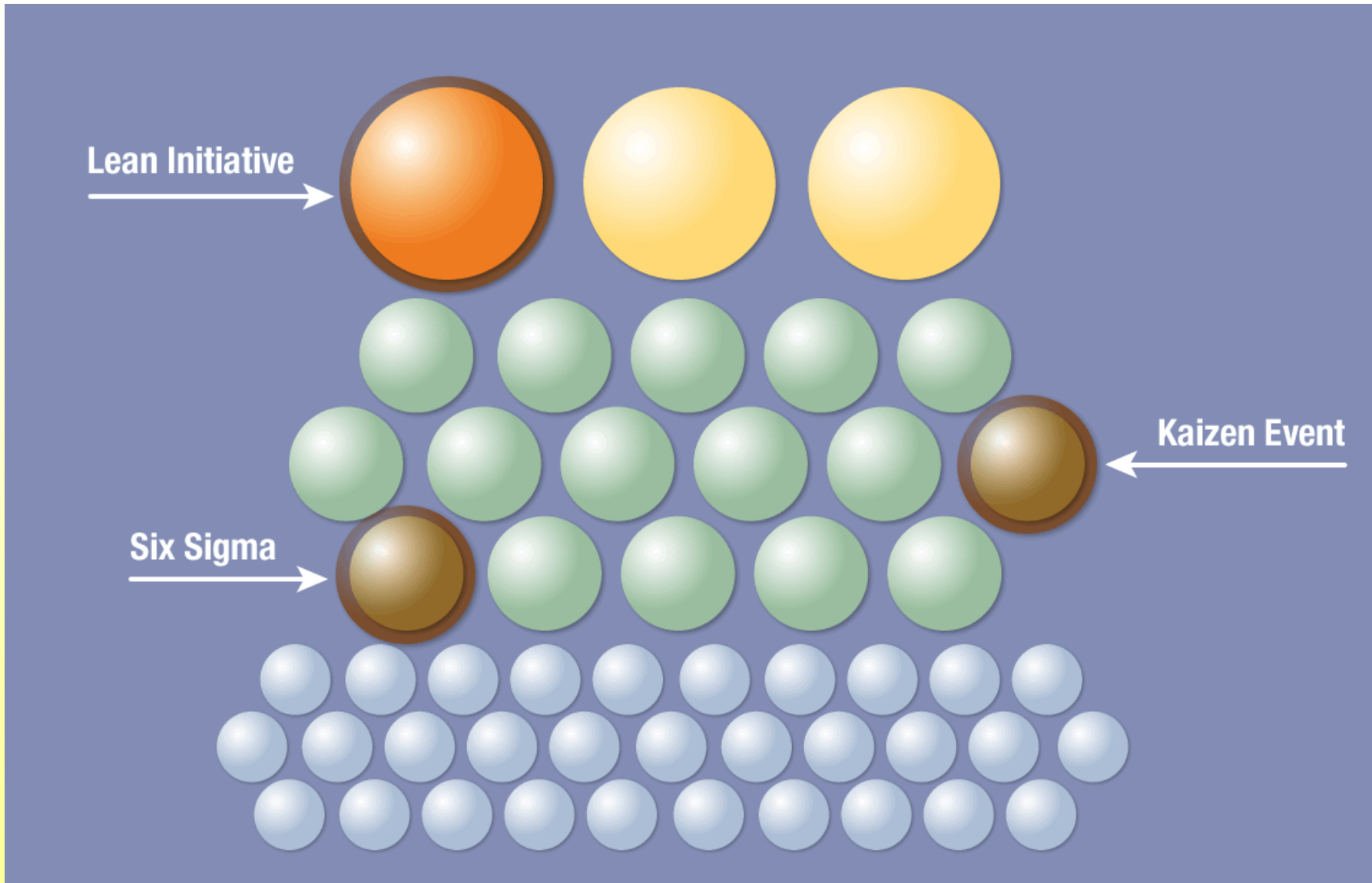


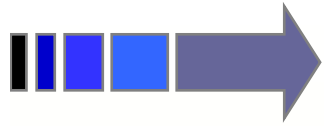
Many small sized issues



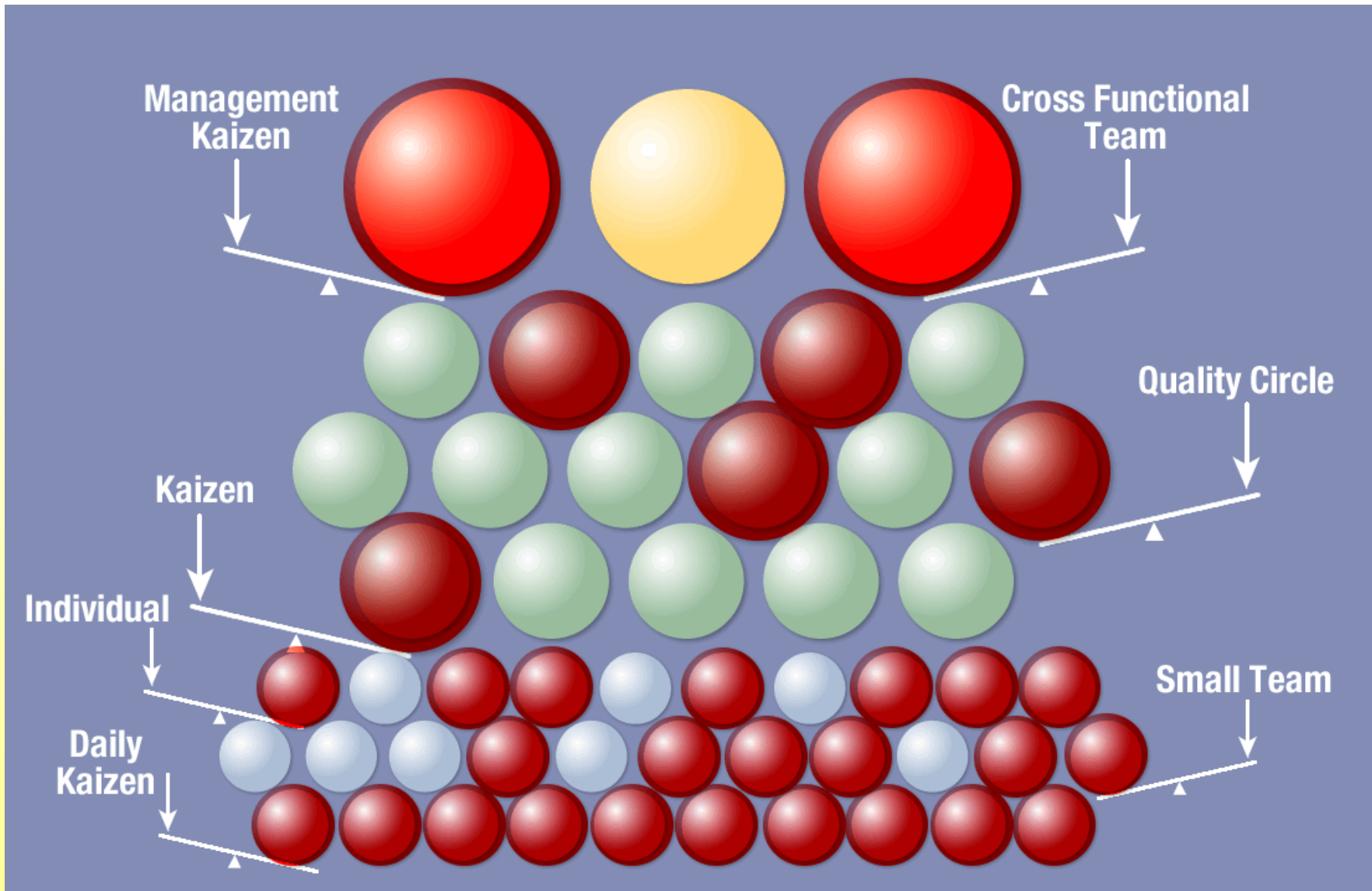


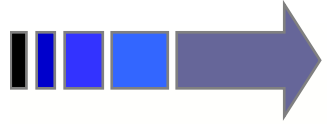
Improvement Approaches of Typical Companies





Toyota Leverages Opportunities at all Levels

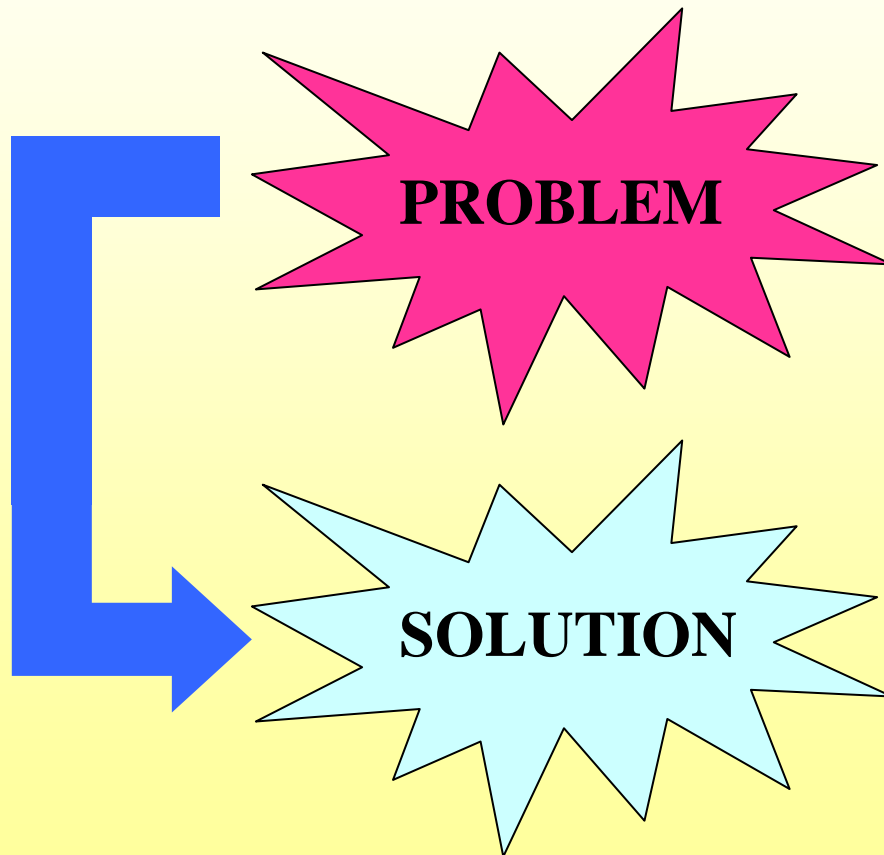


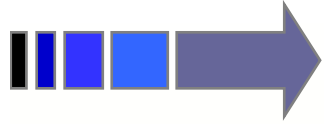


Most common mistake



- Jumping from “problem” to “solution” without clear understanding and analysis





Principle Twelve

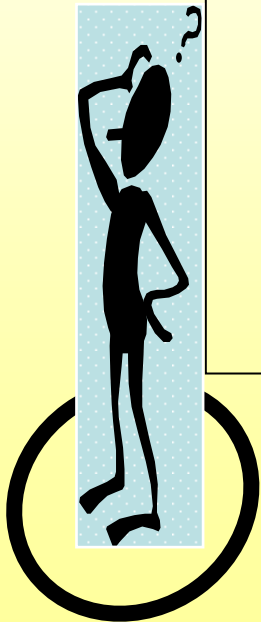
Genchi Genbutsu



12

“Observe the production floor without preconceptions and with a blank mind. Repeat “why” five times to every matter.”

-Taiichi Ohno





“*No Problem*” is problem

- Problems are opportunities to *learn*
- Hiding problems undermines the system



Learning from the Toyota Way



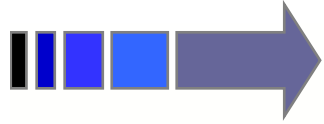


Characteristics of Effective Lean Transformation



- Top Down Directive that this is the new way.
- Bottom-up involvement in concrete projects with clear results.
- Develop internal experts through learning by doing.
- Expert sensei to guide the process and teach.
- Learning philosophy: every project, activity, is a chance to learn.
- Start with value stream transformation projects.
- Build on successes to transform broader organization and culture over time---YEARS!

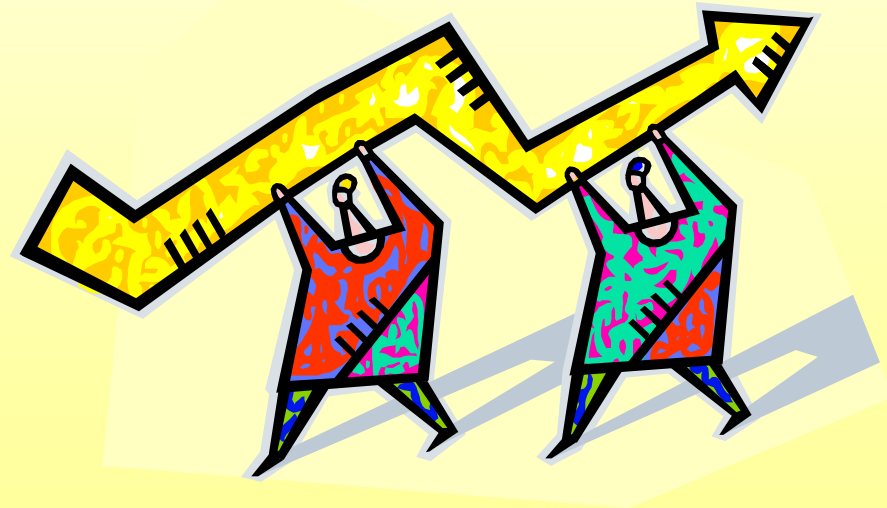


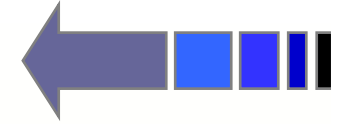


Why is this hard to do?



- Traditional organizations in fire fighting mode
- No clear vision of the future state
- culture change is hard
- Organizational change is disruptive
- Management has to change its role from managing from the office to deeply understanding processes!





Lean is...

“A long journey that needs commitment, patience, long-term thinking, positive mindset and attitude, and continuous improvement which are merged together as operational excellence and as a strategic weapon.”

Let's start the journey and Do our Best!

