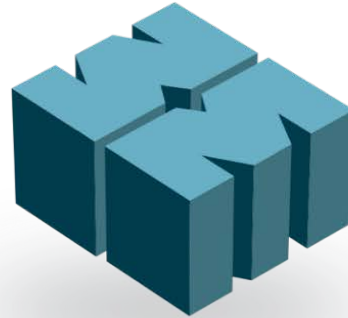


TWI - Training Within Industry



WISCONSIN MANUFACTURING EXTENSION PARTNERSHIP

Jerry Thiltgen
Manager, Operational Excellence
thiltgen@wmep.org



WISCONSIN MANUFACTURING
EXTENSION PARTNERSHIP

TWI in the 1940's

MISSION:

*“to help industry to help itself
to get out more materials
than ever been thought
possible, and at constantly
accelerating speed”*

to:

WIN A GLOBAL WAR



1940's Mission "Accomplished"

There were over 1 million people trained in TWI during the war effort working in about 600 companies:

- **86%** Increased production by at least 25%
- **100%** Reduced training time by 25% or more
- **88%** Reduced labor hours by over 25%
- **55%** Reduced scrap by at least 25%
- **100%** Reduced grievances by more than 25%



TWI Training Within Industry

- **A 1940's World War II effort, developed to help industry feed the war effort.**
- **In the 1950's, Used to rebuild the infrastructure of Japan after the war.**
- **Today, The program has spread world wide (and stood the test of time for over 70 years,) and is as relevant today as then.**



Today-We Compete Globally

**Implementing Lean:
(Continuous Improvement)**
(The easy part)

**Sustaining Lean:
(Continuous Improvement)**
(The hard part)



Are today's supervisors better prepared?

According to a Gallup Poll:

80% of people leave their jobs because of their *immediate supervisor.*

**The average cost to replace them is about 1.5 times their salary
(*when you can find qualified replacements*)**



15 Human Relations Issues that Impact Employee Morale (survey of 25K people)

1. Showing employees appreciation for the work they've done
2. Communicating information and directions
3. Listening to ideas and concerns
4. Treating all employees fairly
5. Treating everyone with dignity and respect
6. Being sensitive to personal problems
7. Handling corrective action in a tactful manner
8. Job security



15 Human Relations Issues that Impact Employee Morale (survey of 25K people)

9. Good wages
10. Good fringe benefits
11. Opportunities for promotion and growth within the organization
12. Good working conditions
13. Providing a safe work environment
14. Adequate job/technical training
15. Permitting participation in decision making



It's all about the people.

“In this age, I am painfully aware of the fact that *people tend to forget the need for training*. Of course, if skills to be learned are not creative or stimulating and *if they do not require the best people, training may not seem worthwhile*. But let's take a hard look at the world.

No goal, regardless of how small, *can be achieved without adequate training.*”

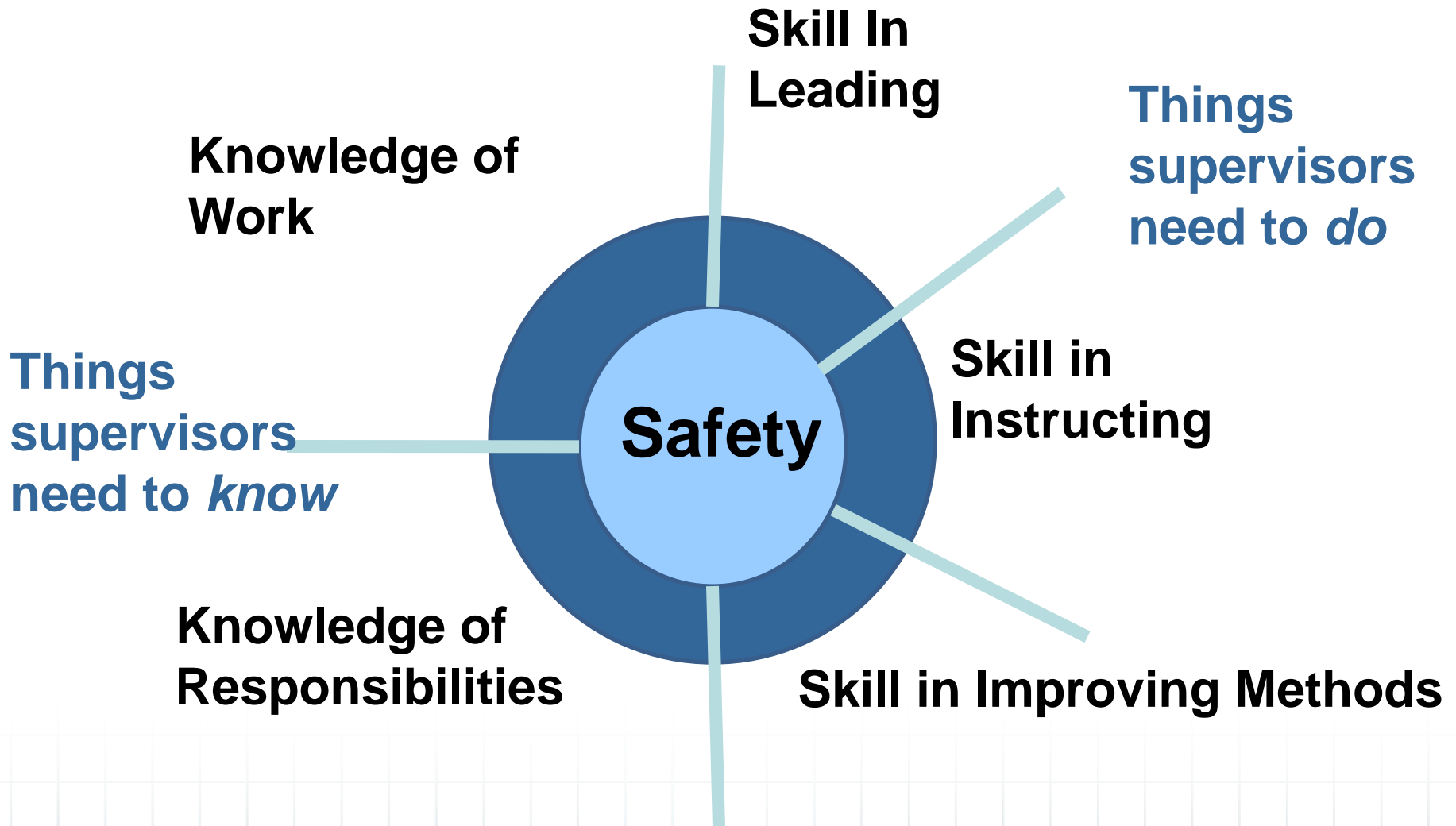
Taiichi Ohno,

Toyota Production System:

Beyond Large Scale Production, page 69.



Supervisors have 5+ needs



Program Structure

- **Each program has a four-step method**
- **Each program is structured in simple language**
- **Each program is structured for 3 hour sessions over a 5 day period, typically conducted on-site to minimize time away from work**
- **Class size is limited to a maximum of 12**
- **Each participant must demonstrate the skill by using the method on real life issues during class**



Simple 4-Step Method

- 1. Preparation** *(Help the learner think to aid comprehension of the new idea)*
- 2. Presentation** *(Add the new idea to those already in the learner's mind)*
- 3. Application** *(Train the learner to apply what was presented and check results)*
- 4. Testing** *(Test the ability of the learner to apply the new idea alone)*

** Developed by Charles R. Allen during WW2*



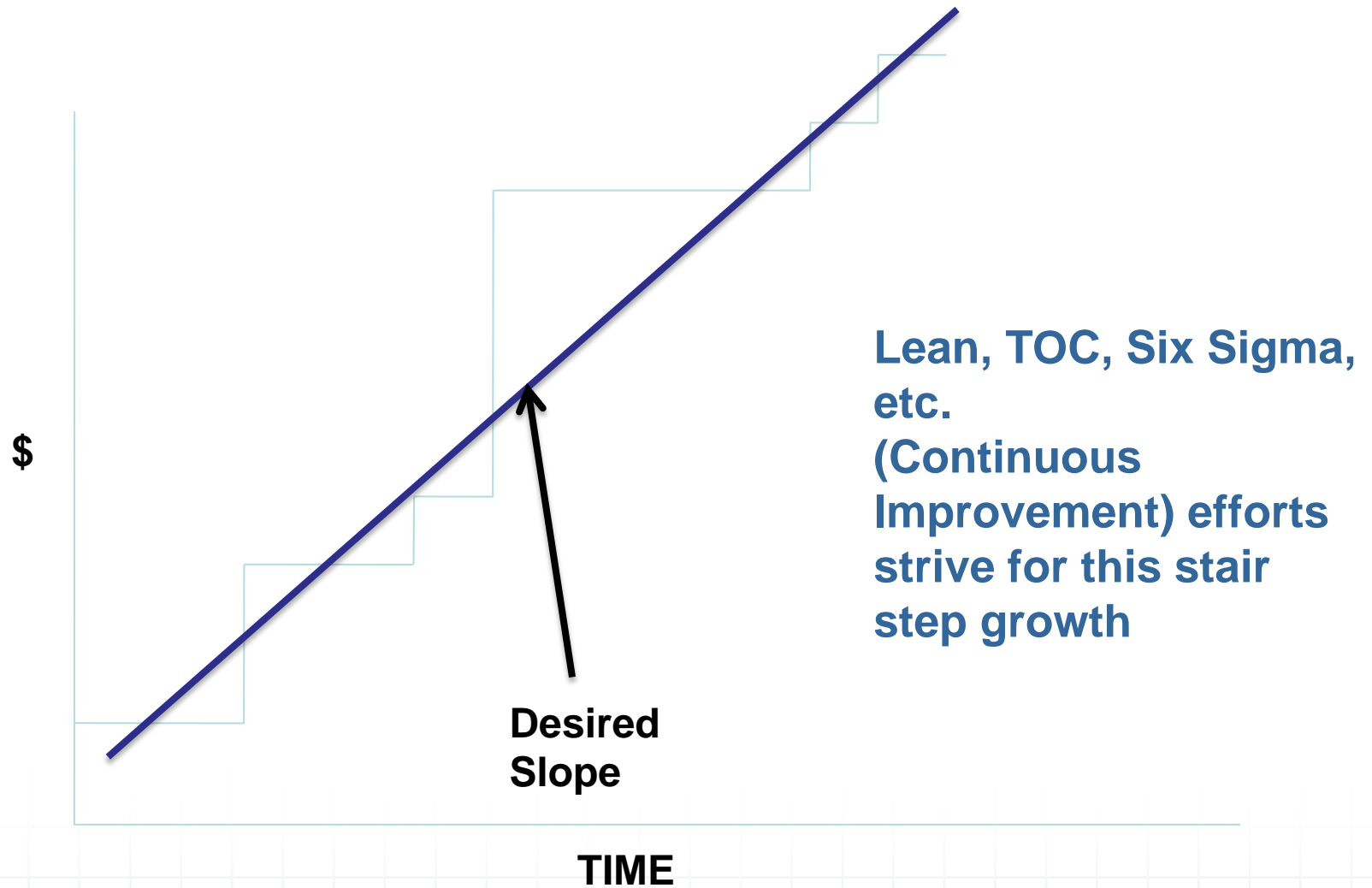
Training Within Industries (TWI) provides:

a systematic approach to help sustain changes and continuously improve by:

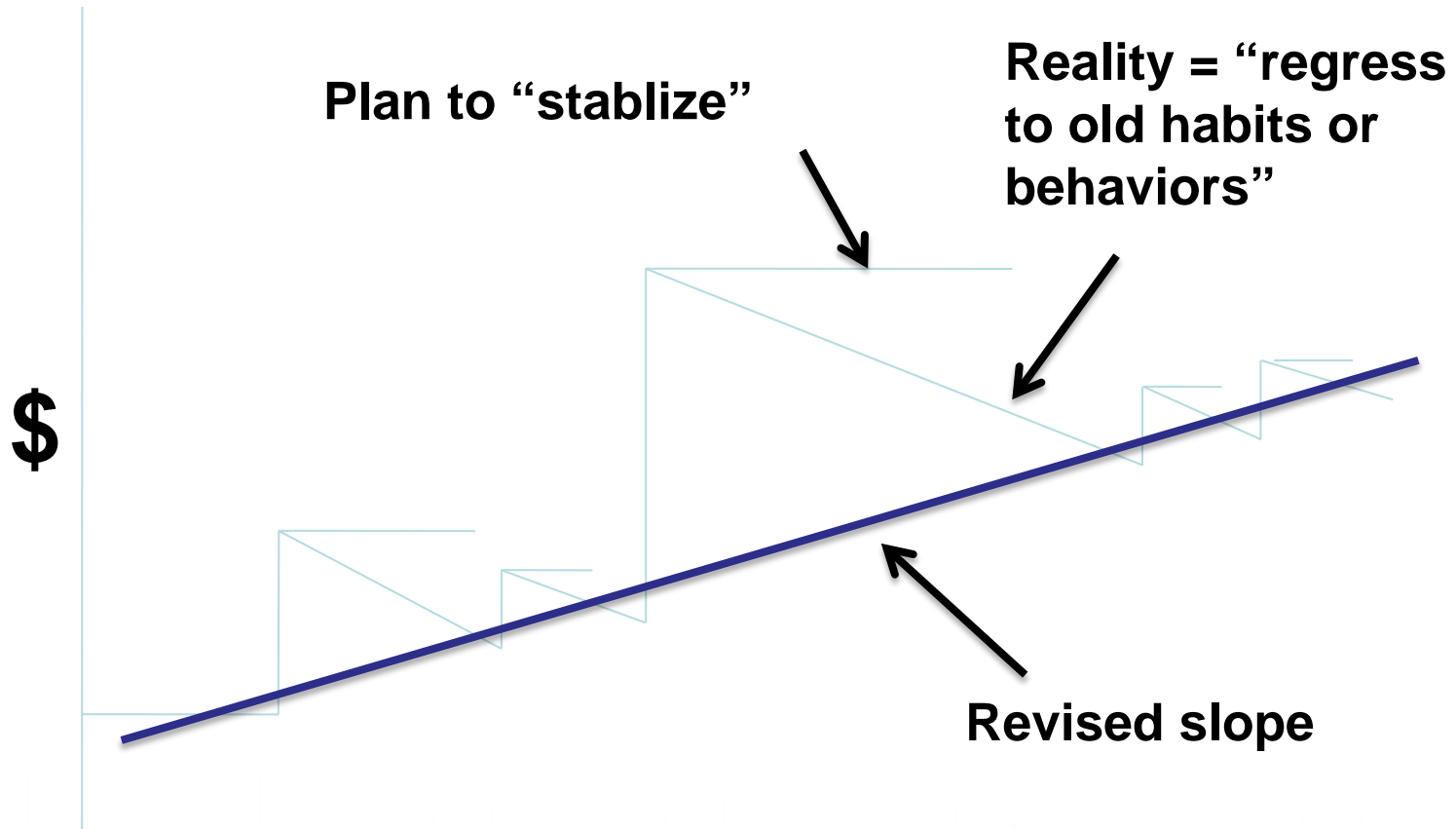
- **Challenging people to identify opportunities to improve their jobs.**
- **Training people how to generate ideas to take advantage of these opportunities.**
- **Showing people how to get ideas into practice right away.**
- **Creating ownership for people to maintain standard work.**
- **Strengthening personal relationships**
- **Creating an environment that is safe and encouraging staff to take on more responsibility for success.**
- **Multiplying results by passing on the skills**



Continuous Improvement Activities



Continuous Improvement is not always continuous!

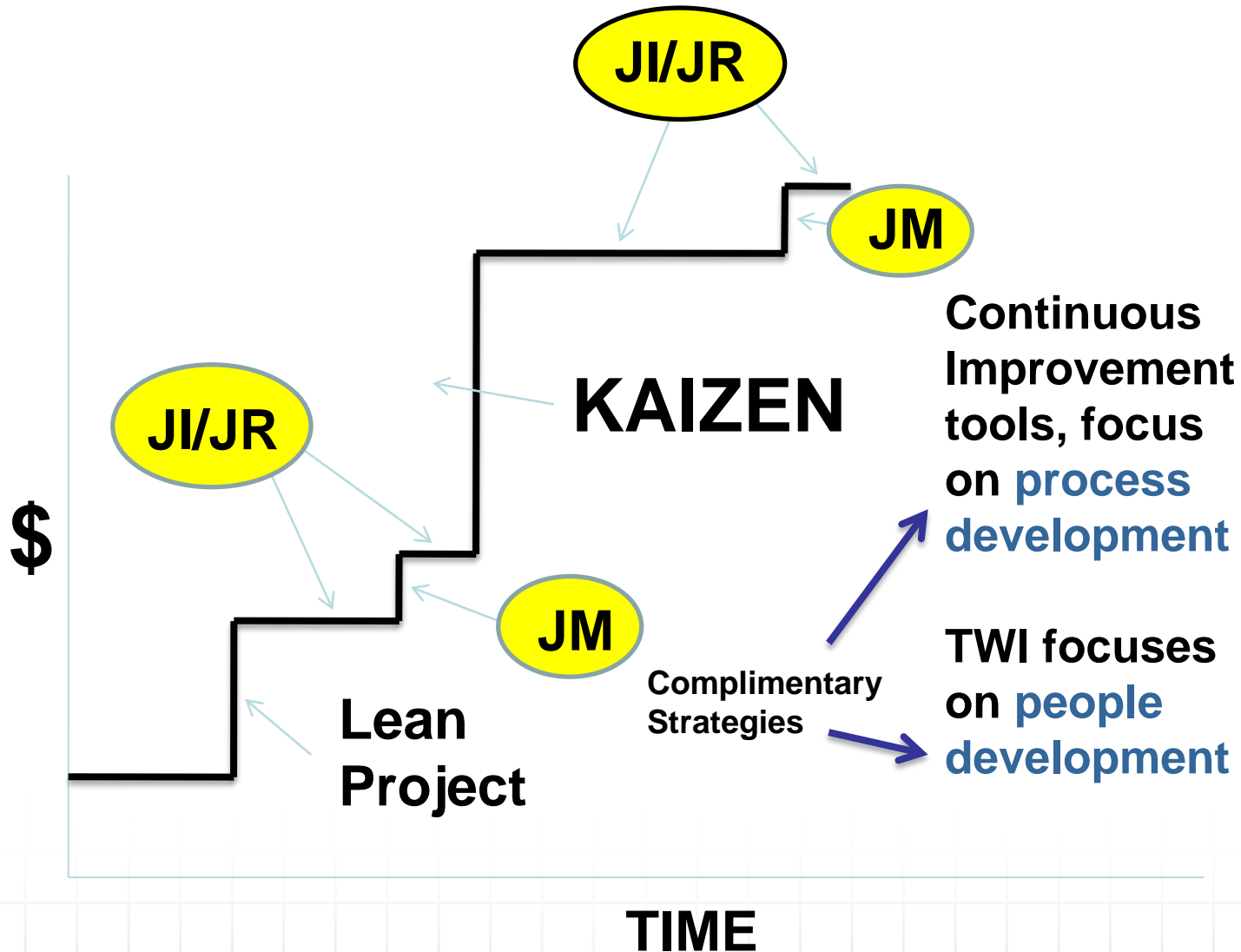


Are your gains being sustained?

- **Operating from crisis to crisis?**
- **Resistance to change?**
- **Abandoned Improvement efforts?**
- **“Meet the Numbers” No time to Improve?**
- **Team based Culture?**
- **Silo Mentality?**
- **Processes Stable/Standardized?**
- **Costs under Control?**
- **Predictable Quality?**
- **Morale?**



"Sustain the Gains"



Lets take a look . . .

- **JOB RELATION (JR)**
- **JOB INSTRUCTION (JI)**
- **JOB METHODS (JM)**
- **JOB SAFETY (JS)**

The TWI approach focus: “Current Problems”

- **Output**
- **Quality**
- **Scrap**
- **Rework**
- **Cycle Time**
- **Relationships**
- **Standards**
- **Safety**



Job Relations (JR)

Helps supervisors /team leaders/others:

- 1. Maintain positive employee relations by evaluating and taking proper actions**
- 2. Solve and prevent problems, then resolve conflicts when they arise.**

Results:

- Improved employee relations and morale**
- Fewer grievances**
- Improved attendance**
- Less equipment damage**
- Improved productivity, quality, and profits**



How to Prevent Problems

- **Let each worker know how he/she is doing**
- **Give credit when credit is due**
- **Tell people in advance about changes that will affect them**
- **Make the best use of each person's ability**



How to Handle a Problem

DEFINE YOUR OBJECTIVE

Step 1: Get The Facts

Get the whole story

Step 2: Weigh And Decide

Don't jump to conclusions

Step 3: Take Action

Don't pass the buck

Step 4: Check Result

Did your action help production?

DID YOU ACCOMPLISH YOUR OBJECTIVE?



Job Instruction (JI)

How to teach people to quickly learn to do a job correctly, safely and conscientiously.

Results:

- **Reduced training time**
- **Increased production**
- **Fewer accidents**
- **Increased job satisfaction/
morale**
- **Improved quality**
- **Less scrap and rework**
- **Increased profits**
- **Less equipment and tool damage**
- **Standardized work**
- **Quality consistency**



How do we train our people?

- **Shadow more experienced worker?**
- **Let HR do it?**
- **Read the manual?**
- **Buddy system?**
- **Classroom instruction?**
- **Throw them over the wall?**

What does your orientation program look like?

How is it working?



How we Instruct

TELLING



Telling may not work by itself. . .

We also instruct by...

“SHOWING”



How to Get Ready to Instruct

- 1. Make a Timetable for Training**
- 2. Break down the Job**
- 3. Get Everything Ready**
- 4. Arrange the Worksite**



Break Down the Job

No. _____

JOB INSTRUCTION BREAKDOWN SHEET

Operation: _____

Parts: _____

Tools & Materials: _____

IMPORTANT STEPS	KEY POINTS	REASONS
A logical segment of the operation when something happens to advance the work.	Anything in a step that might— 1. Make or break the job 2. Injure the worker 3. Make the work easier to do, i.e. “knack”, “trick”, special timing, bit of special information	Reasons for each key point
WHAT YOU DO	HOW YOU DO IT And Why we do it that way!	WHY YOU DO IT



Training Timetable

Name: Jones Dept.: 2 nd Electrical Dept. Date: (today's date)	Breakdown No.	Smith	Lark	Morse	Taylor	Massy	Peters	Baker		Changes In Production
Assembling Parts		✓	✓	✓	✓		✓	✓		
Wiring		✓	✓	✓	✓					
Combining		✓	✓	✓		✓	✓			
Knot tying	123	✓	✓	✓	✓	✓		X/X		Need 1 more worker at end of (month).
Clamping		✓	✓	✓	* x/x	✓	✓			
Adjustment		✓	X/X	✓						
Turnover Work Performance				Scheduled to retire on xxx	Needs more training					



Job Methods (JM)

Trains supervisors/leaders how to analyze jobs to make the best use of people, machines and material now available.

Results:

- **Reduced cost**
- **Reduced WIP**
- **Reduced inventory**
- **Increased throughput**
- **Increased profits**
- **Continuous improvement**



4 Step Method

1. **Breakdown the Job**
2. **Question Every Detail**
3. **Develop the New Method**
4. **Apply the New Method**



Step 2: Question Every Detail

Why is it necessary?

What is its purpose?

Where should it be done?

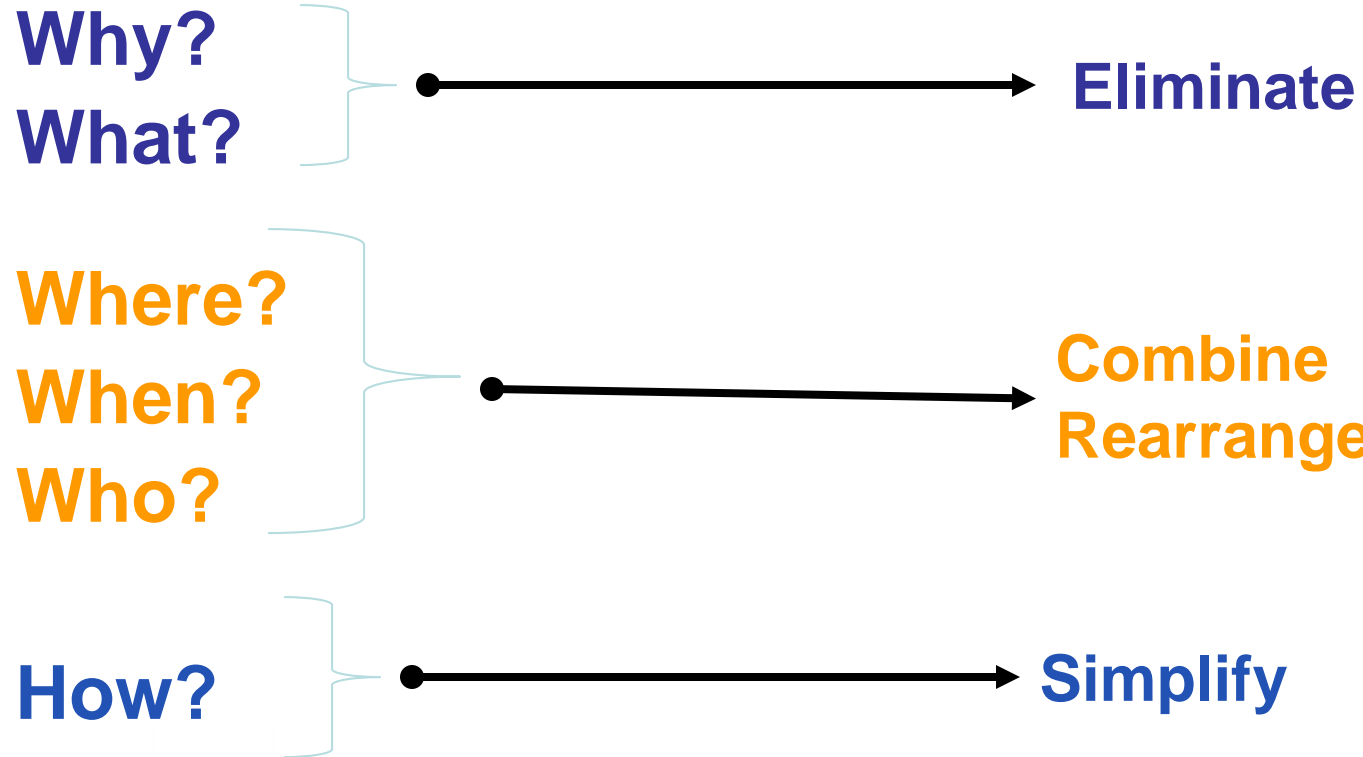
When should it be done?

Who is best qualified to do it?

How is “the best way” to do it?



Step 3: Develop the New Method



JM Improvement Proposal

Improvement Proposal Sheet

Submitted to:
Made by:
Product/Part:
Operations:

Department:
Date:

The following are proposed improvements on the above operations.

1. Summary

--

2. Results

	Before Improvement	After Improvement
Production (one worker per day)		
Machine Use (one machine per day)		
Reject Rate		
Number of Operators		
Other		

3. Content

--



Step 4: Apply the New Method

- 1. Sell the change to others**
- 2. Obtain necessary approvals**
- 3. Put the new method to use right away**
- 4. Credit those involved**

*(Document the new standard,
then continue to improve the new method)*



The Three Original TWI Programs . . .

work together like a three-legged stool —
take one leg away and the stool falls down.
JS acts as the seat to hold it all together

JR – Positive Environment

J1 – Stabilized Processes

JM – Continuously Improve

JS – Work Environment



(Developed by Toyota in the 1950's)



Job Safety (JS)

- **Engaging employee's in identifying potential safety hazards and eliminating them.**
- **Breaking the chain of events that lead to incidents and injuries.**
- **Builds improved work environments and staff confidence.**
- **Compliments current OSHA and EPA training and regulations. TWI JS incorporates a methodology to implement OSHA and EPA regulatory intentions.**
- **Increases safety awareness.**



Job Safety (JS)

“BREAK THE CHAIN”



4 Step Method

- STEP 1 SPOT THE CAUSES OF DANGER**
- STEP 2 DECIDE ON THE COUNTERMEASURES**
- STEP 3 ENFORCE COUNTERMEASURES**
- STEP 4 CHECK RESULTS**



JS is not OSHA Training

OSHA Training: 10 hour or 30 hour classes covering
.....Knowledge

Slips/Trips; Injuries: Electrical Hazards; Machine Guarding; Haz Com; Backs/Ergonomics; Fire Danger; Evacuations; PPE; General Duty Dangers; Access; etc.

JS covers skills to see the danger before it happens.



Safety Analysis Table

ITEM	INDIRECT CAUSES	DIRECT CAUSES	INCIDENT	INJURY
	COUNTERMEASURES			PEOPLE THINGS
				ESTIMATED COST
				MONEY TIME THINGS OTHER



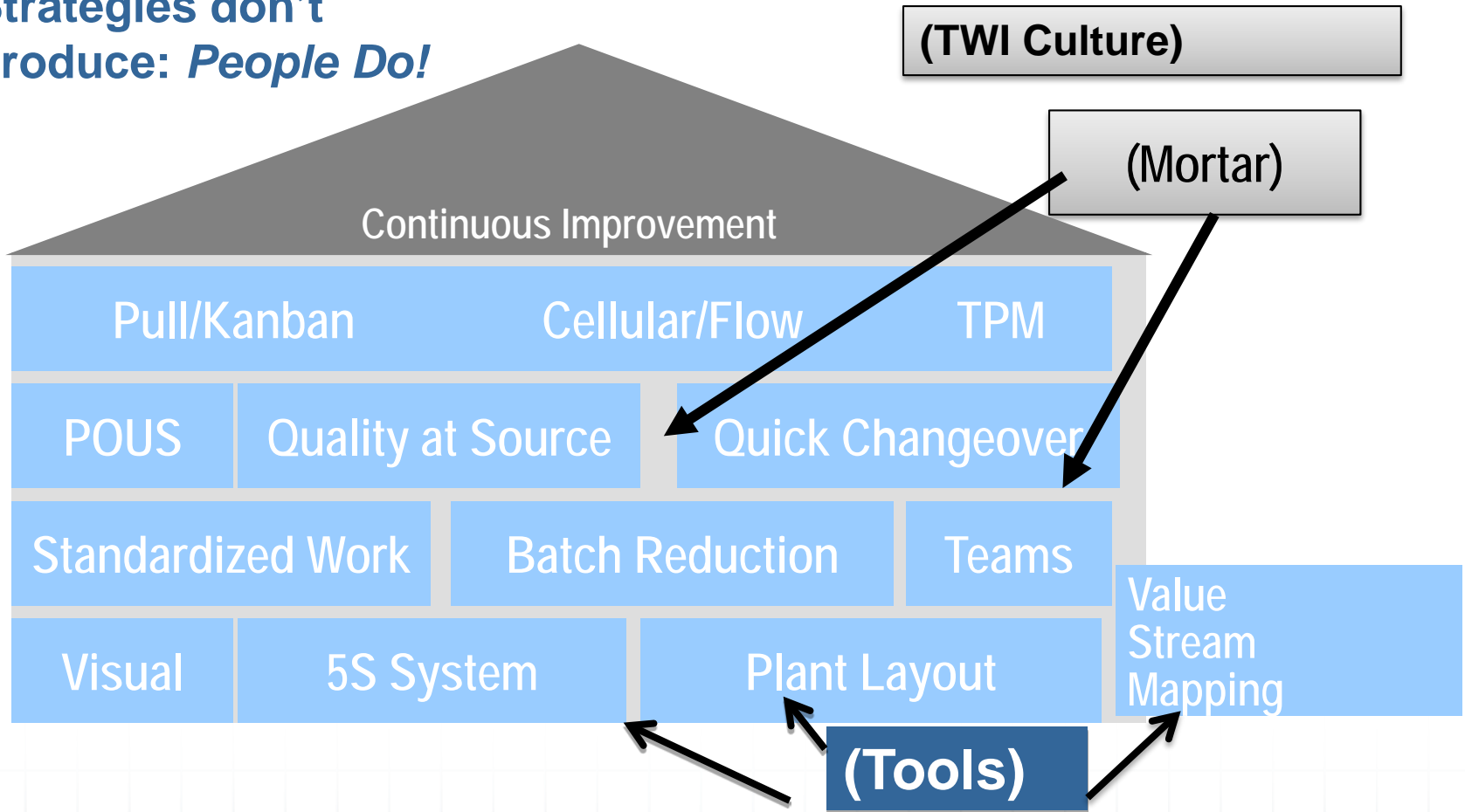
Sustain the Gains

- **Enlist an internal Champion**
- **Set up a Steering Committee**
- **Pilot the efforts (Concentrated Focus)**
- **Roll out slowly (Minimize/control variation)**
- **Enlist accountabilities (Rules/policy)**
- **Audit the Process**



TWI - the Missing Link to Lean

Strategies don't produce: *People Do!*



How TWI Supports “Everyday Engagement

Gallup’s Employee Engagement Survey

1. I know what is expected of me at work. **JI** **JR**
2. I have the materials and equipment I need to do my work right. **JI** **JM**
3. At work, I have the opportunity to do what I do best every day. **JI** **JR** **JM**
4. In the last seven days, I have received recognition or praise for doing good work. **JR**
5. My supervisor, or someone at work, seems to care about me as a person. **JR**
6. There is someone at work who encourages my development. **JI** **JR** **JM**



How TWI Supports “Everyday Engagement

Gallup’s Employee Engagement Survey

7. At work, my opinions seem to count.

JR JM
JI JR JM

8. The mission or purpose of my company makes me feel my job is important.

9. My associates or fellow employees are committed to doing quality work.

JI JM

10. I have a best friend at work.

JR
JI JR

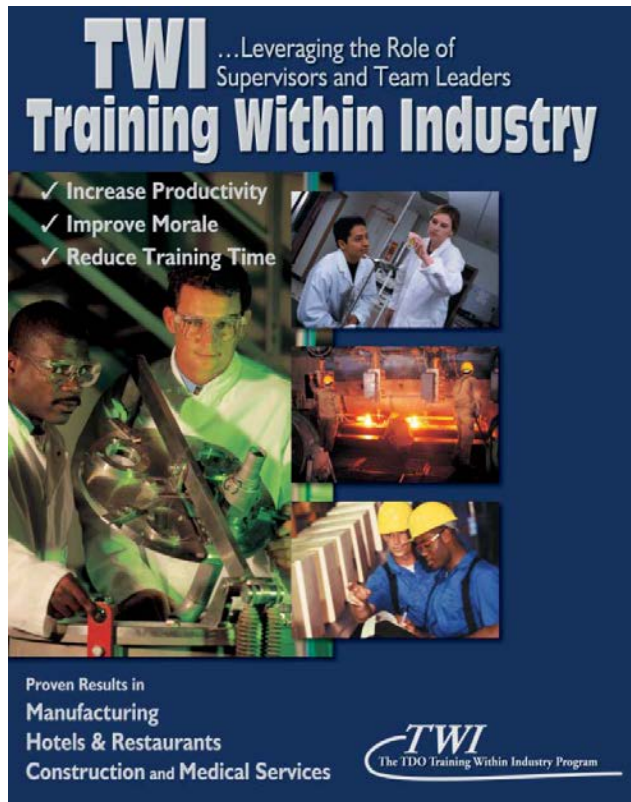
11. In the last six months, someone at work has talked to me about my progress.

12. This last year, I have had opportunities at work to learn and grow.

JI JR JM



TWI = Investment in Your People



TWI ...Leveraging the Role of Supervisors and Team Leaders
Training Within Industry

- ✓ Increase Productivity
- ✓ Improve Morale
- ✓ Reduce Training Time

Proven Results in
Manufacturing
Hotels & Restaurants
Construction and Medical Services

TWI
The TDO Training Within Industry Program

The image is a promotional graphic for TWI. It features a dark blue background with white and yellow text. At the top, the TWI logo is followed by the tagline "...Leveraging the Role of Supervisors and Team Leaders" and the main title "Training Within Industry". Below this, three bullet points with checkmarks list benefits: "Increase Productivity", "Improve Morale", and "Reduce Training Time". The central part of the graphic is a collage of four images: a man in a white lab coat working with a microscope, two men in white lab coats looking at a document, a factory floor with glowing machinery, and two men in blue work clothes and yellow hard hats looking at a document. At the bottom left, it lists "Proven Results in Manufacturing, Hotels & Restaurants, Construction and Medical Services". At the bottom right is the TWI logo and the text "The TDO Training Within Industry Program".

- Indoctrinates people into an “improvement” frame of mind.
- Teaches people how to identify opportunities for improving their jobs.
- Trains people how to generate ideas to take advantage of these opportunities.
- Shows people how to get these ideas into practice right away.
- Creates ownership for people to maintain standard work.

