

***Next Generation Value Creation  
at American Saw***

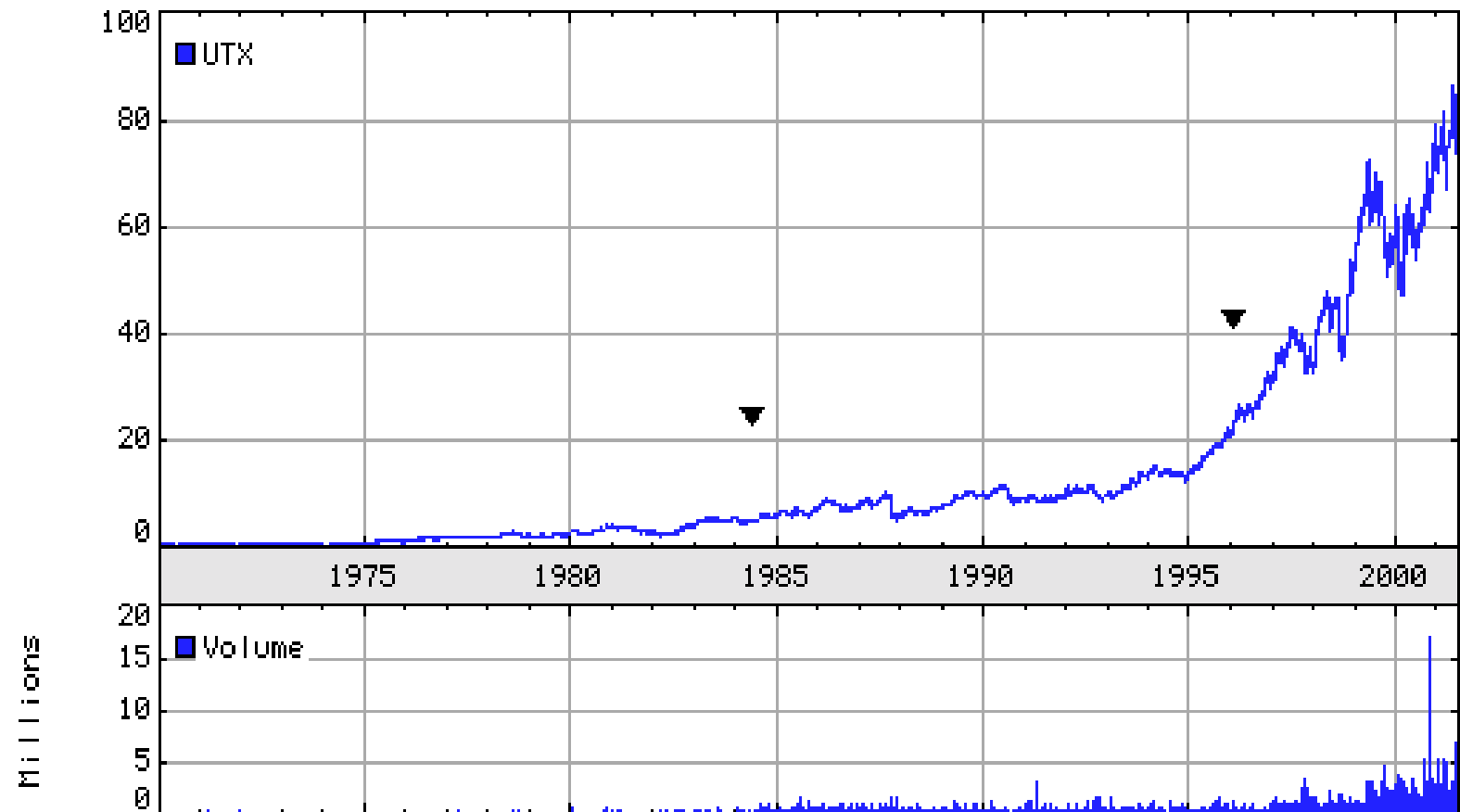
**02 October 2001**

***with Alden B. Davis***

# Repeatable Process?

United Technologies Corp  
as of 26-Jun-2001

Splits: ▼



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Splits: 19-May-76 [2:1] 11-Jun-84 [2:1], 11-Dec-96 [2:1], 18-May-99 [2:1]

# *Improvements Possible*

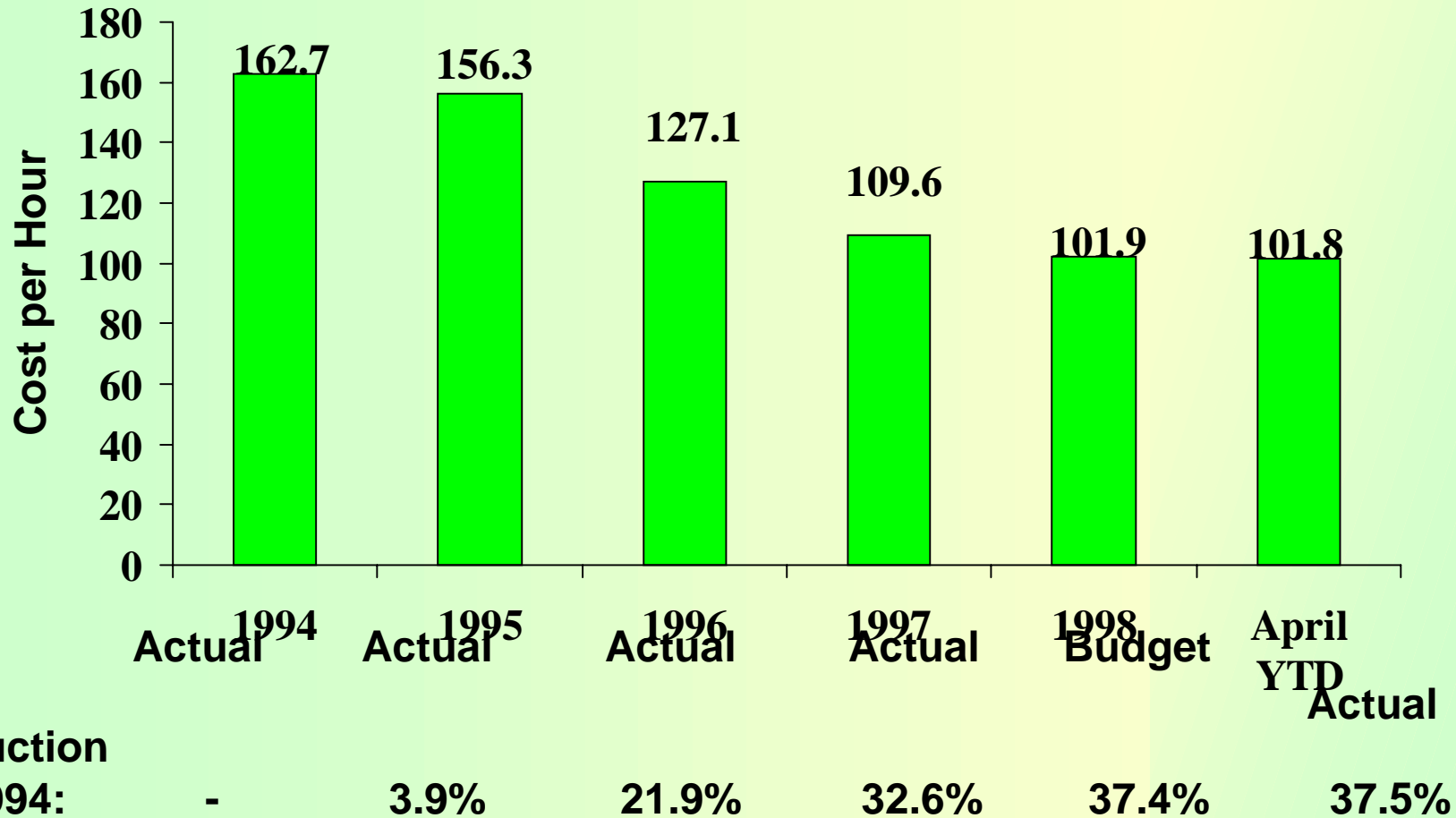
Key results to be expected with a soundly implemented and well maintained "kaizen."

Immediately:

- 20% - 30% Increase in productive capacity
- 30% - 40% Increased equipment uptime
- 30% - 50% Reduction in space rqmts.
- 10% - 20% Reduction in purchased costs
- 50% - 60% Improvement in product quality
- 10% - 20% Reduction in WrkComp Accrual
- 70% - 90% Reduction in WIP inventory

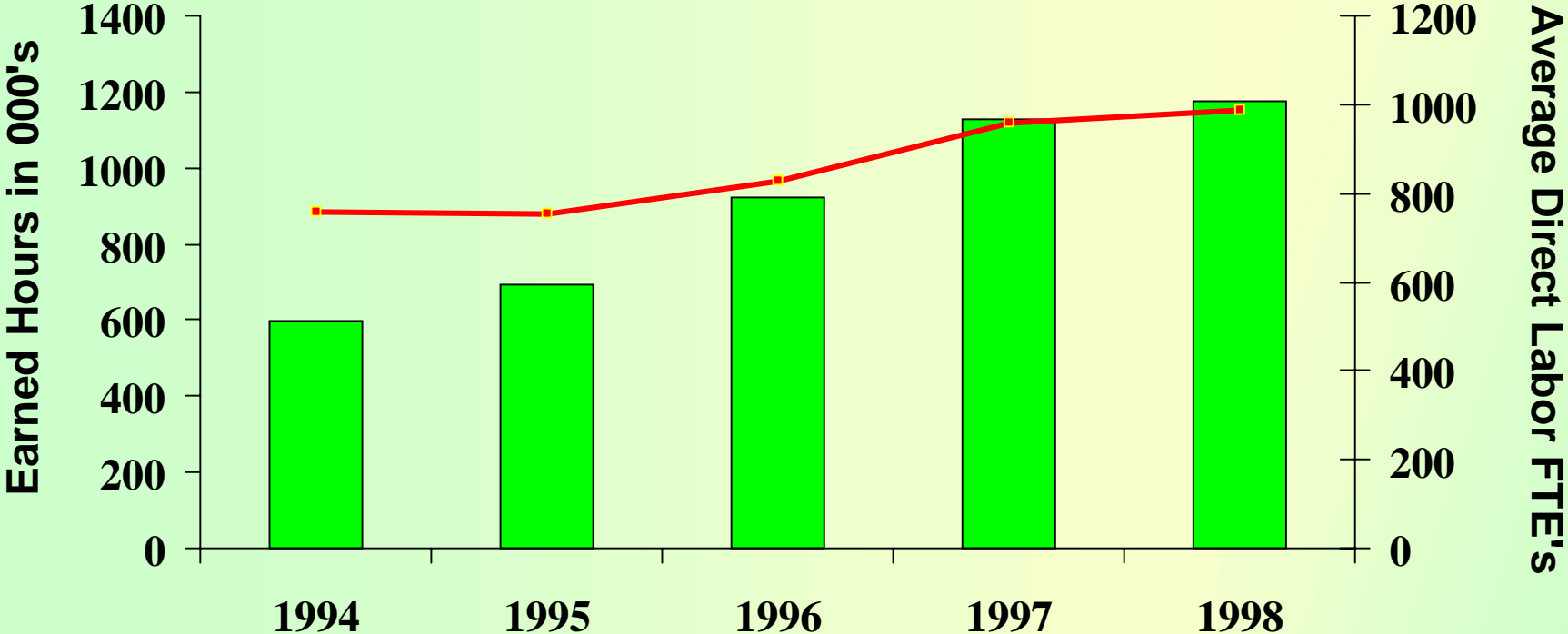
# Cost Per Hour Analysis (1994 - 1998)

(1998 Stnd Hrs and Then Year \$)



# Direct Labor Productivity 1994-1998

## Volume vs. Direct Labor



**EARNED HOURS PER  
DIRECT EMPLOYEE:**

787                      923                      1109                      1177                      1192

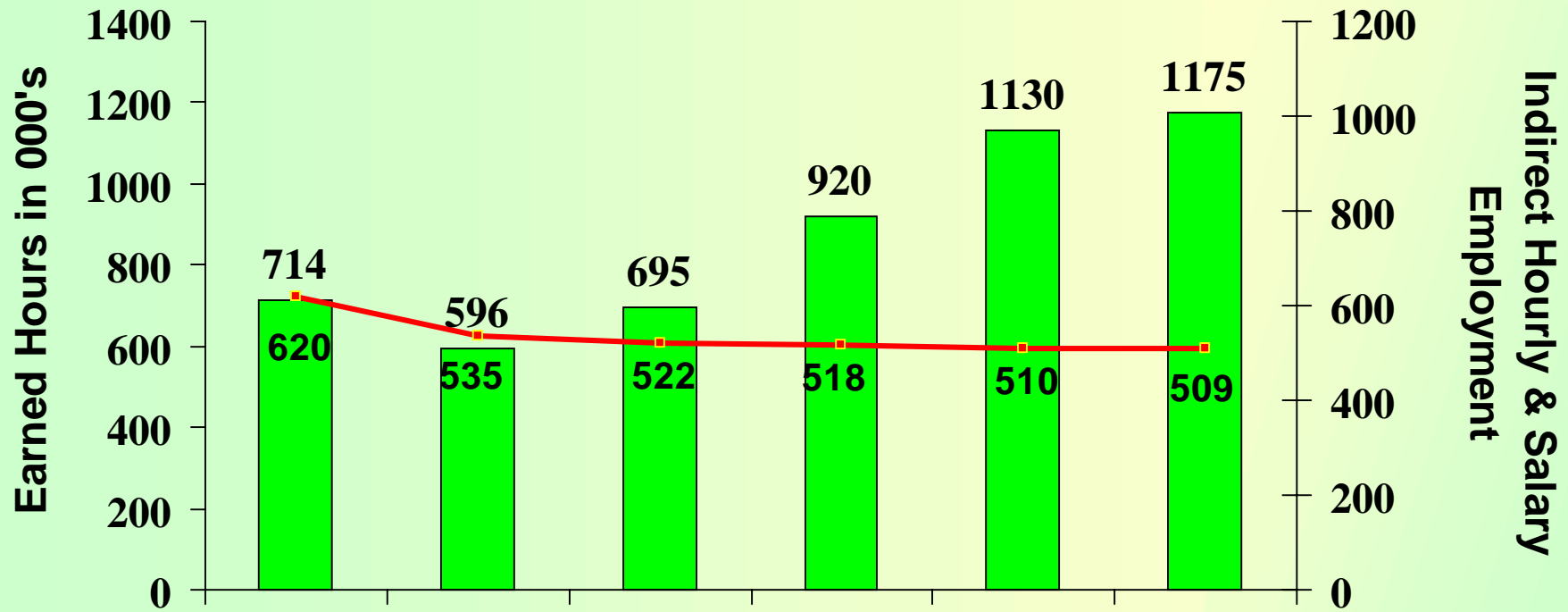
**% IMPROVEMENT  
FROM 1994:**

-                      17.3%                      40.9%                      49.6%                      51.5%

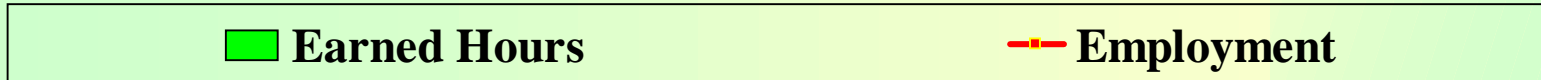


# Indirect Labor Productivity 1993-1998

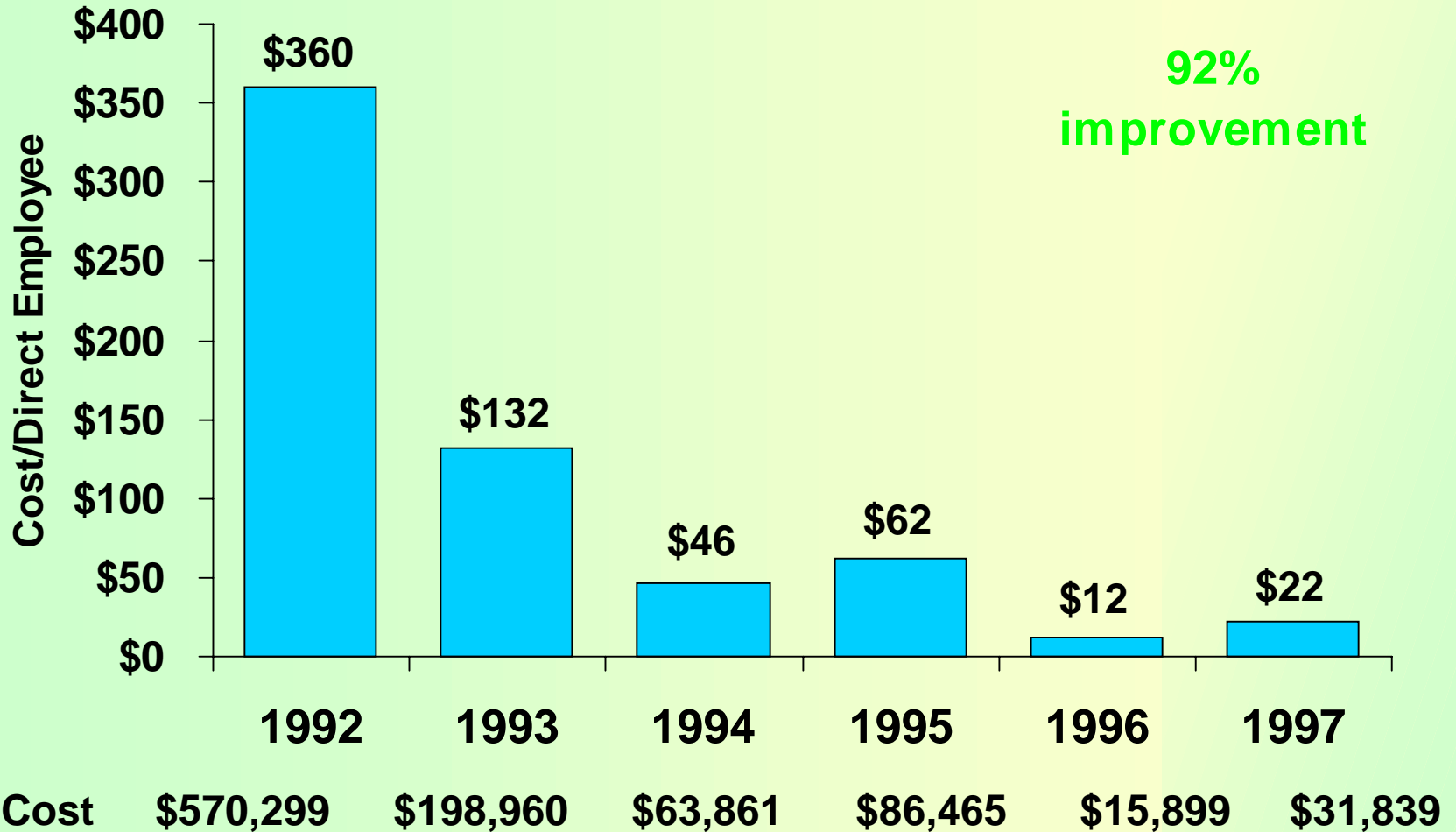
## Volume vs. Indirect Employment



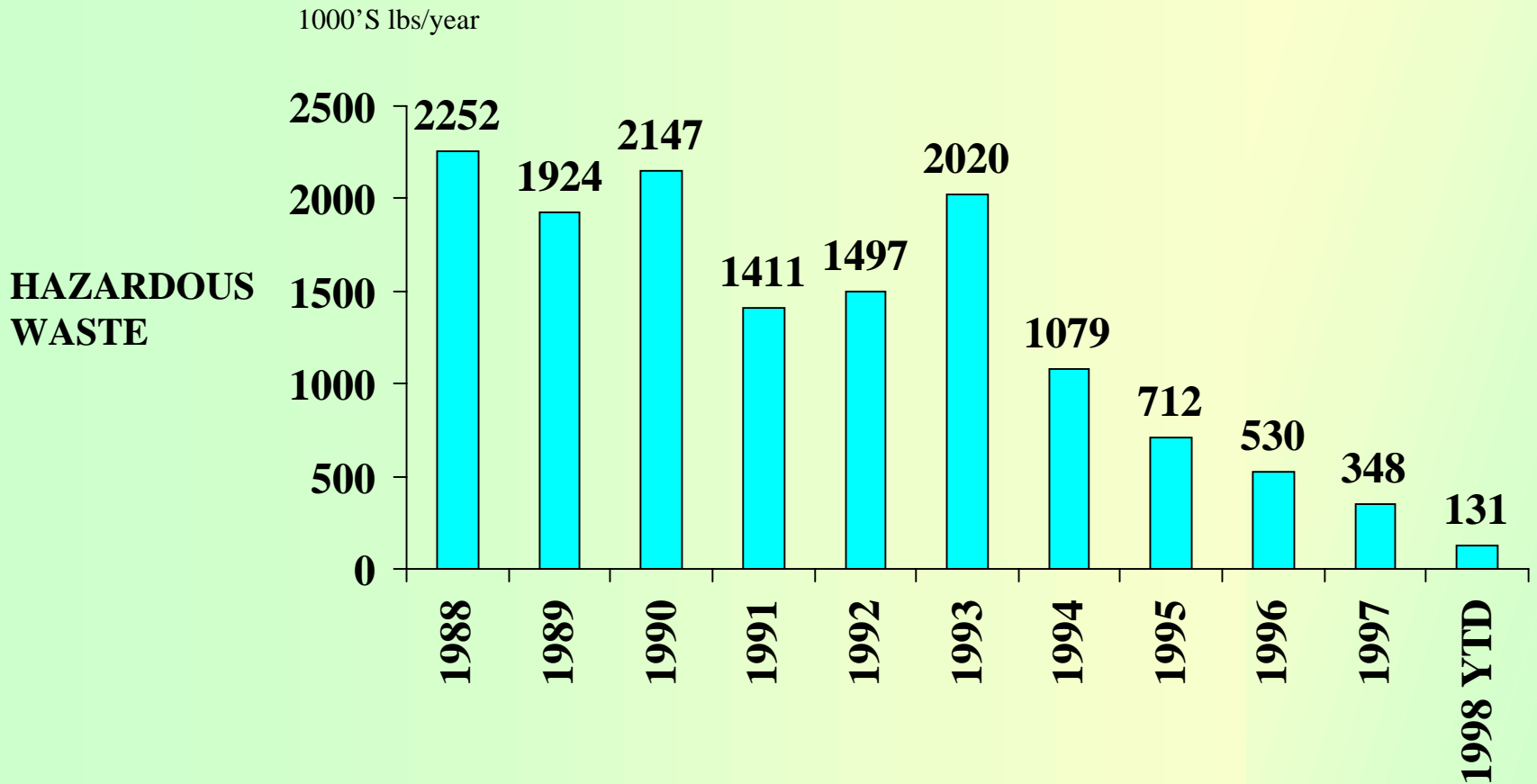
	1993	1994	1995	1996	1997	1998 YTD
<b>% CHANGE FROM 1993:</b>						
<b>EMPLOYMENT</b>	-	-13.7%	-15.8%	-16.5%	-17.7%	-18.0%
<b>HOURS</b>	-	-16.5%	-2.7%	28.9%	58.3%	65.5%



# WORKERS' COMPENSATION COST



# ENVIRONMENTAL PERFORMANCE

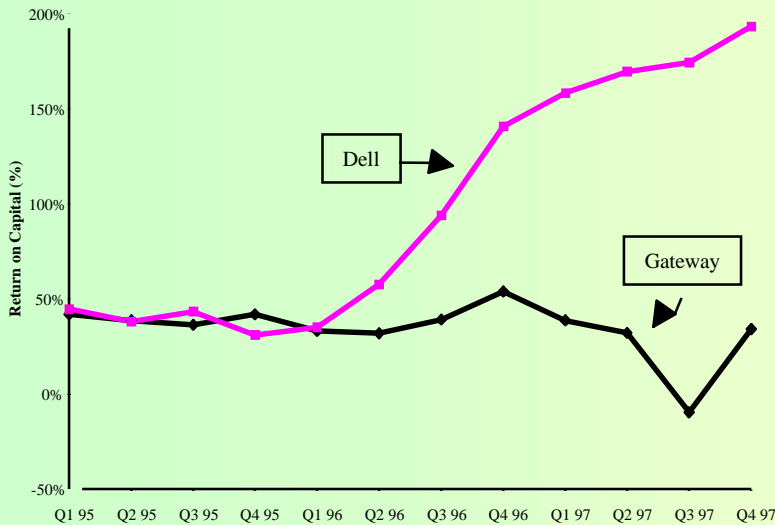




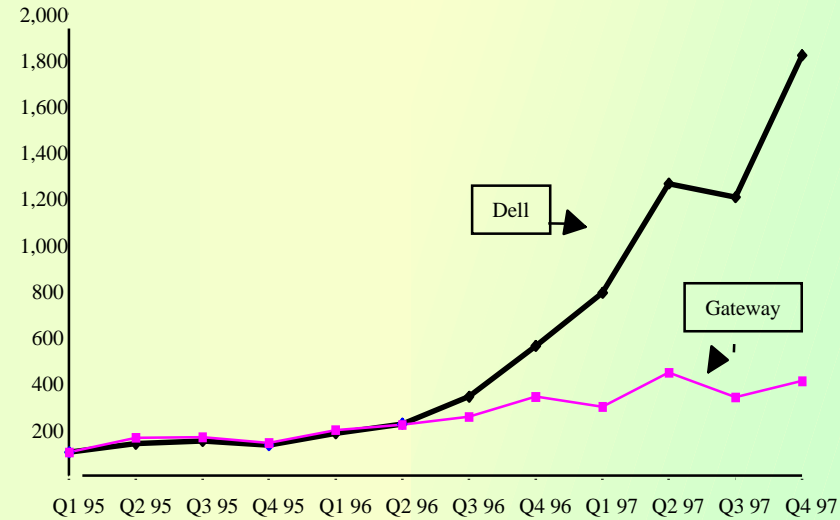
# Key Principles - Examples

## *Capital Efficiency – Gateway vs Dell*

### Return On Invested Capital



### Stock Price



# Strategic Integration Model

**Breadth & Means of Integration  
along Customer-Supplier chain**

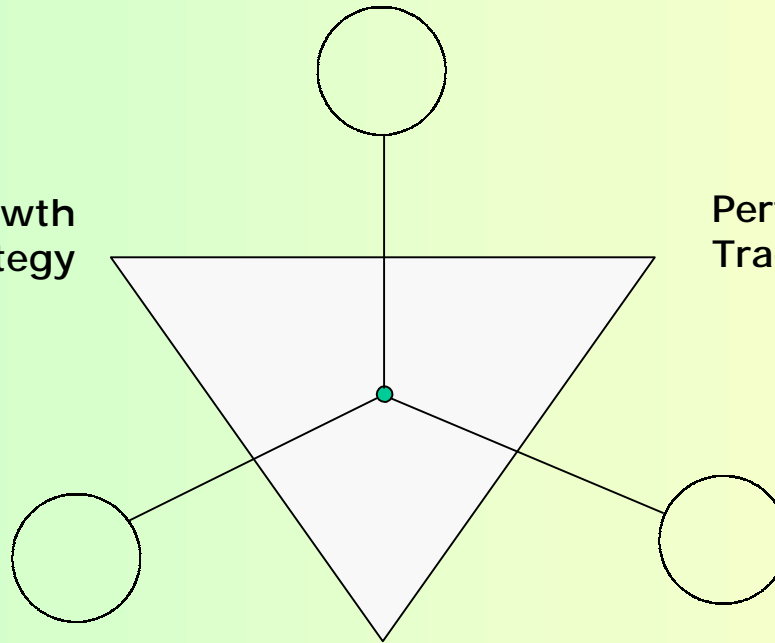
**Organic Growth  
Strategy**

**Performance  
Track-record**

**Approach to Valuetree  
improvements from  
current operations**

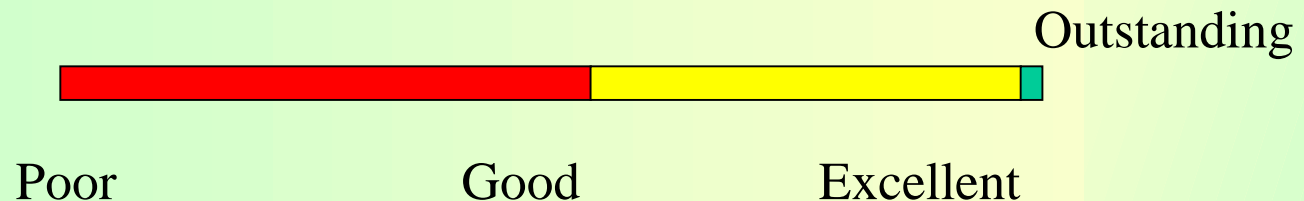
**Culture in Action  
within the Business**

**Relation to  
Controlling Industry Paradigm**



# Our Choice

- Poor standards deliver Ugly results/rewards
- Good standards deliver Poor results/rewards
- Excellent standards deliver Good results/rewards
- Outstanding standards Take all the rewards



# Purpose and Products

## **Purpose:**

To use the UTC/North Berwick experience as a thought and possibility stimulator

In a way that creates a broader perspective about change and improvement

So that at an individual and group level there will be greater clarity about direction and intention for improvement of American Saw.

## **Products:**

- **Expanded perspective on change approaches**
- **Greater sense of possibility for process and outcomes**
- **Increased unity to act**
- **Appreciation for the question that the day is intended to answer**

## Topics covered

- **World Class Manufacturing...concepts and factory application**
- **Self-initiated work systems**
- **Compensation structure**
- **Maintaining healthy workforce relations**
- **Centrality of IR**
- **Financial implications of World Class Manufacturing and work design**

- No comp. schemes without work design
- No work-design without Kaizen
- No Kaizen without inclusion
- No inclusion without clarity and constancy of purpose

## What is the Unanswered Question that Brings Us Together?

- Some thinking, belief, issue, challenge has brought us together. This is not a random event.
- What is the question that we are trying to answer?

## Understanding the Specifics of What We Want to Leave With

- What is it that you want to learn?
- What beliefs do you want to challenge in your own thinking?
- What beliefs do you want to challenge in the approach that is being taken by American Saw today?



## Business Imperative

- What are the business challenges/imperatives facing you?

## Overriding Governing Beliefs

### **ALL EFFORT SHOULD BE DEVOTED TO**

- **IMPROVING THE RELATIVE COMPETITIVE POSITION OF THE ORGANIZATION**
- **ASSURING THAT EMPLOYEES ARE TRULY IN A POSITION TO MAKE A PERSONAL CHOICE ABOUT WHETHER THEY STAY WITH OR LEAVE THE ORGANIZATION... Really being employers of choice.**

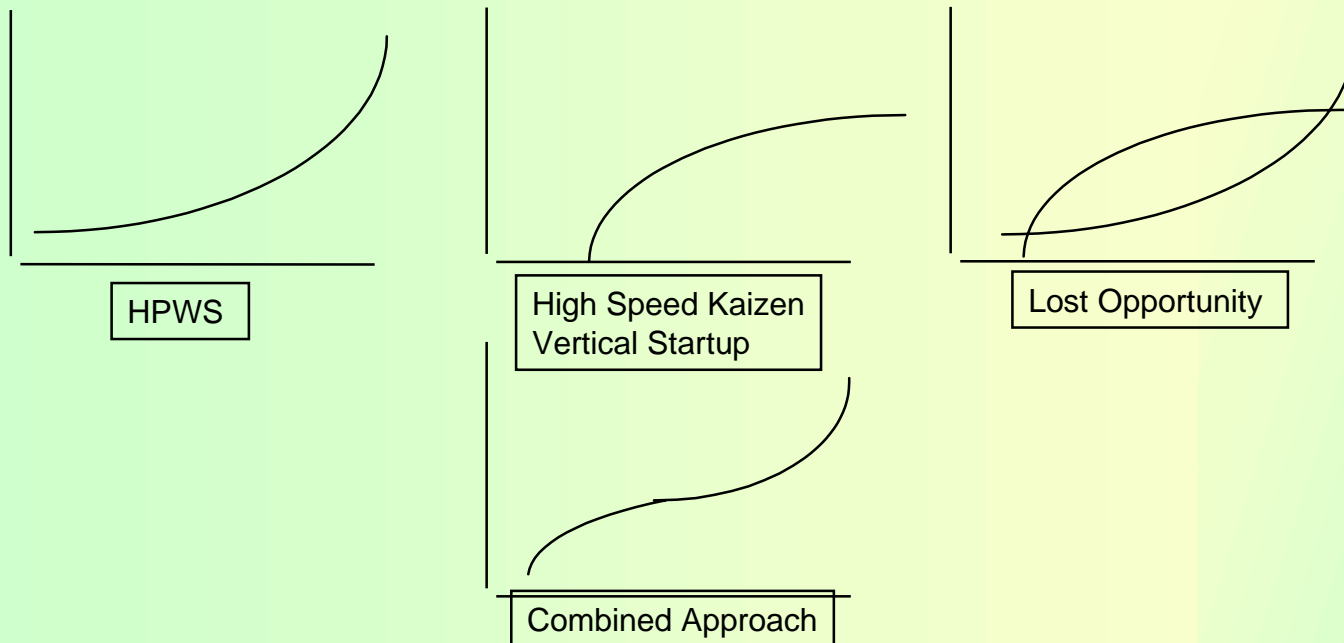
### Belief

- Pursuing best in class concepts increases the value of the business and helps people have more choice because the skills are highly marketable.
- All that a person carries out of the organization is in their heads--this is where true personal value resides.
- Being an employer of choice implies creating conditions for employees in which they have true choice.
- We employ people in our organizations to improve the way work is done, not to do the work itself.

# Shifting the Improvement : Time Relationship

Challenge 1: Get a HPWS foundation in place that demonstrates attention to performance, capability and sustainability.

Challenge 2: Get results quickly to build return and confidence.



## Our Mantras

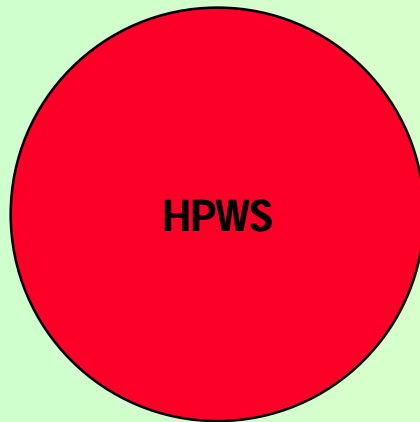
- 1) Develop a process that is as big as the organization can tolerate without **breaking** and as fast as it can go without **braking**.
- 2) Be principle based and have the process model the end state we want to create.

# The Formula in N. Berwick

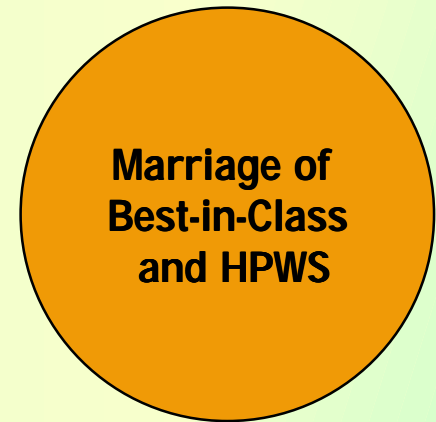
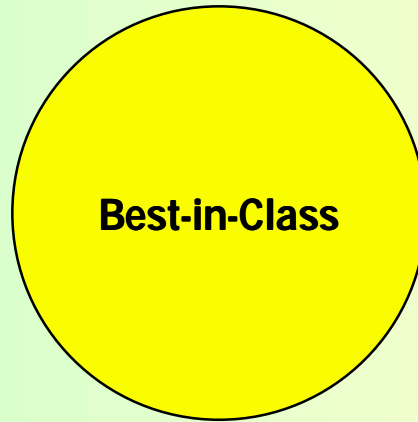
$$\begin{array}{ccccccc} \text{Management} & & \text{Sound} & & \text{Accelerated} & & \text{Sustainable,} \\ \text{Stability} & + & \text{Business} & + & \text{Change} & + & \text{High} \\ & & \text{Case} & & \text{Process} & & \text{Performance} \\ & & & & \text{(aka kaizen)} & & \text{Results} \\ & & & & & = & \end{array}$$

# Linking HPWS and Best-in-Class Concepts and Processes

TO ACHIEVE THE GREATEST SYNERGY IN ANY CHANGE  
EFFORT IT IS ESSENTIAL THAT HIGH POTENTIAL  
ORGANIZATION PROCESSES AND THINKING ARE LINKED  
TO THE PURSUIT OF BEST-IN-CLASS OPERATING AND  
BUSINESS CONCEPTS



**Separate and different**



**Each needs the other**

## A Few Key HPWS and Best-in-Class Operating Concepts

### ***world class operating concepts***

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- jit (takt, pull, flow)
- one piece flow,
- cellular production,
- set-up reduction,
- worker flexibility,
- kanban
- automation
- poka-yoke
- 5S
- standard work
- visual control

### ***HPWS/technician system***

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- thinking drives behavior drives results
- hierarchical processes--  
focused accountability
- teaming
- pay for work and demonstrated performance
- disciplined thinking
- continuous development

continuous improvement



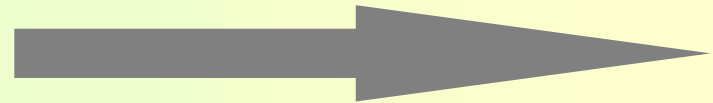
## A Few Examples of Our Guiding Principles

- Only use processes and approaches which we could look back on and honestly say were “high performance”
- Create a high level of stake in and stewardship by the entire work force for the approach
- Develop complete control over personal behavior and manufacturing processes to insure long-term discipline to processes
- Develop a progression and reward system that will be in place to support new work systems when the demand for it becomes manifest
- Secure results as fast as possible so that the improvements pay for themselves; balance creating and doing as close in time as possible
- Remove some element of personal pain for every individual-- every individual will experience at least one real benefit

# A Brief History

- There was assembly line *flow*.....

- And we had *functional departments*.....



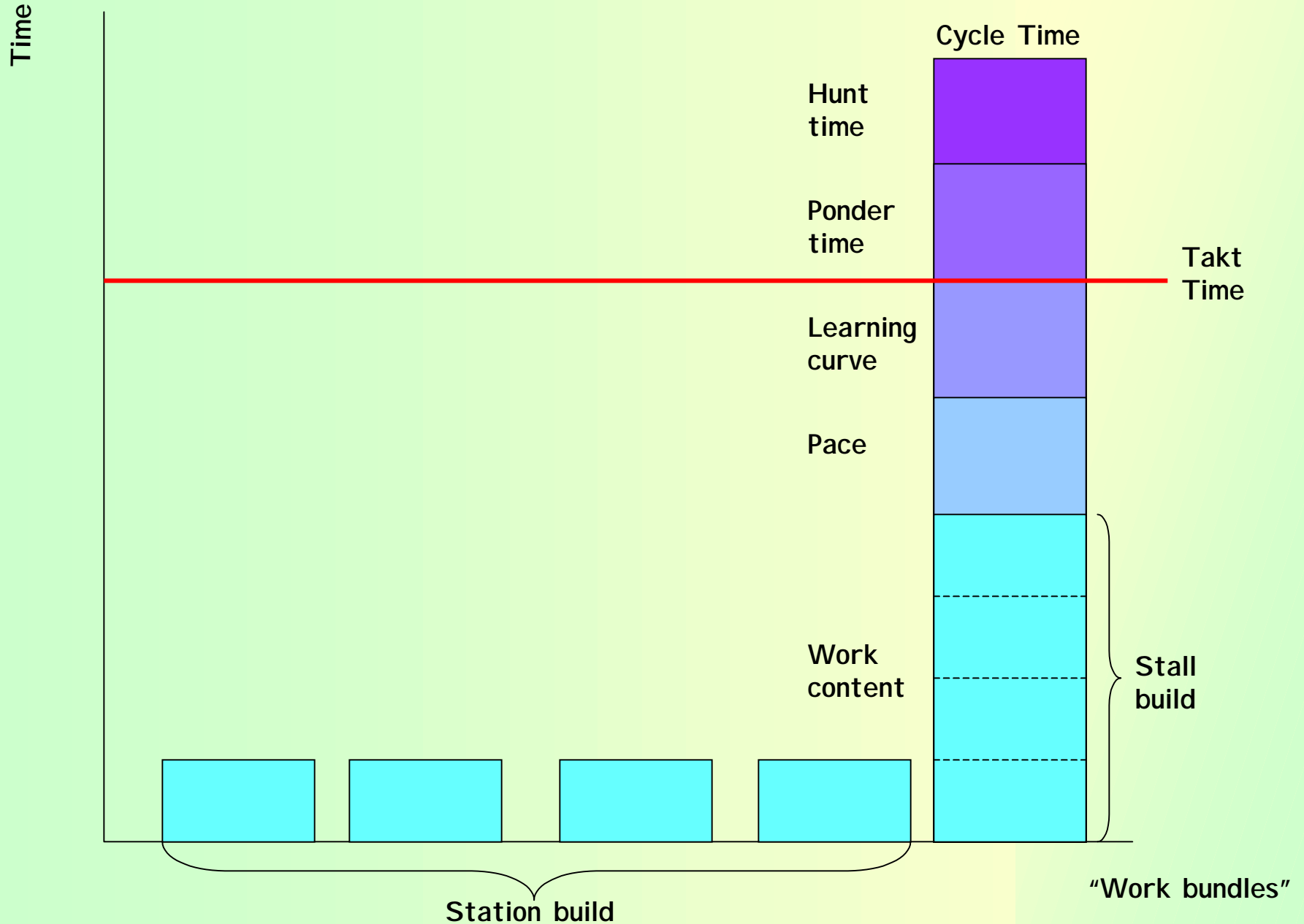
Tutorial: Best-in-Class Operating Concepts

***Takt***

***Flow***

***Pull***

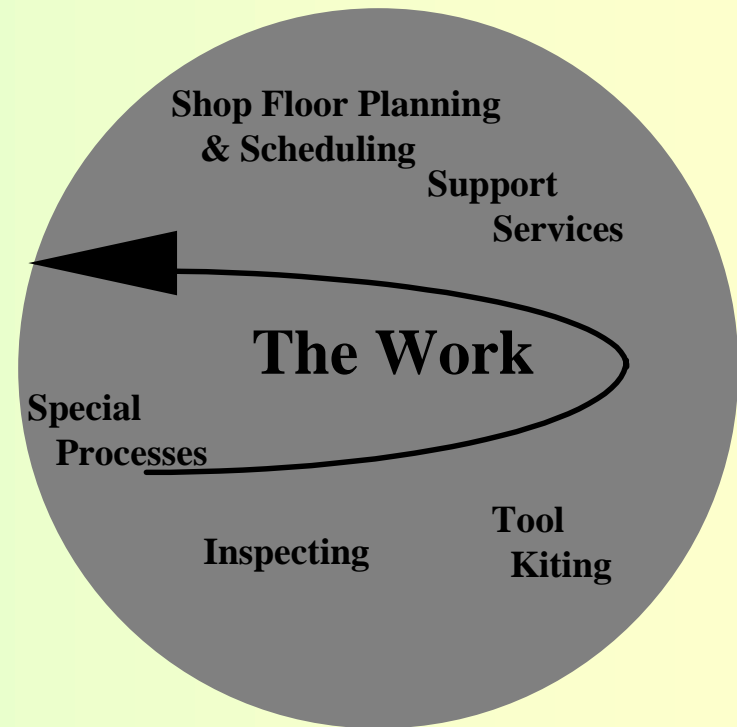
# %-Load Chart Basics



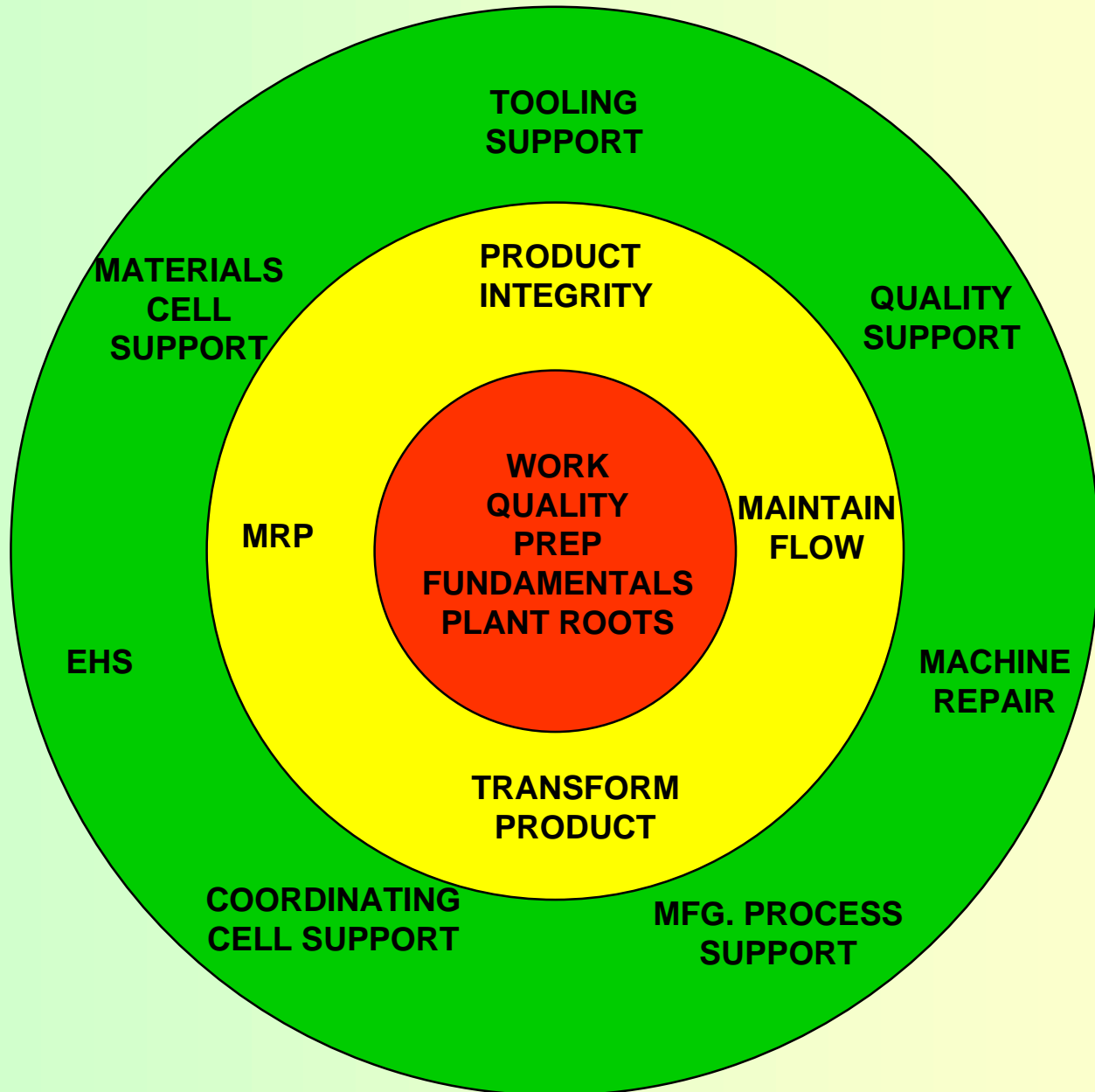
# A Brief History

- Now we are adding supporting tasks required to *maintain* “daily flow of material”
- And also beginning to produce with attention given to continuous *improvement*

## Production Work Cell



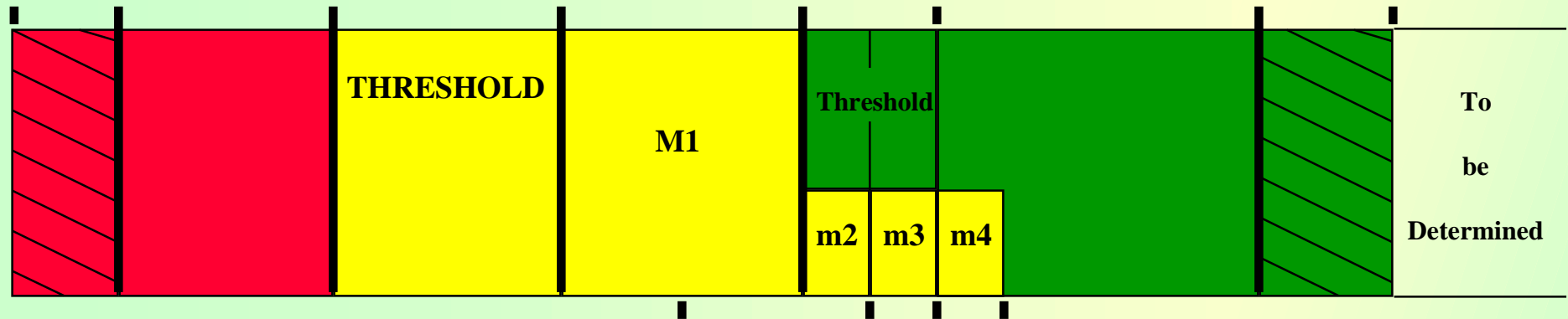
# Grinding Work System



## Progression Based On Demonstration

- **Criteria Based Objectives - generic for each “work system”**
- **Checklists, portfolios and projects - cell/work community specific**
- **Multi-Purpose Tools**
  - \* **Training**
  - \* **Demonstrating skills**
  - \* **Evaluating performance**

# R - 2



## Production Work Systems

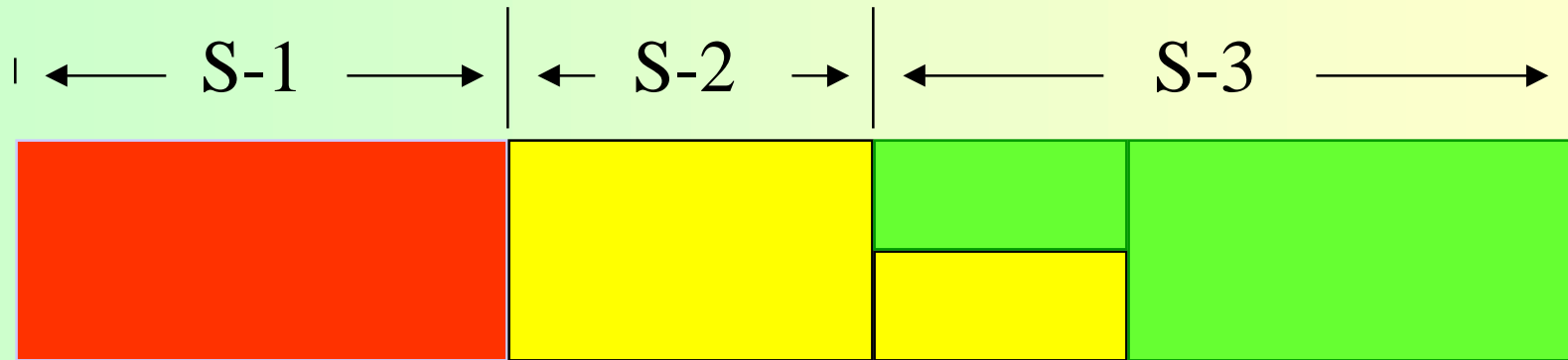
- \* Grinding
- \* Thermal Spraying
- \* Machining
- \* Welding
- \* Heat Treating
- \* Plating
- \* Assembling, Application, Bonding

## Support Work Systems

- \* Industrial Waste Treatment Services
- \* Steam & Power Site Support
- \* Protective Services
- \* Administrative Support



# Layoff Security Zone

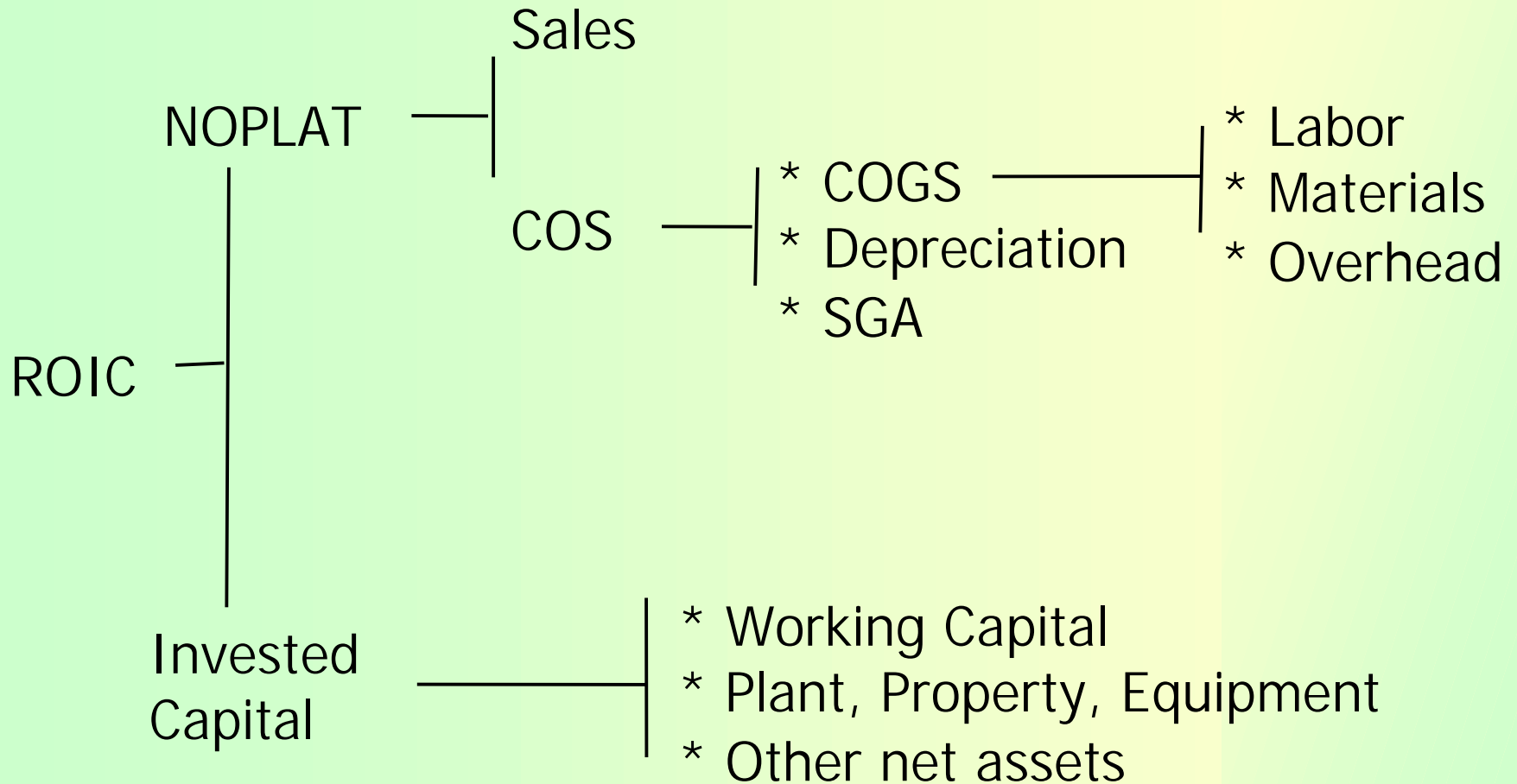


Seniority within a *security* zone.

## Beliefs:

- Ultimately our efforts must impact margin and / or cash flow.
- Making direct connections between change efforts and the value tree gives the work a sustainable context.
- Greater the understanding and focus on value tree at all organization levels, the greater the potential for positive change.

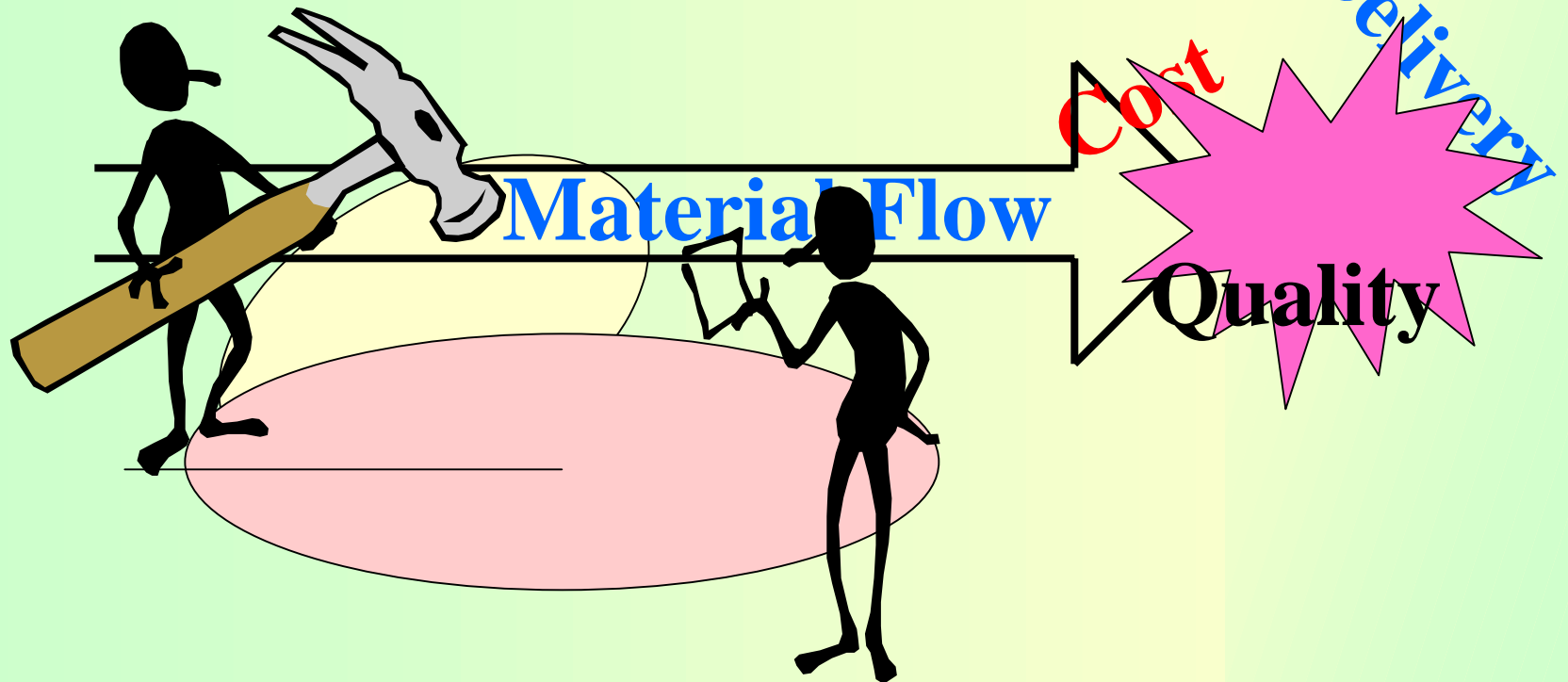
# The Value Tree Summary

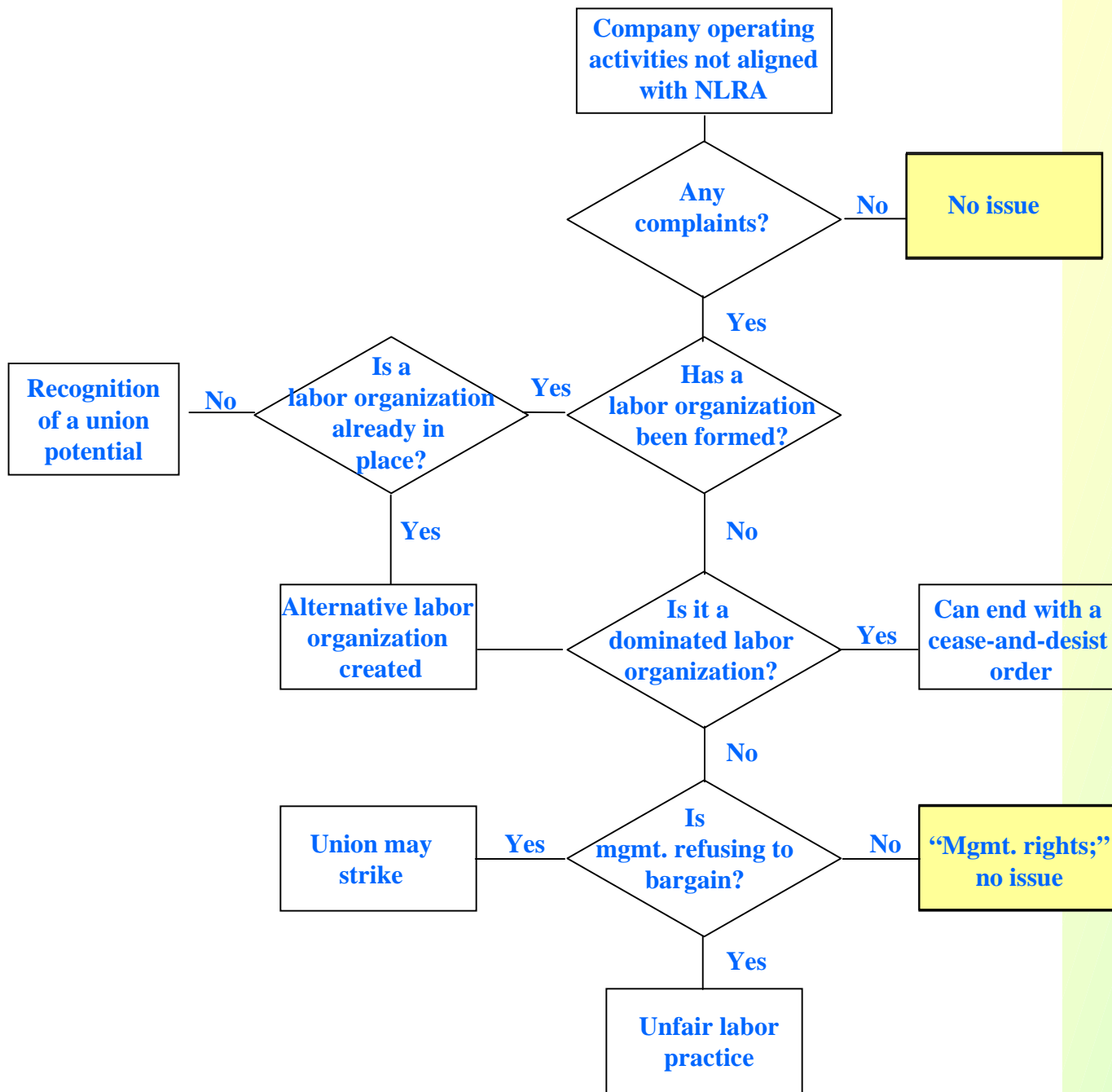


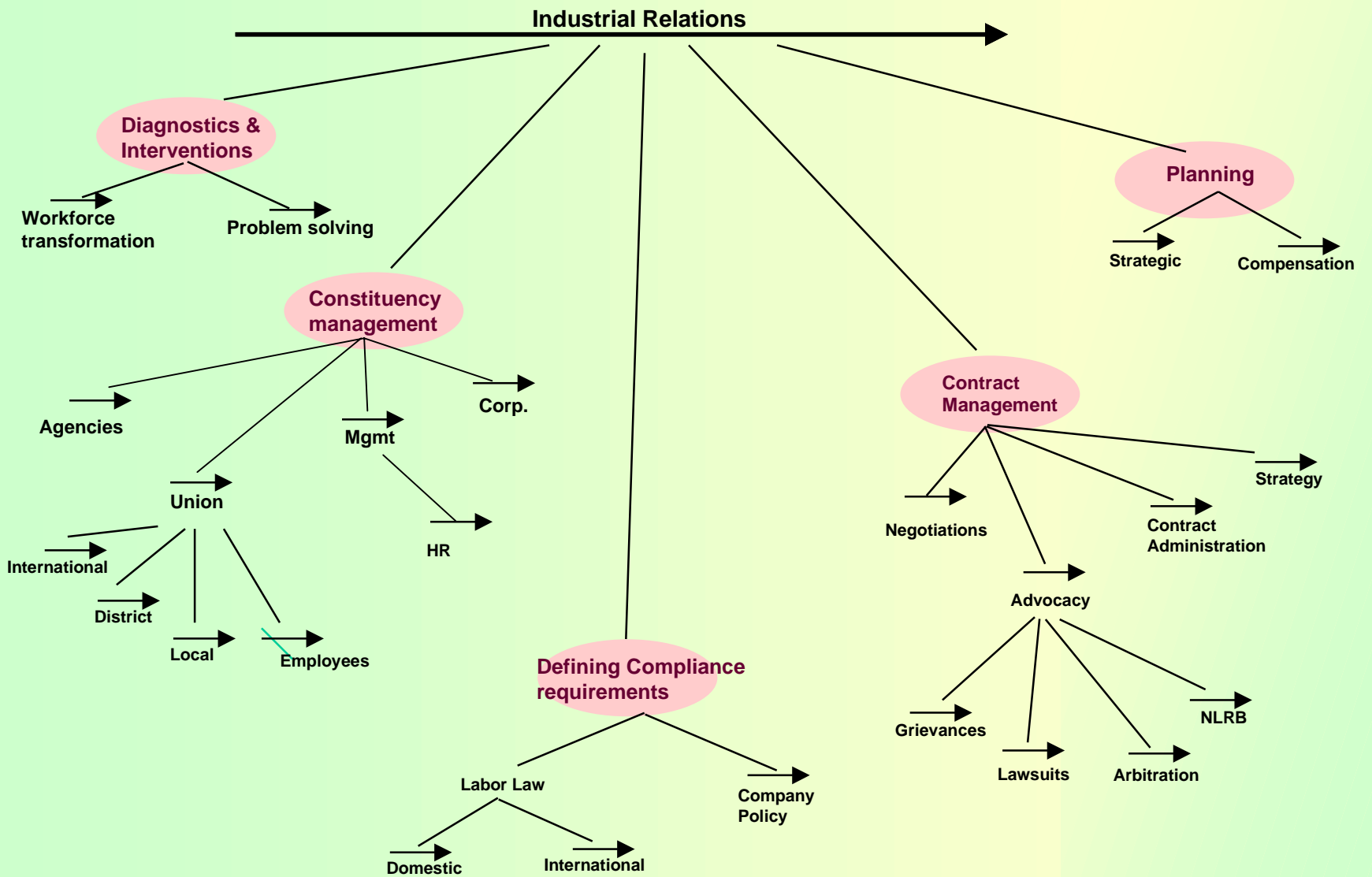
IR

# Why IR is Important

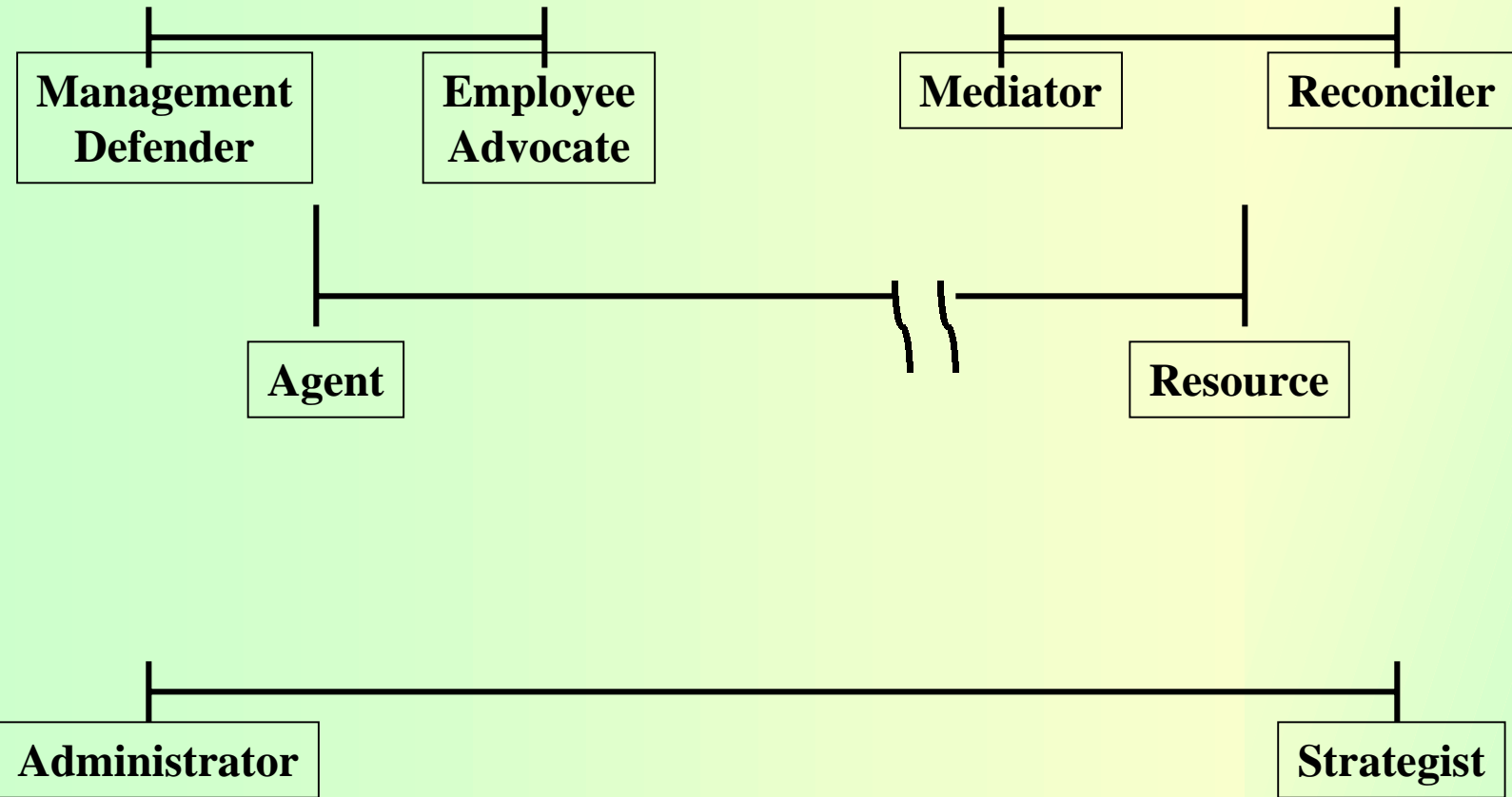
**Outcomes**





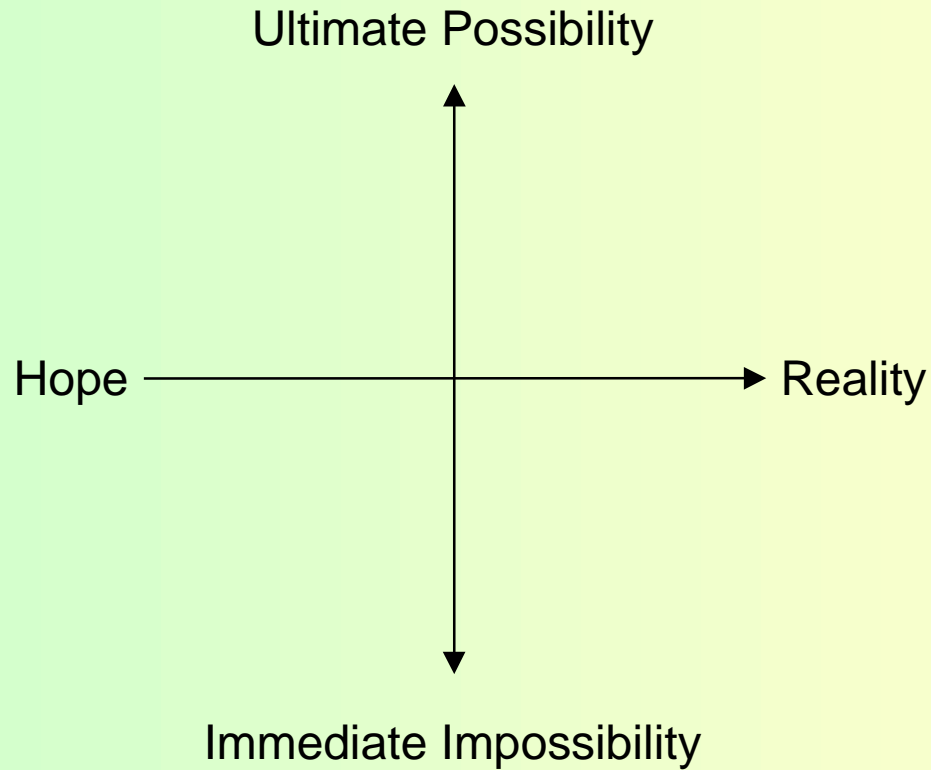


# Range of Roles





# The Domain of Possibility



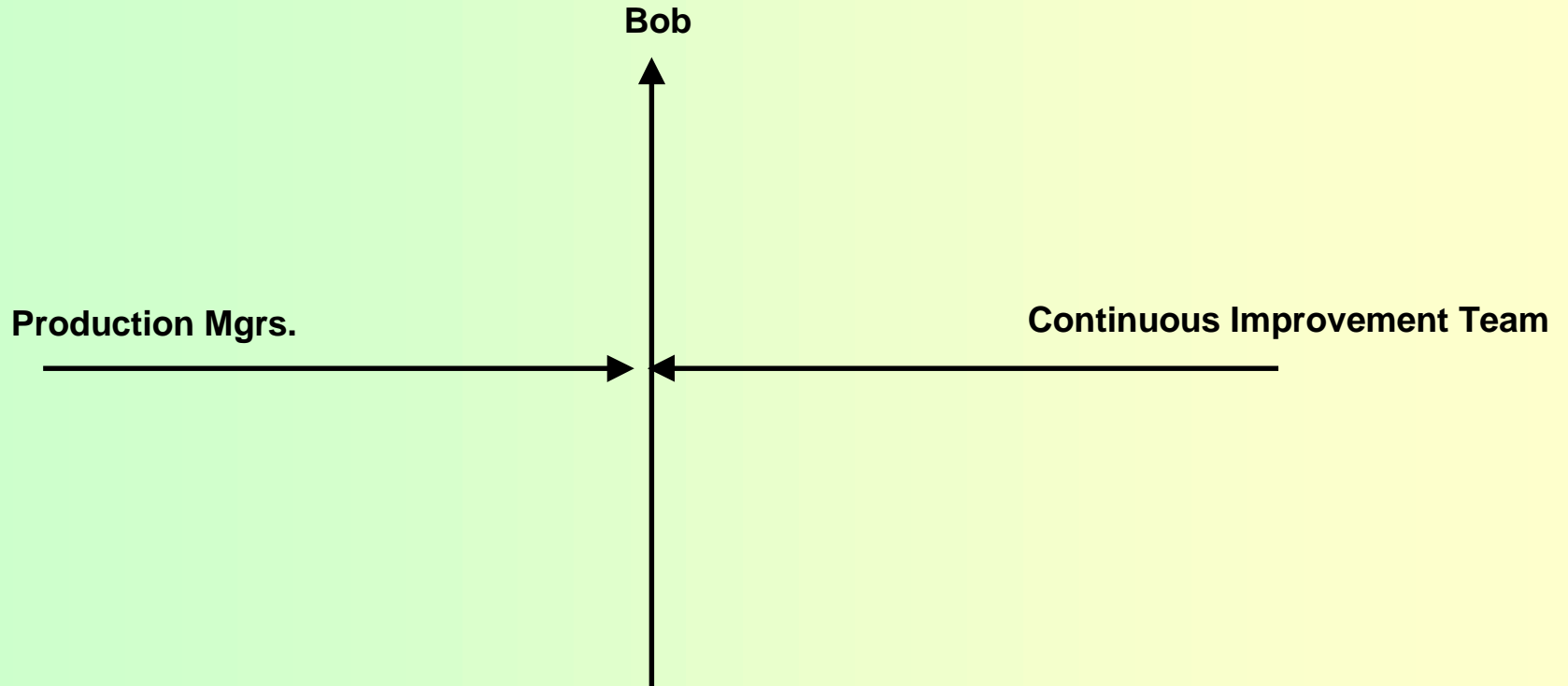
In closing, lessons learned  
by the Plant Manager

# **Lesson 1**

**Adopt a “nothing to lose”  
attitude. The crisis is already  
there...whether you recognize it  
or not.**

# Lesson 2

## Design tension into your leadership team.

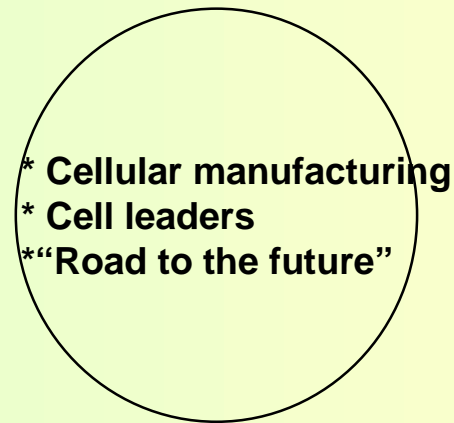


# Lesson 3

**Clearly separate yourself from practices not suited for the future.**



**Past**



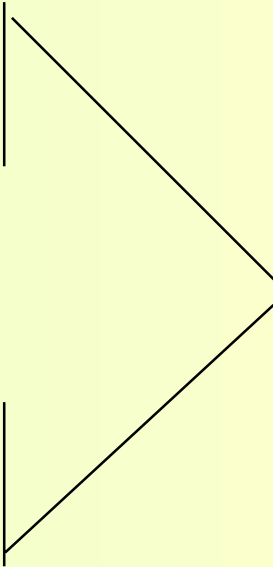
# Lesson 4

**Use an “inclusive” process to make changes.**

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**Everything we must do to get to the vision is negotiable.**

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**Vision or direction is non-negotiable.**

# **Lesson 5**

**Learn from others and create  
“models” so people can see the  
vision.**

# Lesson 6

**Renounce the past. “The old way is gone.” Create “one-way” gates.**

- **Flow is in**
- **Cells are in**
- **5-s is in**
- **Visual is in**
- **TPM is in**
- **Flexibility is in**
- **Teaming is in**
- **Doing “white collar” tasks is in**
- **Self-funding your increase\$ is in**
- **Best-players play is in**



# **Lesson 7**

**Relentlessly pursue performance  
and deliver results.**

## YOUR THOUGHTS ON THIS EVENT...

Circle the word which best describes

**The first day of the event I felt:**  
 Ignored \_\_\_\_\_ In the v  
 happening \_\_\_\_\_

**By the end of the event I felt:**  
 Ignored \_\_\_\_\_ In the v  
 happening \_\_\_\_\_

**My introduction to the flex team**  
 Never happened \_\_\_\_\_ Happened \_\_\_\_\_

**The way we were introduced made**  
 Unimportant \_\_\_\_\_ Important \_\_\_\_\_

**The flex team asked for my opinion**  
 Never \_\_\_\_\_ Seldom \_\_\_\_\_  
 Frequently \_\_\_\_\_

**The purpose of this event was**  
 Never explained to me \_\_\_\_\_ Passed \_\_\_\_\_

**The results expected from this event**  
 Are unknown to me \_\_\_\_\_ Are understood \_\_\_\_\_

**My preparation for this event was**  
 Nothing \_\_\_\_\_ A brief overview \_\_\_\_\_

**I believe our department will**  
 Go back to where we were \_\_\_\_\_ Do not \_\_\_\_\_

**This event caused my department to**  
 Become less competitive \_\_\_\_\_ Show \_\_\_\_\_

**This event focused on**  
 The wrong things \_\_\_\_\_

**Next time I would like to see**  
 \_\_\_\_\_  
 \_\_\_\_\_

## WORKSHOP REFLECTION

"What have we learned?"

1. Describe why it was successful and the '95 Forecast Agency reality for people?

2. Describe the ways of thinking we use as the "standard"

3. Name the people who were successful. What was their role?

4. Draw a graph to show the current production system as of Wednesday. Label key elements and the period. What sustained the current system?

5. Describe your experience with the model.

6. Describe your observations and appreciation for the business.

7. Create a Principle to guide Performance, Capacity, Work.

## FLEXIBLE MANUFACTURING

aka KAIZEN

### Lessons Learned on Sustainability

"Flexible manufacturing" is an approach to the production system. The following questions:

What is required?

When is it required?

Who requires it?

How is it to get done?

Where will it take place?

Why is it needed?

Current production systems are based on Requirement Planning or "push" in excessive inventory, after the fact. Large lot sizes and sluggish marketplace requirements this is a fast-paced, high energy approach selected to help counter the business around current production systems. This area is literally uprooted and re-planted. This type of event allows a creative process out of the comfort zone.

A fast-paced, high energy approach selected to help counter the business around current production systems. This area is literally uprooted and re-planted. This type of event allows a creative process out of the comfort zone.

1. Sustainability is in the eyes of the beholder and should be defined before the workshop begins by senior management.

2. The workshop is not designed to deliver a conscious shock to the participants making them instant, changed people.

a. A person must be assigned the role of "group conscience" to remind others to use the basic concepts of takt, pull, flow and people.

3. For the organization to transform, a sponsor is needed who has the power and vision to ask the tough questions; preferably a senior person who understands the material taught in the workshop.

a. A champion selected to maintain conceptual consistency and working of issues.

4. "Process improvement" should become a strategic agenda item and discussed as a regular part of our meetings.

5. The workshop develops a sense of vision and what is possible by actually creating the changes.

a. It does not address with local leadership the implications and scope of making these kind of changes across the business.

b. It does not clarify the choice to be made or the options available.

c. Therefore, what gets created in a plant is defaulted to what is valuable to the person who has power at the time.

6. For the workshop to truly generate sustained organizational changes, it must be expanded to foster regular follow-up sessions with the leadership team.

And NOW...??

# Possible Next Steps

Leadership session describing 2005 end-state

