



Presents...

November 19, 2009

The background of the entire image is a photograph of a wooden building frame under construction. The view is from a low angle, looking up at the wooden beams and rafters that form the roof and upper walls. The wood is a light, natural color. The sky in the background is a pale blue with soft, white clouds. The overall composition is dynamic, with strong diagonal lines created by the wooden beams.

Lean Leadership

With
Alden B. Davis

Generating Real Value

Agenda

Why Lean

Taking a Stand

Lean audit

Brief history



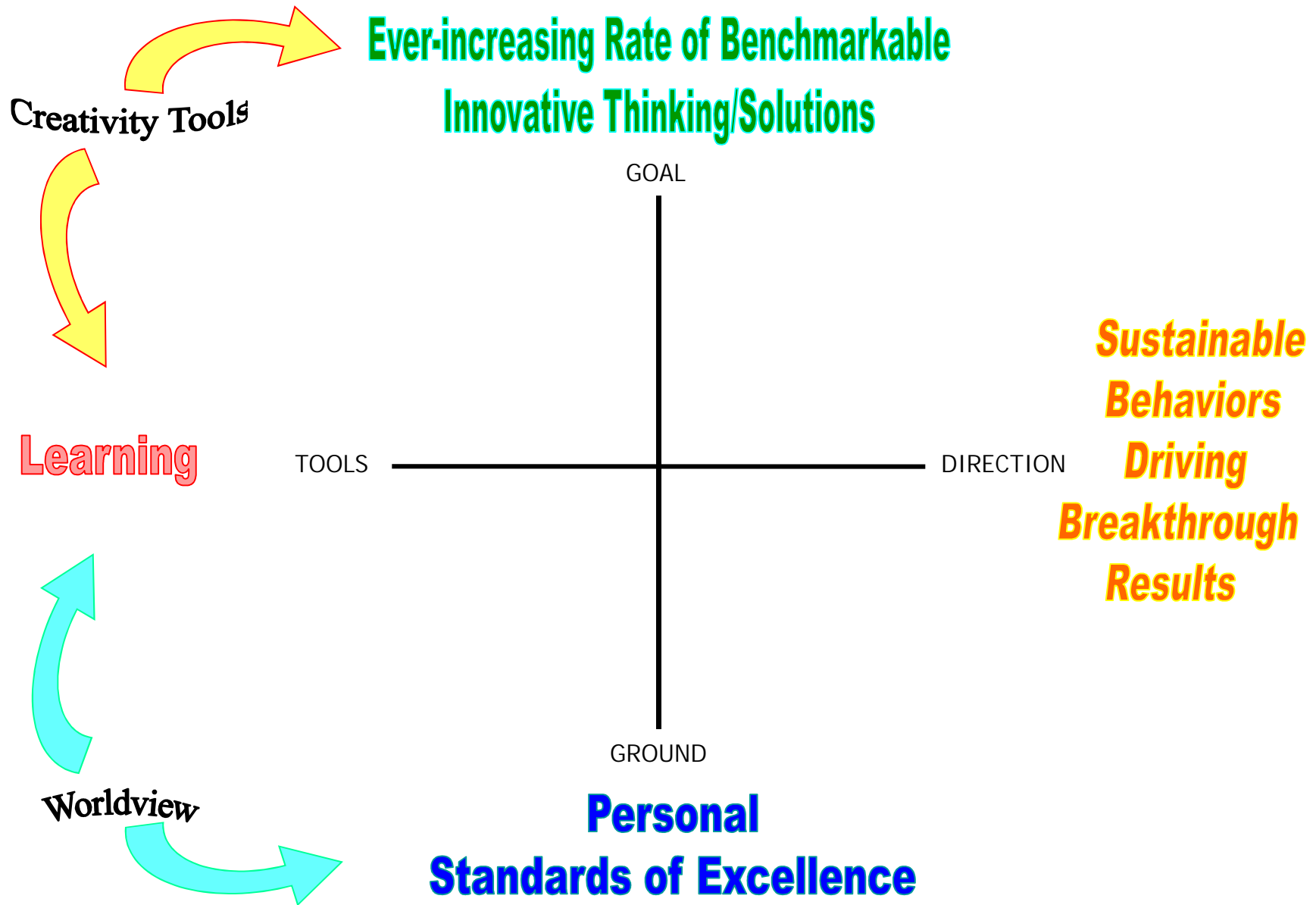
Follow the money
Mini-Kaizen Exercise
Discussion

Improvements Possible

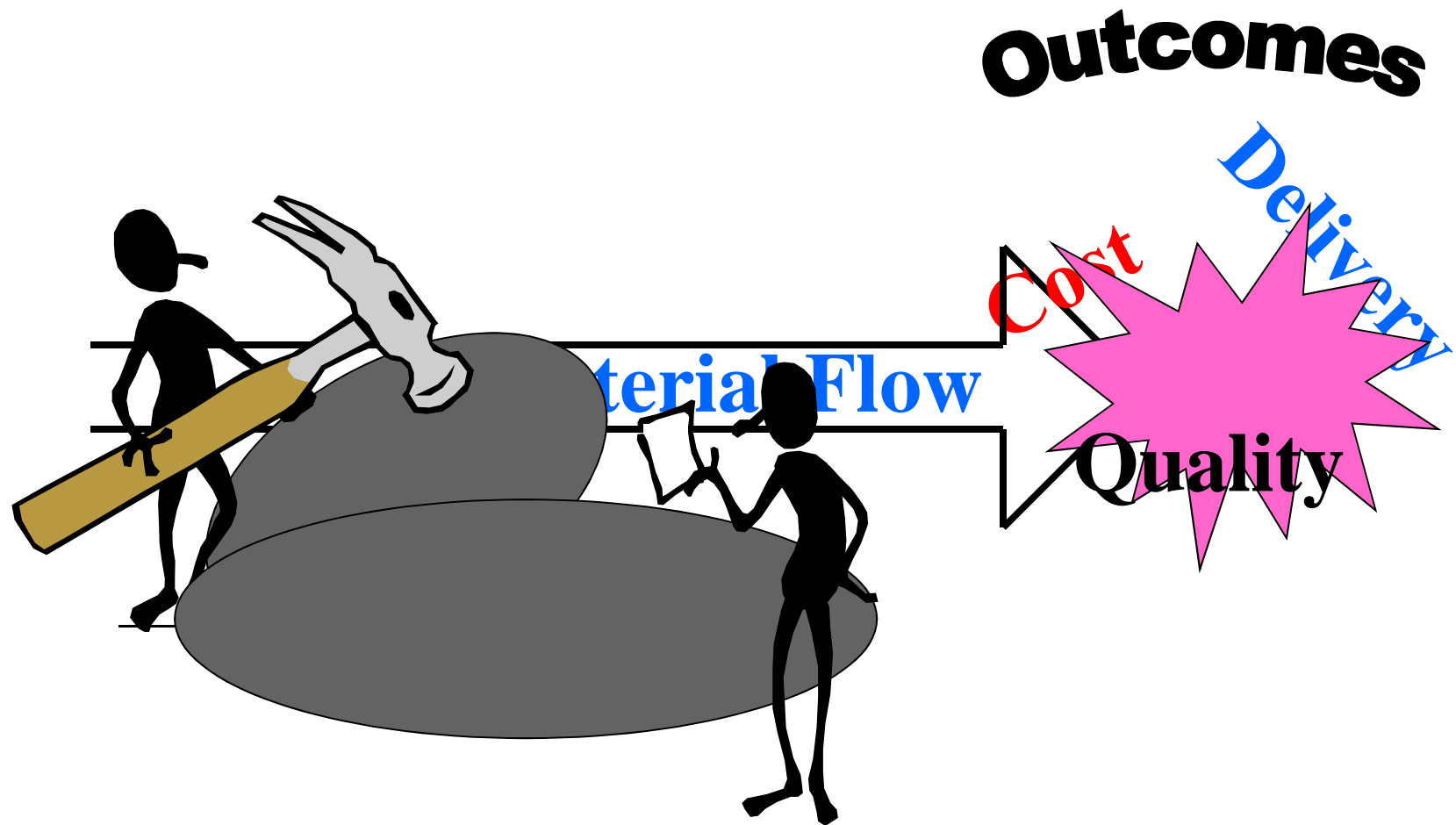
Key results to be expected with a soundly implemented and well maintained “kaizen.”

Immediately:

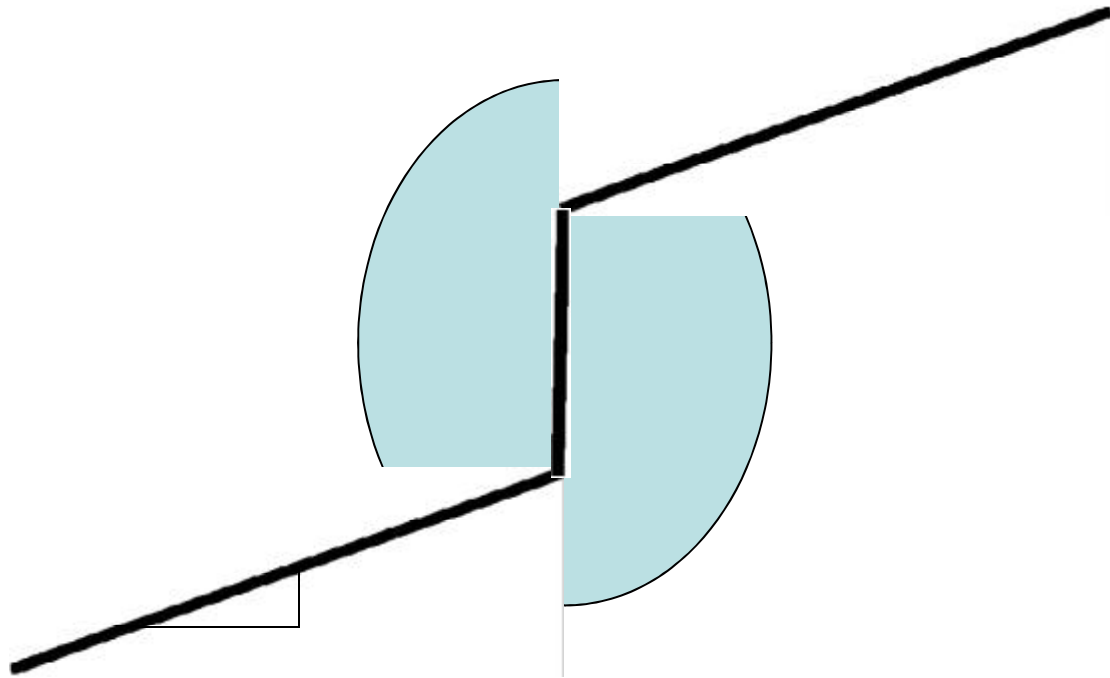
- | | |
|-------------|--------------------------------|
| • 20% - 30% | Productivity improvement |
| • 30% - 40% | Increased equipment uptime |
| • 30% - 50% | Reduction in space rqmts. |
| • 10% - 20% | Reduction in purchased costs |
| • 50% - 60% | Improvement in product quality |
| • 10% - 20% | Reduction in WrkComp Accrual |
| • 70% - 90% | Reduction in WIP inventory |



Why is this work Important?



LEAN

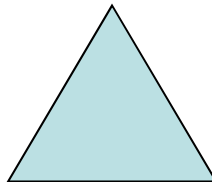


FINDING THE BALANCE

Waste is just a part of
life. If at first you don't
succeed, try, try again.

Attitude toward Waste

Waste is evil.

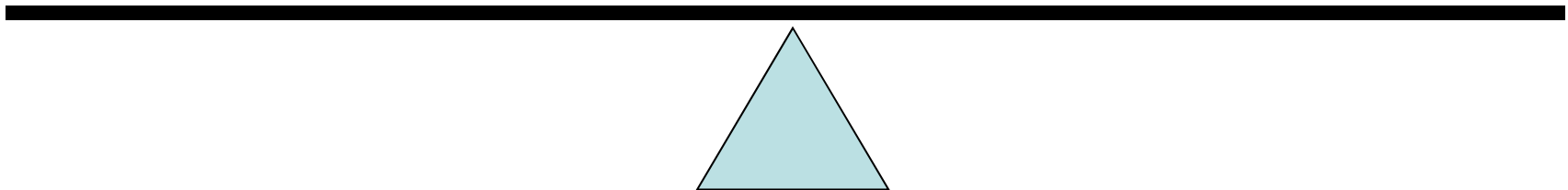


FINDING THE BALANCE

It's all about the production hours. "Make production" is my mantra and I focus on this to the exclusion of improvement activities, which we will get to tomorrow.

Focus of Attention

It's all about the system that generates the production hours. I broker a balance between production hours and improvement hours.

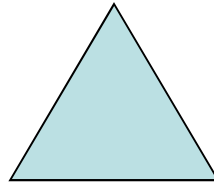


FINDING THE BALANCE

Projects consume
scarce hours and
hurt production

Continuous Improvement

Projects are
an investment
in the future

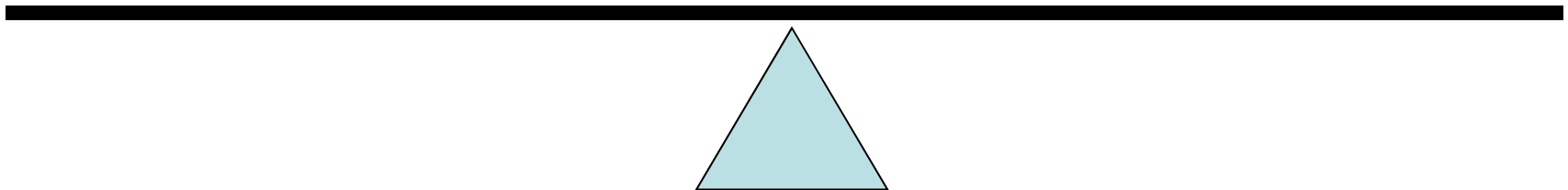


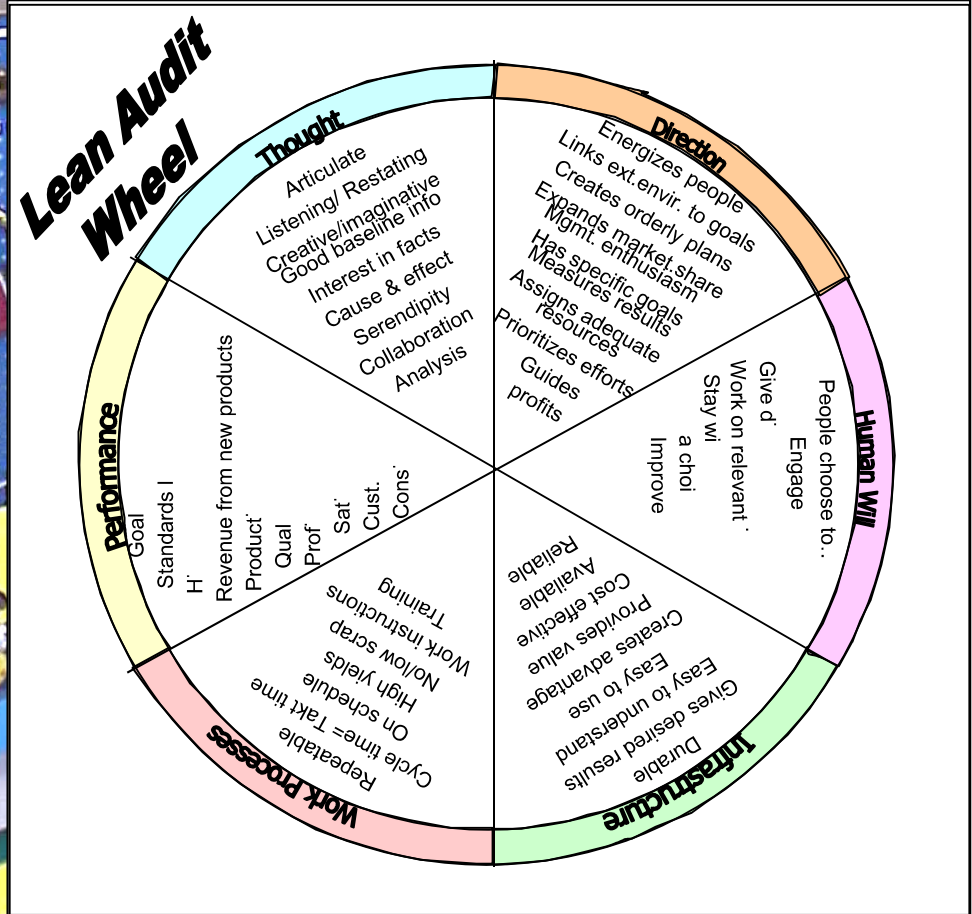
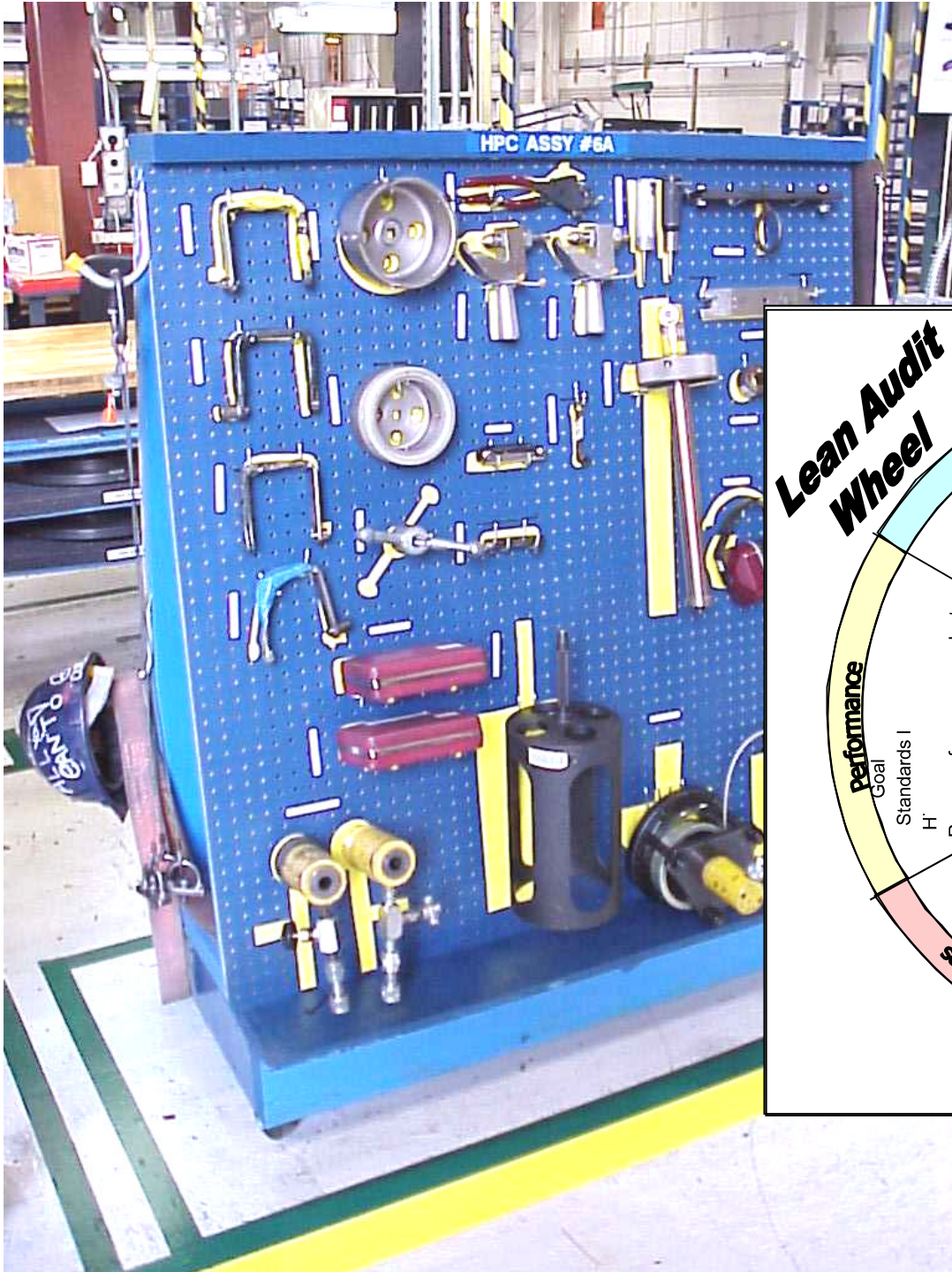
FINDING THE BALANCE

Upper level management
tells people what kind of
adjustments to make
based on their
assessment of
unsatisfactory variances.

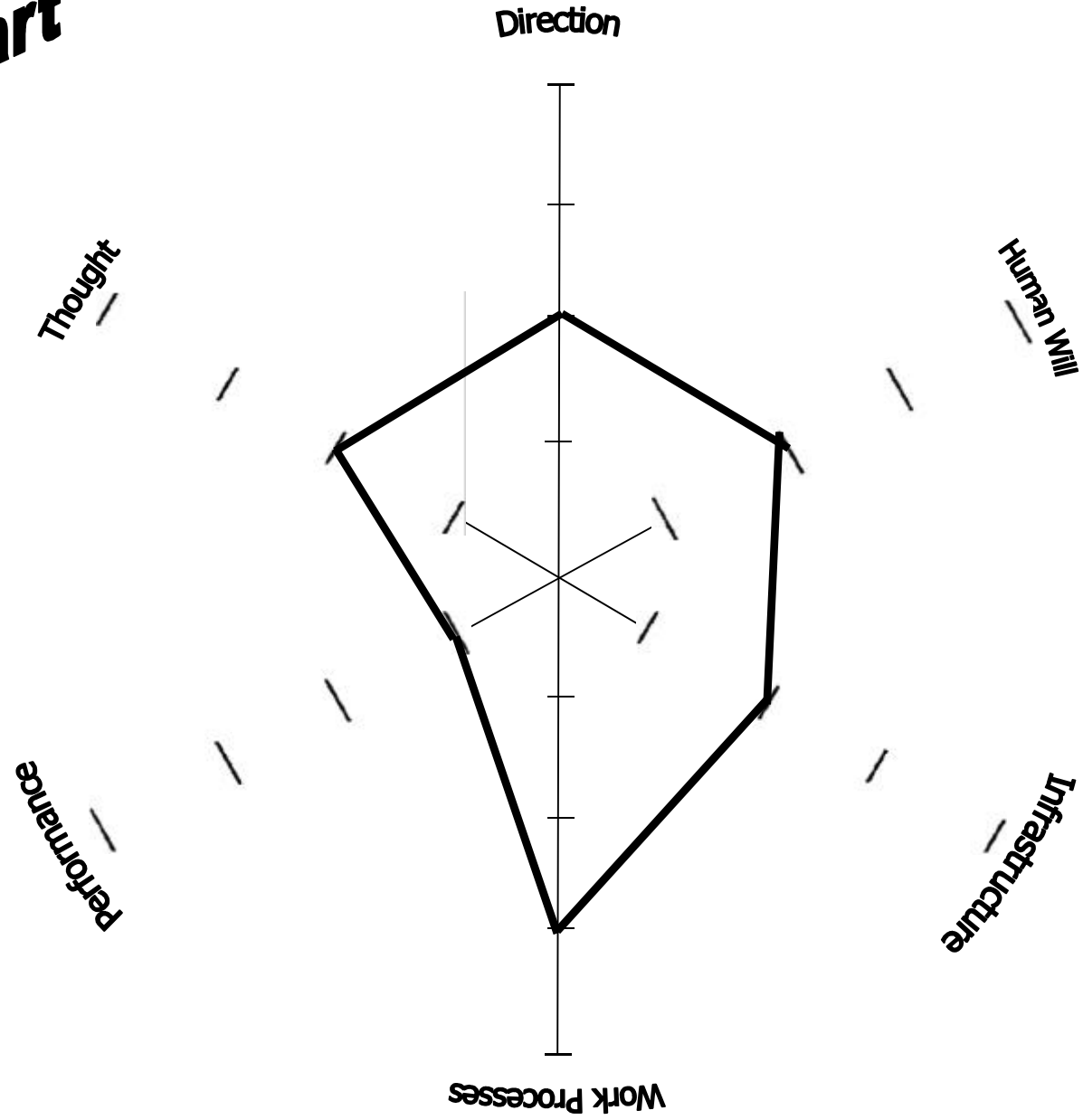
Managing Production

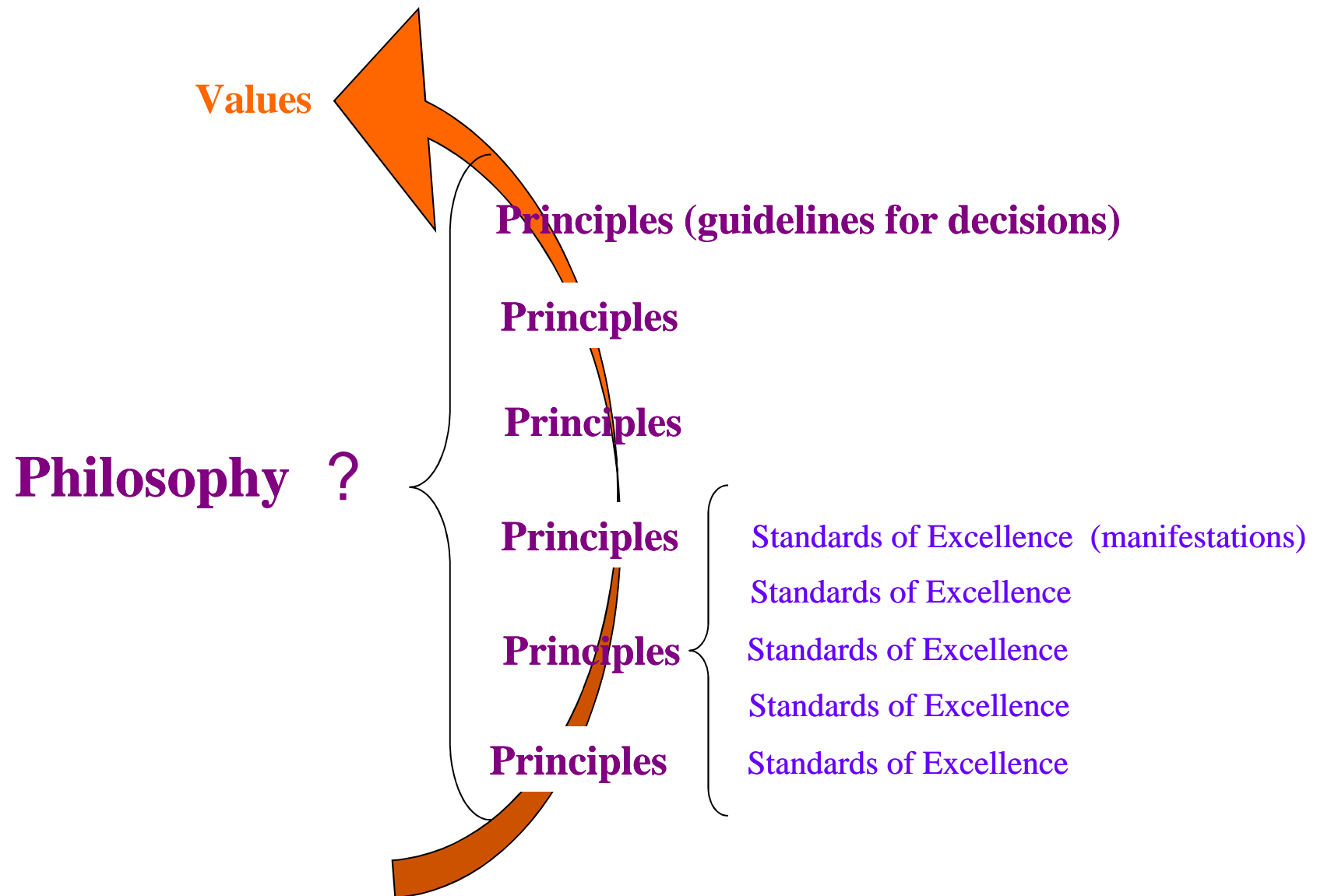
The total organization
is dedicated and
trained to improve the
daily flow of material.





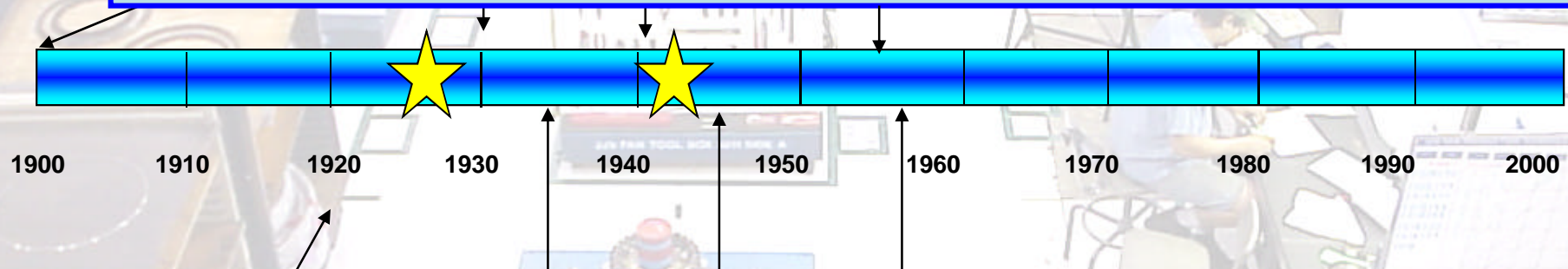
Lean Audit Radar Chart







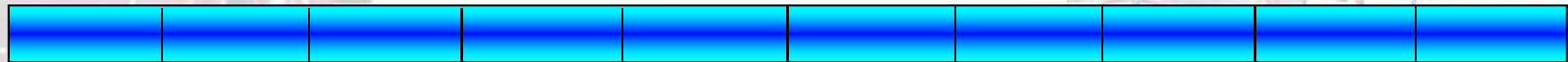
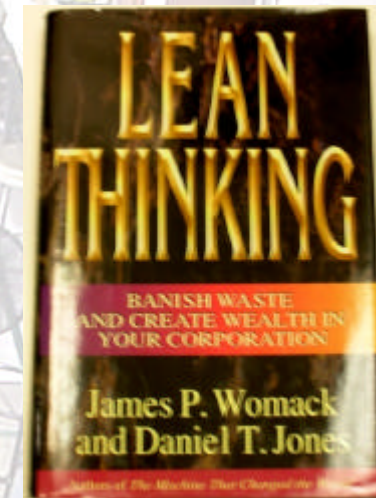
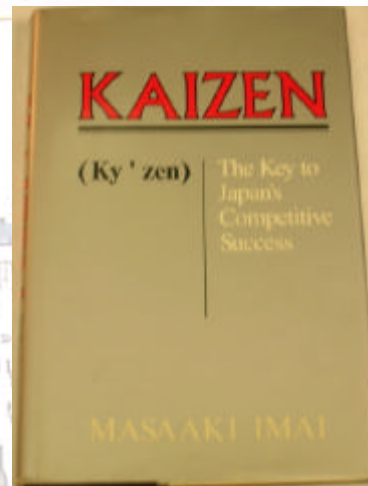
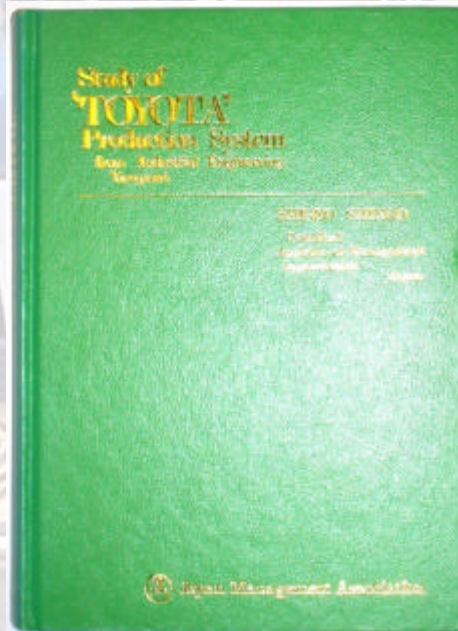
Genichi Taguchi: (1924-present) Equated quality with cost (and lost revenue). Devised set of tools to identify and prioritize “noise” in the work process.



Philip Crosby: (1926-2001) Simplified the language and concepts for a broader audience. “Quality is Free”, Zero defects, conformance to requirements and prevention are the mantras.



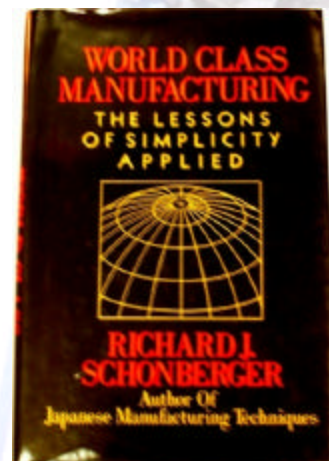
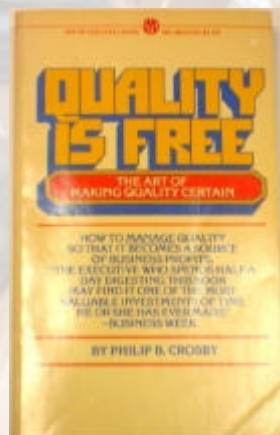
Defined quality as “fitness for use”.



1980

1990

2000



\$hifting
Performance
with the *Value Tree*

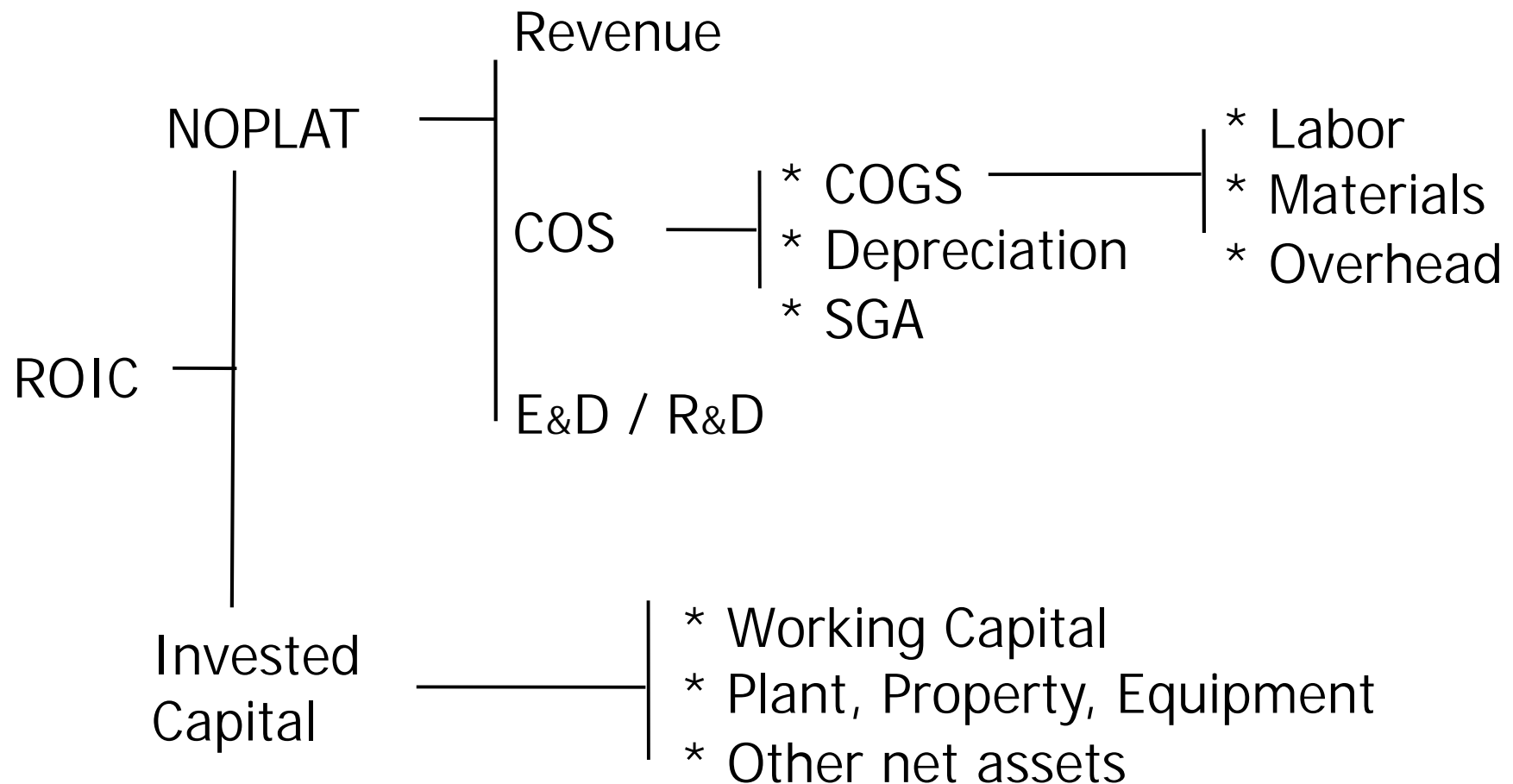
Opening Questionnaire

- | | | |
|---|---|---|
| 1. Most of our workforce can personally connect their daily work and associated expenses to an Income Statement and Balance Sheet. | T | F |
| 2. Our financial people understand the impact of “lean” so well that they are tough negotiators when setting budget expectations for our lean projects. | T | F |
| 3. Our organization shares a common understanding of the word “value.” | T | F |
| 4. Our lean-leaders have personal vision/understanding of value creation. | T | F |
| 5. “Value” is realized when a lean project has been completed. | T | F |
| 6. Pursuing lean projects make business sense because they are the right thing to do. | T | F |
| 7. Shared understanding of the business and its finances increases peoples’ ability to “do.” | T | F |

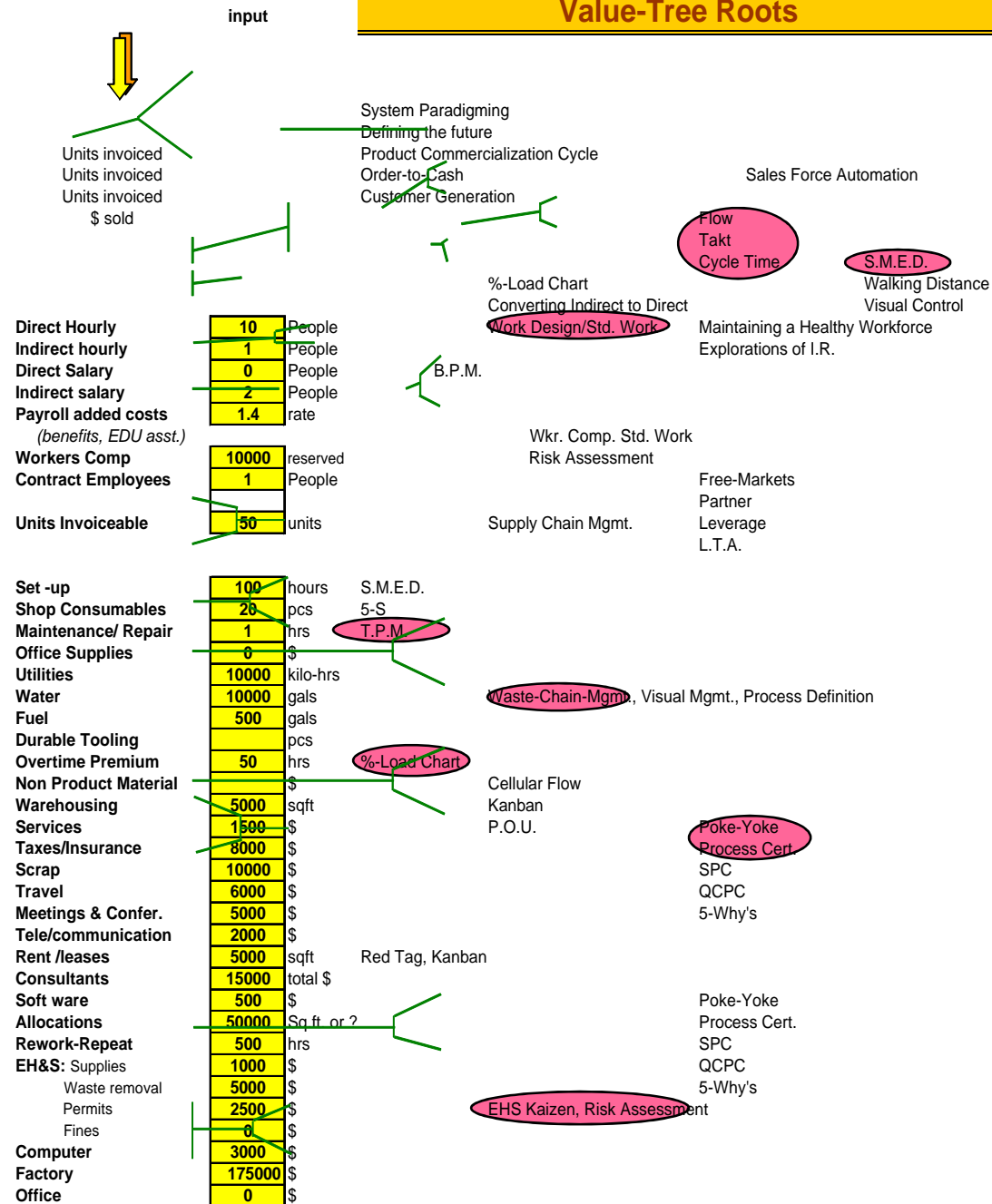
What is the Value Tree?

- Financial model of the business on one page
 - Visually oriented
 - Interactive
 - Easily understood by people
- Financial tool for developing business context
 - Interrelationships of various dollar flows
 - Drivers of business decisions
- Financial “range-finder”
 - Target identification
 - Target selection
- Financial-world de-mystifier
- Financial guidepost helping answer the essence question...“Is the institution increasing its value (how much its worth) or destroying its value?”

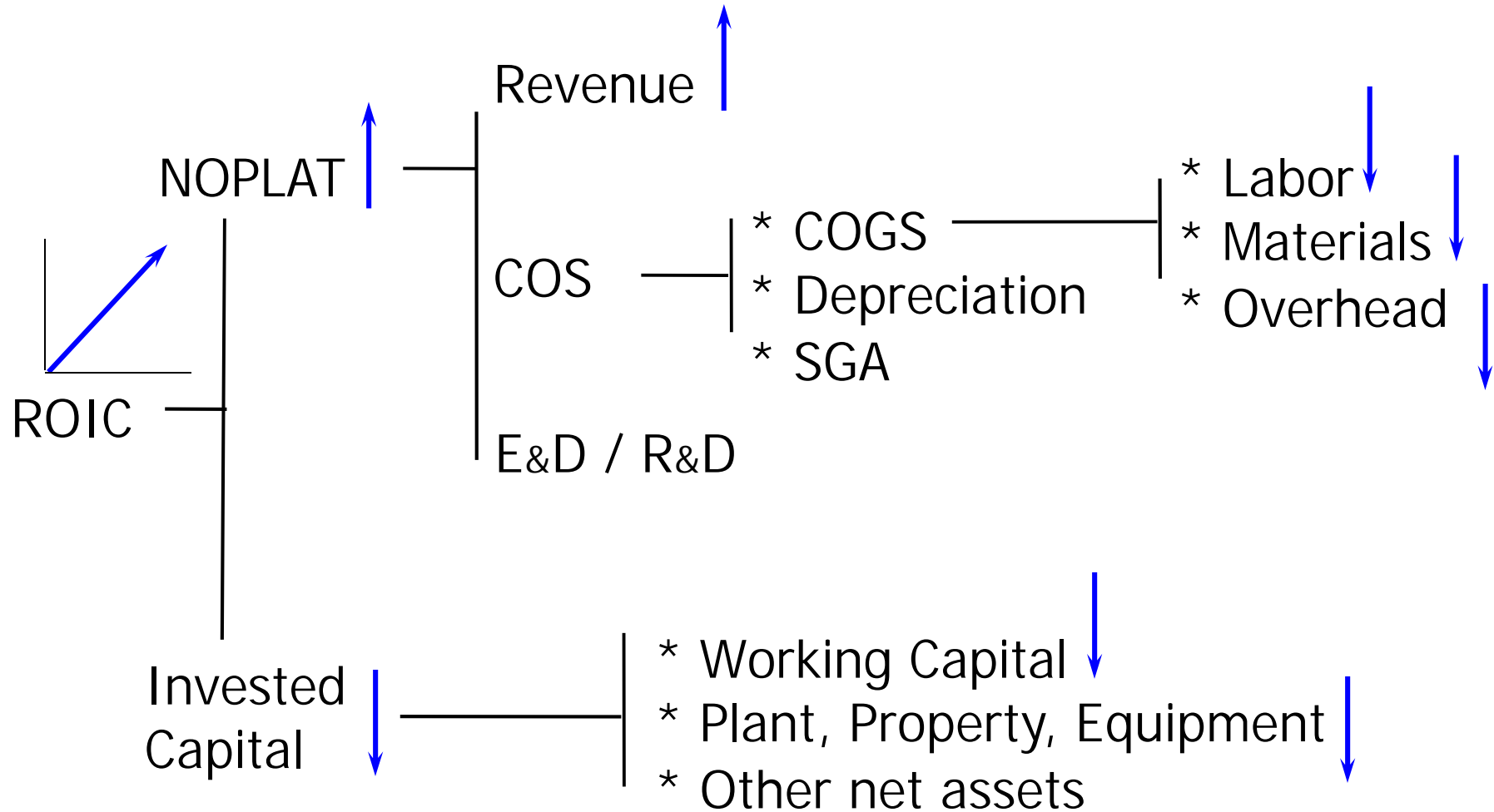
The Value Tree Exercise



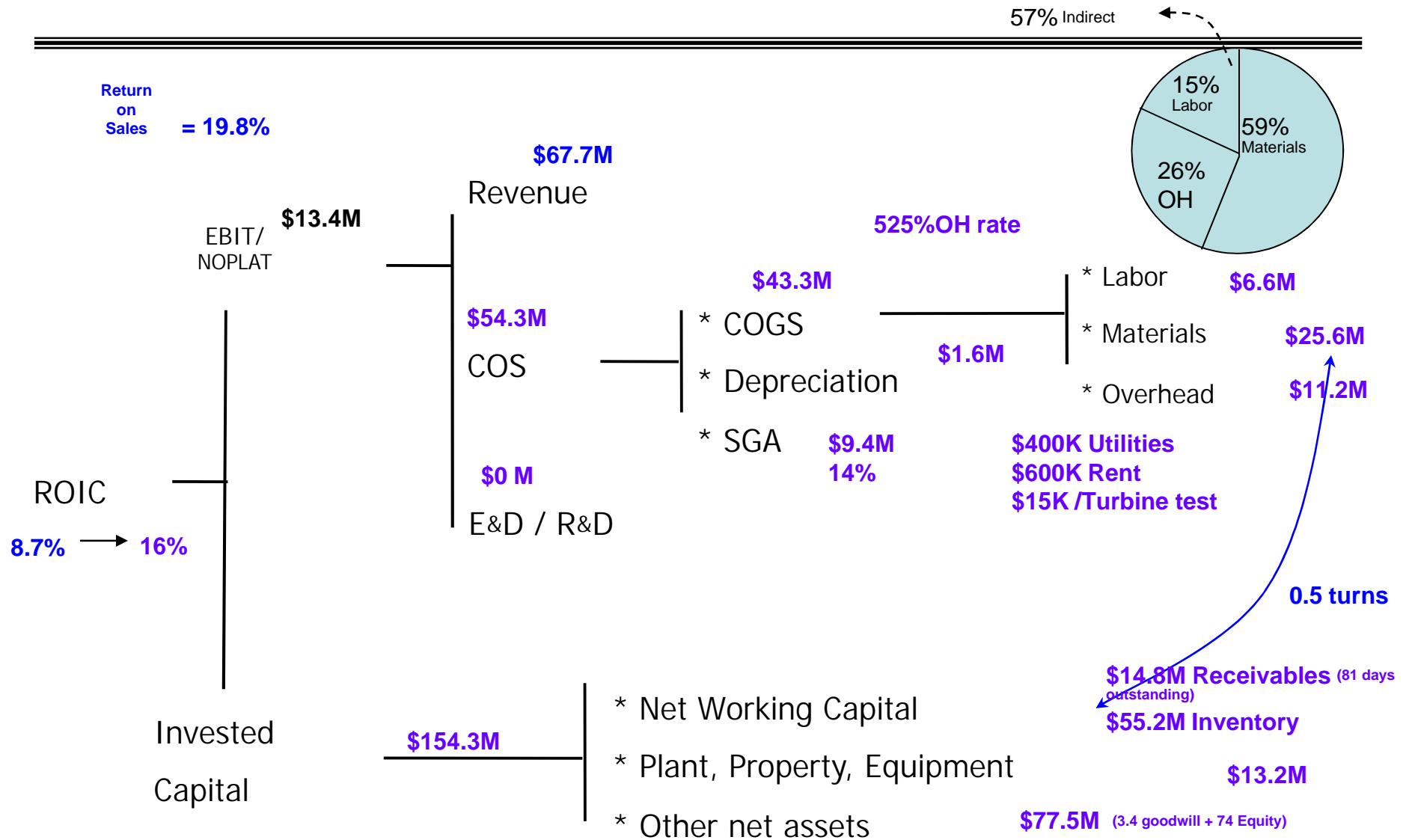
Value-Tree Roots



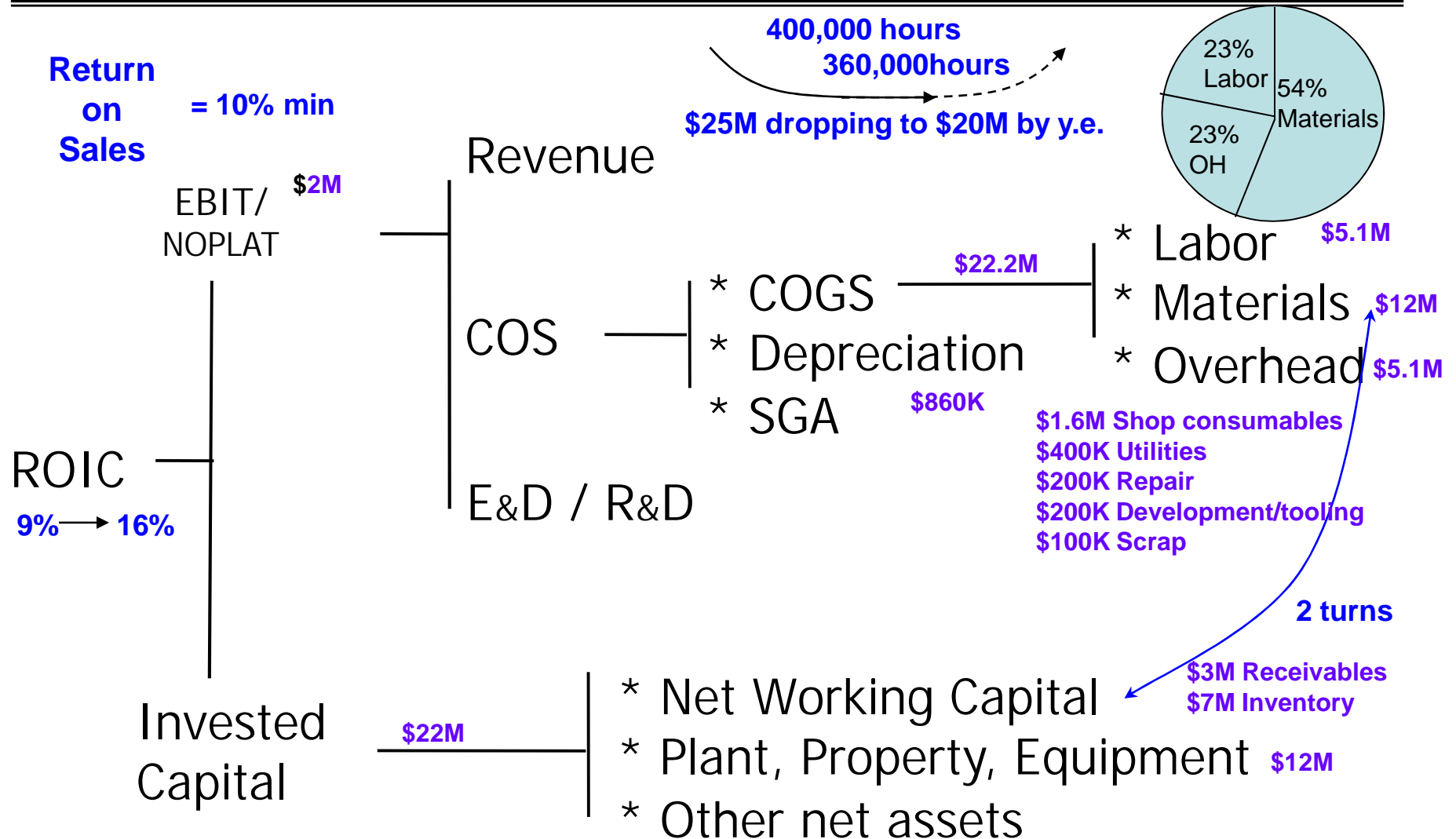
The Value Tree Exercise



The Value Tree Summary

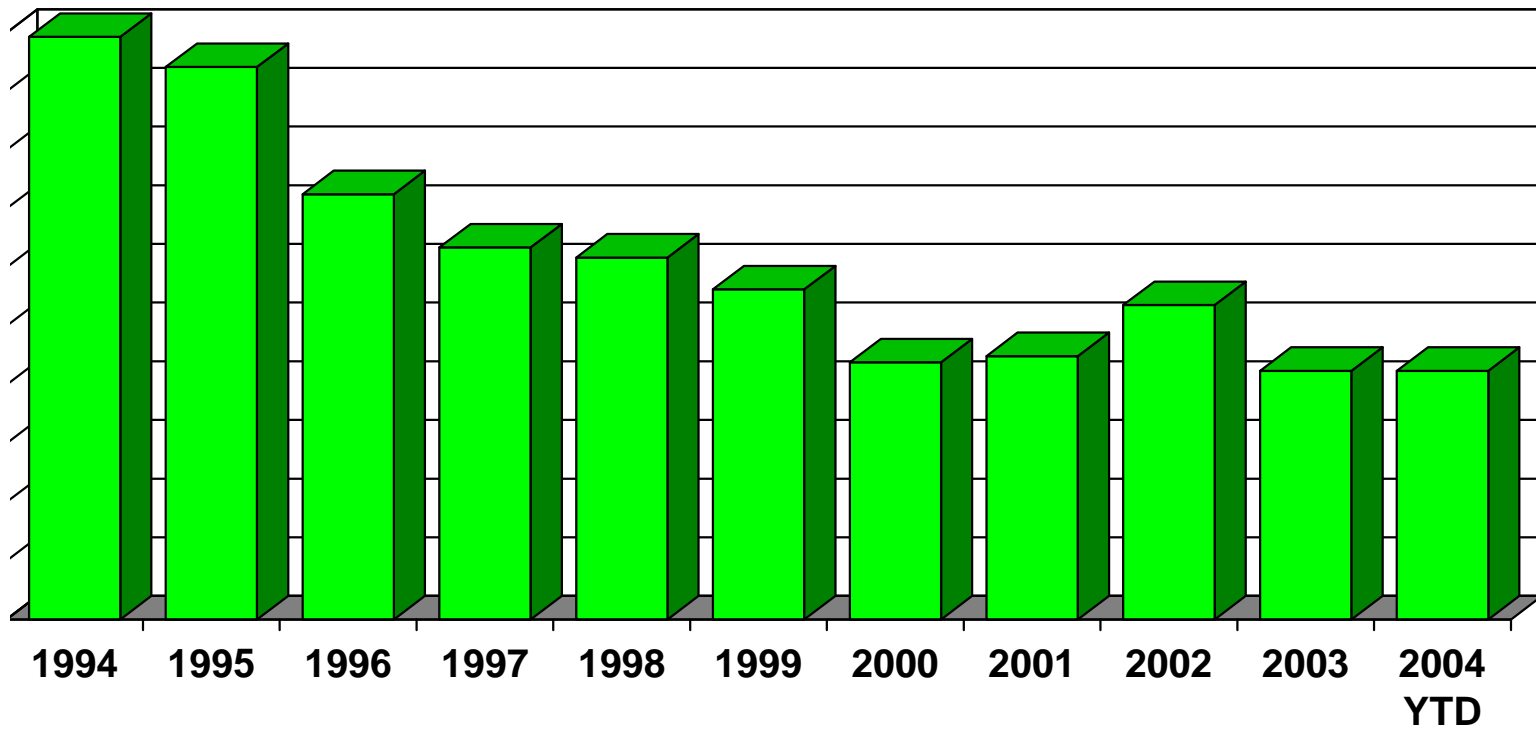


The Value Tree Summary



1994 – 2004 YTD (Sept.) Cost Trend - Cost Per Hour

2003 Stds.



Op. Exp. (M)

Del. Hrs. (000's) 724

759

1,025

1,235

1,167

1,066

978

956

916

937

790

CPH% from 1994

-

-3.2%

-16.8%

-22.5%

-23.6%

-27.0%

-34.8%

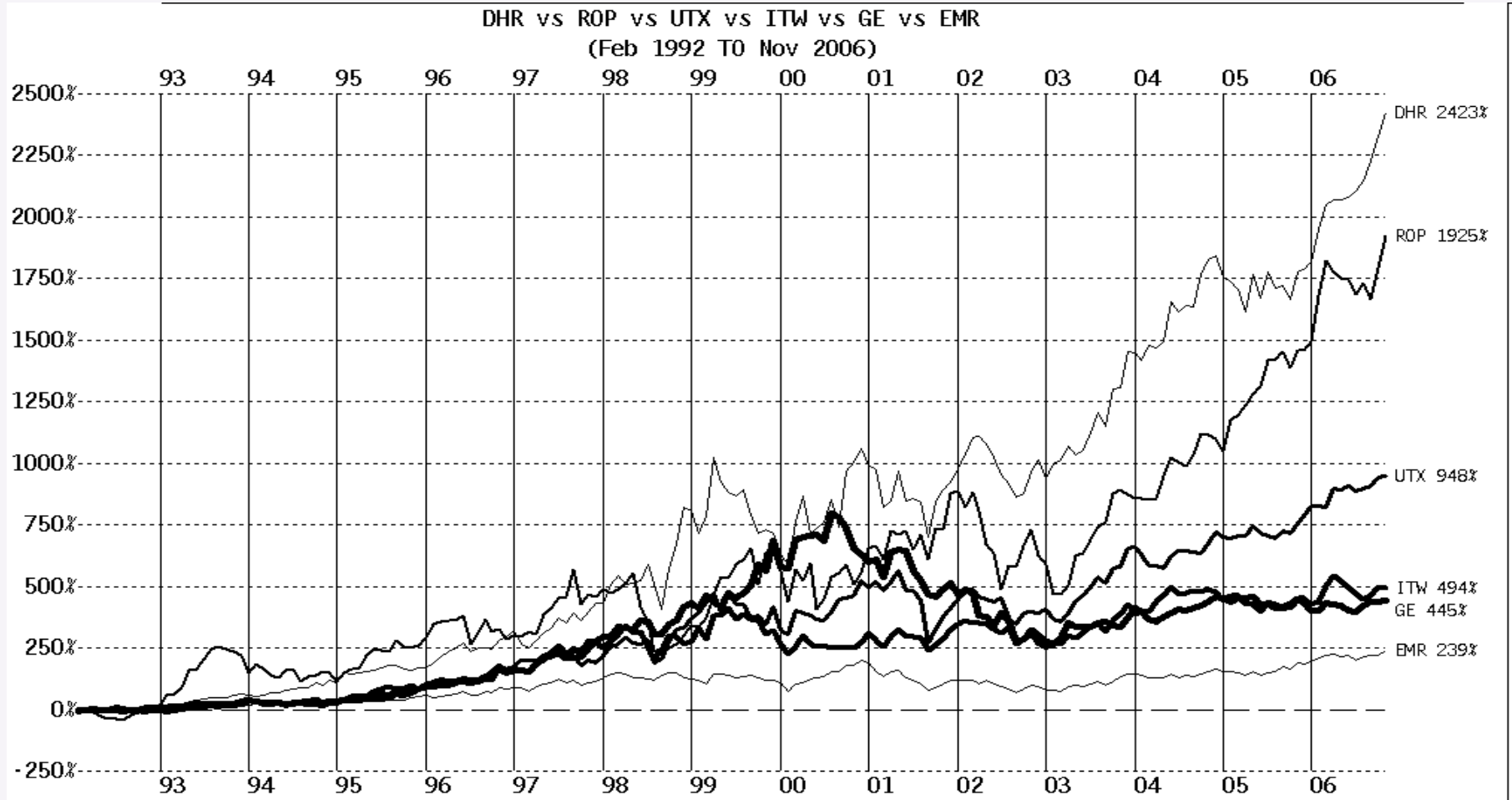
-34.2%

-28.7%

-35.7%

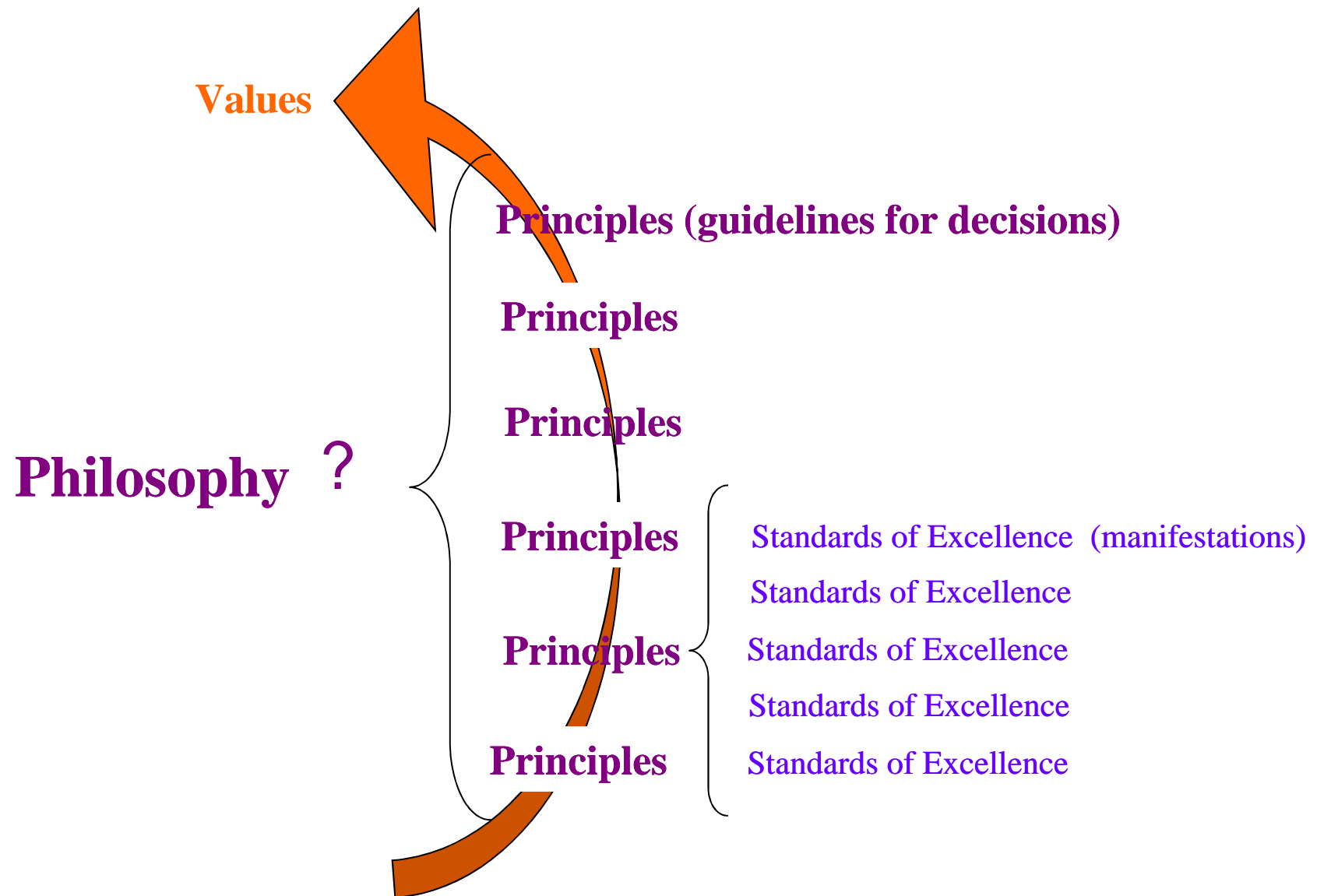
-35.7%

Benchmark Only Against World Class!



Copyright, 2006, Ransom Research, Inc.







Synchronicity

Integrity

Perfection

**Values Driving
Lean Leaders**

Lean

- Takt
- Pull
- Flow

Engineering

Stewardship

Human Spirit

Curiosity

You never know where the journey will lead when you put it all out there.

48CCC 06109 CCC44
052596 026291
PRATT & WHITNEY
PAUL F. PRATT
400 MAIN ST
AMHURST 01005-0111
E. HARTFORD CT 06112

THE WALL STREET JOURNAL

VOL. CCXXVIII NO. 125 ★ ★ ★ INTERNET ACCESS: <http://www.wsj.com>

The Party's Over
Dutch Show Neighbors
Some Ways to Attack
Their Economic Woes

They Hold Down Pay Raises,
Reduce Social Spending,
Foster Entrepreneurship

Labor Market Remains Rigid

By LAWRENCE INGRAMMA
SHIRK REPORTER OF THE WALL STREET JOURNAL
AMSTERDAM — For Wim Langerdorff, a Dutch artist whose works include surrealist paintings, life is imitating art. Faced with rising welfare benefits, the 35-year-old got his first job last year — on a steel-mill loading dock. After that ended, he soon began working part time at the post office, sorting international mail. "You got a big box of letters and take a handful," he explains, demonstrating his technique. "England, Germany, the United States, Greece, Portugal, Russia." It isn't the career he wanted, but his new status as a gainfully employed member of society paints a portrait of a new Netherlands that, surprisingly, appears to be working. "It's the new world order," he says, shrugging. "I may not like what they did, but I understand why they did it."

An Array of Old Problems
As in much of Western Europe, economic policies in Holland were long — and, many counted, justifiably — maligned. Herb Wasson, former assistant secretary of the U.S. Trade Representative's Office, says the Dutch government's economic policy is "one of the most successful in the world." But he adds that the Dutch government's economic policy is "one of the most successful in the world."

What's
Business and Finance

NEW RETAILERS ARE POSTING better-than-expected sales for the holiday shopping season, and most expect only modest single-digit percentage gains. Sales, which seemed so strong just after Thanksgiving, didn't keep that momentum in the days before Christmas. That means stores are likely to offer postholiday discounts to help lift year-end profits.
(Article on Page 3)

CalEnergy claimed control of Britain's Northern Electric after Northern's effort to derail the hostile \$1.3 billion buyout bid fell short, CalEnergy said. It acquired a 50.3% stake in Northern and extended its \$10.31 a share offer for the remaining shares.
(Article on Page 3)

Ford doubled the rebate on its 1997 Taurus to \$1,000 as the race to be the year's top-selling car nears its close. Through November, Taurus sales were 9,700 ahead of Honda's Accord.
(Article on Page 2)

Texasco agreed to sell its last petrochemicals plant to Huntsman for about \$600 million, completing its exit from the chemicals business.
(Article on Page 2)

Dodging Doom
How a Creaky Factory Got Off the Hit List, Won Respect at Last
Pratt & Whitney's Maine Site Ties Pay to Skills, Offers 'Results-Sharing' Bonuses

Survival of a Plant Manager
By JOSEPH B. WHITE
STAFF REPORTER OF THE WALL STREET JOURNAL
NORTH BERRICK, Maine — The old Maine factory is a dinosaur that ought to be shut down, some Pratt & Whitney executives were saying back in 1993. Today the same plant is adding jobs, and the aerospace giant holds it up as a model. What happened?
Maine's largest factory was hauled back from the brink with the help of plant manager Robert Pouchak, a 31-year Pratt veteran who won over his dubious bosses at parent United Technologies Corp. in Hartford, Conn., and saved his own job in the bargain.
The renaissance of this market-for-death nonunion factory, at a time when Pratt was shedding 10,000 jobs, holds lessons for other aging plants. It also illustrates two broader management trends now rippling through the aerospace business and beyond.
Pratt's first smart move was to use financial carrots rather than just sticks to persuade employees to adopt cost-saving new work techniques at the jet-engine parts plant. The second was to borrow from another industry, using lean production methods seen in Japan's auto plants and adopted by Deltron.
For Mr. Pouchak, 54 years old, survival meant learning to take risks. He also had to work with a young pop sent from the headquarters to be his No. 2 man. Against long odds, amid dispiriting waves of layoffs, his 17-year-old plant slashed the time it takes to set up metal-grinding machines. It broadened job descriptions, so today 15

T JOURNAL.
Reserved

1996 EASTERN EDITION
CHITWOOD, MASSACHUSETTS

75

Business Bulletin
A Special Background Report
On Trends in Industry
And Finance

RINGING IN 1997 with room service, revelers cap off a strong year for hotels. The Four Seasons Hotel in Boston charges \$340 to \$360 for New Year's Eve packages, up 10% from last year, and says it is fully booked. The Plaza Hotel in New York, where rooms go for \$325 to \$1,750, has been sold out for New Year's Eve since Dec. 8. And in Beverly Hills, Calif., the Regency Beverly Wilshire Hotel says its New Year's packages, starting at \$850, booked up even faster than last year. Analysts say repeat guests are a big factor, and so are cheap air fares that encourage travel.
The Ritz Carlton in McLean, Va., says 250 of its 300 rooms are booked by a company that has a New Year's Eve bath instead of a Christmas Eve. But manager John Russell adds that the Tuesday holiday cut into bookings the previous weekend. Still, 1996 has been "so good, hotels can concentrate sales efforts" on weaker times and holidays, says Robert Mandelbaum of PPK Consulting, San Francisco.
Concern about drinking and driving also helps hotels since partygoers "must take the elevator home," he adds.
RISKS come with every new year; a few ominous ones are discussed.
In its final commentary for 1996, Merrill Lynch & Co.'s "Weekly Economic & Financial Commentary" lists risks to its prediction that 1997 will be another year of moderate growth and low inflation. Possibilities that could raise inflation include: excessive U.S. growth; higher labor market costs

Dodging Doom
How a Creaky Factory Got Off the Hit List, Won Respect at Last
Pratt & Whitney's Maine Site Ties Pay to Skills, Offers 'Results-Sharing' Bonuses
Survival of a Plant Manager

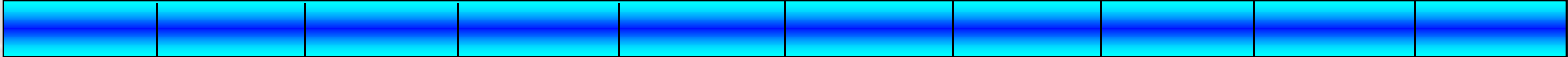
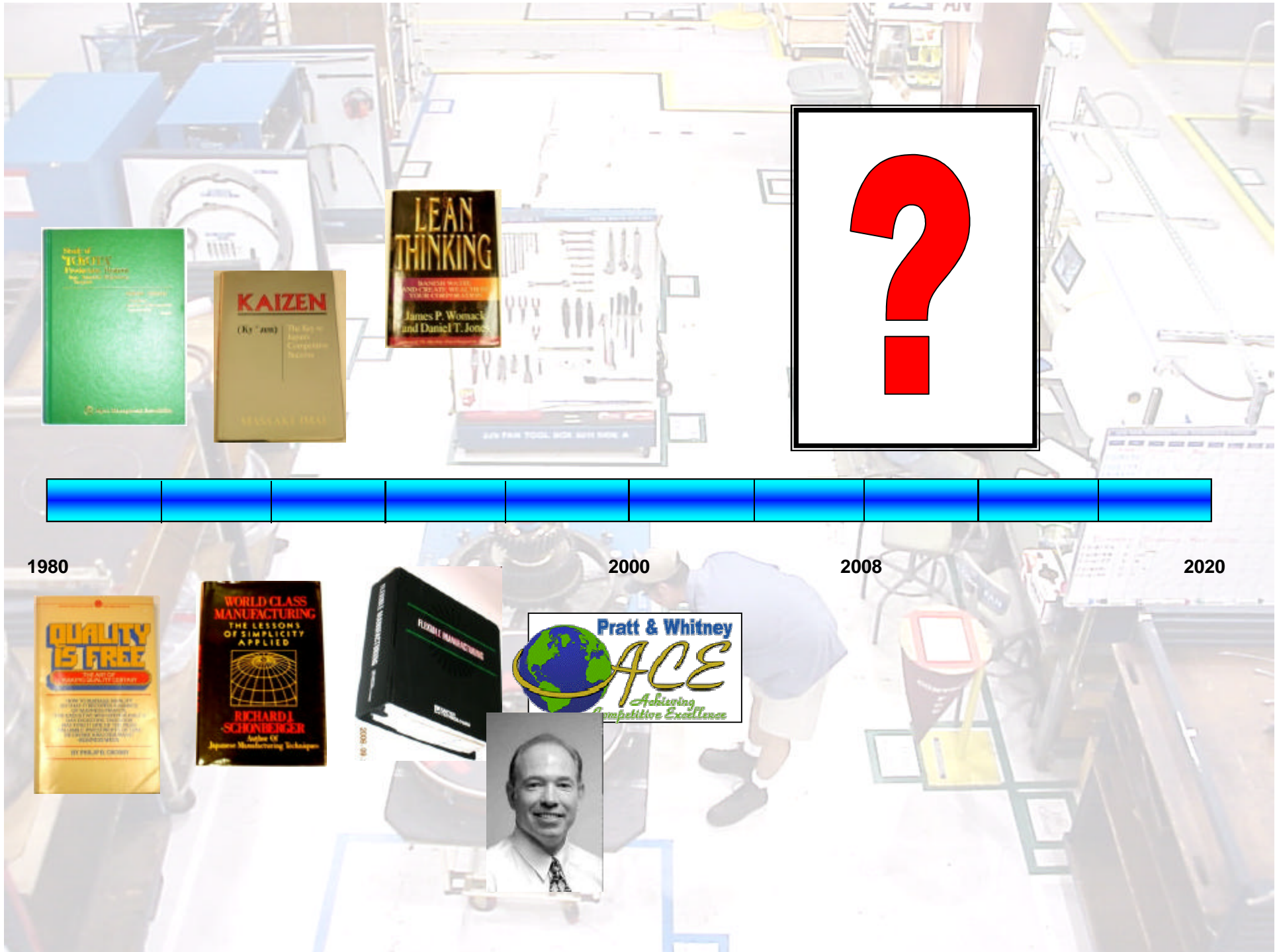
By JOSEPH B. WHITE
STAFF REPORTER OF THE WALL STREET JOURNAL
NORTH BERRICK, Maine — The old Maine factory is a dinosaur that ought to be shut down, some Pratt & Whitney executives were saying back in 1993. Today the same plant is adding jobs, and the aerospace giant holds it up as a model. What happened?
Maine's largest factory was hauled back from the brink with the help of plant manager Robert Pouchak, a 31-year Pratt veteran who won over his dubious bosses at parent United Technologies Corp. in Hartford, Conn., and saved his own job in the bargain.
The renaissance of this market-for-death nonunion factory, at a time when Pratt was shedding 10,000 jobs, holds lessons for other aging plants. It also illustrates two broader management trends now rippling through the aerospace business and beyond.
Pratt's first smart move was to use financial carrots rather than just sticks to persuade employees to adopt cost-saving new work techniques at the jet-engine parts plant. The second was to borrow from another industry, using lean production methods seen in Japan's auto plants and adopted by Deltron.
For Mr. Pouchak, 54 years old, survival meant learning to take risks. He also had to work with a young pop sent from the headquarters to be his No. 2 man. Against long odds, amid dispiriting waves of layoffs, his 17-year-old plant slashed the time it takes to set up metal-grinding machines. It broadened job descriptions, so today 15

Success created by applying world-class concepts in a 1,700 person, \$350M aero-business.

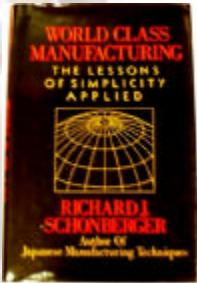
Cost per hour down 38%

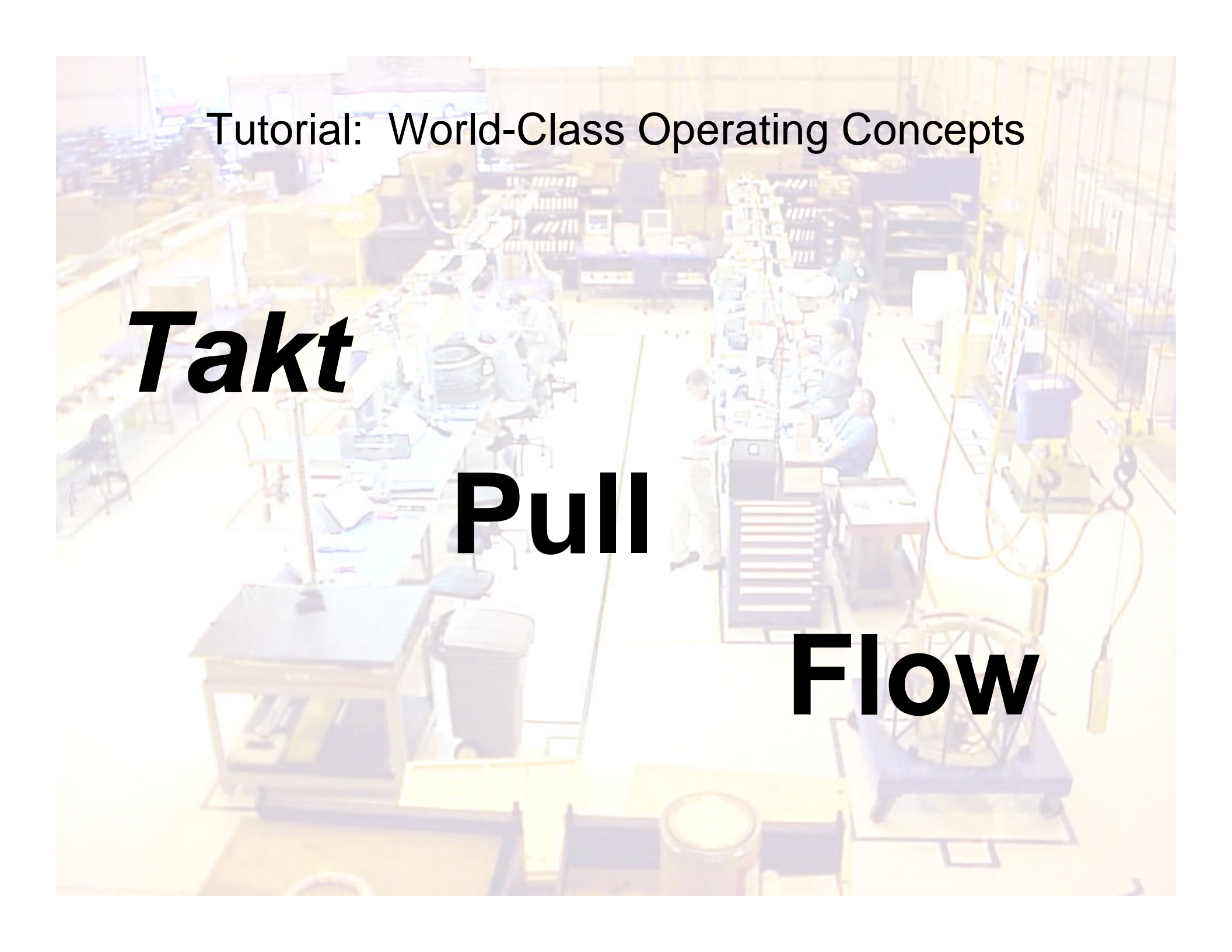
Productivity up 51%

Indirect labor down 62%



1980 2000 2008 2020





Tutorial: World-Class Operating Concepts

Takt

Pull

Flow



Tutorial: Flow

Assignment #1

Describe

Spaghetti vs. co-located

- **Begin Kaizen** -

Mapping exercise

- 1 person walks the flow and gathers symbols
 - Table group creates the spaghetti chart
- Sequence the symbols on your table for a picture of flow; this is your flow map

Match cycle-times to flow map for graphical representation of flow...gray side up

Tutorial: Takt Time

Assignment #2

Define

Available Time , Customer Demand

- Base on 1-shift operation (8 hours)
- 480 cars per day, historical data

Auto emissions takt time: 1min /car

Construct a %-loading chart

Tutorial: Pull

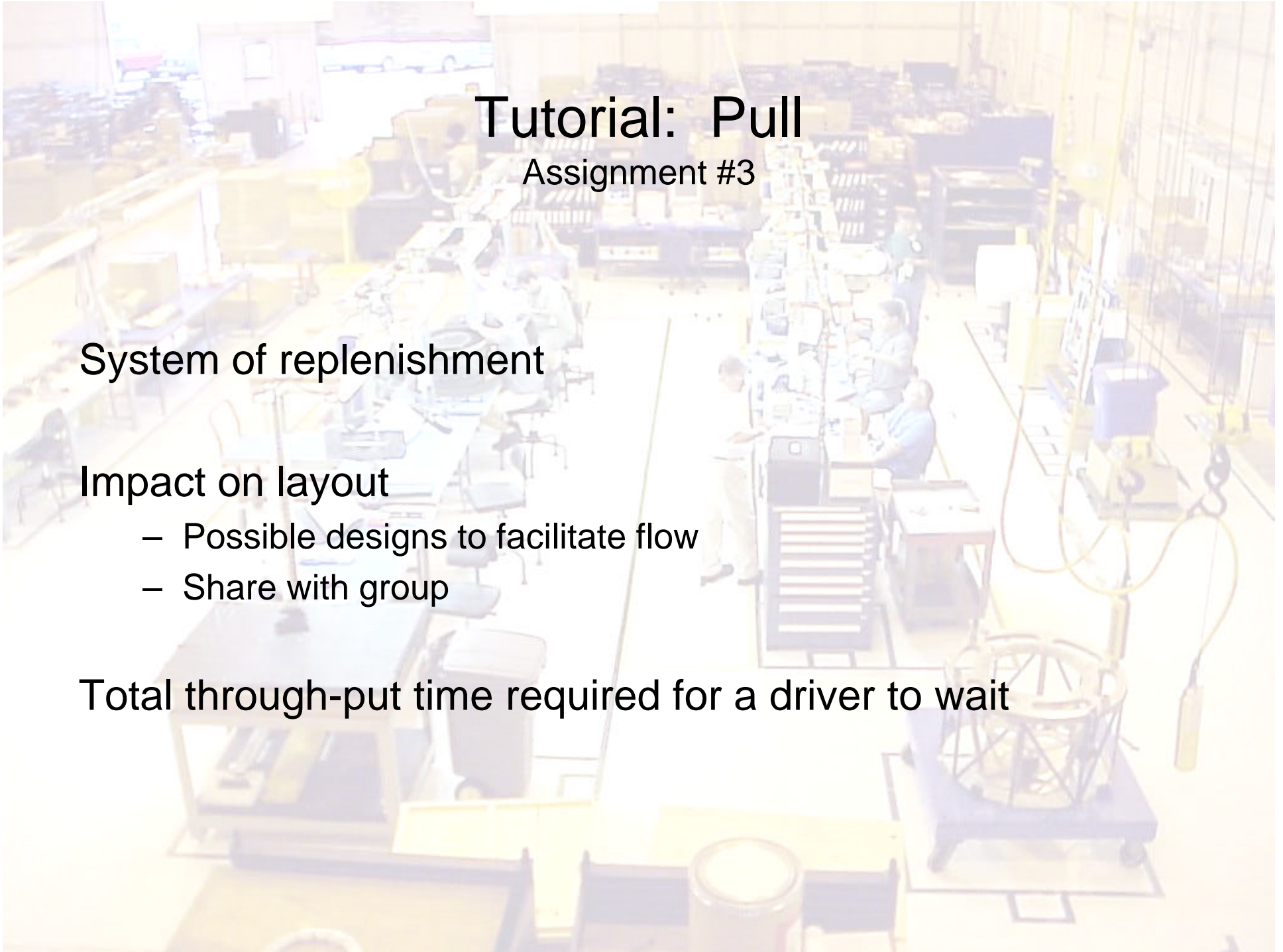
Assignment #3

System of replenishment

Impact on layout

- Possible designs to facilitate flow
- Share with group

Total through-put time required for a driver to wait



Tutorial: Work Design

Assignment #4

Process for defining the interaction between a person and the material flow

Current job descriptions

- Data entry
- Greet-it and Beat-it
- Inspector
- Tester
- Tester Assistant

Color code the %-Loading chart for a current picture of staffing implications (pivotal picture)