



# Improving shipyard productivity

## People + Technology & Crosscut Integration

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# Agenda

- Why and what Crosscut Initiatives
- People add value.
  - A better workforce system?
- What Workforce support American shipyards need 2007-2013
- 10 minutes: Discussion with ECB and DPEOs



Make sure we don't overload our ass!

# What do you worry about?

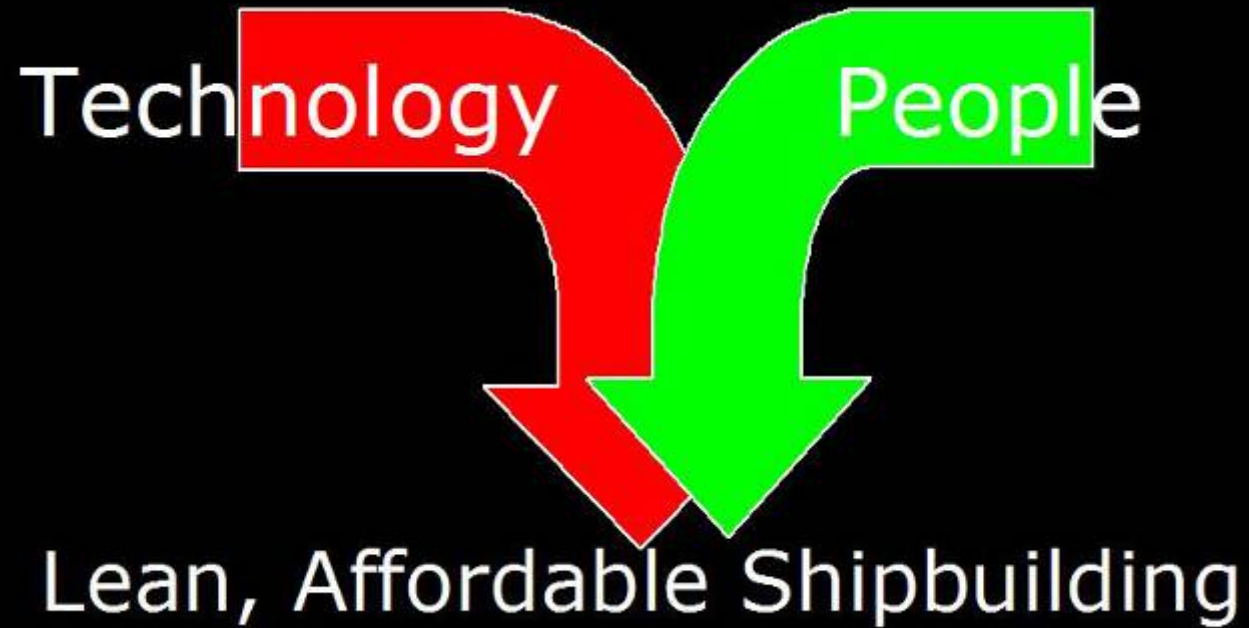
- Labor cost and ship affordability
- Getting the best ROI from investment
- Managing a changing workforce
- Sustaining business in an era of government and commercial budget and regulatory uncertainty
- Others?



- Affordability
  - Flexibility
  - Interoperability
  - Sustainability
- Business Needs



# Central Assumption



We can align our shipyard technology, processes, and our people

- Best technology we can buy
- Experienced, competent workforce
- Design and manage training infrastructure
- Obtain business performance: safety, quality, and productivity

# Shipyard Systems

Engineering and  
business math = Hard  
data

Precise measurements

Predictable performance

Knowable ROI

Maintainable

Can fix when broken

Business  
Systems  
---  
Information  
Financial  
Regulatory

Production  
Systems  
---  
Facilities  
Equipment  
Tooling

Workforce  
Systems  
---  
Management  
Supervision  
Technicians

Social sciences =  
learning, groups,  
motivation,  
leadership

Less precise  
measurements

Less predictable  
performance

Fuzzy ROI

No owner's manual  
or 800 number for  
help

# People Add Value in the Workplace

## What do customers want?

Competent managers, supervisors and technicians add value.

1. Design for production
2. Material handling (including information)
3. Machine work (including computers),
4. Hand work know-how & craftsmanship



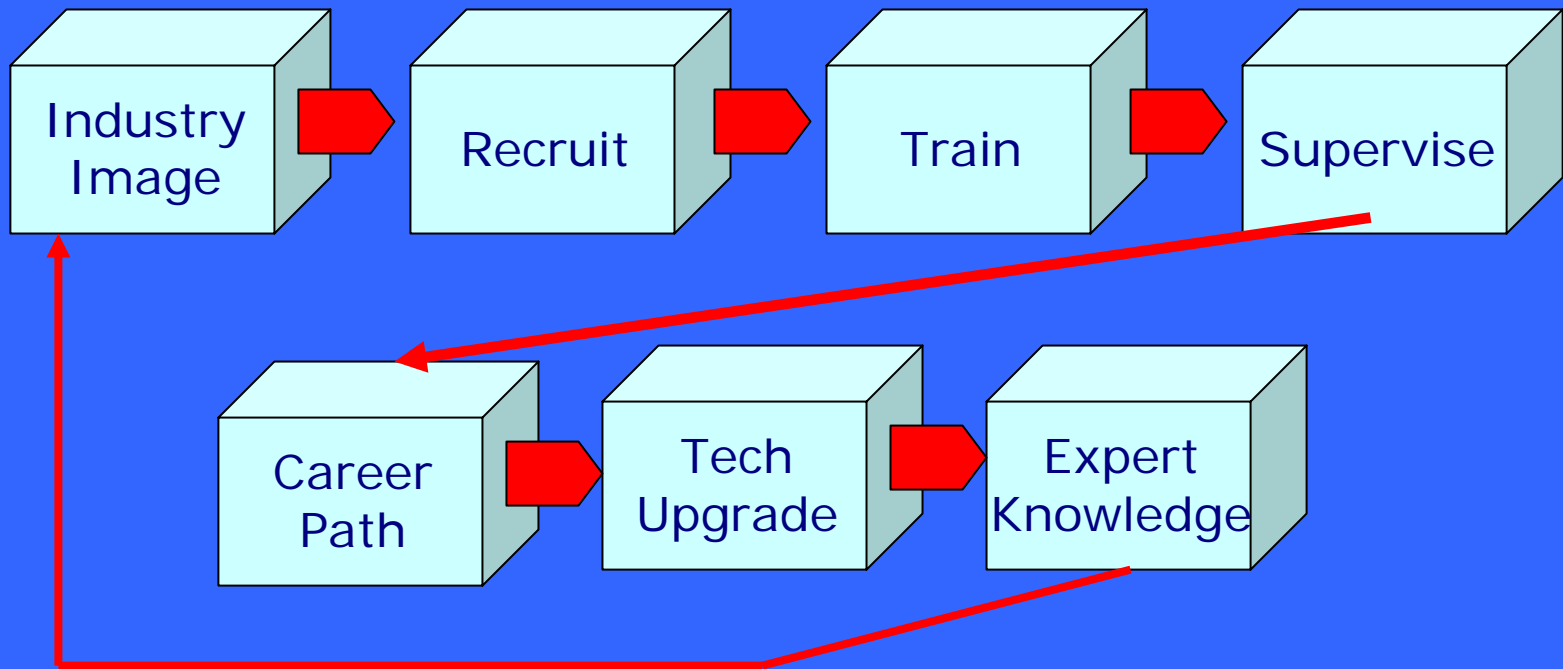
Do your people have what they need for safe, reliable, productive work?

# Workforce System

Companion to business and production systems



Organization Culture: quality, speed, cost delivered by competent people



HR Management: compliance with regulation, insurance and business policy

# Industry Image - External

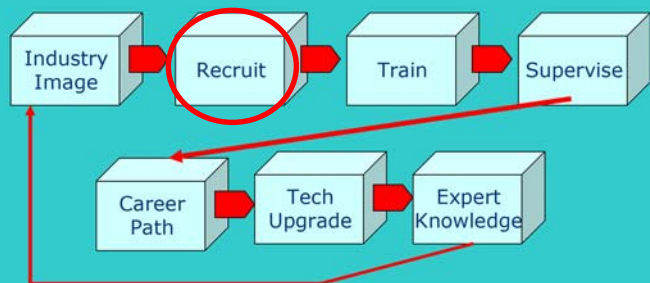
- Most US citizens unaware
- Industry is small
  - 100,000 shipyard jobs
  - 150,000 direct suppliers and subs
- Contracts are cyclic so layoffs likely
- Work is perceived hard and dangerous
- 50% of senior shipyard leaders advise their children to find work elsewhere

## Google Search

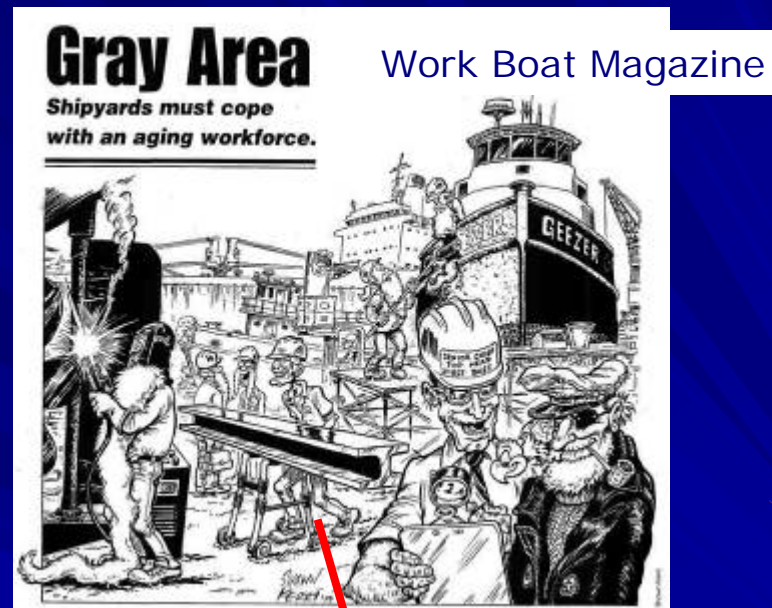
- “shipbuilding careers” 32 hits
- “shipyard careers” 75 hits
- “automotive careers” 48,800 hits
- “manufacturing careers” 52,900
- “construction careers” 75,500

Is this OK?

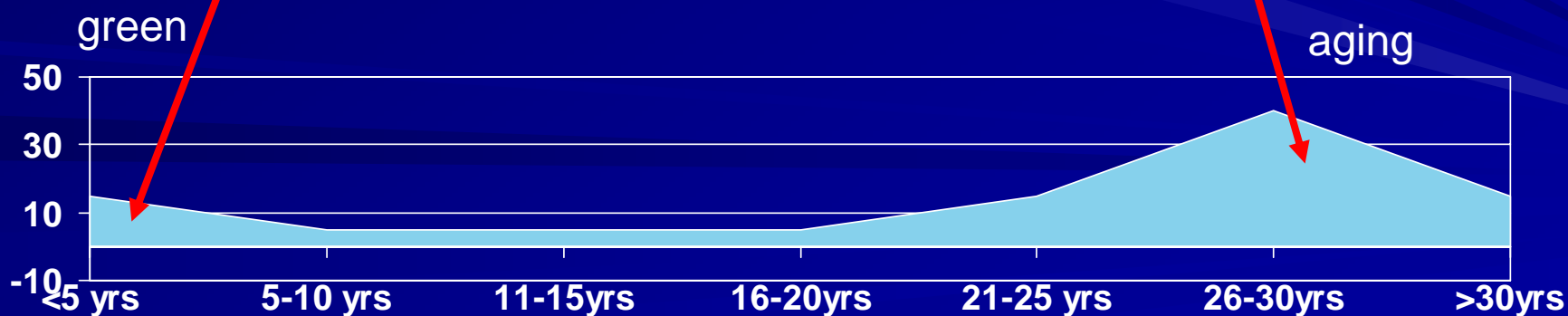




# Who will build and repair our ships?



Percent of Workforce-Experience Distribution

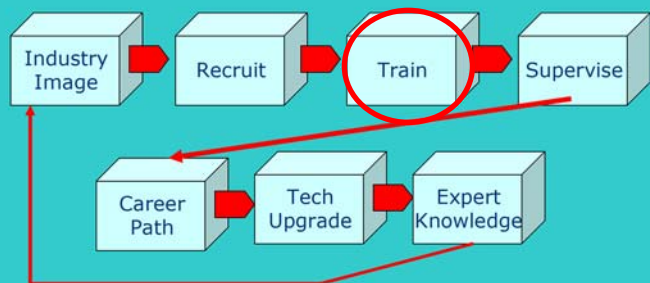




# 2007 Recruiting Initiatives

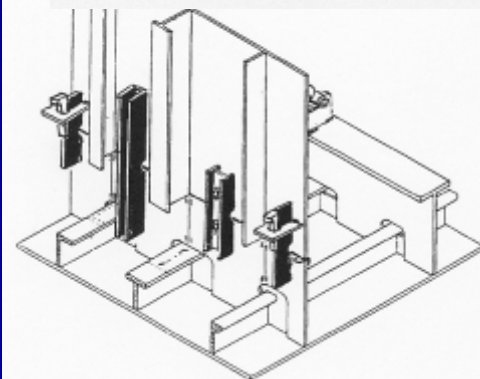
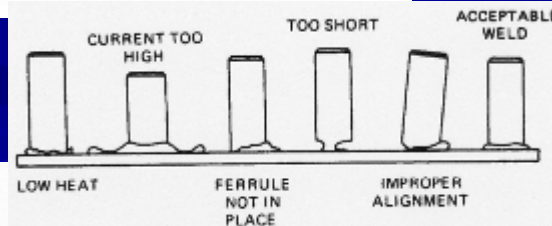
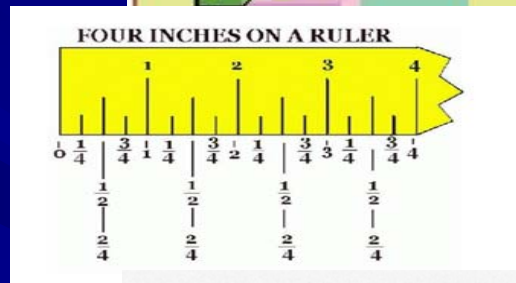
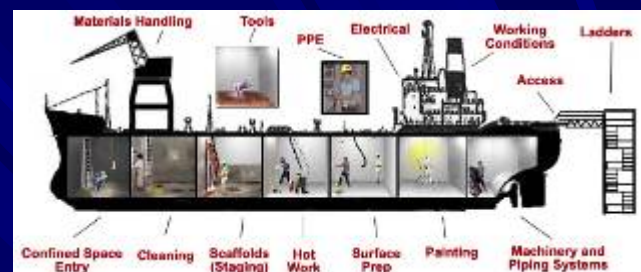
- Shipbuilding and Repair Industry Career Day – middle school (ASE Project)
- Shipyard-College Collaboration – job seekers & changers (Panel Project)
- Regional Consortia – better word of mouth
- Media-marketing R&D – social networks and industry friends (Panel Project)





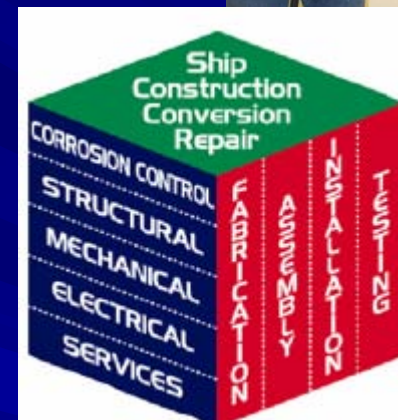
# Train

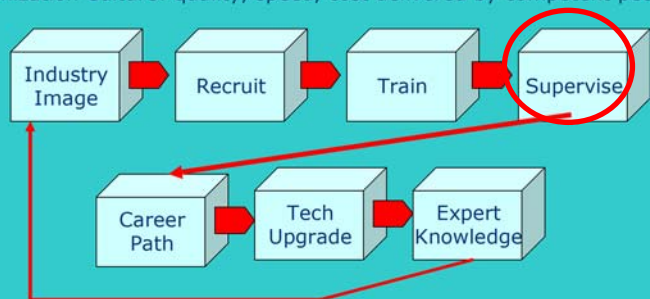
- Theory and principles – public education connection
- Application to ships – skill standards
- Instruction design to integrate content, presentation and performance
- Learning delivery in groups and for individuals
- Standardized modules and learning objects for sharing, re-use
- Apprentice methods, structured on-the-job learning, coaching by mentors



# Accelerating technical, team & social learning

- 2006-2007 – Shipyard-college liaison
- 2007-2008 Methods to break down jobs then design and deliver learning faster and better
- Trend: Blend of classroom, self-study, learning labs, and structured on-the-job learning





# Supervise

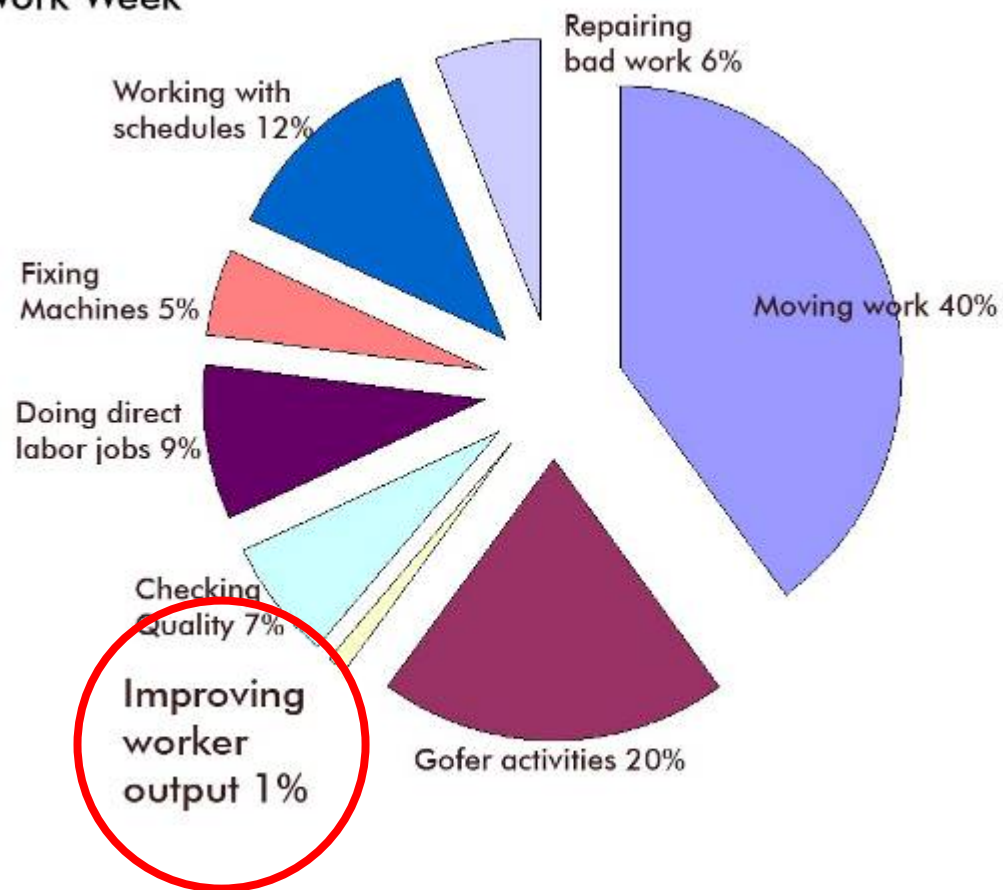
## Direct inputs

- People
- Material & information handling
- Machine & computer aided work
- Manual craftsmanship

## To get outputs:

- Delivery speed
- Quality
- Cost

## Average Supervisor Work Week



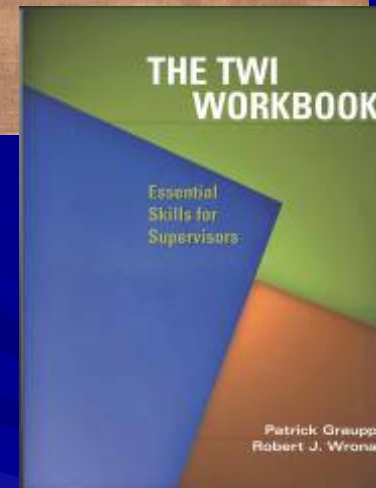
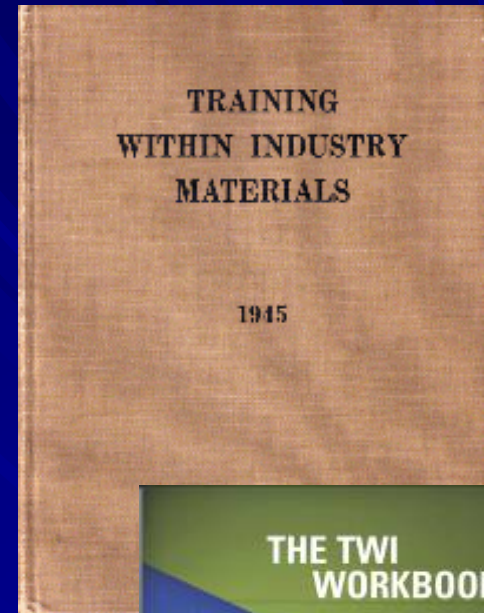
# History: Training Within Industry Increased Business Performance

Three KISS principle programs:

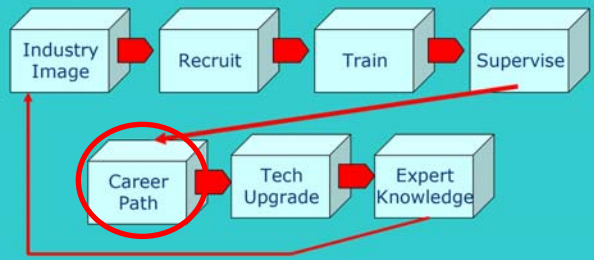
- Teaching supervisors how to do on-the-job instruction
- Teaching how to break down jobs and improve the methods
- Teaching new supervisors Coaching Moments

Of the 600 client companies monitored throughout the war:

- |      |                                      |
|------|--------------------------------------|
| 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%  |

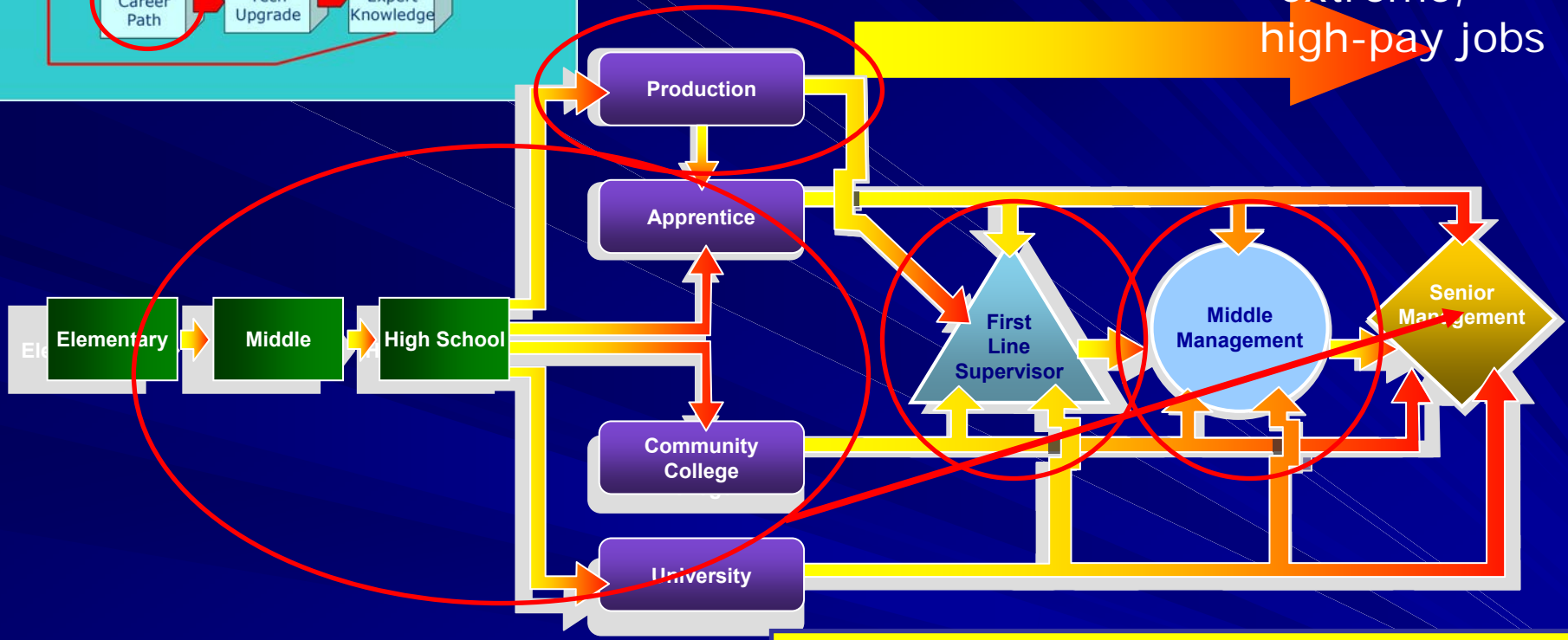


Organization Culture: quality, speed, cost delivered by competent people



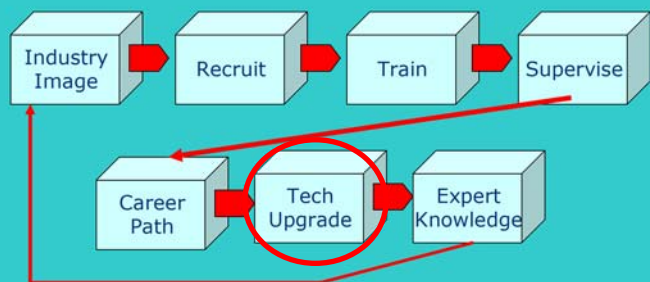
# Career Paths

Industry Image  
Interesting,  
"extreme,"  
high-pay jobs



**Career Pipelines +  
Pre-Employment Assessments +  
Training  
Improved Applicant Quality and Volume**

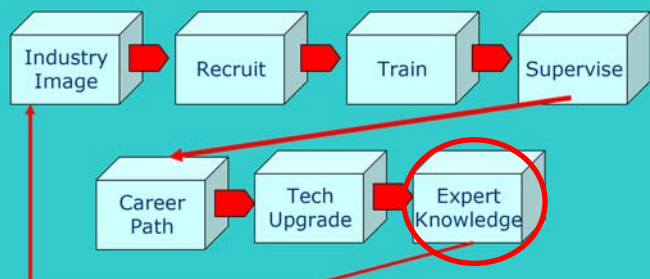
How can you help develop a production and professional career path for our industry and help retain better?



# Technology Upgrades

- Teaching the “old dogs” some new tricks
- Simplified work drawings serve different languages and literacy.
- Overcoming fears and “status-quo” thinking
- Integrating ergonomics
- Changing old, inflexible work rules
- Question old assumptions
- Changing habits
- Organize and manage for automation





# Knowledge Transfer



Sustain and build the knowledge base



## Navy SBIR Topic 05-161

- capture expert knowledge from our seniors
- codify and store the knowledge
- facilitate knowledge recall for use in training of individuals and work teams



# Your comments & questions

- People add value in the workplace
- Workforce system – partner with production and business process systems
- Workforce functions in envelope of organization culture & HR management
  - Industry image – internal & external
  - Recruit
  - Train
  - Supervise
  - Career path – retain
  - Tech upgrade
  - Expert knowledge feedback
- Align technical-process systems with human-social to achieve lean production and affordability

