

***Achieving Superior Results through Project Management Excellence Analysis
Area of Focus: Aerospace and Defense Projects***



Please Mind the Gap

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AGENDA

- **Background**
- **Current solutions**
- **Limitations**
- **The next step**
- **Impacts**
- **Resolutions**

A GAP

- **DEFINITION:**

- An opening in a solid structure or surface;
- A space between objects or points; an aperture;
- A break in a line of defense;
- An interruption of continuity;
- A conspicuous difference or imbalance;
- A problematic situation resulting from such a disparity

Current workforce gap

- **Generations**
- **Knowledge**
 - **Technologies**
 - **Business processes**
- **Responsibilities**
 - **Current leaders**
 - **College graduates**

Why be concerned?

- **External Factors:**
 - **Impact of baby boom workforce**
 - **Decrease in engineering degrees**
 - **Dot-com boom and bust**
 - **Lack of responsibility and knowledge transfer**

What impacts does this gap have?

- **Two distinct working styles**
 - **Shift in responsibilities**
 - **Transfer knowledge and experience**
 - **Increased international dependency**
- **Recovery time**
- **Industry consequences**

“If present degree trends, retirement behavior, and international migration patterns persist, ‘science and engineering’ workforce growth will slow considerably, potentially affecting the relative technological position of the U.S. economy.”

National Science Board – Science and Engineering Indicators 2004

The Trends

IN GENERAL:

- **Oldest of baby boom generation reaches age 65 in 2011**
 - **2000-2040 Americans 65+ doubles**
 - **Age 25-54 bracket only increases by 12%**

INDUSTRY:

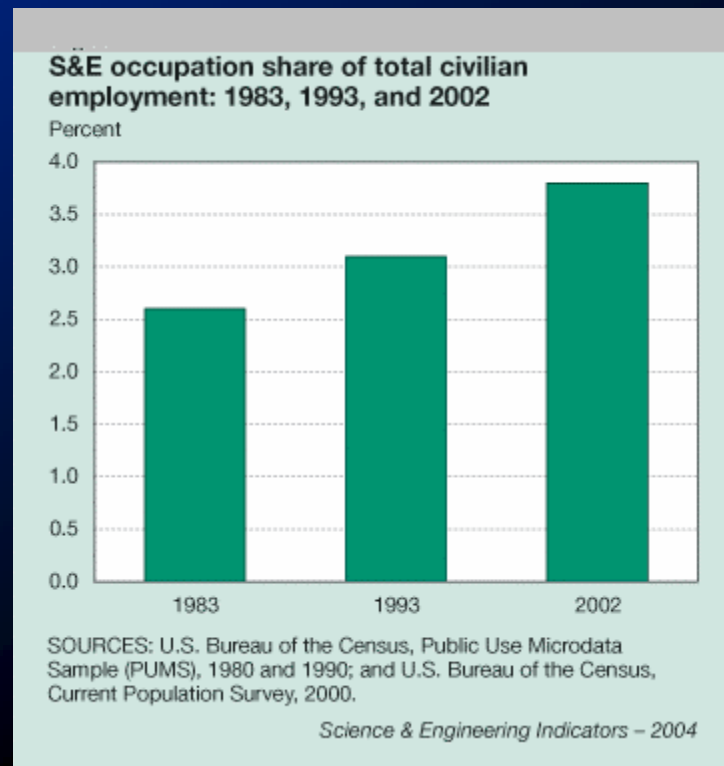
- **25% of our scientists and engineers will reach retirement age by 2010.**
- **Decrease science and technology vs. increase in business and entrepreneur degrees**

INTERNATIONAL:

- **US science and engineering degrees decrease**
- **India and China science and engineering degrees increase**

Some Statistics

- **>50% of America's economic growth is from technology and engineering sector**
- **S&E-degreed worker retirements increase**



- **60% of jobs—20% qualified workforce**
- **Aging workers vs. eligible workers**

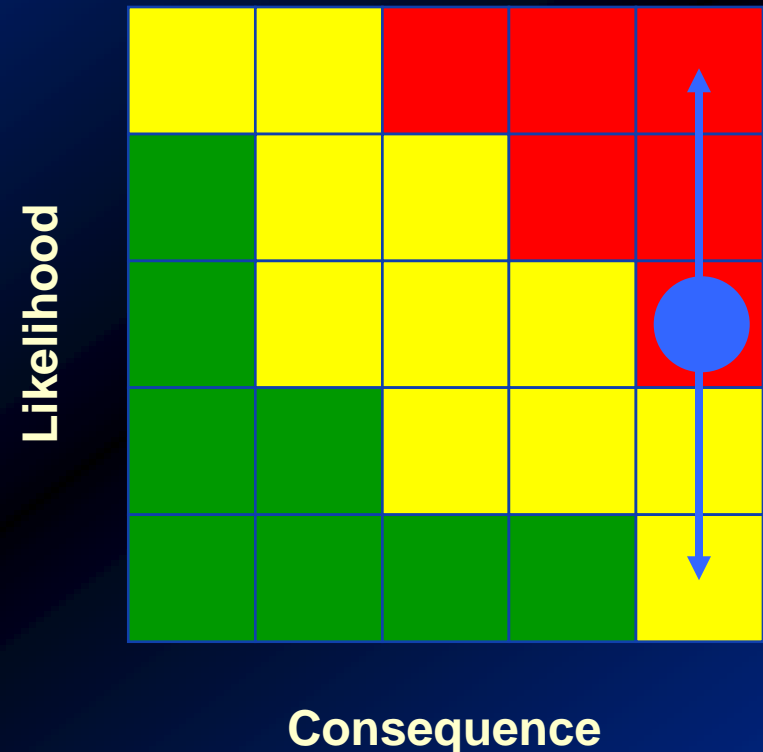
The Risk

PROBLEM:

- Increasing S&E demand
- Decreasing workforce

RISK:

- IF our young leaders are not adequately prepared;
- THEN the industry will suffer:
 - poor management
 - inexperience
 - technical deficiencies



LIKELIHOOD: In our control

CONSEQUENCES: Predictable

CURRENT SOLUTIONS

- **Increasing diversity**
- **Leadership development programs**
- **Mentor/mentee programs**
- **Unified goals**
- **Influencing the future**
- **Risk management**

Diversity

Two Conflicting Perspectives

Era of Limits

- **Linear**
- **Maps**
- **Mechanics**
- **Command, order, predict**
- **Experience**
- **Conventional warfare**
- **Specialist**

- **Making a living**

Era of Options

- **Non-linear**
- **Compasses**
- **Living systems**
- **Align, create, empower**
- **Beginner's mind**
- **Terrorism, cyberwarfare**
- **Deep generalist**

- **Making a difference**
- **Making History**

Diversity in Action

What works:

- Active inclusion
- Awareness training

The next step:

- Finding common ground
 - Both eras—successful leaders
 - Avid and constant learners
 - Transcending limits
- From common ground to common goals

Successful Diversity Programs

Proven effective:

- **AT&T - company-wide focus on diversity**
 - Decreased employee turnover from 22 to 16 percent
 - Resulted in a \$20 million saving
 - Substantially improved employee satisfaction
- **Lockheed Martin Executive Diversity Council**
 - President and CEO chairs
 - Supports 33 local diversity councils
 - *Illustrates sustained commitment at every level of the organization.*

Example

Bayer

- All U.S. executive vice presidents have *business targets for diversity*
- Create annual action plans for achieving those targets.
- About 70 percent of their *bonuses depend* on meeting these and other company objectives.
- Policy helped it win a 2002 Catalyst Award .
- Exemplifies the workplace design principle of *measurable accountability*.
 - Establishing Accountability
 - Including Diversity
 - Performance Measurement and Incentives

Making the Transition

What works:

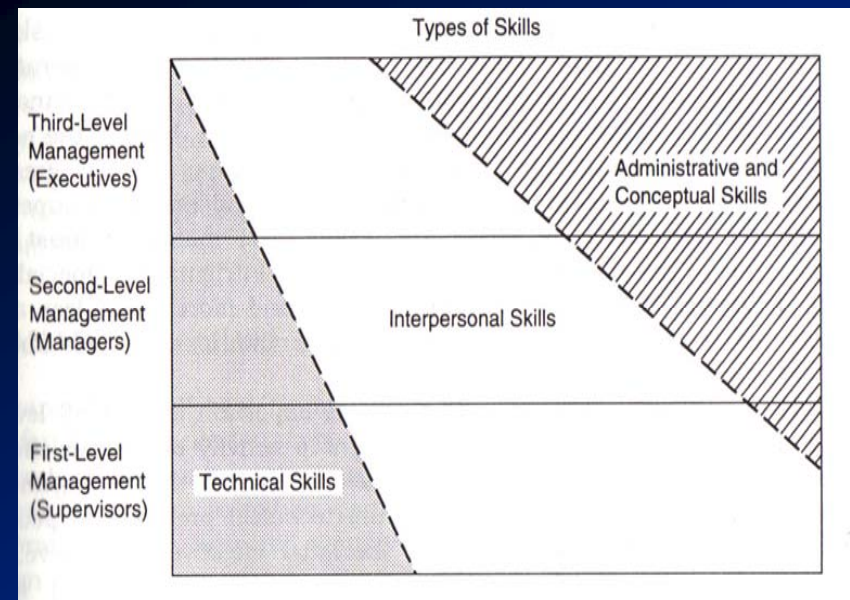
- Leadership development programs
- New technical track

Limitations:

- Using technical competence as a single criterion
- Misjudgment of motivation

The next step:

- Using behavior vs. attributes
- Be aware of transition of skill mix



Developing Leadership Development Programs

What works:

- Accelerated growth and exposure
- Lots of training

Limitations:

- Philosophical differences between management levels
- Too many consultants
- Excessive jargon
- “Trend of the Week” image

The next step:

- More interactive learning

Interactive Learning Programs

“Managing is a skill and the only way to acquire this skill is by *practicing it.*”

“Management concepts, theories and principles are learnable in an academic setting, but managerial practices are not unless the learner is *permitted to put the learning into action.*”

Management Internships

Mentor/Mentee Relationships

What works:

- **Developing relationships between upper and lower levels**
 - **Communication**
 - **Trust—proven ability**

Limitations:

- **Philosophical differences between management levels**
- **“Check the box” attitude**

Management Internships

Mentor/Mentee Relationships

The next step:

- “Hands-on” opportunities
- Early project assignments with some management responsibilities and *accountability*
 - Venture teams
 - Rotational assignments
 - Task leader
- Formal program
 - Buy in by all
 - Opportunity to withdraw
 - Nurturing environment
- “Lessons Learned” Training
 - Multi-level Round-Tables
 - Functionally relevant

Mentee Responsibilities

- **Continue technical education**
- **Gather and assess information to determine if they want managerial or technical track**
- **Develop leadership skills outside of work**
- **Ask for stretch assignments**
- **Assess strengths and weaknesses, likes and dislikes: don't accept a position which draws significantly on your weaknesses.**

Out of the Box Example

Procter & Gamble

- Reverses the usual senior-to-junior mentoring relationship
- Mid-level women counsel senior-level men on the challenges facing women
- Applied by situation

Reward Leadership for Subordinate Performance

The next step:

- **Include direct reports performance as a criterion in performance appraisals**
- **Rewards and incentives**
- **Provide means to do the development**
- **Long range view**

Influencing the Future

Industry Engagement in Education

What works:

- **Involvement through school programs**
- **Action beyond organizational boundaries**
 - Fully engage in the educational supply chain
- **Encourage youth participation in Science and Math**
 - Sponsorship of national, regional, local competitions

The next step:

- ***Actively* promote Science and Engineering as “Cool”**
 - Remove the “nerd” stigma
 - Simple marketing
- **Eliminate differences between corporate and university cultures**

Influencing the Future

Bridging Industry and University

What Works:

- University programs evolving to include multi-functional teamwork
- University internships and cooperative programs

Unfortunate Example:

- Highly renowned Masters Engineering Program
- Teaching “out of date” pyramidal socialization
- Directly conflicts industry efforts to create highly functioning “circular” style teams

The Next Step:

- Engage in university programs to eliminate differences between corporate and university cultures
- Suggestions for industry response
 - Partner with university design classes
 - Provide industry mentors for students - early
 - Influence curriculum – multi-discipline coursework

Active Risk Management

The next step:

- **Put it on paper – Make it real!!!**
- **Add as specific item on company Risk Register**
- **Monitor Specific Mitigation Strategies**
- **Measure against Metrics**

Out of the Box Example

Corporate practices that encourage development

- **3M**
 - **Acceptance of failure**
 - **Enrichment by sharing goals**
 - **Executive champions committed to workforce development**
 - **Open culture for risk taking**
- **Tailor ideals for “riskier” aerospace industry**

Ensuring Philosophical Consistency Between Management Levels

What works:

- Formal two-way communication programs
- Leadership sponsored round-tables

Limitations:

- Out of work environment
- Misunderstanding of expectations

The next step:

- Define reasonable and measurable actions
- Immediate feedback on feasibility

What we say versus what we do

- **Permeate the existing culture with new ideals**
- **Choose the appropriate candidates**
- **Create interactive learning programs**
- **Reward performance and development**
- **Implement formal Risk Management programs**
- **Engage industry in education**

Please mind the Gap...

“The values to which people cling most stubbornly under inappropriate conditions are those values that were previously the source of their greatest triumphs over adversity”

Jared Diamond