

# Developing New Skills Workshop

September 11, 2007

**P S O M A S**

BETTER PEOPLE.  
BETTER SOLUTIONS.  
BETTER RESULTS.



**P S O M A S**

# Construction Market is Huge

- **Annual worldwide construction market approximately \$5 trillion**
  - ✓ 75% in the developed world
- **US construction growing**
  - ✓ 2007 projection: \$1.4 trillion
  - ✓ Growth past 12 years: 7.3% annually
  - ✓ Contribution to U.S. GDP: 8%
- **Huge demand for more workers**
  - ✓ 1 million in the next 6 years
  - ✓ 2.4 million by 2014
  - ✓ Top 10 largest sources of employment growth in U.S.

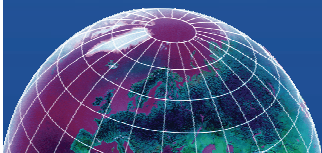


# Shortage of Skilled Workers in U.S.



- **70,000 fewer U.S. master's degreed engineers in 2006**
- **Aging workforce and retiring baby boomers**
  - ✓ 20% of firms losing 40% of top-level talent in next 5 years
- **Declining enrollment in Engineering**
  - ✓ U.S. share of world's bachelor's degrees in engineering down by half

12% in 1991  6% in 2000



# Shortage of Skilled Workers in U.S.

Continued

- **Reduced number of overseas students**
- **Declining number of college student visas**
  - ✓ 20% since 9/11
  - ✓ Could reach 50% reduction by the 2007/2008 academic years

***Talent Shortage Dominates the  
2007 Design Landscape***

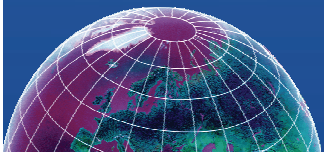
# Offshoring Offers Potential Solution

- **Create relationships with overseas engineering companies**
  - ✓ Competent engineering staff
  - ✓ Firms where their local markets not experiencing the same U.S. constraints
- **Some tasks translate better than others**
  - ✓ Detailed design/analysis, repetitive building designs, CADD, GIS, and information modeling
- **Additional Benefits**
  - ✓ Cost reduction
  - ✓ Schedule compression



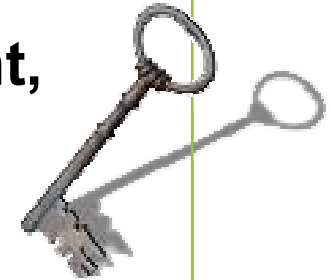
# Large Firms Successfully Offshoring for Many Years

- **Fluor, Bechtel, Parsons, CH2M HILL, MWH and Louis Berger through multiple offshore company-owned offices**
- **Small to medium-size firms now investigating options**
- **Psomas has successfully used offshoring**
  - ✓ GIS in India and China
  - ✓ Civil design in the Philippines and Mexico



# Keys to Successful Offshoring

- **Develop a relationship with a competent, professional offshore partner *or* build your own offshore office**
- **Prepare your U.S. engineers for global team responsibilities**
- **Retrain your existing workforce for shifting demands**
- **Encourage multicultural understanding and communication skills**
- **Insure information security**



# Partnering — An Essential Option



- **Develop stronger skills in partnering**
  - ✓ Clients
  - ✓ Contractors
  - ✓ Engineering companies — *even competitors*
- **Reduces risk**
- **Streamlines the planning and design processes**
- **Adds up to a reduction in total resource commitments**





# Partnering — An Essential Option

Continued

- **Growth in the U.S. design-build market makes it mandatory**
  - ✓ Engineers and contractors must work together to deliver projects
  - ✓ The right construction partner can reduce the stress on engineering resources
- **Large engineering firms have more “partnering” experience from strategic pursuits on large jobs**
- **Partnering is your Friend!**
  - ✓ Reduces pressure on resources
  - ✓ Enhances your ability to win projects



# Innovate to Be More Productive

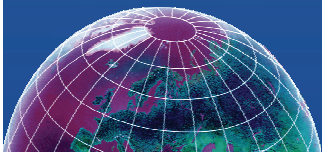


- **Poor record of innovation and productivity**
  - ✓ **Construction industry as a whole**
- **No productivity gains in recent years**
- **Procurement policies don't encourage innovation**
- **Litigious world doesn't encourage innovation**
- **Necessary IT systems do not exist**



# Innovation

- **More attention to the emerging scope of practice that addresses environmental issues associated with sustainability and carbon footprints**
- **Engineering profession needs to take the lead**



# Engineering Profession Taking the Lead

- **Reward innovation**
- **Attain equitable risk sharing with owners, design team members, contractors, and suppliers to foster innovation**
- **Invest significant time and money in seeking technology that increases productivity**



# Engineering Profession Taking the Lead

- **Develop productivity improvement processes that drive planning at all levels within your organization**
- **Develop innovative sustainability solutions and become leaders in the new world order as advocated by FIDIC's Sustainable Development Committee**

