OFFSHORING ENGINEERING

“A Glocalization Conundrum?”

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What Does It All Really Mean?????????

• Globalization
• Localization
• Out Sourcing
• In Sourcing
• Smart Sourcing
• On Shoring
• Off Shoring
A Glocalization Conundrum???

• Globalization>>>>>>>>>>>>>>>>>>>Effectiveness
• Localization>>>>>>>>>>>>>>>>>>>Efficiency
• Glocalization>>>>>>>>>>>>>>>>>Competitive Advantage

• Challenges: Core Value Compliance
  IP Protection
  Staff Retention
  Risk Assessments
  Investment Costs
DuPont Today

- **$28 Billion Revenue**
- **58,000 Employees**
- **19,000 Engineers**
- **Operations in 70 countries, 6 Continents**
- **200+ Facilities**
- **1600 Trademarks and Brands**

- Pioneer® hi-bred seed
- SilverStone® non-stick coatings
- Supro® isolated soy proteins
- Kevlar® brand fiber
- Tyvek® flexible sheet products
- Surlyn® resins
- Delrin® acetal resins
- Teflon® fabric protector
- Nomex® brand fiber and paper
- Ti-Pure® titanium dioxide
- Mylar® Packaging
- Accent® herbicide
- Mylar® polyester film
- Inkjet Inks
- Zodiaq® surfaces
- Biomax®
- SmartPaint®
- Sontara® spunlaced fabric
- Hytrel®

- DuPont Today
Transforming For Our Third Century

- Explosives
- Chemistry, Energy
- Chemistry, Biology...
- Knowledge - Intensive, Sustainable Solutions
- Six Sigma
The Vision of DuPont

To be the world’s most dynamic science company, creating *sustainable solutions* essential to a better, safer, healthier life for people everywhere.
Five Growth Platforms

DuPont Safety & Protection
$5.2 B

DuPont Electronic & Communication Technologies
$3.5 B

DuPont Coatings & Color Technologies
$6.2 B

DuPont Performance Materials
$6.8 B

DuPont Agriculture & Nutrition
$6.4 B

Put our Science to work

Go where the Growth is

Power of one DuPont

Three Growth Strategies

Source: 2005 Segment Sales
Delivering Maximum Business and Societal Value….

- Capable
- Committed

People

- Consistent
- Defect-free

Execution

- Targeted
- Actionable

Strategy
Key Questions - Management

1. How must management develop, deploy, and direct the engineering competencies needed to deliver *sustainable solutions* essential to a better, safer, healthier life for people everywhere.

2. How will this be influenced by offshoring?
Core Competencies

➢ Today
- SHE&E
- Technical/Analytical Skills
- Communications
- Problem Solving
- Information Management
- Project Management
- Teaming
- Organizational Design
- Unit Operations

➢ Tomorrow
- SHE&E
- Technical/Analytical Skills
- Collaborations
- Integrated Solutions
- Knowledge Management
- Business/Risk Management
- Networking
- Work Process Design
- Integrated Supply Chain
Creating Sustainable Business Value

• Information....f (Data)

• Knowledge......f (Information)

• Sustainable Business Value...f (Knowledge)
“Knowledge Management”

The **Right Information**

at the **Right Place**

at the **Right Time**

at the **Right Price**

enables rapid, effective **Decision Making**

and **Problem Solving** delivering

**Sustainable Business Results**
Knowledge Management as a Business Driver

RENEWAL
(Future State)

GLOBALIZATION
(Future State)

PRODUCTIVITY

H/M/L = Request Complexity

H
M
L

Expert
(Future State)

Current Requests
(Educated customer)

Future Requests

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Knowledge Management Vision

Create a strategy and managing process for accelerating knowledge management that will introduce a culture change as well as effective tools and processes to further enable employees as “knowledge workers,” improve productivity, and use knowledge intensity to achieve sustainable growth.
Networking Works

Network Structure

- Unpredictable relationships
- Innovates
- “How to get the job done better”
- Heterogeneous
- Do the right things

Implementation Structure

- Drives form vs. function
- Implements
- “Get the job done”
- Homogenous
- Do it right

Possibilities

Needs
Facilities Engineering Process

Global Customer Needs & Requirements

Business Objectives, Capital Forecasts

Project Basis, Capital Budget

Production Des Basis, CAC, Project Auth

Competitive Facility That Meets Business Needs

Products That Continuously Meet Global Customer Needs & Requirements Better Than All Competitive Products

Business Planning FEL-1

Facility Planning FEL-2

Project Planning FEL-3

Project Implementation

Facility Startup

Operate Maintain Improve

Front-End Loading

Execution/Operation

Owner Leads

Owner Audits

Owner Leads

Contractor Involved

Contractor Leads

Contractor Supports
Key Questions - Education

1. What capabilities will engineers need in the future to best meet business and societal needs?

2. How is this going to be affected by offshoring?
Production Model Selection

- **Value of scale**
  - High
  - Low

- **Degree of risk**
  - Low
  - High

- **Mass production**
- **Flexible automation**
- **Batch production**
- **Craft production**
- **Disposable factory**

Source: BCG analysis.
8 Operations Centers of Competency

- Strategy
- CORE VALUES
- PEOPLE
- ORGANIZATIONAL PRODUCTIVITY
- CAPITAL PRODUCTIVITY
- ASSET PRODUCTIVITY
- SUPPLY CHAIN PRODUCTIVITY
- CUSTOMER FOCUS & QUALITY
- OPERATIONS STRATEGY

People

Execution
Behavior Shifts

From
• Flexible
• Internally Focused
• Replication Oriented
• Control
• Value Status Quo
• Coopetition

To
• Agile
• Externally Focused
• Innovation Driven
• Influence
• Value Diversity
• Collaboration
Competitive/Trust Relationships

Trust = f \left( \frac{Intimacy \times Competency}{Risk} \right)
Education Implications

- Engineers must understand and appreciate history, philosophy, culture, and the arts along with the creative elements of their technical discipline.

- Curriculums must be responsive to disparate learning styles.
Process Industry Owner
Engineering Operating Principles

- Engineering competencies are critical to business success.

- Engineering must have the right mix of engineering competencies available at the right time and place capable of delivering sustainable competitive advantage.

- Engineering must help businesses leaders understand and capture the value .... run a “pull” process.
My Reflections

- Must see resourcing processes holistically
- Business value defines the pathway
- Leadership is learn/teach/learn
- It’s never over
- Positive attitude critical

“People don’t resist change, they resist being changed!”
The miracles of science™