Why do 20% of Fortune 500 CEOs have an Engineering Degree?

Tim Dehne
Senior VP of R&D
National Instruments

You want leadership...

- Fact: 17% of Fortune 500 CEO’s have a business degree
- Fact: 20% have an engineering degree

"Engineering is the art of directing the great sources of power in nature for the convenience of humankind"

Aristotle

"Any sufficiently advanced technology is indistinguishable from magic."

Arthur C. Clarke

850 books

1 USB Memory Stick
4oz

2/3 of a ton

Reason for our success:

Engineers are just never satisfied...
Human as Engineer

Today, there are more than 6 million individual patents on file.

Just look around your office

Over 30,000 patented objects for your workspace…and it just never stops.

Let’s Play:

Who is the engineer?

And still more…

- Arthur Nielsen - developer of Nielsen rating system.
- Tom Scholtz - leader of the rock band Boston. Master’s degree from MIT in mechanical engineering.
- Boris Yeltsin - former president of Russia.
Leadership Traits of Engineers

- Intelligent
- Problem solvers
- Creative
- Persistent
- Thorough
- Logical
- Practical

We are on a collision course...

And it is not getting better.

37% decline in engineering interest by college bound high school seniors over last 12 years

Minorities in Engineering?

Texas HS Graduates (2002): 215,000

<table>
<thead>
<tr>
<th>High School Graduates</th>
<th>Eng Grads</th>
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<tbody>
<tr>
<td>Hispanics: 69,500</td>
<td>497 (0.7%)</td>
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<tr>
<td>African Americans: 22,341</td>
<td>141 (0.6%)</td>
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Women in Engineering

Texas Data: 120,000 Female HS Graduates Each

<table>
<thead>
<tr>
<th>4 Year College Graduates</th>
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<tbody>
<tr>
<td>Women 33,000</td>
<td>Men 24,742</td>
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<tr>
<td>Engineering Degrees</td>
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<tr>
<td>Women 633</td>
<td>Men 2,371</td>
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Engineering Feats were Rock Festivals...

- 25,000,000 visitors came to see the 40-day 1972 Woodstock in Bethel, New York.
- "Bridge over the E" opened in 1937.
Engineers used to be Rock Stars

Wright brothers  Thomas Edison  Henry Ford

Today's Designs– Converging Complexity

AM/FM Stereo  DVD+RW  PC/WWW/Email  Navigation  Cellular Phone  Satellite Car Alarms/Thieves  Remote Diagnostics  Games

Commercial Technology Impacts all Businesses

Product Development Process

"97% of design engineers support their designs all the way throughout the manufacturing phase" - Cahners Research, 2001

Engineering is in Most Major Industries

Major Companies Rely on Engineers
The shuttle Columbia was doomed in part because NASA relied on flawed computer simulations and mathematical formulas that failed to accurately predict damage. "...experts say, they should have performed tests on shuttle components..."

Columbia Accident Investigation Board findings as summarized by Alan Levin and Traci Watson, USA Today

Emphasis by author

The Need for Validating Simulations with Test Data