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# ***Globalization of the Engineering and Construction Industry***

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Session 2:

20/20: Vision for the  
Future of the AEC Field

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*In 1899,*  
Charles Duell of the U.S. Patent Office claimed:  
“Everything that can be invented, has been invented.”

*In 1994,*  
President Clinton said,  
“Tomorrow’s infrastructure must not be built using today’s  
technologies.”

*Now,*  
According to Henry Michel,  
“When companies downsize, they get rid of R+D.”

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# Past Visions

It's difficult enough to forecast the past, let alone the future.

- Japan would pass the U.S.
- France would pass Germany
- The demise of Ford and IBM, and
- The rise of Nissan and Compaq

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# Drivers:

Technology

Political

Social

Environment and

Economic

- How can we balance the needs of the developing countries and the global environment?

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# Any comments or additions to

- The significant technological and sociopolitical changes during the past 20 years?
- The likely changes over the next 20 years?

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# The Decline of the Nation State

- Decline in powers of government
- Rise of the private sector
- The open society
- What are the implications?

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# Class Discussion

- ENR's "Greatest Construction Projects Over the Past 125 Years"
- Over 68% of the projects were located in the U.S.
- Yet, 6 of the last 7, and 7 of the last 10, were foreign

# ENR

- Over 80% (30 projects) were infrastructure

## *Categories*

U.S.	25 ½
Infrastructure	30
Bridges	8 ½
Tunnels	7 ½
Dams	6
Water & Sewage	3
Pipeline	1
Canals	2
Harbors	1
Sea Barriers	1

Only five were buildings and one, a monument.

What projects are missing?

What are your best guesses for the “Greatest Construction Projects” over the next 20 years?

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# Terminologies

- GASB 34
- Long-Term Capital Management
- Convergence
- Mega Projects – How do they differ from merely large projects?
- Independent Power Producer (IPP) and Structured Finance
- Brownfields
- Cisco Model

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# R + D

- What is R+D?
- Is it a positive force? Are you in favor of it?
- How do you define it?
- Is there a difference between successful research and development, and innovation?
- How successful in recent years has Japan been in R+D?

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- Why have some of the most important private research facilities – Lucent (Bell Labs), Xerox, former RCA/Sarnoff Labs – had difficulty developing successful products, and initiatives for the company that sponsored them?
  - Are there other models for research and development? Cisco, for example, tries to buy innovative R+D-oriented companies rather than fund its own R+D
  - Is R+D most likely to achieve success at large or small facilities?
  - Why does innovation flourish in some periods and not others?

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- Were you surprised at the difficulties in defining R+D and productivity?
  - Why were some periods, countries and cultures so innovative and creative?