An Academic Perspective of Collaboration

Andrew R. Barron

Associate Dean for Industry Interactions and Technology Transfer

Charles W. Duncan, Jr. - Welch Chair of Chemistry

Professor of Materials Science

www.rice.edu/barron
arb@rice.edu

The Archetypal Success Story in Knowledge Transfer

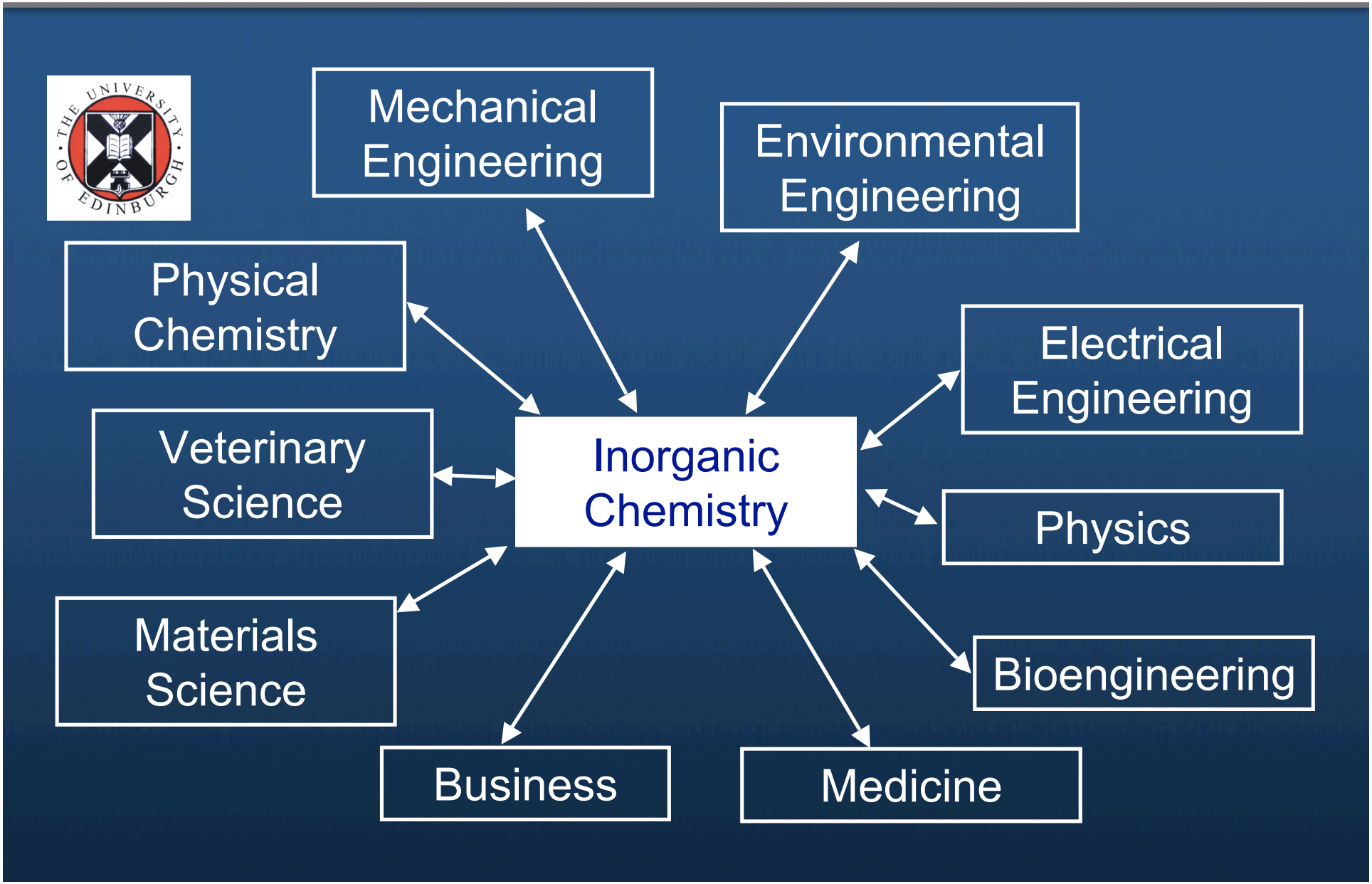
Why was Silicon Valley a success?

- Smart people
- Culture of entrepreneurship
- $$

Others have tried to repeat this… but it has resulted in mainly manufacturing industry

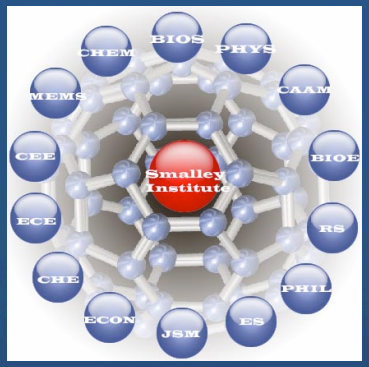
What drives invention and development?

Barron Research Approach



Why a Collaboration at the University Scale?

- **The Rice Consortium Approach**
  - Scale and complexity
  - Strengths of multiple centers & universities



- **Why this is the Best Approach?**
  - Synergistic expertise
  - *Shared risk, shared load, and shared reward*

- **Why Rice is a Good Consortium Member - "No borders"**
  - Collaboration is an intrinsic part of Rice University
  - Rice's small size (low student to faculty ratio = 5-to-1)
  - Leverage our resources and deliver significant results

COLLABORATIVE TX BIOSCIENCE INITIATIVE UK

THE UNIVERSITY OF EDINBURGH

UNIVERSITY of GLASGOW

Texas/UK Collaborative

Consortium for Nanomaterials for Aerospace Commerce and Technology (CONTACT)

Gulf Coast Consortia (GCC) - Rice acts as a focus for competing medical institutions.

US Center for Environmental Remediation and Sustainable Development

HERIOT WATT UNIVERSITY

A Thematic Shift @ Rice

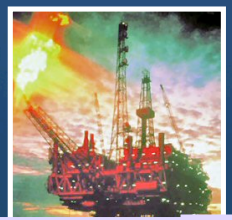
Why Research @ University?

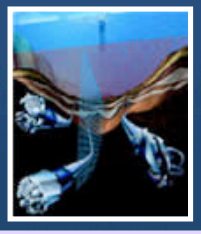
Oil producers

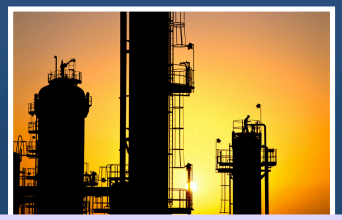
Service companies

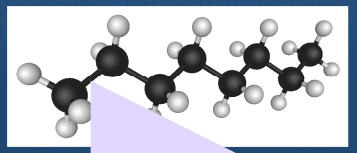
Downstream

Chemicals

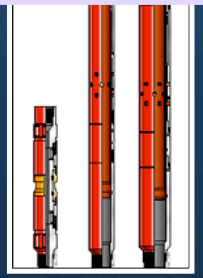


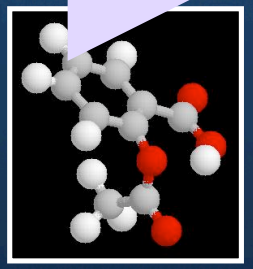






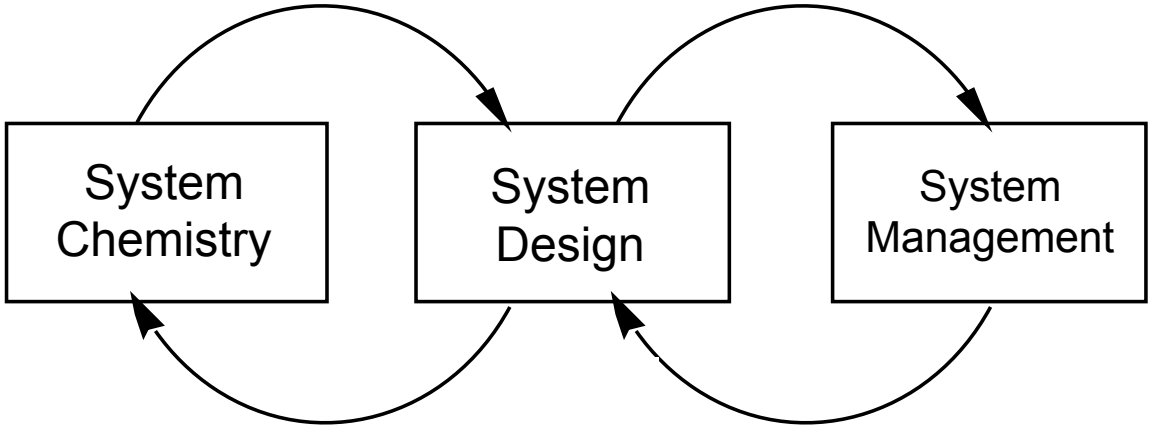
Interdisciplinary and Integrated





Future Energy Systems

How do we know the effects of new technology?



NASA

RICE

UNIVERSITY OF STRATHCLYDE

ROLLS ROYCE

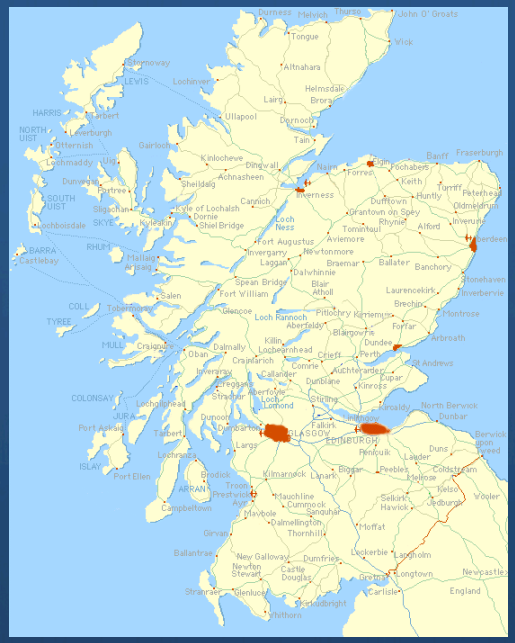
Rice Alliance

- Focused events:
  - Energy Forum
  - IT Forum
  - Nano Forum
  - Life Sciences

The largest and richest university-run intercollegiate business plan competitions in the world !!

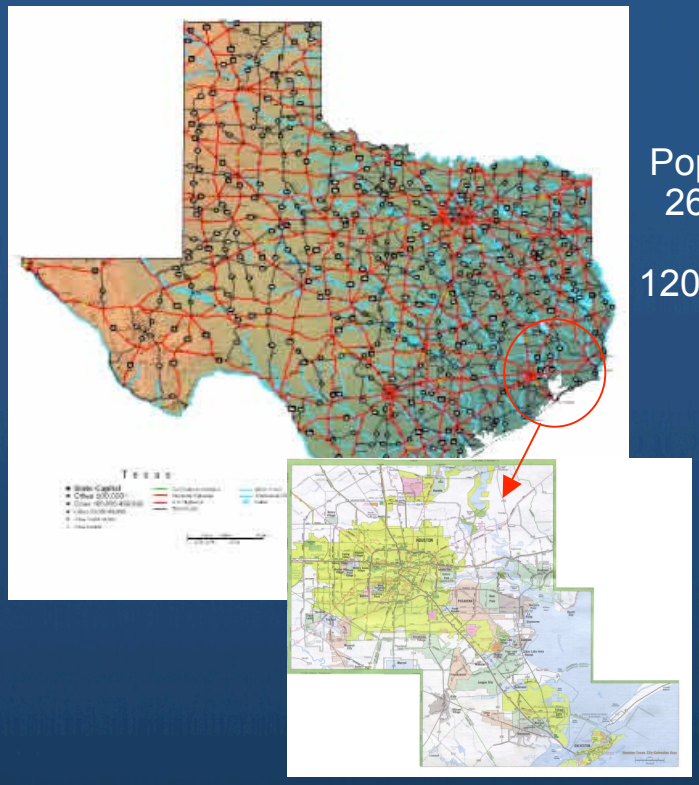
- Over 180 companies have presented at past Rice Alliance forum events, and have raised over $302 million
- Since these Forums began in 1999, over 75% of the companies are still on a path to success

How is Rice's Experience Relevant to Scotland?



Pop. 5.1 million
78,782 sq. km.

200,000 students



Pop. 5.3 million
26,060 sq. km

120,000 students

Houston - moving from traditional manufacturing (oil, gas,chemicals, agriculture) to entrepreneurship and innovation (energy, health, nano).

Scotland - moving from traditional manufacturing (oil, tech manufacturing, agriculture) to entrepreneurship and technology innovation.

How do we Promote Knowledge Transfer?

Create a collaborative environment
- no egos
- bring down the walls
- *shared risk, shared effort, shared reward*
- infrastructure for entrepreneurship

Industry support
- not contract labour
- not fund and forget
- partnership (RD^3)

Government support
- facilitate don't lead
- provide the big challenge

RICE

The Challenge

We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win.

J.F.K @ Rice University

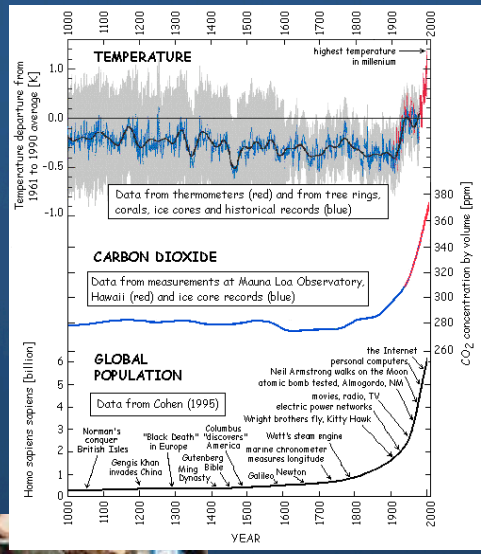
George Mallory was asked why he wanted to climb Mount Everest. He said, "Because it is there."

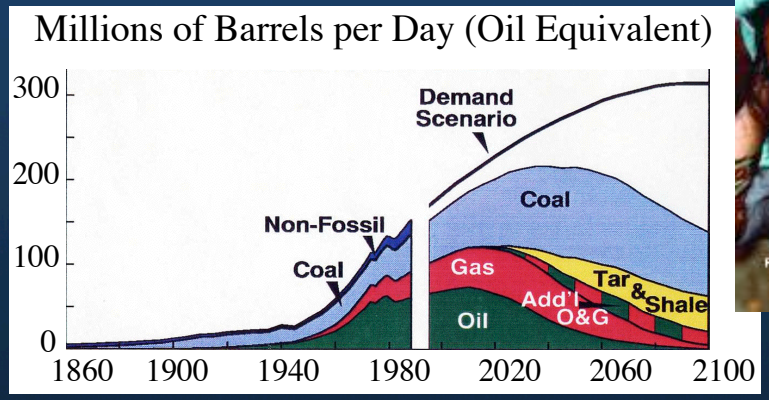
Humanity's Top Ten Problems for next 50 years

1. ENERGY
2. WATER
3. FOOD
4. ENVIRONMENT
5. POVERTY
6. WAR
7. DISEASE
8. EDUCATION
9. DEMOCRACY
10. POPULATION

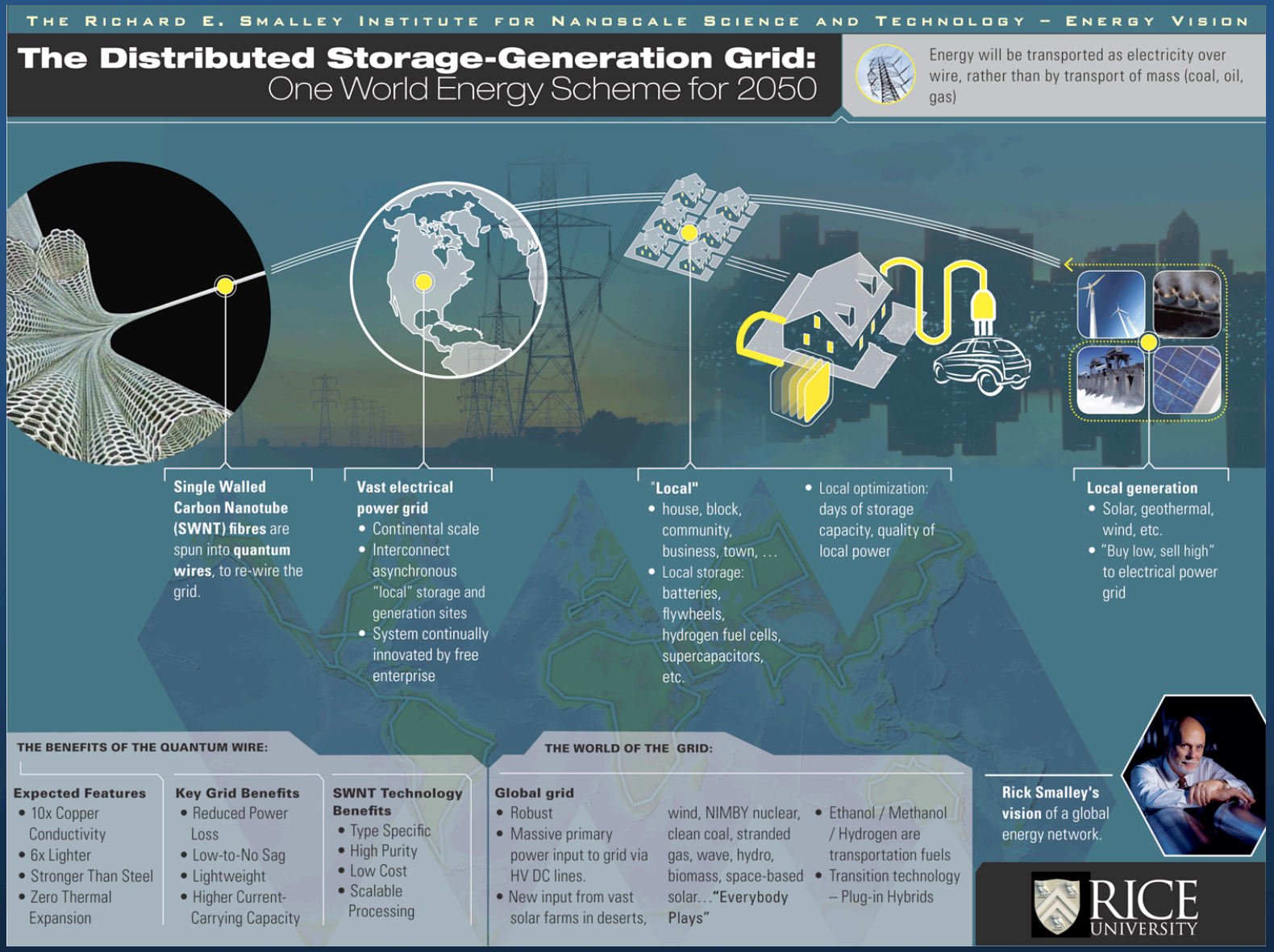
2004	6.5	billion people
2050	~ 10	billion people

2 Billion Poor – No Electricity
2 Billion Poor – Biomass Heating





Vision of a Global Energy Network



RICE

Be a scientist (or engineer) and save the world

Jim Clark (1936–1968)

Colin McRae (1968-2007)