



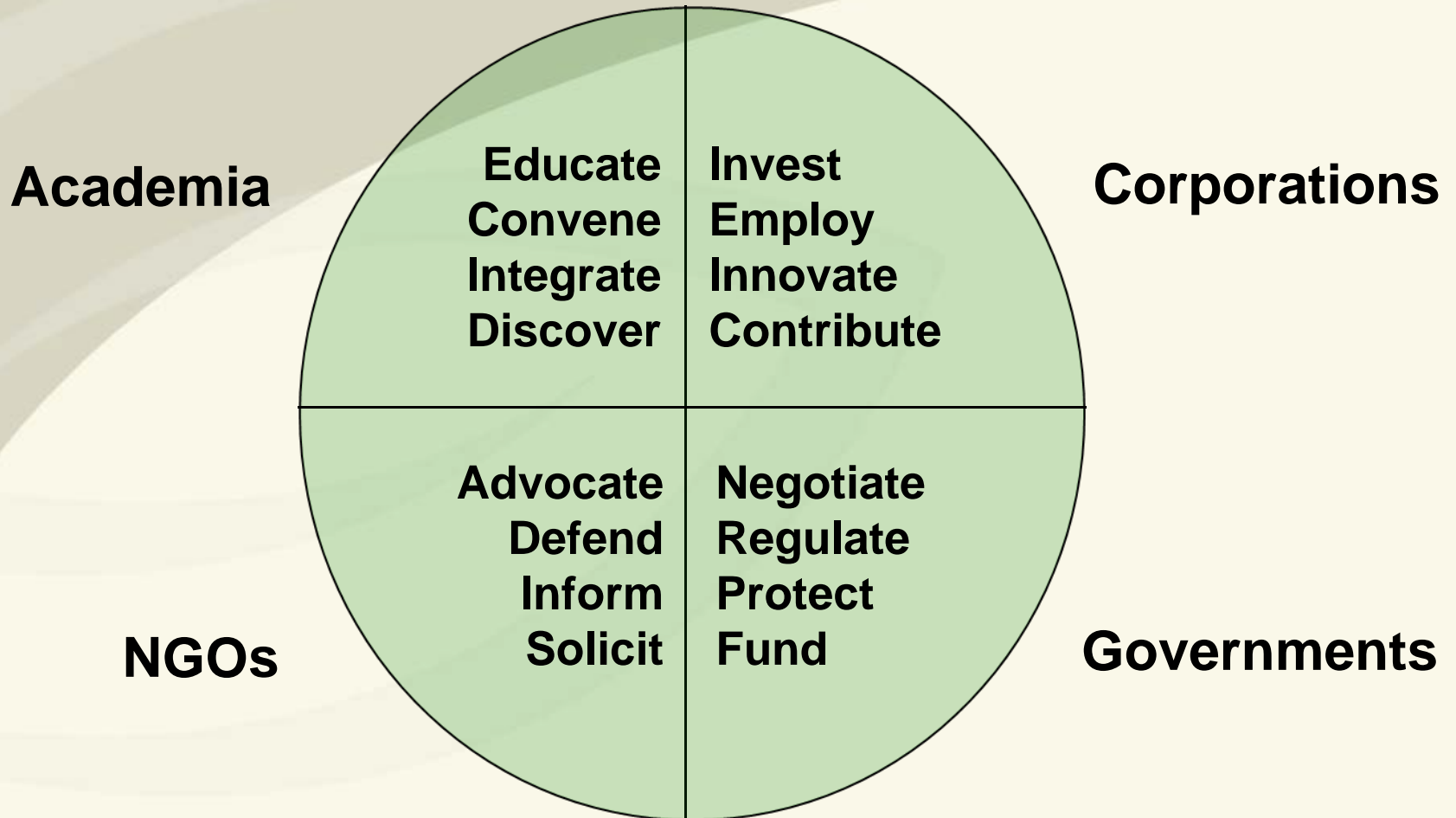
***Greater Than Conference
Portland, Maine
July 28, 2009***

**Working Across the Sectors to Address
the Complex Challenges of Sustainability**

Jonathan Fink, Director
Global Institute of Sustainability
Arizona State University



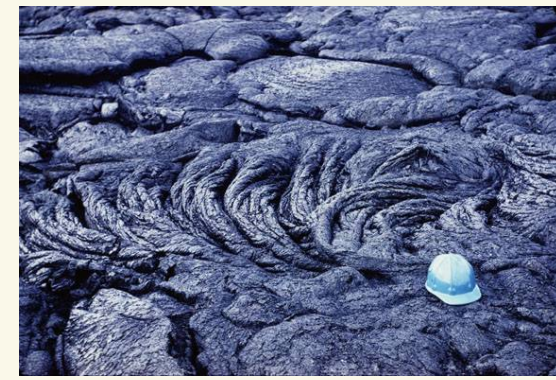
What do the four sectors offer?





Personal background

- Geology professor at ASU (studied volcanoes)
- Department Chair, VP Research, Sustainability Director
- Helped promote interdisciplinary culture at ASU
- Focus on research that cuts across sectors





Institutional background - ASU

- One of largest universities in U.S. (~ 67,000 students)
- Four campuses in metro Phoenix; one administration
- Interdisciplinary, global, socially relevant, use-inspired
- Access, Excellence, Impact





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- ***Sustainability largest institutional priority since 2002***





ASU's Global Institute of Sustainability

- First degree-granting School of Sustainability (BS, MS, PhD)
- University-wide Sustainability Research Federation
- Decision Theater links research to community's policy needs
- University practices that reflect principles of sustainability



*“The world’s first,
So the world lasts”*

Emphases

- Global urbanization
- Energy and materials
- Water quantity and quality
- Biodiversity
- Values and ethics
- Business practices

Courses

- Earth Systems Engineering
- International Development
- Principles of Sustainability
- Quantitative Methods
- Science, Technology, & Policy
- State Lands





ASU Sustainability Practices

- Solid waste: Revamping recycling with Waste Management
- Transportation: Flexcar; transit passes; \$\$ parking; light rail
- Energy: 2-9 MW photovoltaic PPA
- Buildings: All new buildings LEED Silver and above
- Food: Sodexo replaced by Aramark due to green practices
- Comprehensive green purchasing policies
- Water conservation: modifying plumbing and landscaping
- Electronic display of building performance across university





Nature Editorial, April 26, 2007: ASU as “The university of the future”

nature

www.nature.com/nature

Vol 446 | Issue no. 7139 | 26 April 2007

The university of the future

The traditional model of the US research university — based on the pre-eminence of the single-discipline department — needs to be stretched and challenged.

The American research university is a remarkable institution, long a source of admiration and wonder. The idyllic, wooded campuses, the diversity and energy of the student populations, and, most of all, the sheer volume of public and private resources available to run them, have long made them the envy of the world.

Seen from the inside, however, everything is not quite so rosy. Setting aside the habitual complexity of medical schools, which have separate healthcare and finance issues, the structure of these institutions is straightforward and consistent. The bedrock of each university is a system of discipline-specific departments. The strength of these departments determines the success and prestige of the institution as a whole.

This structure raises a few obvious questions. One is the relevance of the department-based structure to the way scientific research is done. Many argue that in a host of areas — ranging from computational biology and materials science to pharmacology and climate science — much of the most important research is now interdisciplinary in nature. And there is a sense that, notwithstanding years of efforts to adapt to this change by encouraging interdisciplinary collaboration, the department-based structure of the university is essentially at odds with such collaboration.

A second set of issues surrounds the almost static nature of the departmental system. In a country where most things are highly fluid, the fields covered by departments, as well as the pecking order between them, have remained largely unchanged for many years. As people and money have flowed, particularly over the past twenty years, to the south and the southwest, the strongest US universities and departments remain embedded in the northeast and in California. League tables drawn up by the National Academy of Sciences and others show little movement in this pecking order, even over several decades.

Another, perhaps more contentious, issue concerns the relevance of the modern research university to the community it serves. The established model, whatever else its strengths and weaknesses, reflects the desire of the middle classes for an undergraduate training that prepares their offspring for a stable career. But how does it serve a society in which people may have to retrain and recreate their careers throughout their adult lives?

These questions are being asked throughout American academia, but nowhere more searchingly than at Arizona State University (ASU), a huge public university that is expanding to meet the needs of the United States' fastest-growing major city (see page 968). Michael Crow, its president, is executing an ambitious plan to replace the traditional model with one in which both influence and research excellence are concentrated not in departments, but in large, broadly based interdisciplinary centres with clear commercial or societal goals.

Whatever its outcome, this experiment will not of itself uproot the traditional university system. Incremental change, notably the establishment of stronger multidisciplinary entities such as Bio-X at Stanford University in California, and several new centres at Harvard, may have a greater bearing on the overall development of the system.

But ASU's effort already tells us plenty about the likely direction of the research university in the up-and-coming regions of America. The university of the future will be inclusive of broad swaths of the population, actively engaged in issues that concern them, relatively open to commercial influence, and fundamentally interdisciplinary in its approach to both teaching and research. ■

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The traditional model of the US research university — based on the pre-eminence of the single-discipline department — needs to be stretched and challenged.

The American research university is a remarkable institution. Another, perhaps more contentious, issue concerns the relevance of the modern research university to the community it serves. The idyllic, walled campus, with its liberal arts colleges, reflects and, most of all, trains students for a stable career. The available training that has long made the envy of the world prepares their offspring for a stable career. How does it do this? Setting aside the traditional schools, which have separate health, financial, and business schools, the structure of the university is a system of discipline-specific departments. The strength of these departments determines the success and prestige of the university. It is this structure that raises a new and important question: is the department-based structure of the university scientific research is done in biology and materials science, in pharmacology and climate science — much of the important research now interdisciplinary — to adapt to this change by encouraging interdisciplinary collaboration, the department-based structure of the university is essentially at odds with such a change, notably the establishment of strong interdisciplinary entities such as Bio-X at Stanford University in California, and several new centres at Harvard, may have a greater bearing on the overall development of the system.

“ [ASU’s] President, is executing an ambitious plan to replace the traditional model with one in which both influence and research excellence are concentrated not in departments, but in large, broadly based interdisciplinary centers with clear commercial or societal goals.”

Whatever its scope, this experiment will be a test of itself: if it is to succeed, it must be inclusive of broad swaths of the population, actively engaged in issues that concern them, relatively open to commercial influence, and fundamentally interdisciplinary in its approach to both teaching and research.

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A second set of issues surrounds the all too static nature of the departmental system. In a country where most things are highly dynamic, the departmental system is essentially static. At Stanford University in California, and several new centres at

Much of this recognition grew from our sustainability program



Sustainability challenge:

How to speed the adoption of renewable energy by linking expertise throughout the innovation supply chain?



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Solution:

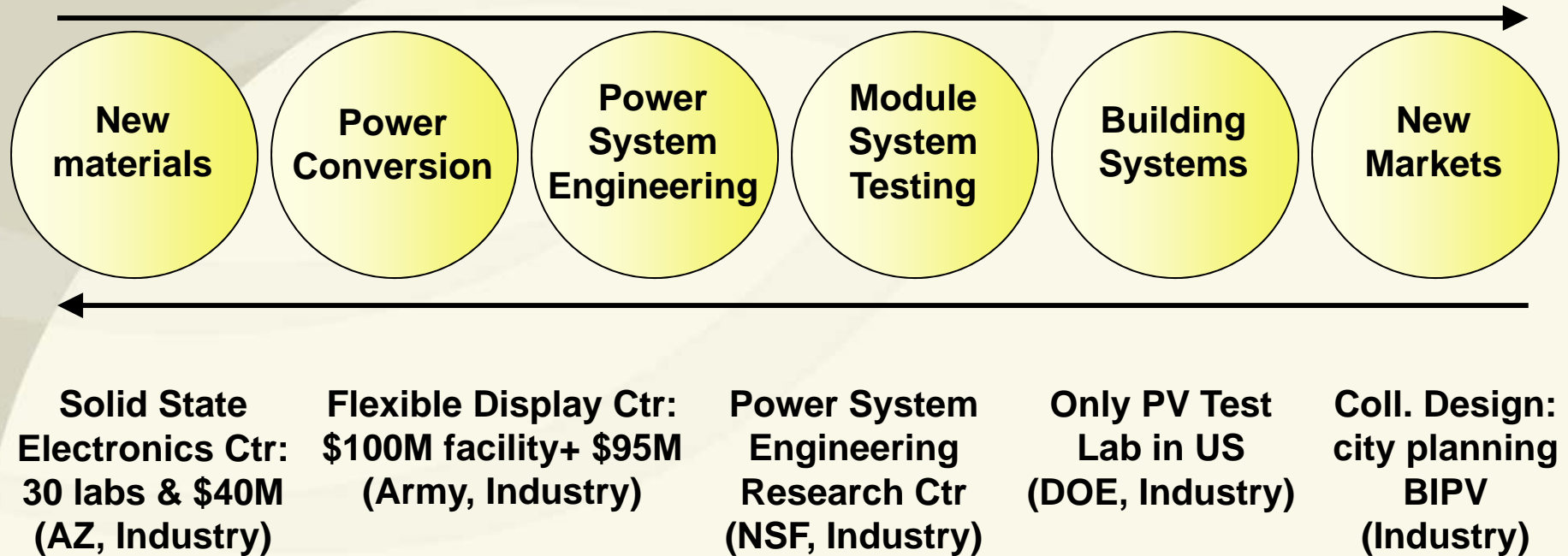
ASU's comprehensive solar energy initiative





ASU Solar Energy Initiative

- ASU has longstanding solar research strengths
- Unique assets along entire solar innovation supply chain
- Working with government and industry to expand markets





Sustainability challenge:

How to apply local and regional lessons to global problems?

Solution:

Use Decision Theater to connect science with policy in diverse settings





Decision Theater

- Lets non-experts explore future policy options
- Can apply to environmental, social and economic issues
- Commercial applications can generate revenue
- Global network being built: Dubai, Beijing, Wuhan, Harbin
- **Governor, state agencies, cities, NGOs all use Theater**





Sustainability challenge:

How to restore a degraded ecosystem while also creating economic opportunity and social well-being in a developing country?



Sustainability challenge:

How to restore a degraded ecosystem while also creating economic opportunity and social well-being in a developing country?

Solution:

Mongolian Grasslands Restoration Project





Mongolian grasslands and biofuels

- Restoration of grasslands can simultaneously reduce rural poverty, reduce air pollution and create biofuels industry
- Has potential for widespread global relevance
- Partners: Inner Mongolia U, Tsinghua U, ASU, BP-China, Inner Mongolian Gov't, Chinese Gov't, US Gov't
- Example of Triple Bottom Line Win





Take-aways

- Sustainability solutions need multiple perspectives
- Everyone can contribute
- Do what you're good at
- Leverage and promote cross-sector partnerships
- Teach and learn from next generations



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- Sustainability solutions need multiple perspectives
- Everyone can contribute
- Do what you're good at
- Leverage and promote cross-sector partnerships
- Teach and learn from next generations
- *What can we do together?*