How could an innovative and nimble entrepreneurial orientation be built into our academic, clinical, and research efforts?

Colorado Clinical and Translational Sciences Institute (CCTSI)
UNIVERSITY OF COLORADO DENVER | ANSCHUTZ MEDICAL CAMPUS

CCTSI Leadership for Innovative Team Science - Team IE:

Michael Graner, PhD — School of Medicine/ Neurosurgery
Malik Kahook, MD — School of Medicine/ Ophthalmology
Jerrod Milton, MBA — Children's Hospital Colorado/ Operations
Paul Rozance, MD — School of Medicine/ Pediatrics
Carol Runyan, MPH, PhD — School of Public Health/ Epidemiology
Sarah Thompson, RN, PhD — College of Nursing/ Dean's Office
Rachael Van Pelt, PhD — School of Medicine/ Geriatrics

Our process

- Focusing
  - Innovation & entrepreneurship
  - Developing ideas to help institution move forward
- Literature
- Exemplar institutions
  - Identifying institutions
  - Defining what we wanted to learn from them
  - Gathering, reporting, synthesizing information
- Querying our campus
  - Developing questions
  - Pilot testing an instrument
  - Summarizing

On becoming an *Innovative University*

- Universities should become knowledge entrepreneurs, embracing:
  - Design thinking
  - Computational thinking
  - Disruptive innovation
  - Radical interdisciplinarity
- Challenges
  - Conservative/risk-averse tendency (strong "auto-immune response" to any change from 19th-century approaches)
  - Discomfort with interdisciplinary research & teaching
  - Lack of administrative commitment to revolutionary changes

Bennet, JK Some Thoughts on the Future of the University. *White Paper* November 2013

Why might fostering innovation and entrepreneurial orientation be important?

- To stay relevant and competitive as an institution

- Academia, because of power and prestige, has historically been immune from *competitive disruption*. This may change because:

  - Increasing size and operating costs = self-limiting

  - Low-cost online learning options - steadily improving

  - *Disruptive technologies* tend to be smaller/simpler solutions (counter to bigger-is-better mentality)

  - Committing to real innovation may yield major rewards

Christensen, C and Eyring, HJ The Innovative University: Changing the DNA of Higher Education. *Forum Future Higher Educ* 2011

US Department of Commerce: National Advisory Council on Innovation and Entrepreneurship (NACIE)

- 2-year effort to study…

What are America's colleges and universities doing programmatically and strategically to nurture innovation, commercialization, and entrepreneurship among students, faculty, alumni, and within their communities?

The Innovative and Entrepreneurial University: Higher Education, Innovation & Entrepreneurship in Focus DOC Report October 2013

Exemplar institutions

- Identified institutions

- Defined what we wanted to learn from them

- Synthesized information

Exemplar institutions selected

- US
  - Arizona State U – EIG
  - Harvard U - iLab
  - U Michigan – Innovate Michigan
  - U North Carolina – Innovate Carolina
  - Stanford
- International
  - ETH Zürich - ieLab

What we learned...
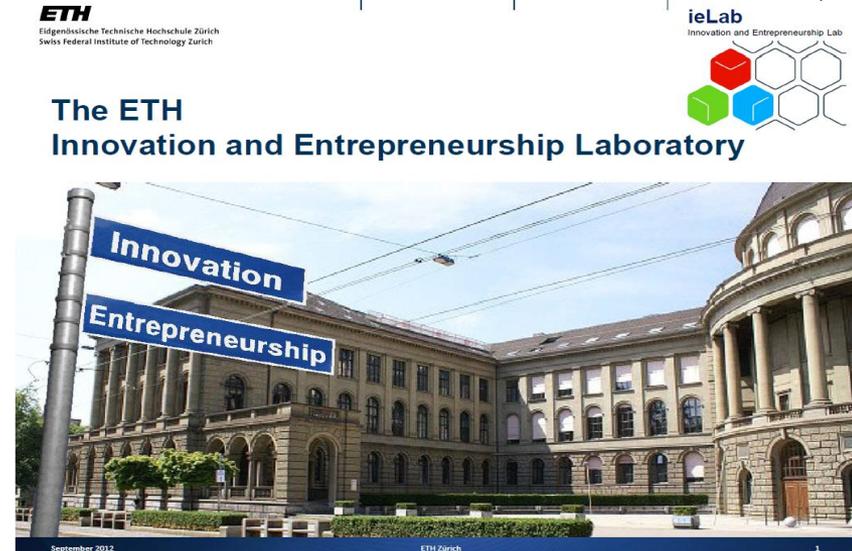
Exemplar Institutions Composite Data

- What led them to create an innovation center or program?

  - Formed organically after a critical mass of innovative programs
  - Vision of a single person
  - Local venture ecosystem
  - Retention of "top talent" (Facebook, Google)
  - Preparing students for their future
  - Multifactorial in most cases

Exemplar Institutions Composite Data

- What problems were they trying to solve?

  - Merging researchers + business students + engineers
  - Teaching students needed skills (fail early, learn for later)
  - Integration of the university system with the community
  - Enhance economic outcomes + create new revenue streams

Exemplar Institutions Composite Data

- Who provided the leadership?

  - Single individual (Faculty, Students, Outside business leaders)
  - Government
  - Team approach

- What resources were provided & by whom?

  - University assets (space and funds)
  - Philanthropy
  - Venture capital

Exemplar Institutions Composite Data

- What are the most successful aspects of their program?

  - Also highly variable
  - Number of spinouts
  - Number of licensed patents
  - Revenue
  - Community relationships and creation of new ecosystems

What is needed on an institutional level

1. A leader or a group of leaders to champion the cause

2. A mandate or strong backing from university leadership

3. Clearly defined vision and strategy based on "user" needs

4. Dedicated funding and space (i.e., attractive environment)

5. Active entrepreneur mentors

6. Strong networking with local business leaders and the community at large

Pilot survey of our colleagues

- Importance of innovation & entrepreneurship

- Perceived supportiveness

- Elements that best support

- Elements that most impede

- Suggestions for improvement

Caveats

- Small, non-representative sample

- Intended only as a pilot

- Therefore, can not draw conclusions

- But, useful as means of guiding future investigation

Survey Summary – LITeS pilot (n=83, from every school, both hospitals)

How important is it to you that you work in an institution that…	Rated at 7 or above on 10 point scale with 1=not at all important to 10=very important)
…is considered **innovative** by others in your field	96%
…is considered **entrepreneurial** by others in your field	74%
…is nimble and responsive to opportunities outside of campus	95%

Compared to the best institutions in the US of its type (school, college, center, department), how would you rate the **INNOVATIVENESS** of the most proximal unit to which you are most connected?
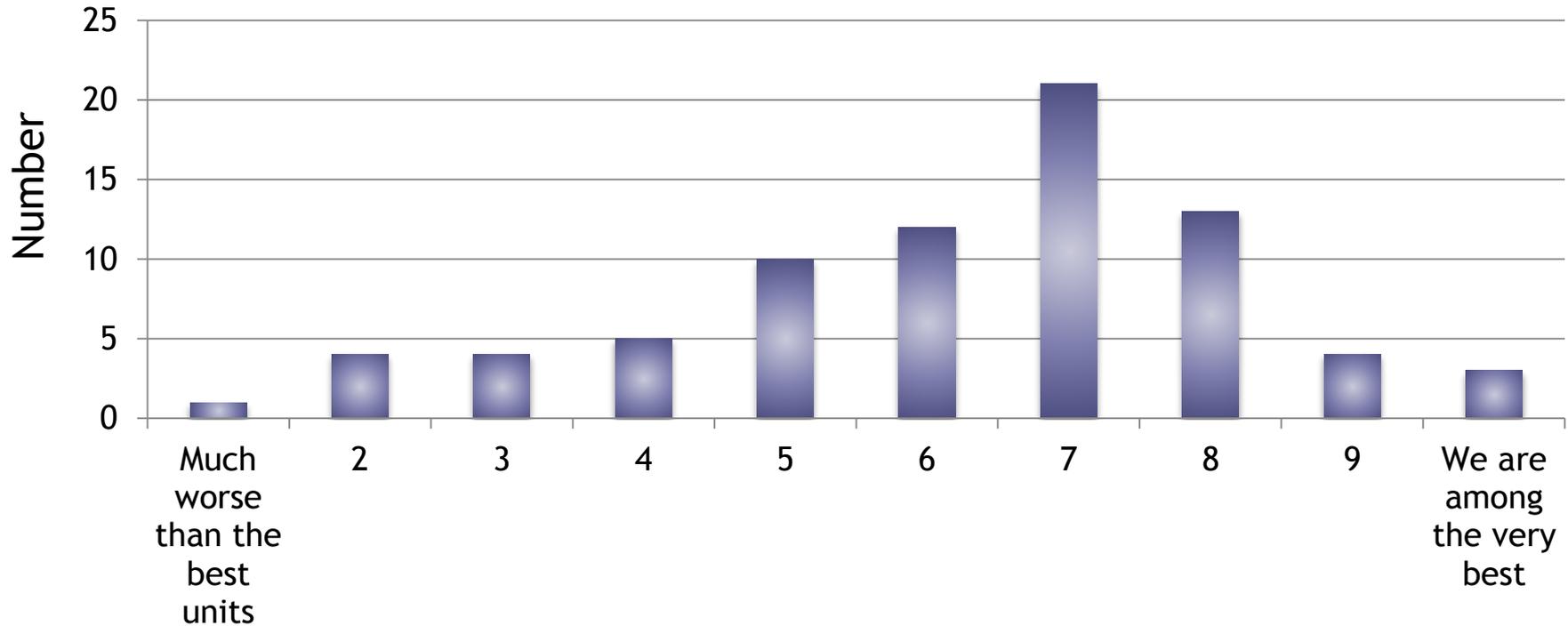
To what extent is the part of the AMC that you are most connected with (e.g., school, hospital, center, institute) supportive of…	Mean (range) (1= not at all supportive, 10= very supportive)
…excellence in practice, including clinical care	8.15 (2-10)
…excellence in research	8.07 (1-10)
…excellence in teaching	7.55 (1-10)
…interdisciplinary collaboration	7.19 (1-10)
…excellence in partnering with other community-based organizations	6.44 (1-10)
…fostering a nurturing environment for faculty, staff, and students	6.29 (1-10)
…fostering outside-the-box thinking	6.18 (1-10)
…risk taking in research	5.85 (1-10)
…creating a nimble infrastructure	5.79 (1-10)
…creating ideas of interest to investors	5.26 (1-10)

Most supportive elements…

- Culture
  - Inter-professional
  - Collaborative
  - Value evidence based-practice
  - Research focus
- People talent – faculty, staff, students
- Leadership
  - Attitude from top down
  - Encourage new ideas
  - Shared

Most supportive elements...

- Funding & other resources
  - UCH
  - Extramural & intramural funding
  - Tech transfer
  - Proximity to practice sites
  - Time to explore ideas – Sabbaticals
  - Continuing Education funding
- Programs: CCTSI, Cancer Center, CHCO-Quality and Patient Safety

Elements that impede innovation or entrepreneurship...

- Management issues
  - Imbalanced power among schools
  - Strained relationships with hospitals
  - Excessive reliance on CO Health Foundation
- Organizational policies/practices
  - Lack of sabbaticals
  - Lack of recognition that innovation takes time
- Workload issues
- Physical factors
  - Separation from downtown campus

Elements that impede innovation or entrepreneurship... *(continued)*

- Problems with specific units
  - COMIRB, OGC, IT, UPI

- Institutional culture/attitudes
  - Too much hiring of people who trained here
  - Lack of incentives, mentoring, support systems
  - Anti-business attitudes

- Funding issues

If you could change one thing...

- Organizational/management approach
  - Hire from outside
  - Get rid of tenure
- Change power balance
  - "stop letting SOM drive the bus"
  - "faculty ARE the university...facilitate work of faculty"
- Reduce silos, increase collaboration
  - Change we-they mentality between CHCO & UCD
  - Develop campus-wide goals
- Foster creativity, innovation, camaraderie
  - Create think tanks
  - Recognize innovations
  - Create culture of risk-taking

Pilot Survey Summary

- Aspects of our environment are already recognized as innovative
    - room for improvement

- Faculty and staff are united in a strong desire to work in an innovative environment
    - improve upon our strengths

- Broad expectation that achieving this goal will lead to more outstanding accomplishments
    - varied impressions of the enablers and inhibitors

Summary *(continued...)*

- Sufficient organic interest in our environment to justify further work in this area

- Exemplar institutions reviewed by us and other groups (e.g., NACIE) provide examples of how we might move forward
  - Common themes are need for:
    - well-articulated vision
    - strong leadership
    - mandate backed by resources

General Recommendations

- Creating a vision for what our campus will look like at the end of this process is a key first step
  - Our pilot survey should be followed up with a formal survey of all representative groups to better assess our current strengths, limitations, and user needs
  - From this a vision and long-term strategy could be articulated
- With a vision and strategy articulated, a leader could then be recruited to achieve these goals
  - Empower this leader with necessary resources and authority
  - Task them with creating specific goals and an actionable plan for achieving these goals
  - Invite consultation from exemplar institutions and community business leaders

Questions?

University of Colorado
Anschutz Medical Campus

Children's Hospital Colorado

University of Colorado Hospital

UNIVERSITY OF COLORADO HEALTH