



Mythbusting Perceptions by meeting Stakeholder Needs on nanoHUB.org

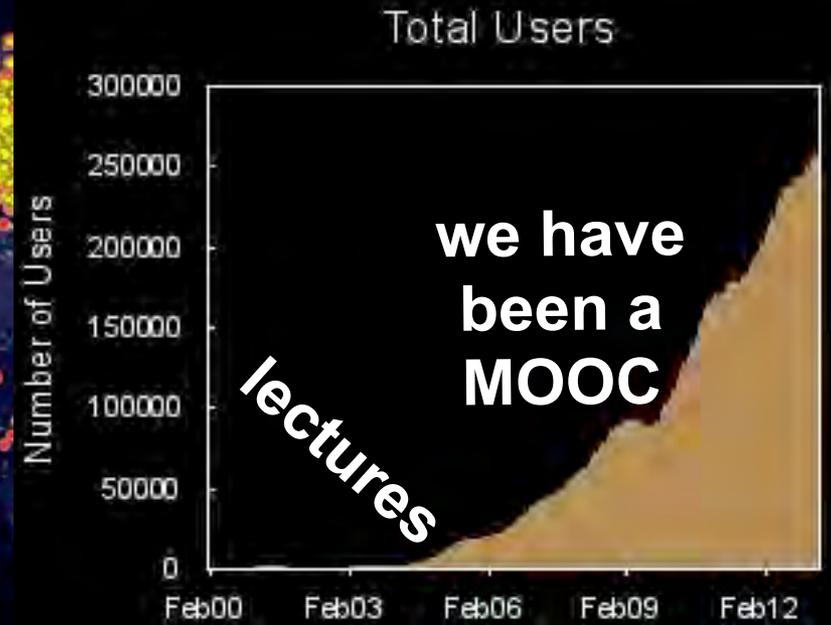
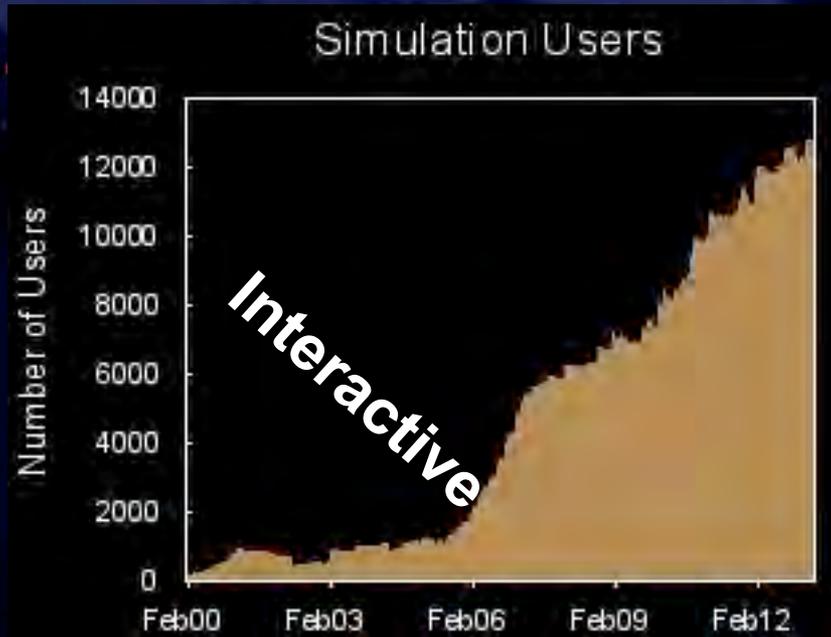
Gerhard Klimeck, Purdue University, gekco@purdue.edu





Mythbusting Perceptions by meeting Stakeholder Needs on nanoHUB.org

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Over 12,000 / 257,000 Users Annually



Hubs 'R Us

hubzero.org



- Feb 2007: 1 hub
- Feb 2008: 5 hubs
- Feb 2009: 8 hubs
- Feb 2010: 21 hubs
- Sept 2010: >30 hubs
- Sept 2012: >40 hubs

Each hub has its own funding stream

Outside institutions:
EPA, NYSTAR, Rice

Perceived Myths

User Friendly

Cannot use research codes for education

Must write own code to do research

Experimentalists cannot use research codes

Customers

Accessible (no installation)

NO End-to-end Science Cloud Possible

Market

Developer Friendly

Building User Interfaces (Meta Data) too Difficult

Must rewrite code for web deployment

There is no incentive to share codes

Suppliers



270+ Interactive Tools
 380+ Developers (mostly volunteers)

Products

Suppliers 'oper Friendly
 Myths Busted

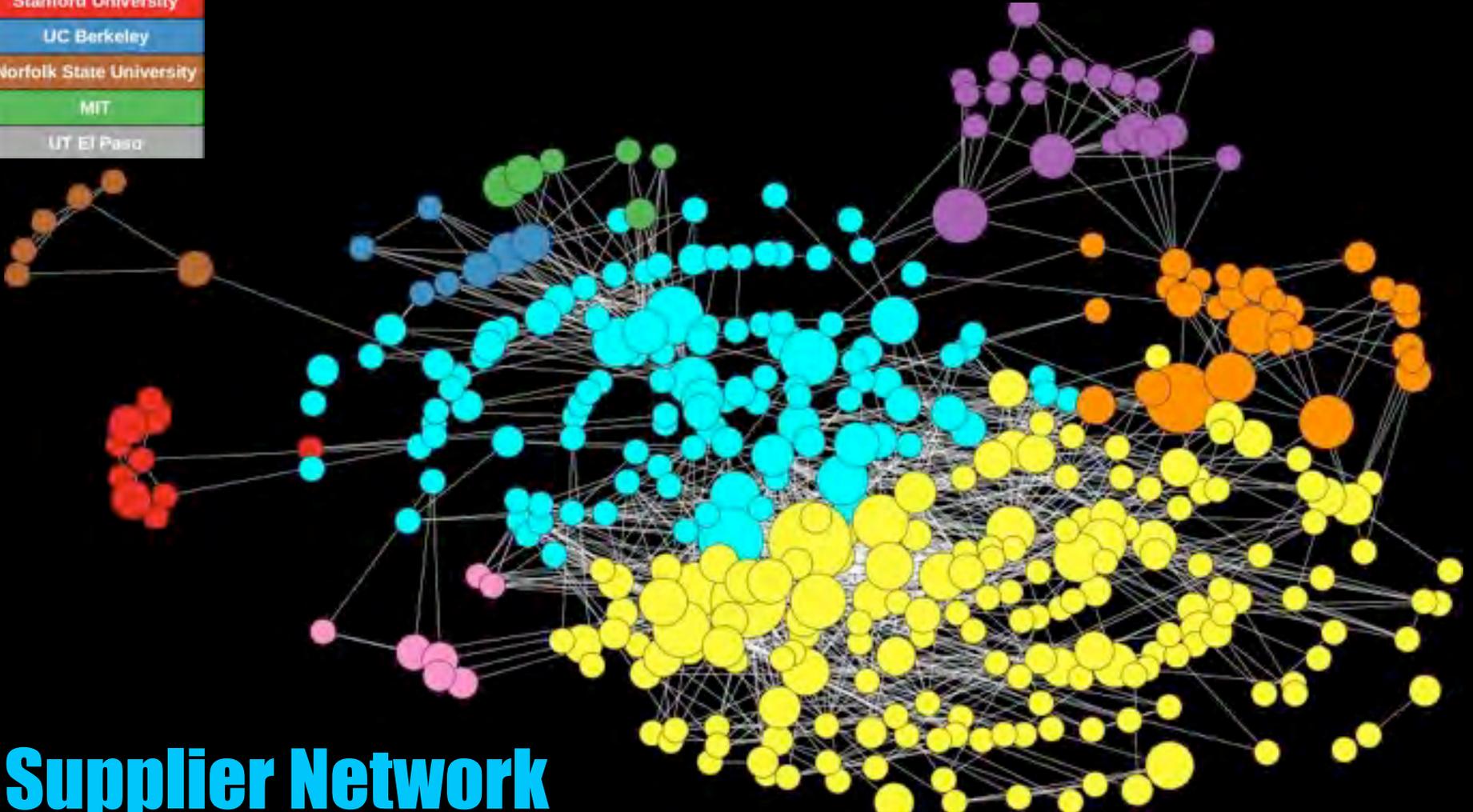
HUBzero
Rappture
Meta-Data

User Interfaces too Difficult
rewrite code for web deployment
There is no incentive to share code

Developer Collaboration Network

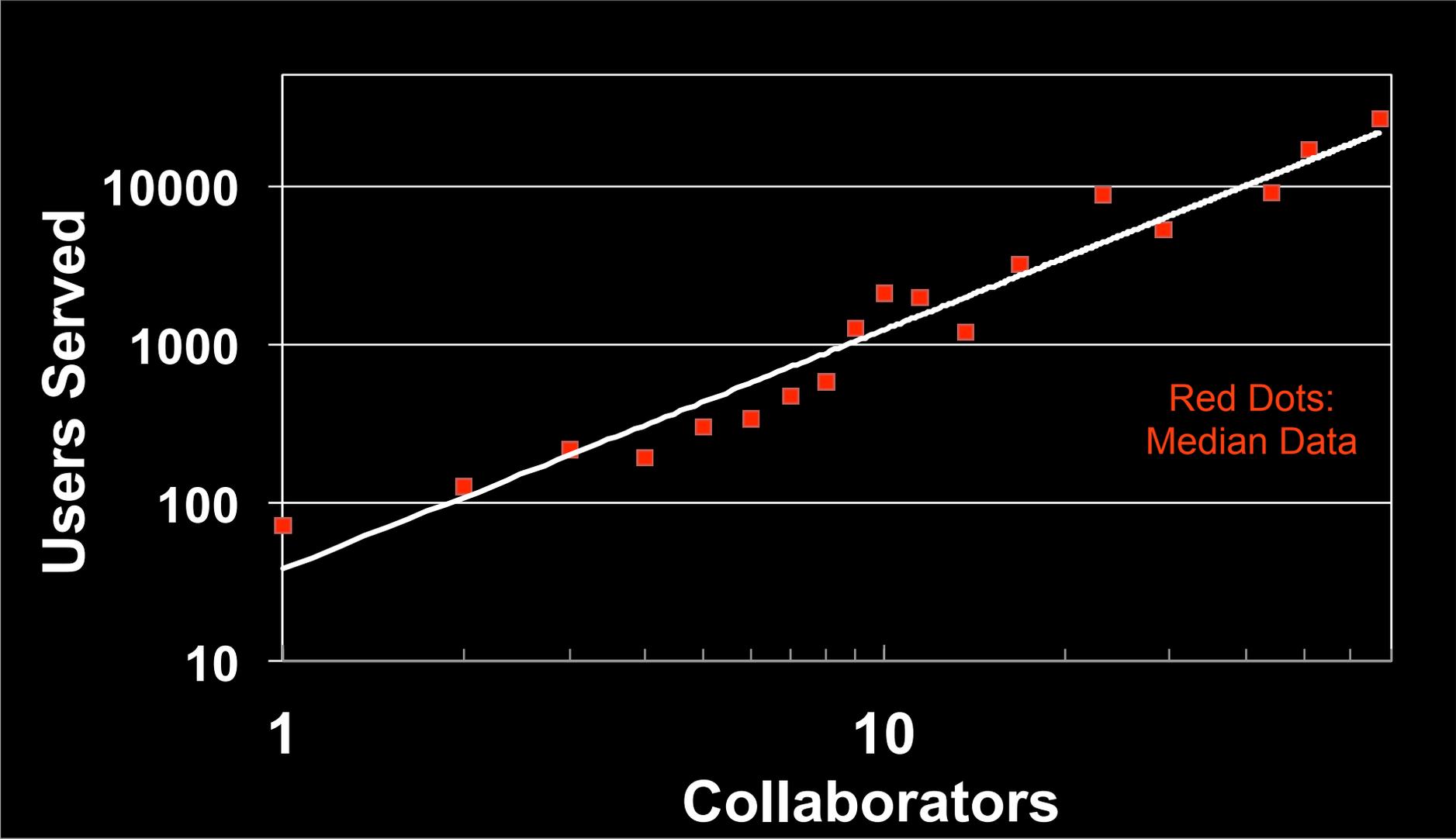
Purdue University
Northwestern University
University of Illinois
University of Florida
Stanford University
UC Berkeley
Norfolk State University
MIT
UT El Paso

Each dot is a Developer **suppliers**
Links are tools **product**



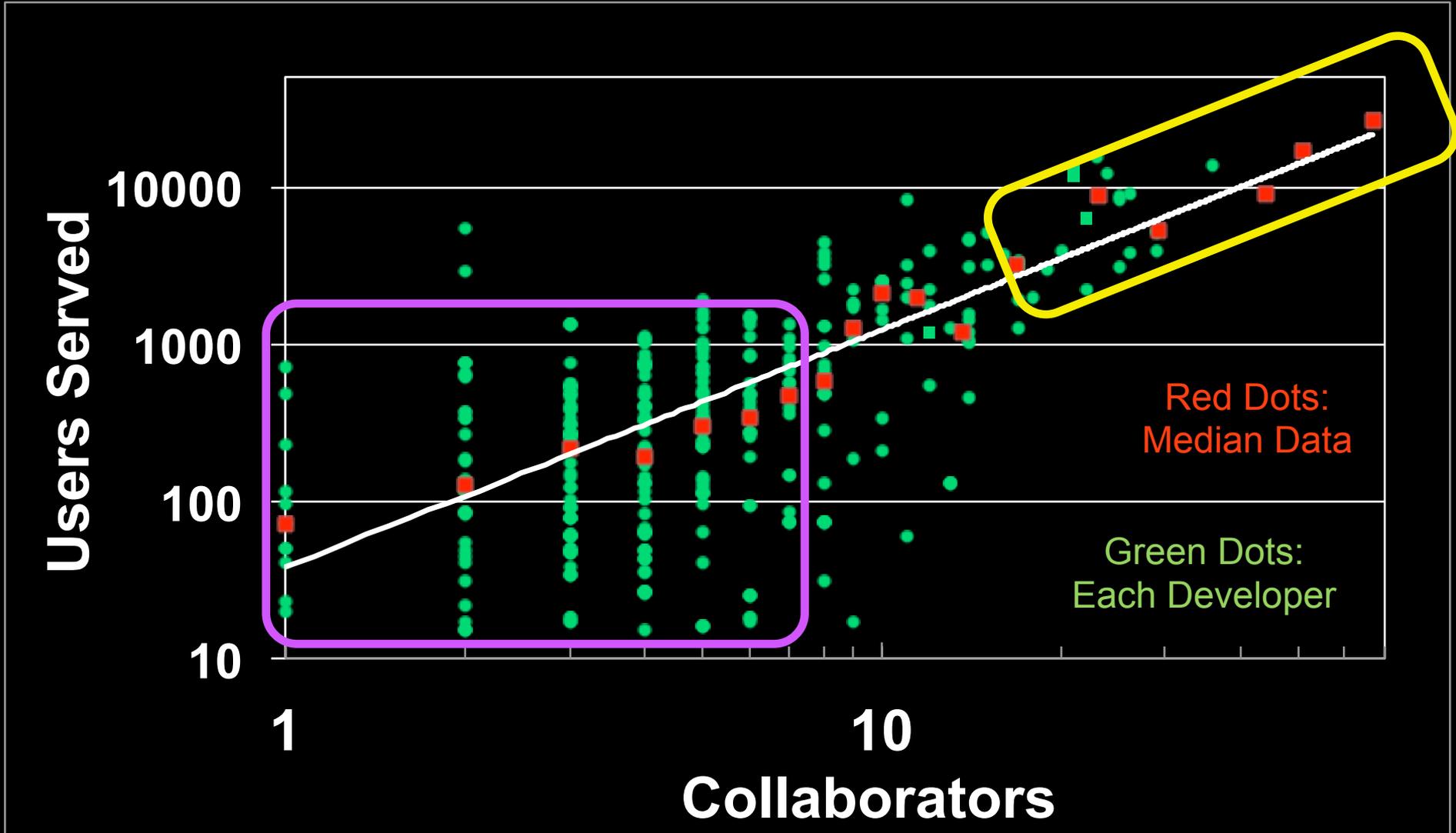
Supplier Network

Developer Collaboration Impact



Small Collaborations:
Scattered Success

Large Collaborations:
Predictable Success



Market

Emerged Myths



Activities on
<http://nanoHUB.org>
in 172 countries

■ New Registrations

● Simulation Users

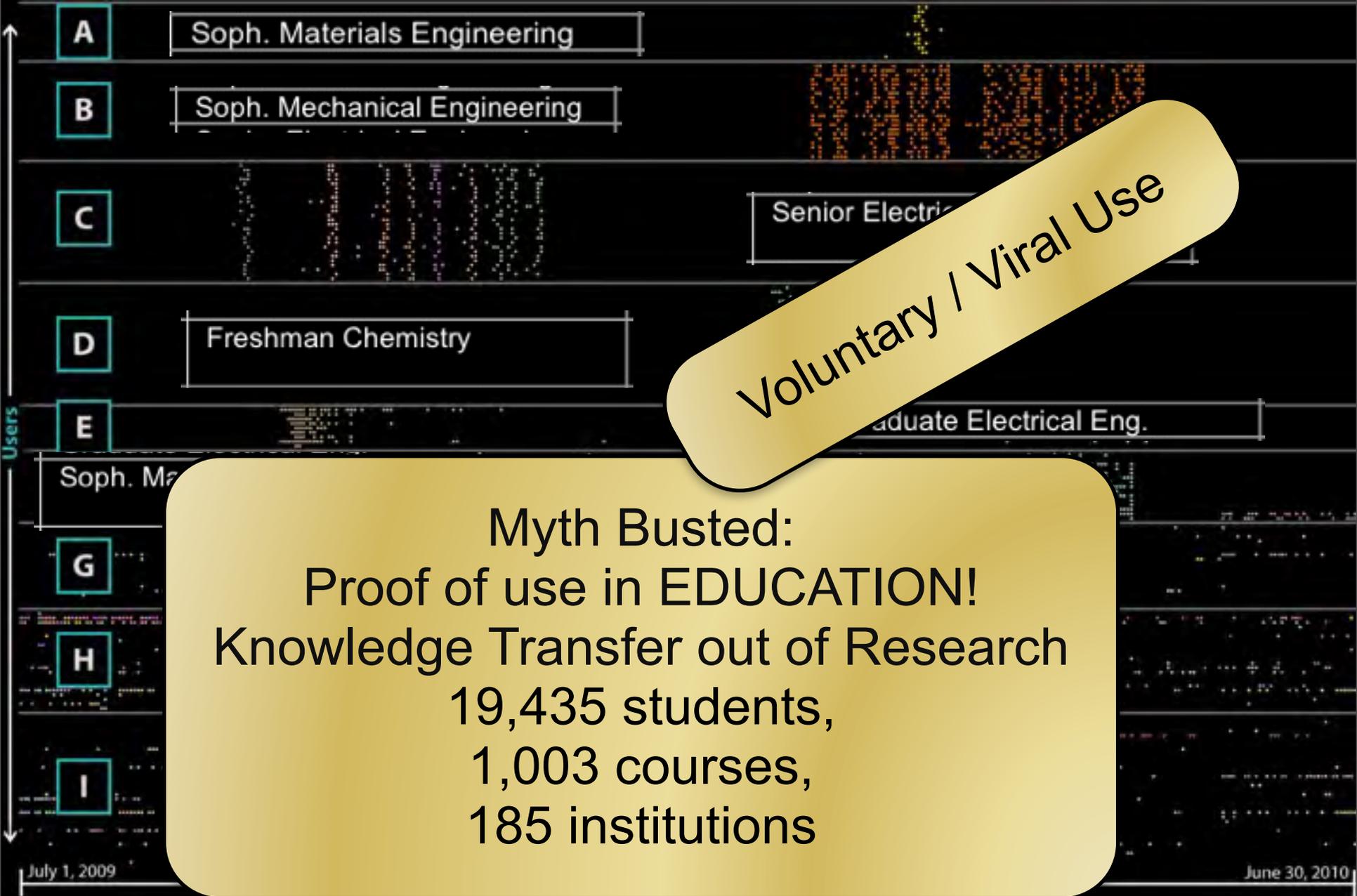
● Tutorial / Lecture Users

Customers

nanoHUB.org usage 2012-02-03 00:00:00

Cannot use research codes for education
Accessible (no installation)
Must write own code to do research
NO End-to-end Science Cloud Possible
Experimentalists cannot use research codes

Formal Education vs. Research

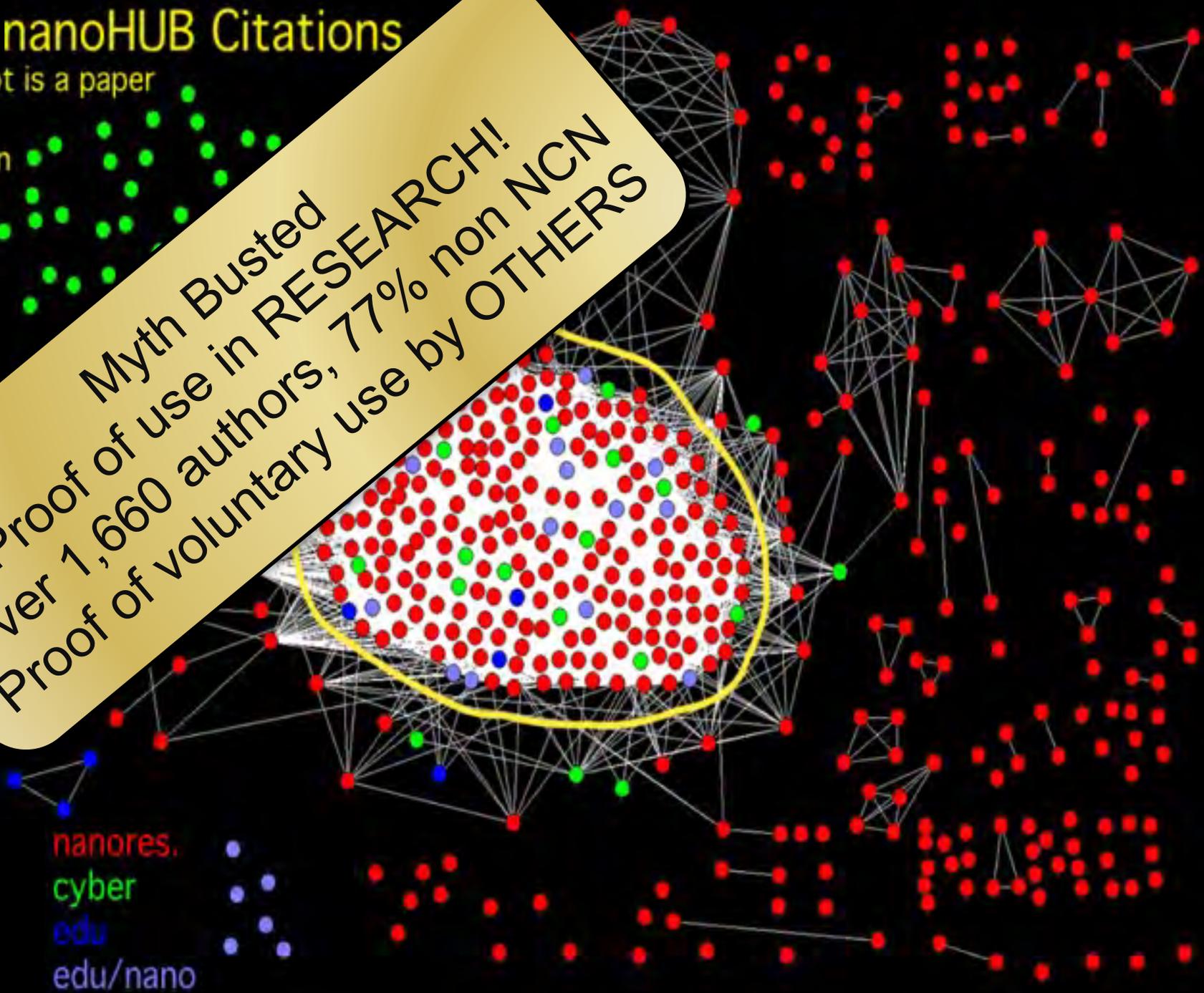


Myth Busted:
Proof of use in EDUCATION!
Knowledge Transfer out of Research
19,435 students,
1,003 courses,
185 institutions

1032 nanoHUB Citations

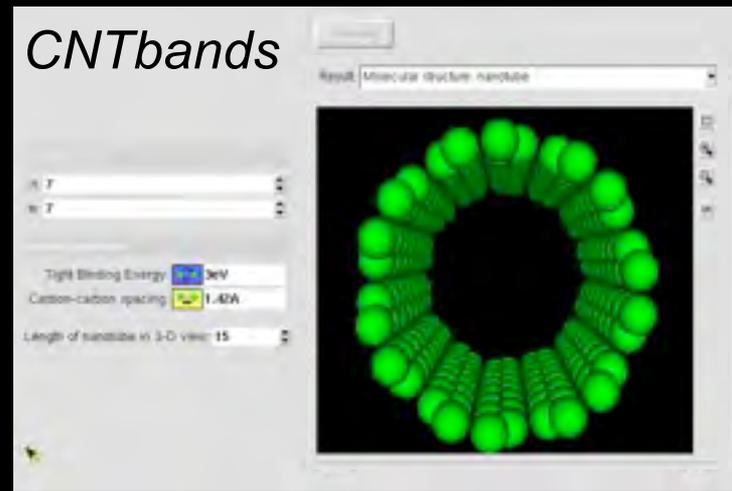
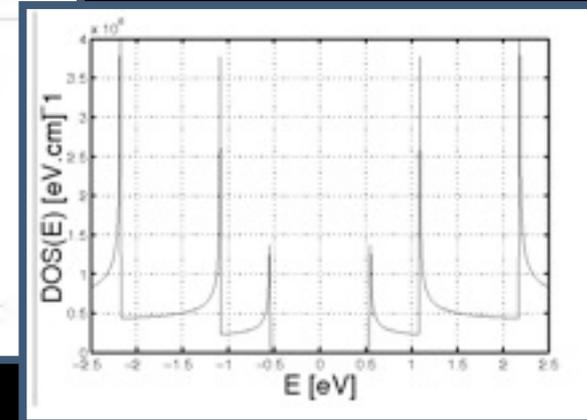
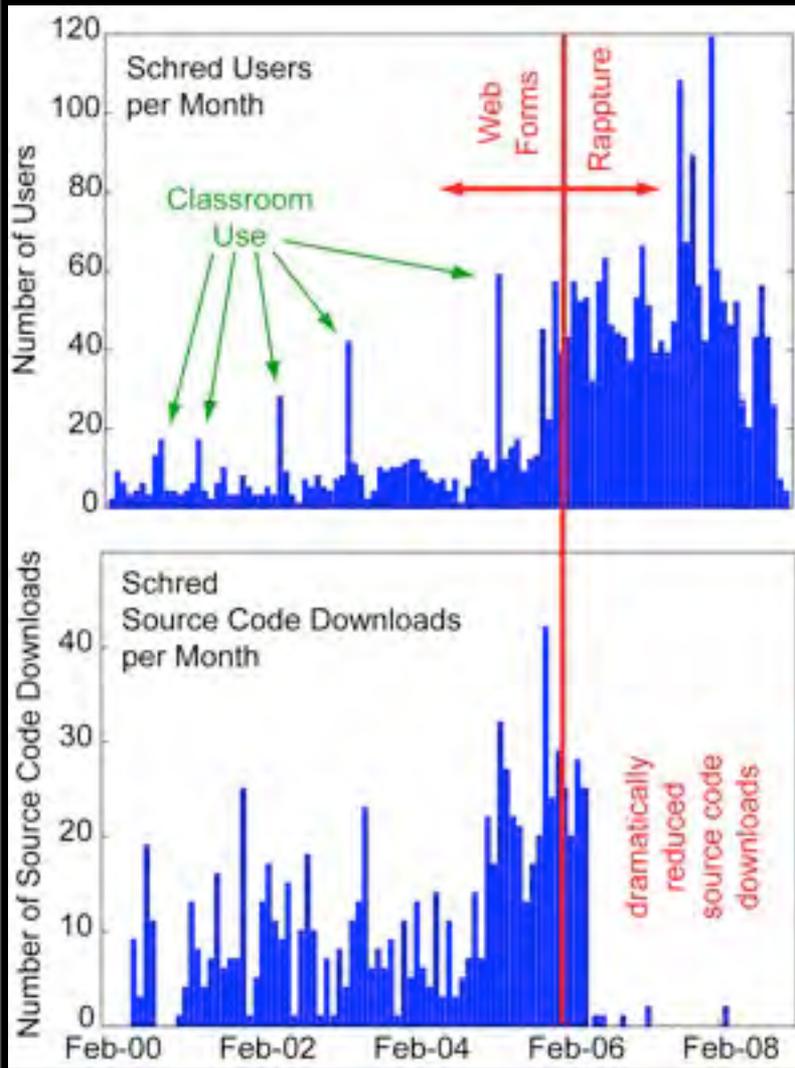
each dot is a paper
line is
common
author

Myth Busted
Proof of use in RESEARCH!
Over 1,660 authors, 77% non NCN
Proof of voluntary use by OTHERS



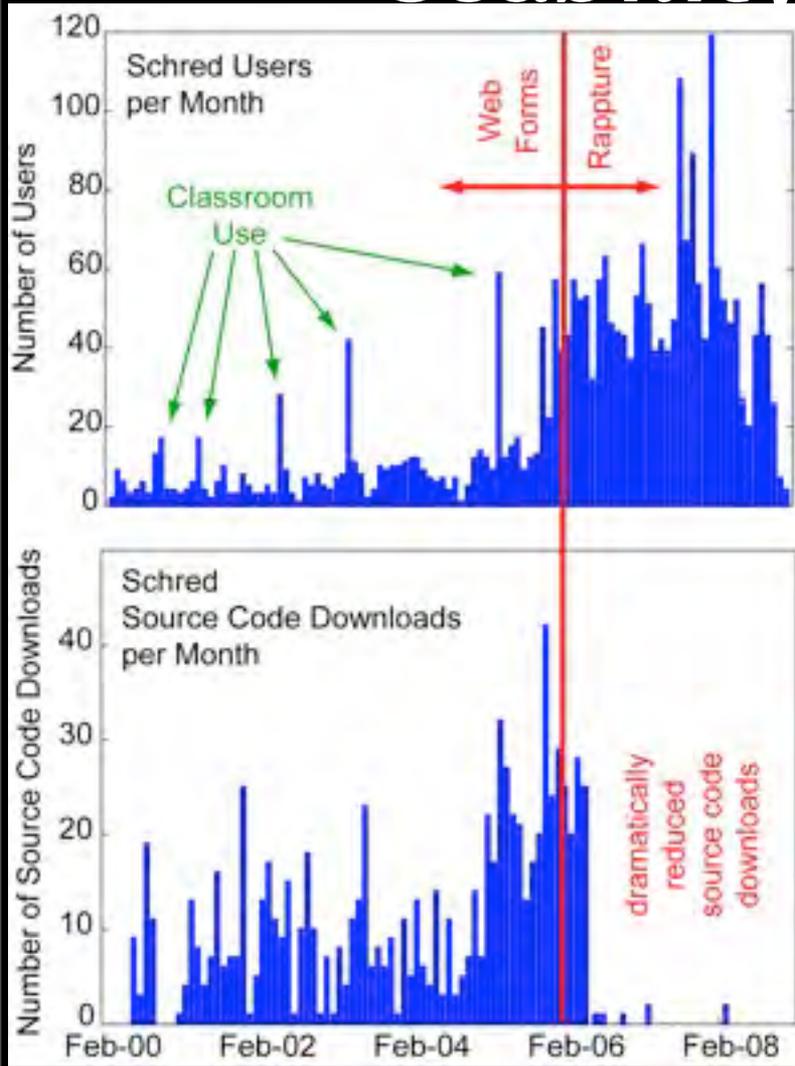
nanores.
cyber
edu
edu/nano

Importance of a good GUI

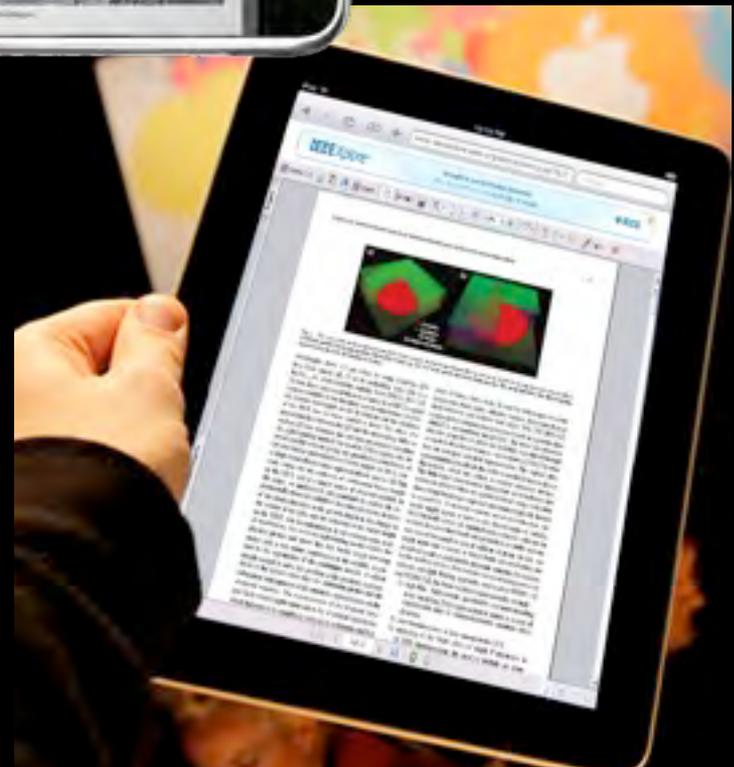
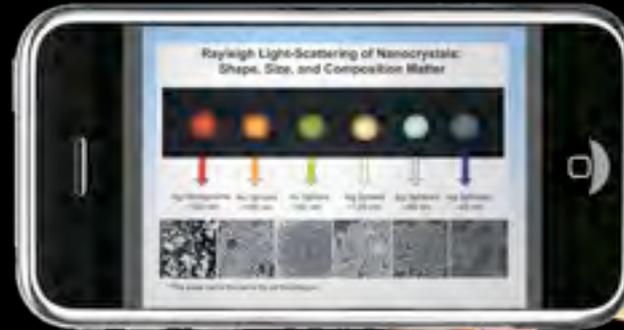


Same behavior across all similar converted tools

Balancing Usability and Capability



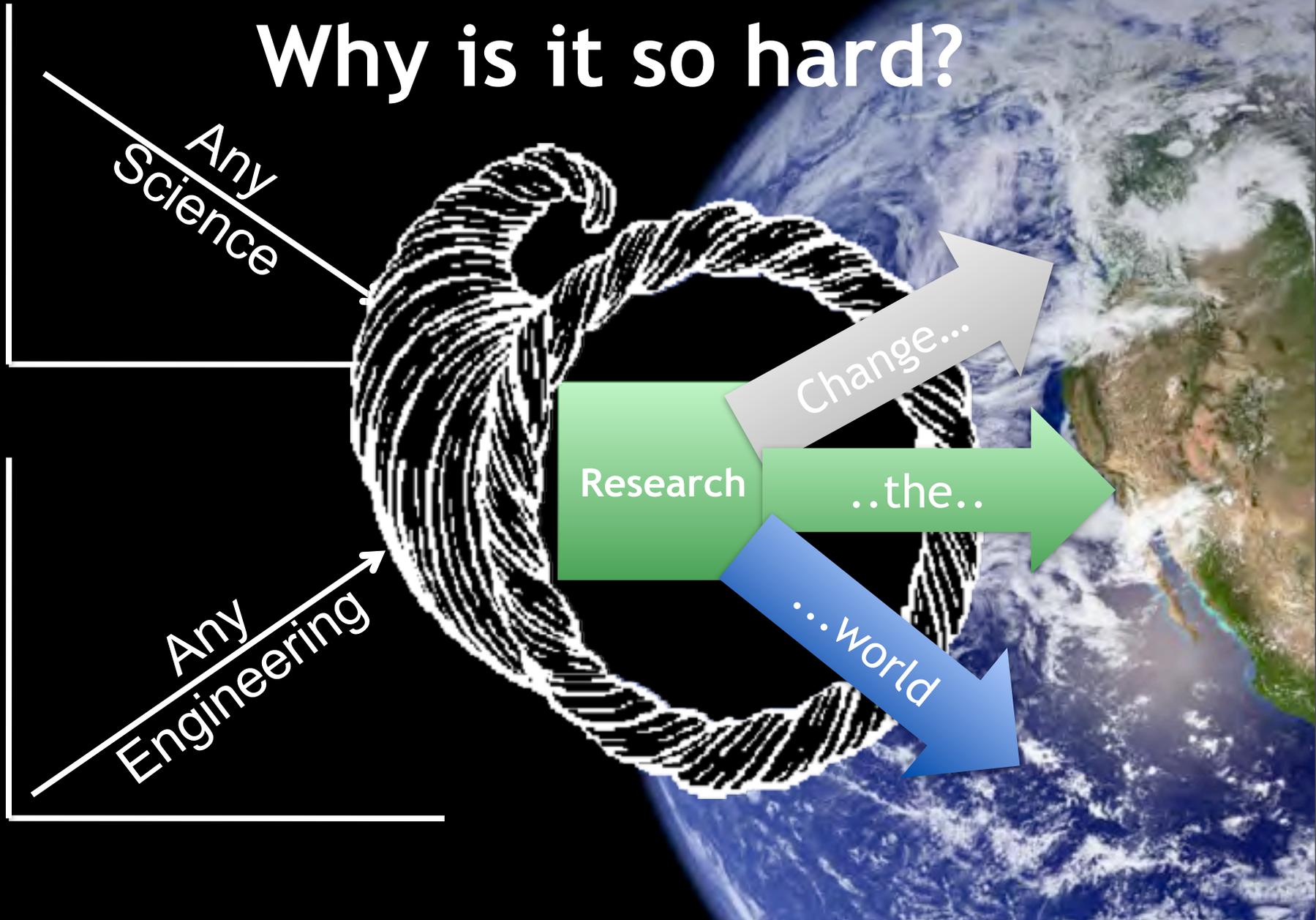
nanoHUB



iPhone / iPad

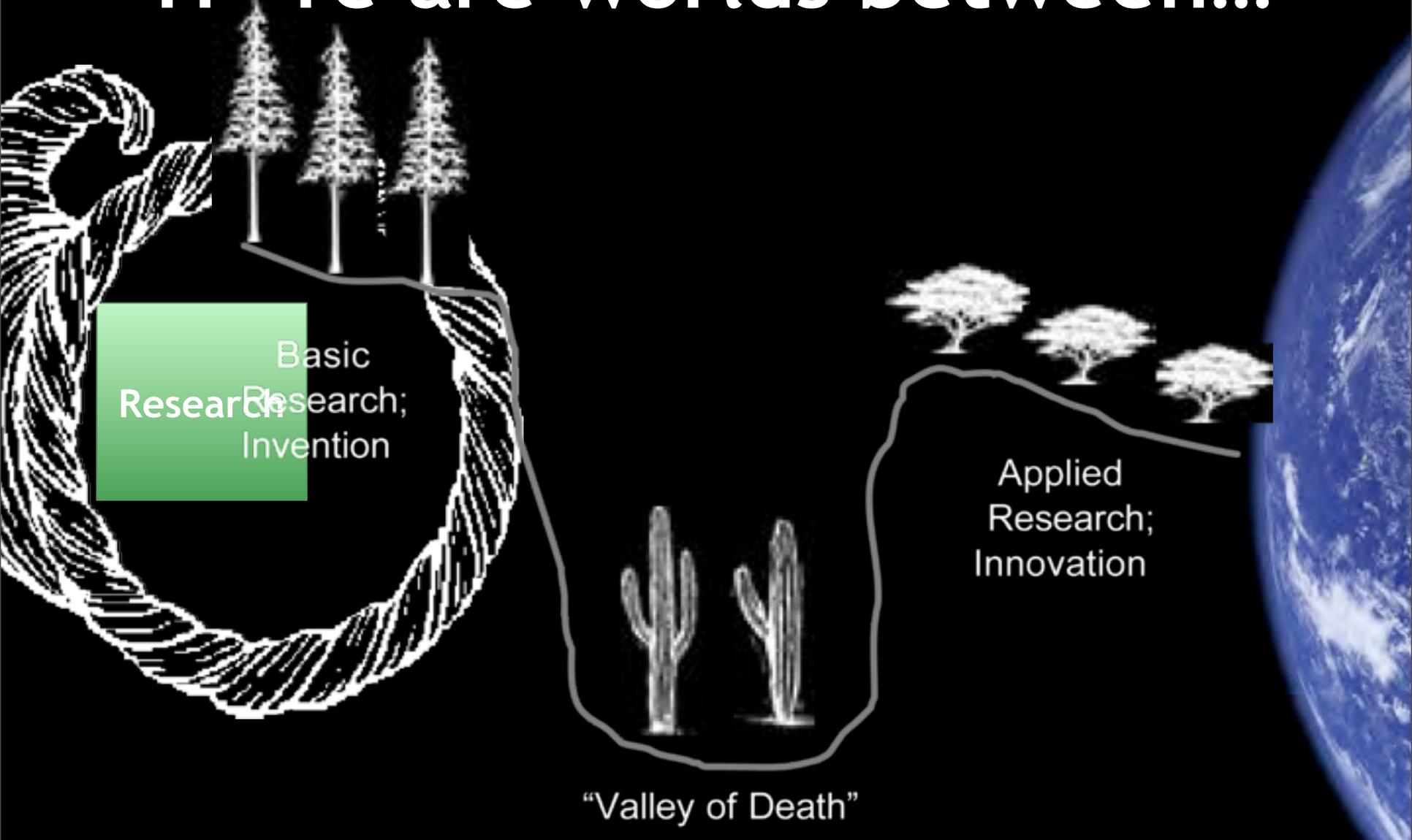
Many Portals Have Promised KT

Why is it so hard?

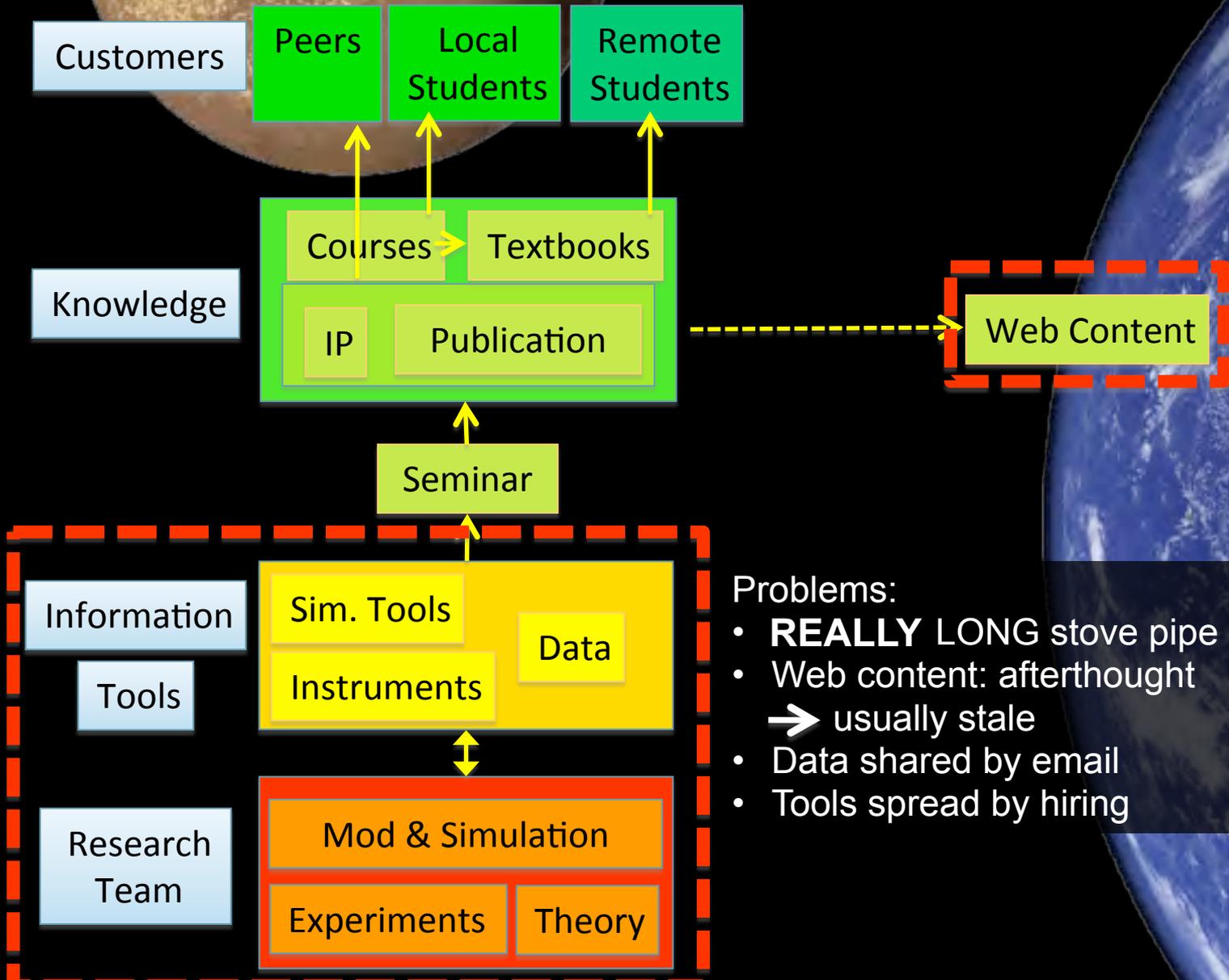


Why is it so hard?

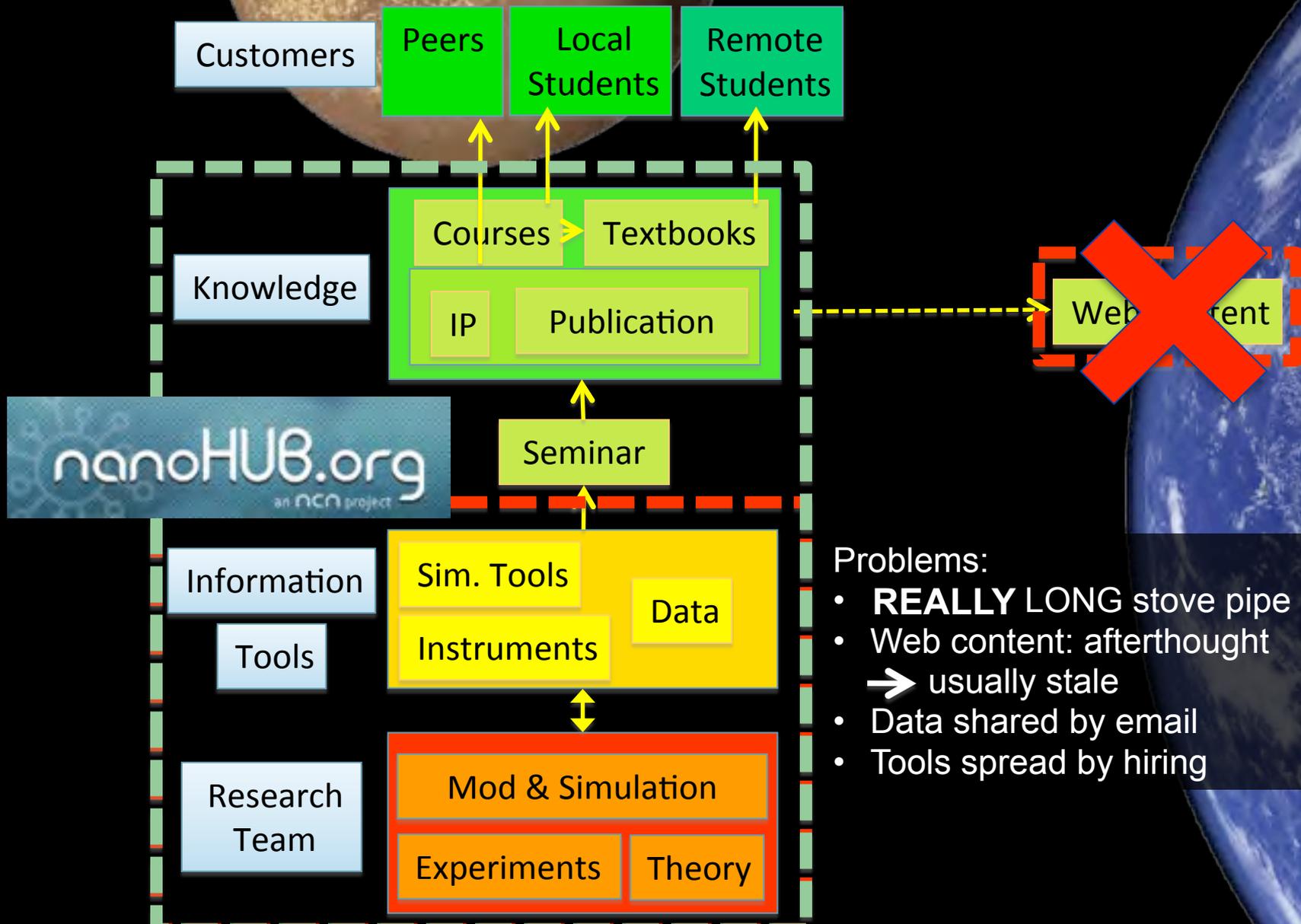
There are worlds between...



Typical Dissemination Paths



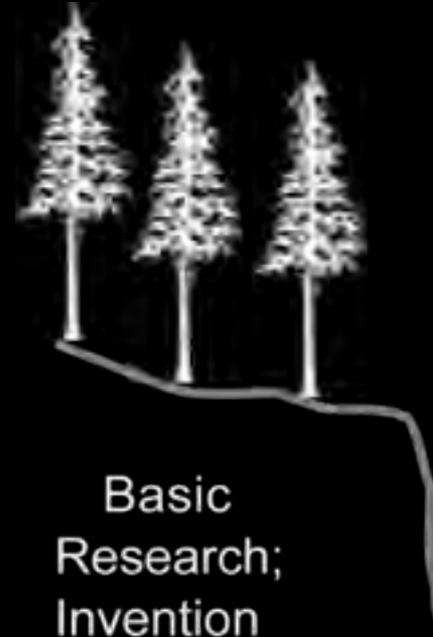
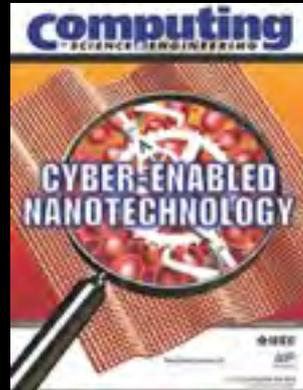
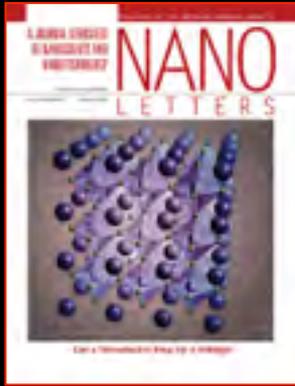
nanoHUB Technical Solution



7 Criteria for Successful Science Gateways

1: Outstanding Science

“Stuff the world wants”



Leveraged Research

\$5.1M 1.5xNSF budget



2: Commitment to Dissemination

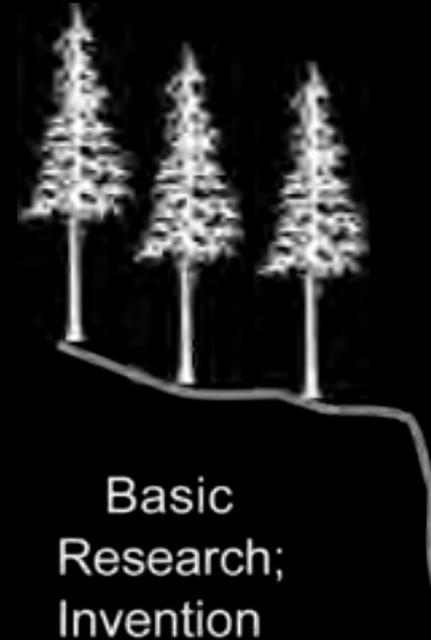
“faculty that want to give it away”

46 faculty



+ 6 site leads

106 grad students



Faculty Incentives

Tool Usage \approx reading papers

Dragica Vasileska



17 tools

→ 11,570 users

→ 123 citations

Proof of Impact!
Great in Proposals!

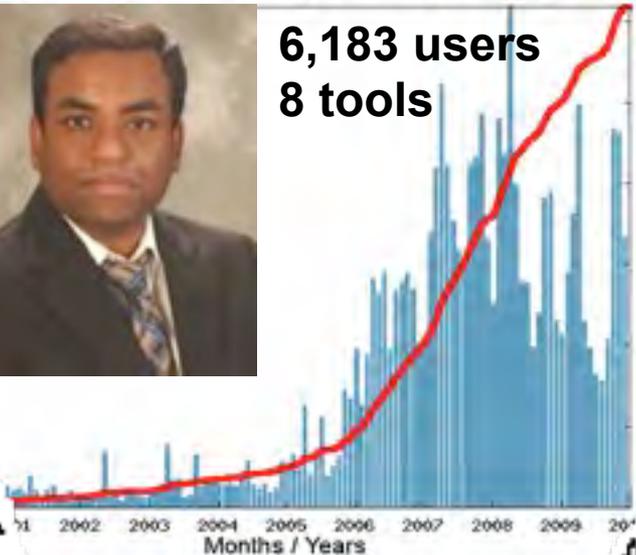
Next Generation Faculty:

Shaikh Ahmed

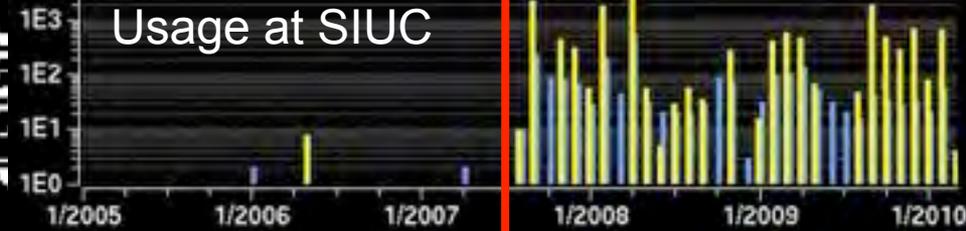
of Simulation Tools Authored by Shaikh S. Ahmed (6,183 Use



6,183 users
8 tools



Usage at SIUC



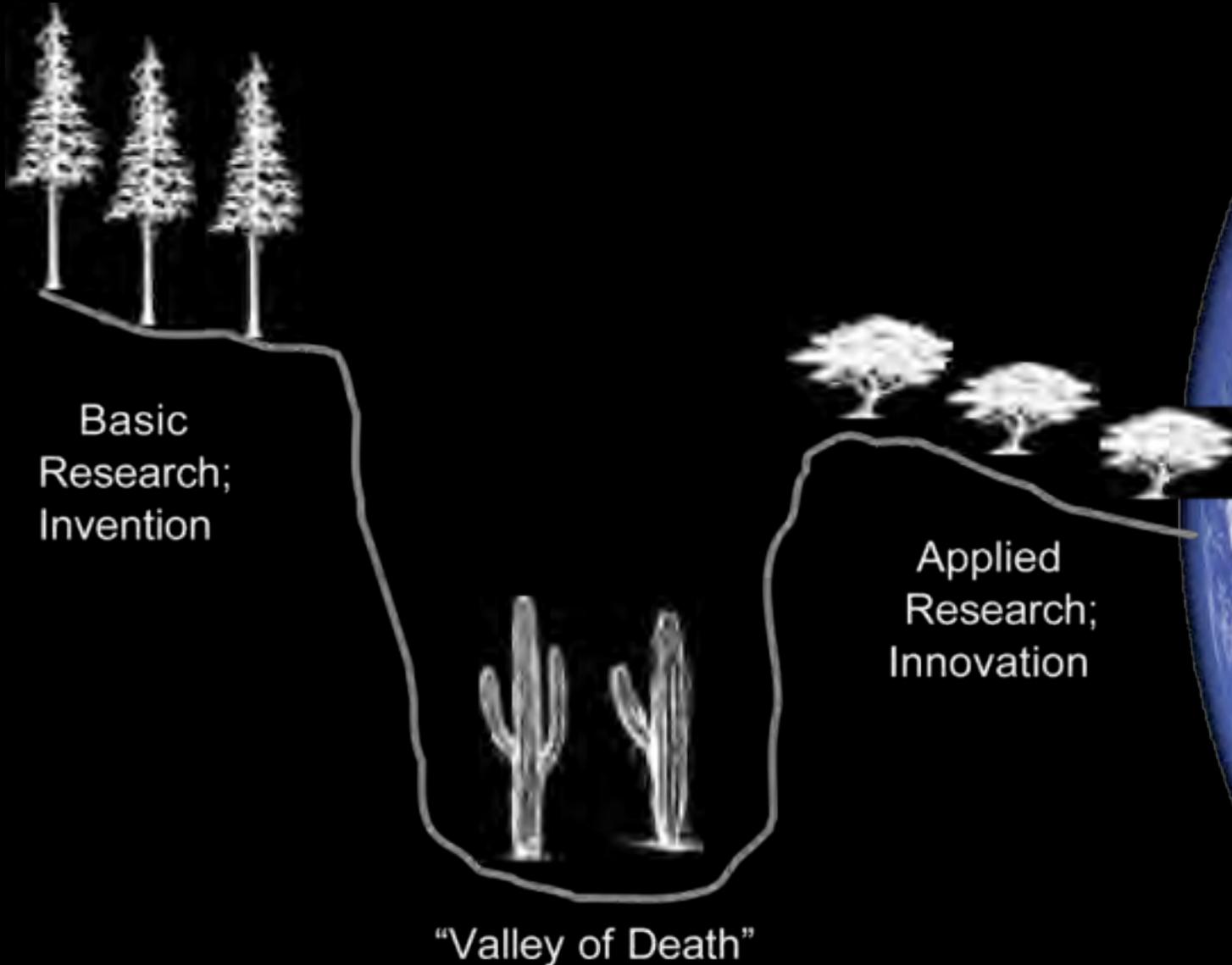
Post Doc
at Purdue

Faculty at
SIUC

- Infused nanoHUB into existing classes
- Built a new nanoelectronics curriculum
- Used nanoHUB for research

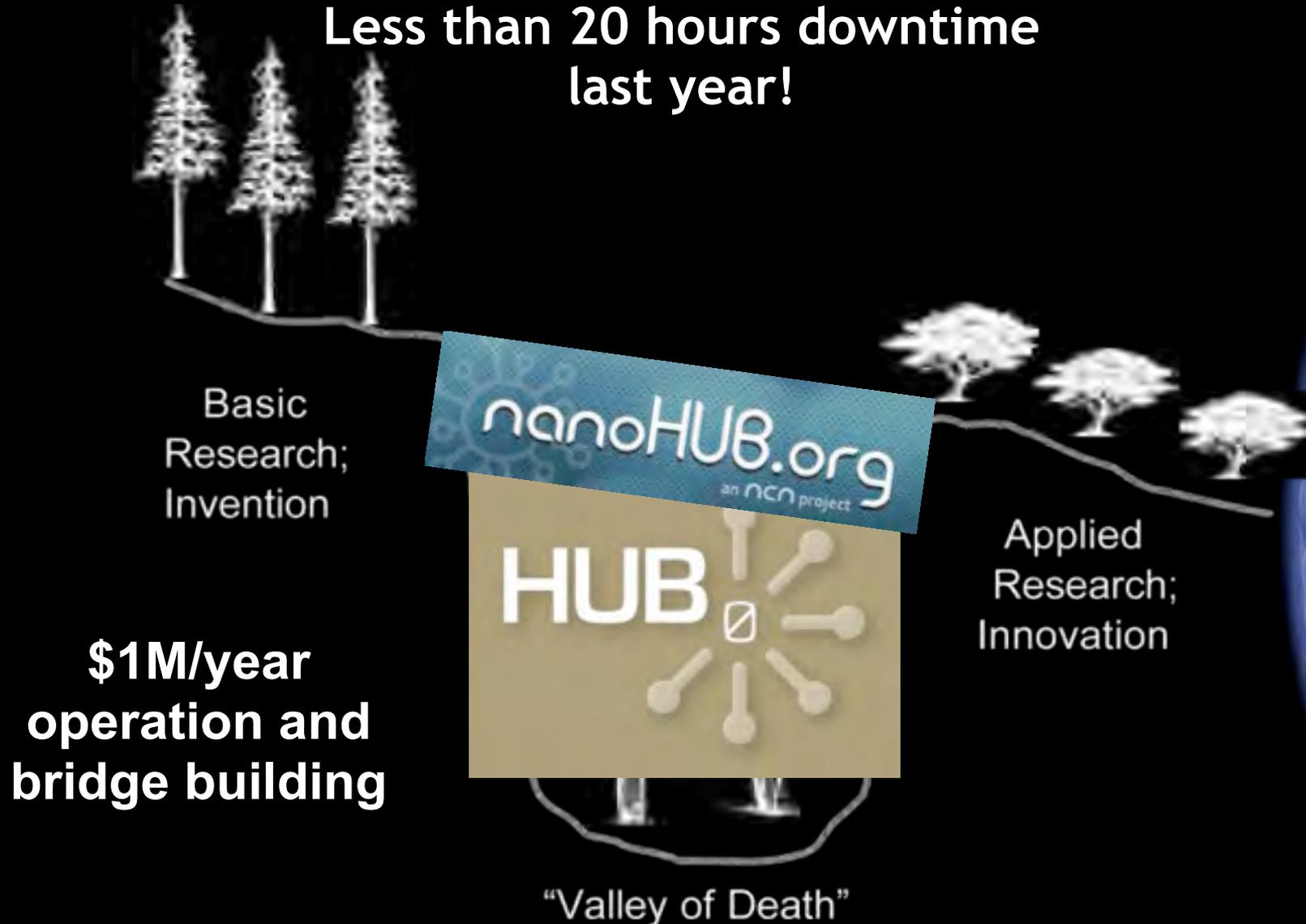
Early Tenure Promotion

3: Technology for Dissemination



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“simple and utterly dependable”
Less than 20 hours downtime
last year!



4: Tech Transfer Processes

~~“dedicated technical site leads”~~

Consultants



Content Creation and Support

~~\$2.2M - 61%~~

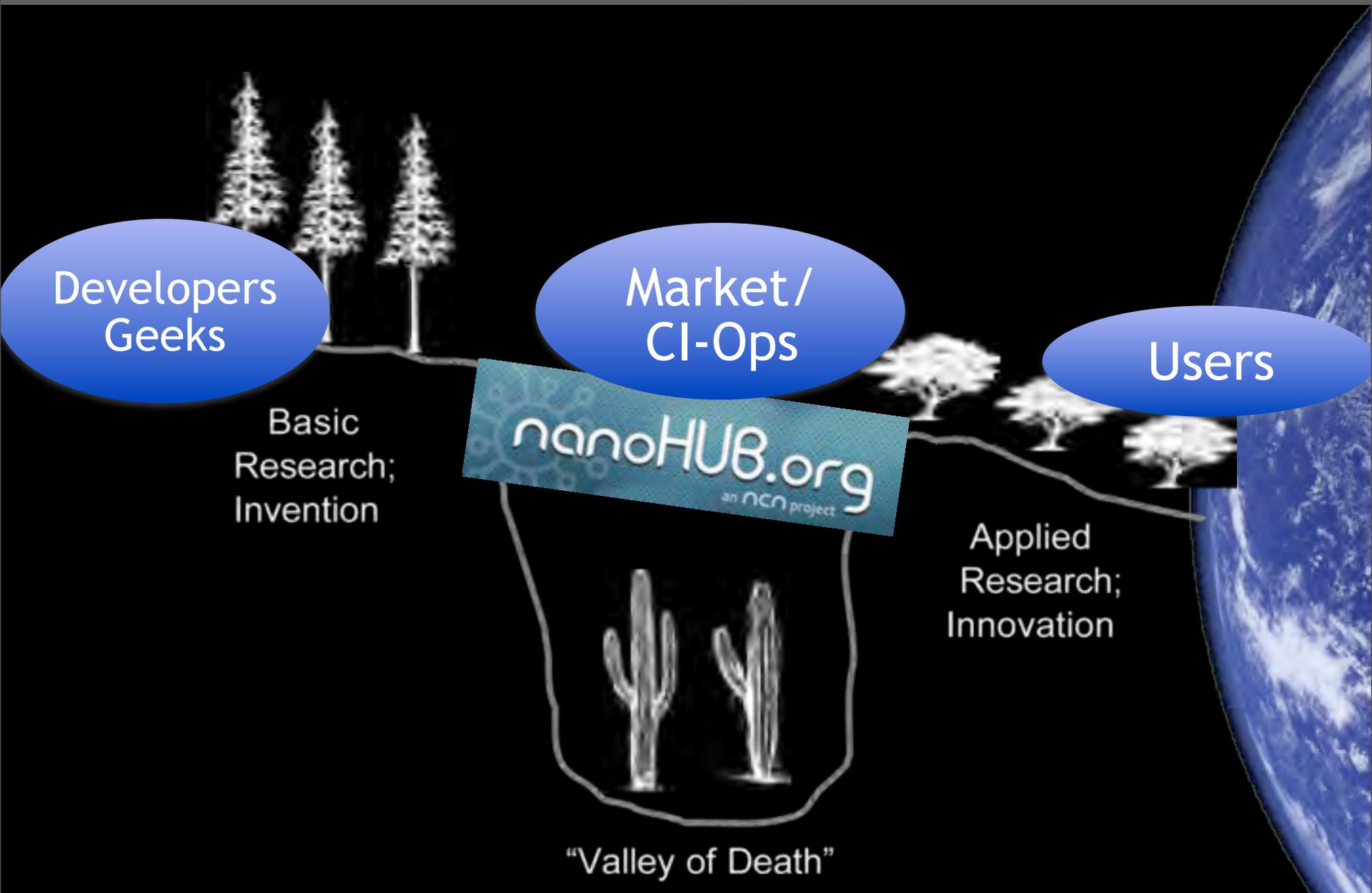
Significant
portion of budget



“Valley of Death”



5: Understanding Stakeholders



5: Understanding Stakeholders



Developers
Geeks

Users

Market/
CI-Ops

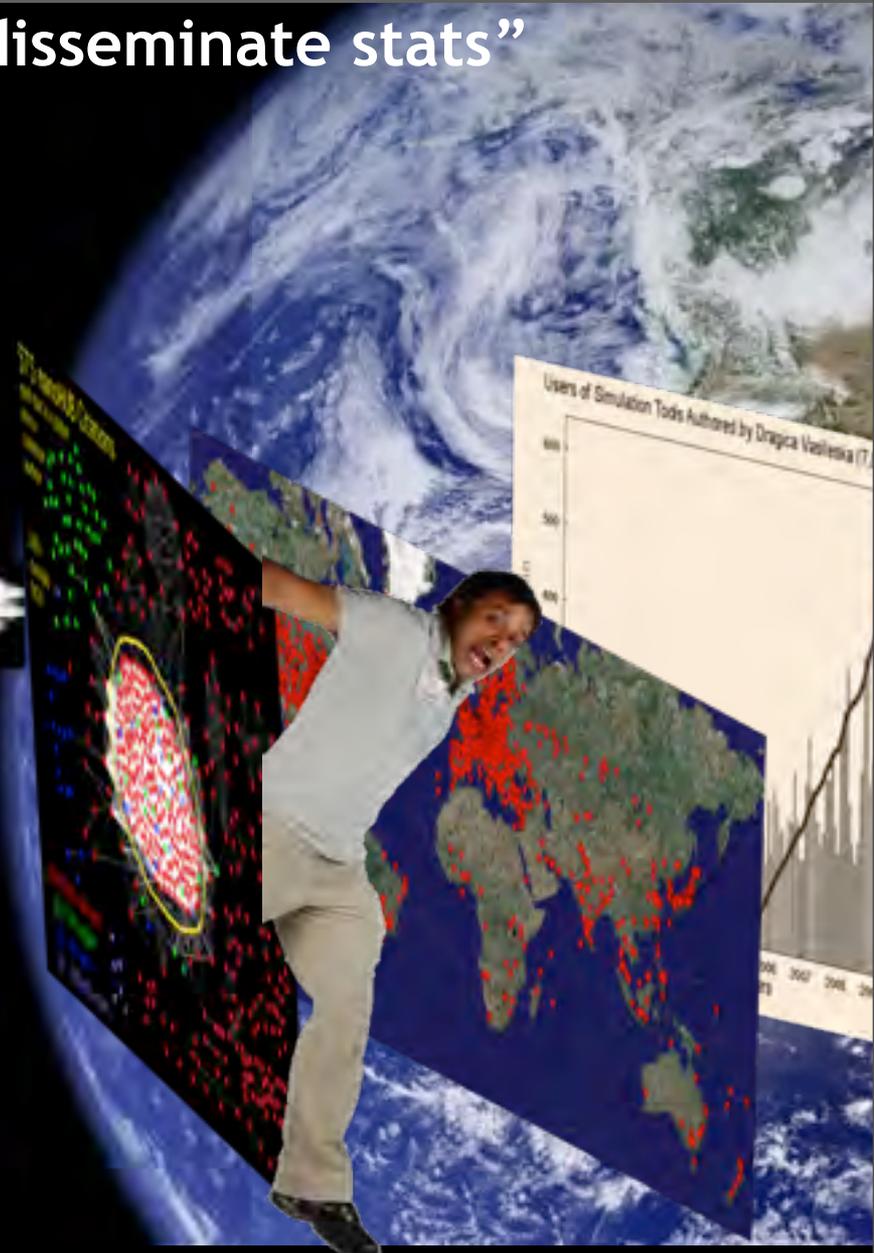
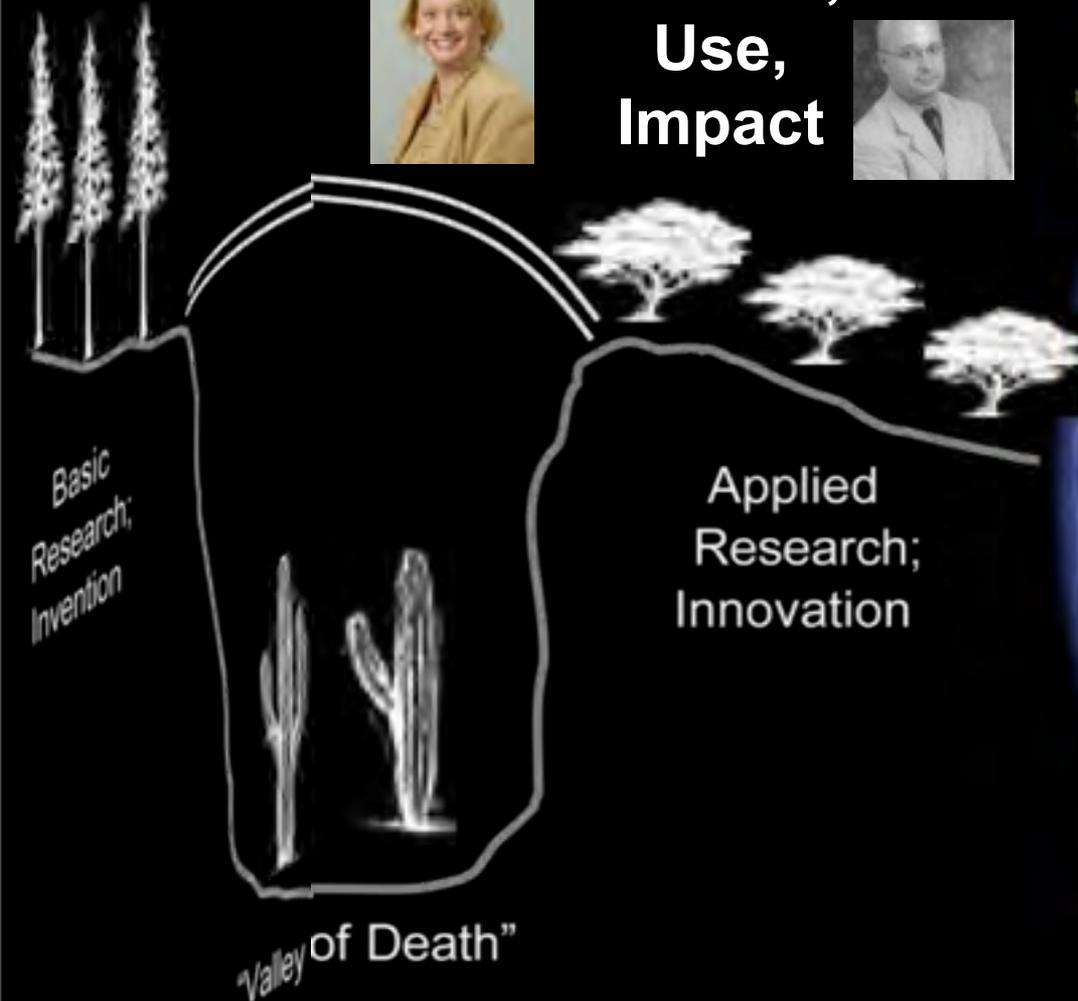
Vibrant Virtual Organizations

6: Open Assessment / Incentives

“gather, understand, disseminate stats”



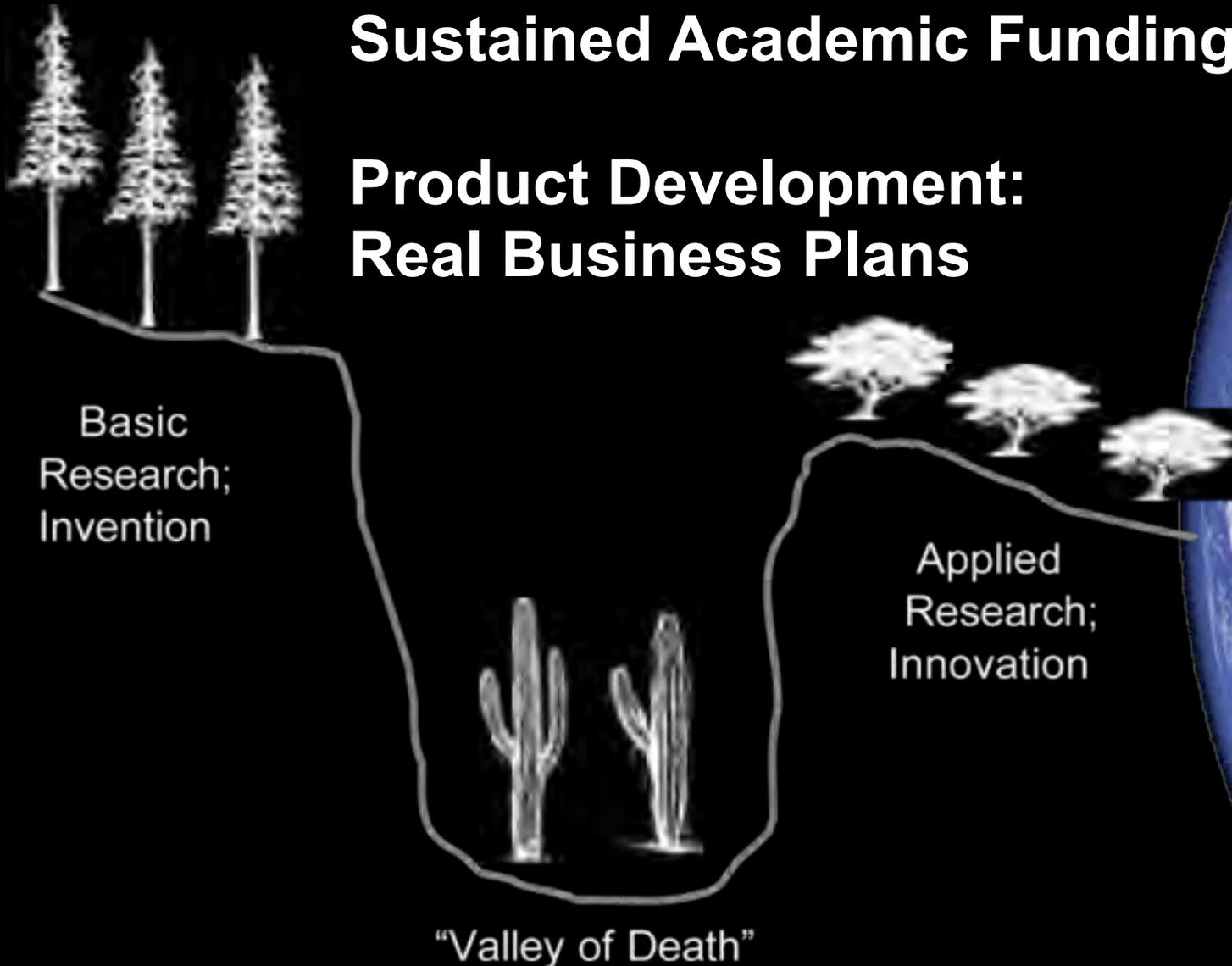
**Access,
Use,
Impact**



7: Business Model

**Research:
Sustained Academic Funding**

**Product Development:
Real Business Plans**





Ask me (later) about:

- Proof of impact of collaborations
- Link of research and education
- nanoHUB to host data
- interactive journals

7 Criteria for Successful Science Gateways

1. Outstanding Science (lots of it)
2. Commitment and Incentives to Dissemination
3. Understanding Users
4. HUB Technology
5. Tech Content Stewardship (user-oriented PhD)
6. Open Assessment, Stats, Impact Metrics, etc.
7. Business Operational Model