Purdue, Norfolk State, Northwestern, MIT, Molecular Foundry, UC Berkeley, Univ. of Illinois, UTEP

Success Criteria for Establishing a Thriving HUBzero Based Site: A Model for Science 2.0

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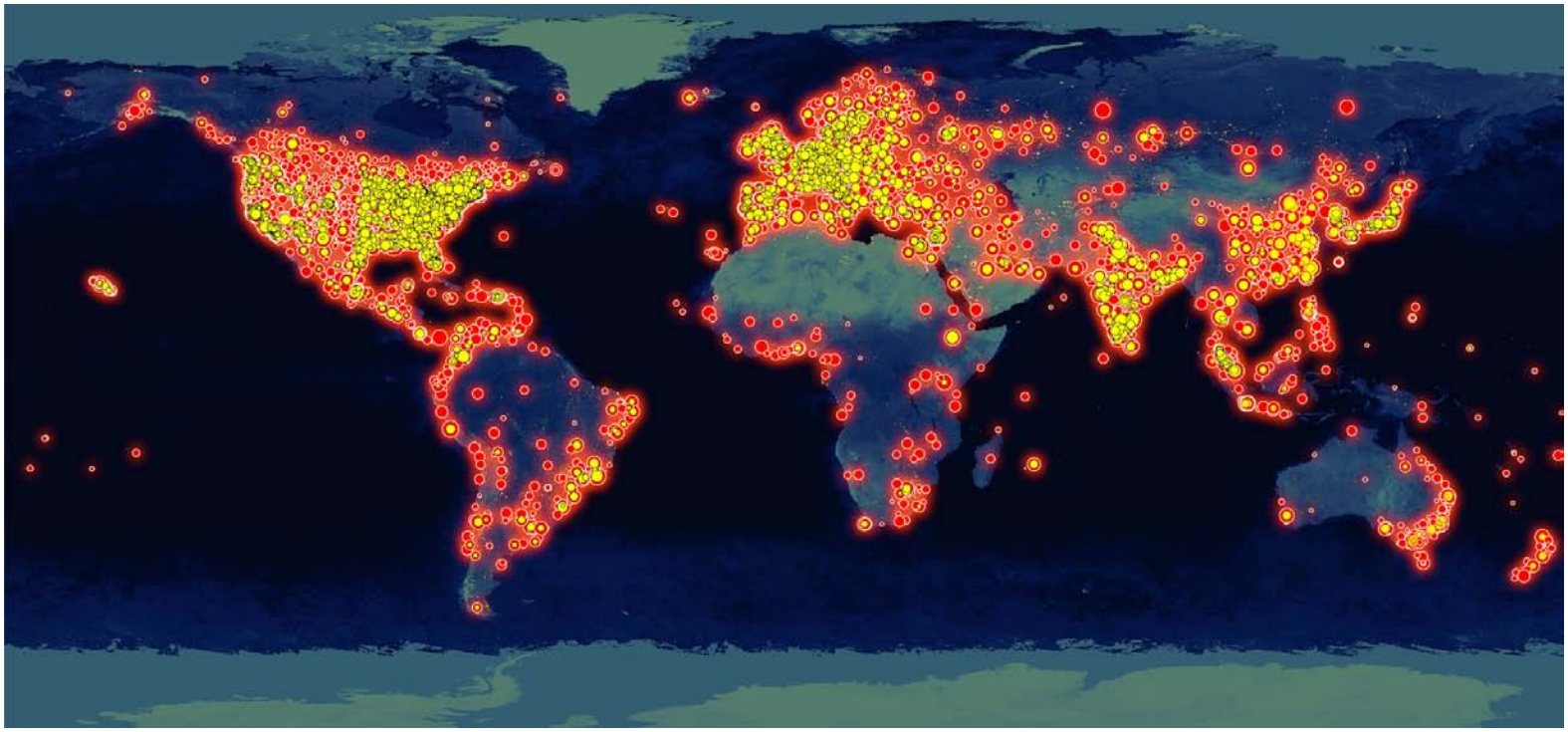
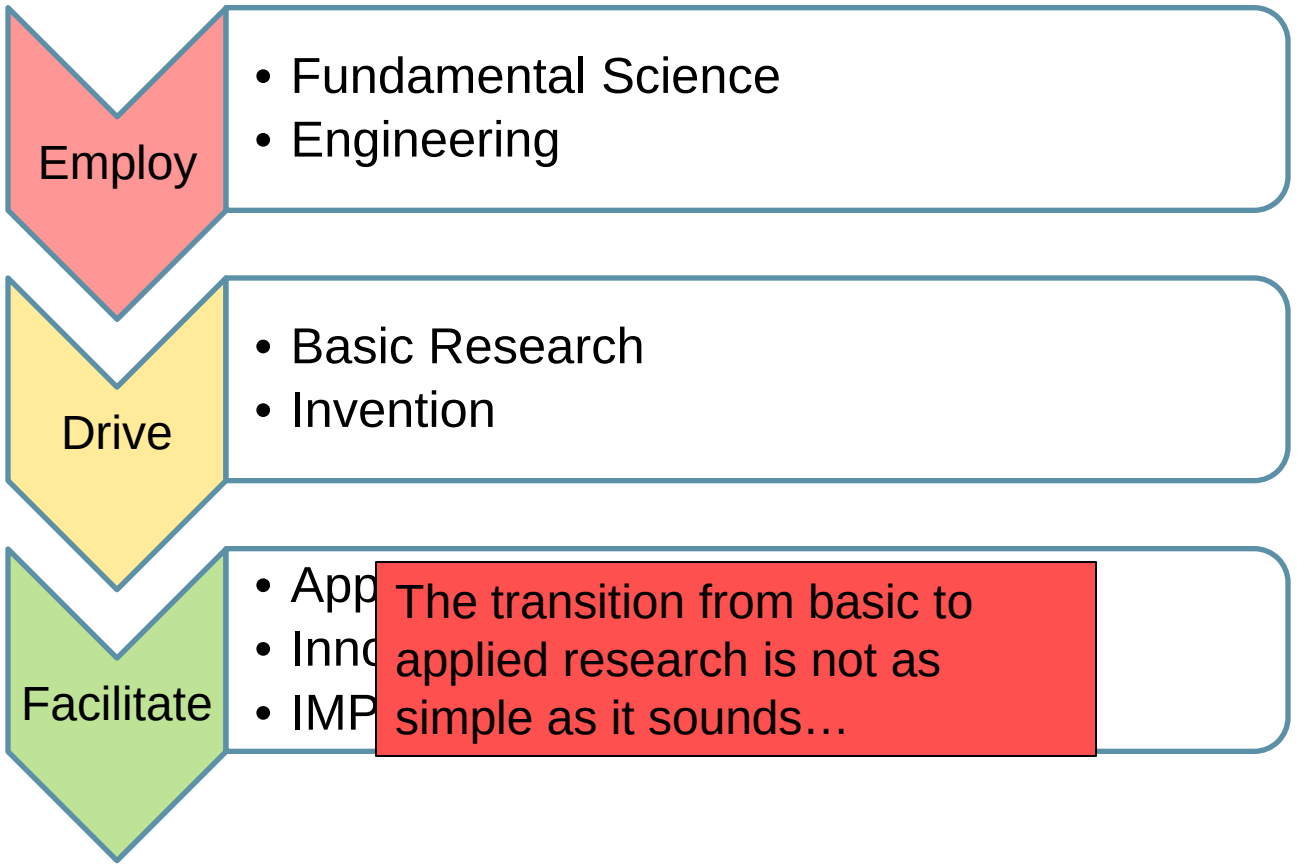
PURDUE UNIVERSITY

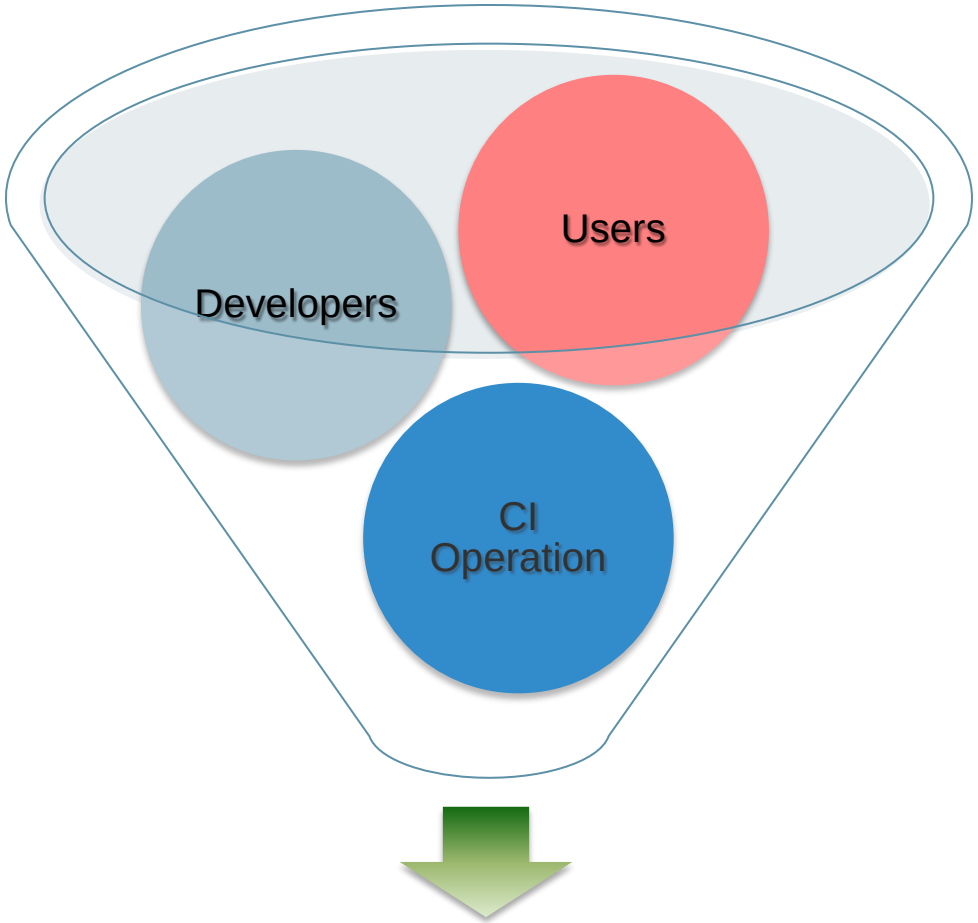
- nanoHUB - the world's largest nanotechnology user facility
  - » Over 170,000 users annually
  - » Over 2300 resources
    - ✓ Full courses, lectures, and workshops
    - ✓ Downloads, animations, podcasts
    - ✓ Nearly 200 simulation programs (tools)



The Vision for a Science Gateway



When it all works together…

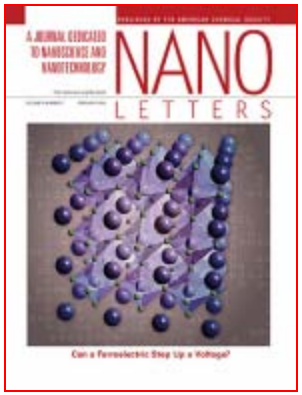


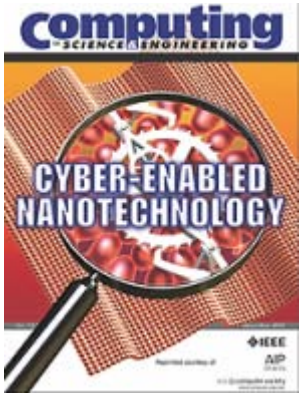
Vibrant and Impactful VO

7 Criteria for Successful Science Gateways

1. Outstanding Science

- Basic research – invention
- "What the world wants"
  - » Meets the needs of a broad community
- Leveraged research
  - » 7 NCN sites – each with a research focus
  - » Partnerships with industry





NRI nanoelectronics RESEARCH INITIATIVE

SRC Semiconductor Research Corporation

intel

IBM

MARCO

INDEX Institute For Nanoelectronics Discovery And Exploration

nanoHUB.org

2. Commitment to Dissemination

- Buy in from the faculty community
  - » Faculty willing to give it away free

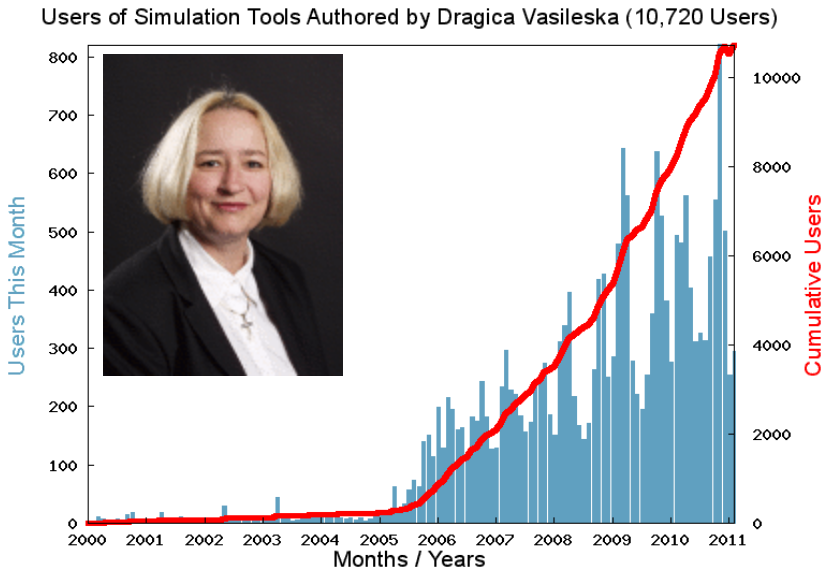
- Lead by example - NCN
  - » 44 faculty
  - » 7 site leads
  - » 23 post docs
  - » 106 grad students
  - » 38 undergrads
  - » 19 SURF/REU undergrads

Taking the lead in content generation and deployment

- Some faculty may ask – “What is the payoff?”

Faculty Incentives

Dragica Vasileska



Tool Usage ≈ reading papers

16 tools

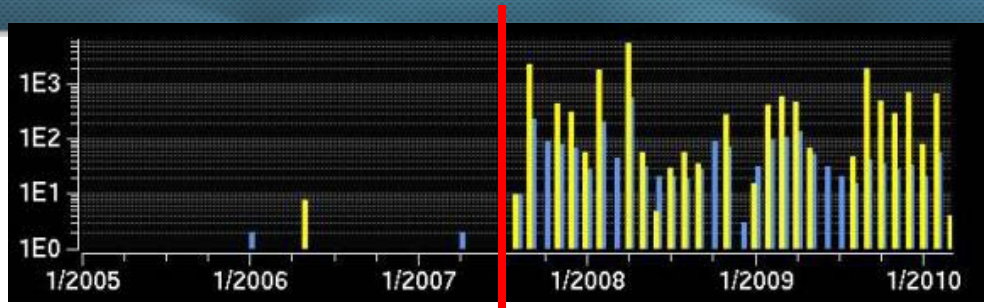
➔ Over 10,000 users!

➔ 115 citations

Proof of Impact -
Great in Proposals

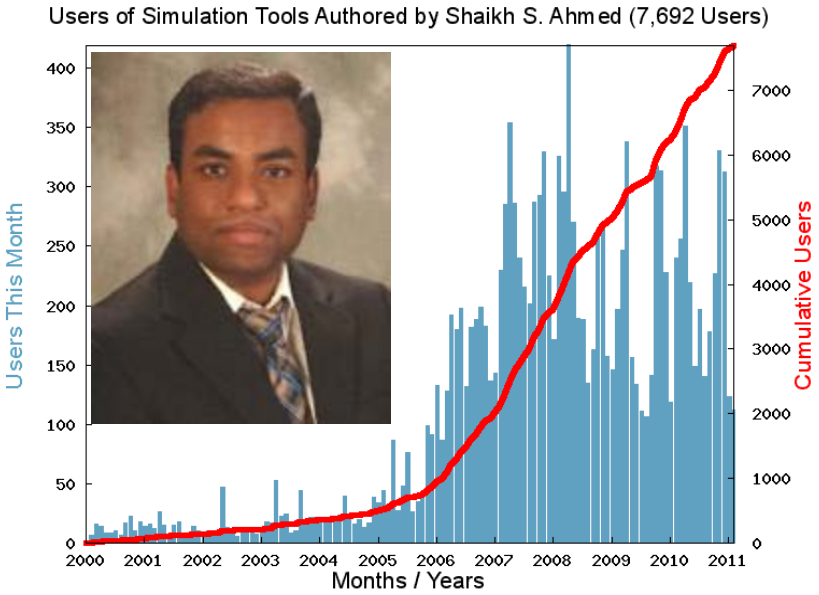
Next Generation Faculty

Shaikh Ahmed



Post Doc at Purdue | Faculty at SIUC

7,703 users
14 tools



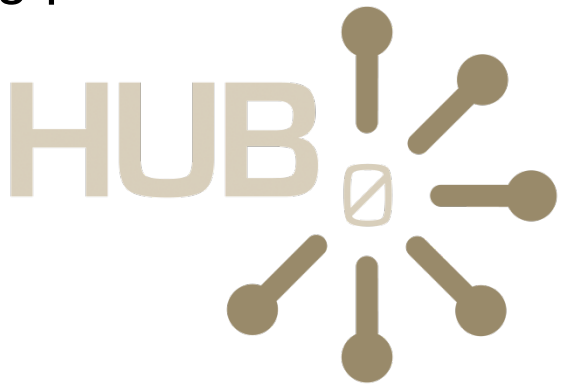
- Infused nanoHUB into existing classes
- Built a new nanoelectronics curriculum
- Used nanoHUB for research

Early Tenure Promotion

3. Understand Users

- Eliminate software installation
  - » Not allowed or no experience or no time
- Understand experience and time constraints
  - » No Manuals
    - ✓ Experience should be like using a rental car
  - » Minimize learning curve
    - ✓ No time in already busy schedule
- Immediate access & instant feedback
- Visualize and compare results

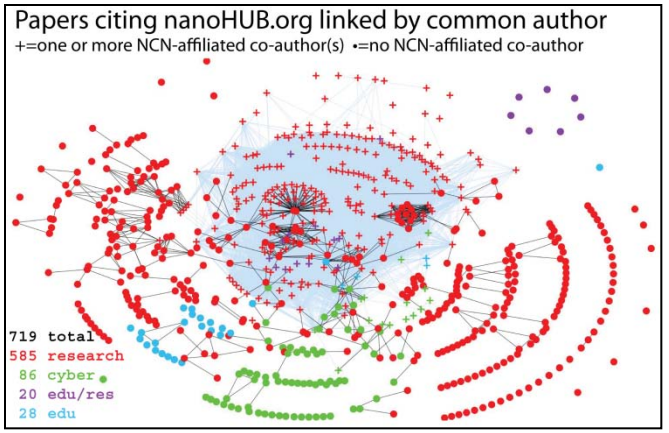
4. Technology for Dissemination - underlying platform
   - » Simple and utterly dependable
   - » nanoHUB – 99.6% uptime last year
   - » Funds dedicated to operation



5. Technology Transfer Process
   - » NCN – Dedicated site leads at associated sites
   - » Facilitate content creation and provide support
   - » Recruit contributors

6. Open Assessment/Incentives

- Gather, understand, disseminate stats
  - » Access
  - » Use
  - » Impact



- Measure impact of HUB – citations
- Quality – secondary citations

- Incentivize participation with usage stats
  - » e.g., Vasileska & Ahmed

- Are we meeting our goal?

Science & Engineering → Invention → Innovation

7. Business Model

- What's the next step?
- Continued research – sustained academic funding
- Product development – real business plans