

INTERSECTION

The Planet, Careers, STEM and YOU

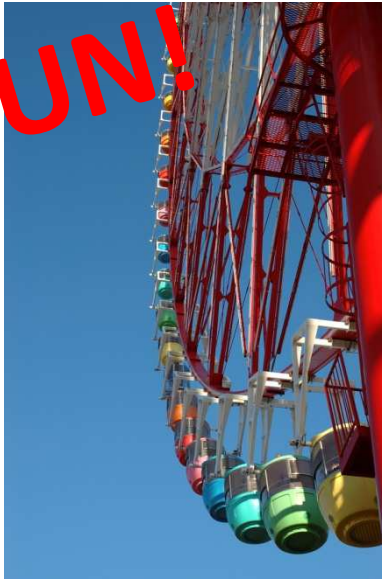
Rutgers University

May 2012



Why did you choose SCIENCE!

FUN!



THRILLING!

CHALLENGING!



EXPECTED!



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STEM...careers!



The screenshot shows the homepage of the U.S. Department of Commerce Economics & Statistics Administration. The header includes the agency name and a search bar. The main navigation menu lists: HOME, ABOUT US, NEWSROOM, ECONOMIC BRIEFING, ECONOMIC INDICATORS, REPORTS, and CONTACT US. The breadcrumb trail reads: Home > Reports > 2011 > STEM: Good Jobs Now and For the Future. The article title is "STEM: Good Jobs Now and For the Future", submitted on July 14, 2011, with the category "2011". A link for a "Printer-friendly version" is provided. The article text states that STEM workers drive innovation and competitiveness, and that U.S. businesses frequently voice concerns over the supply and availability of STEM workers. It notes that growth in STEM jobs was three times as fast as growth in non-STEM jobs over the past 10 years. A bulleted list of statistics follows:

- In 2010, there were 7.6 million STEM workers in the United States, representing about 1 in 18 workers.
- STEM occupations are projected to grow by 17.0 percent from 2008 to 2018, compared to 9.8 percent growth for non-STEM occupations.
- STEM workers command higher wages, earning 26 percent more than their non-STEM counterparts.
- More than two-thirds of STEM workers have at least a college degree, compared to less than one-third of non-STEM workers.
- STEM degree holders enjoy higher earnings, regardless of whether they work in STEM or non-STEM occupations.

INTERSECTION



The Problem

Scientific solutions are needed to address major global issues



The Solution

Scientists and engineers



...are the key to the solution!!!



The Solution



Innovation *Working* Definition

Innovations: Scientific results that are *translated from research to practical use and deployed effectively as solutions* to market needs...



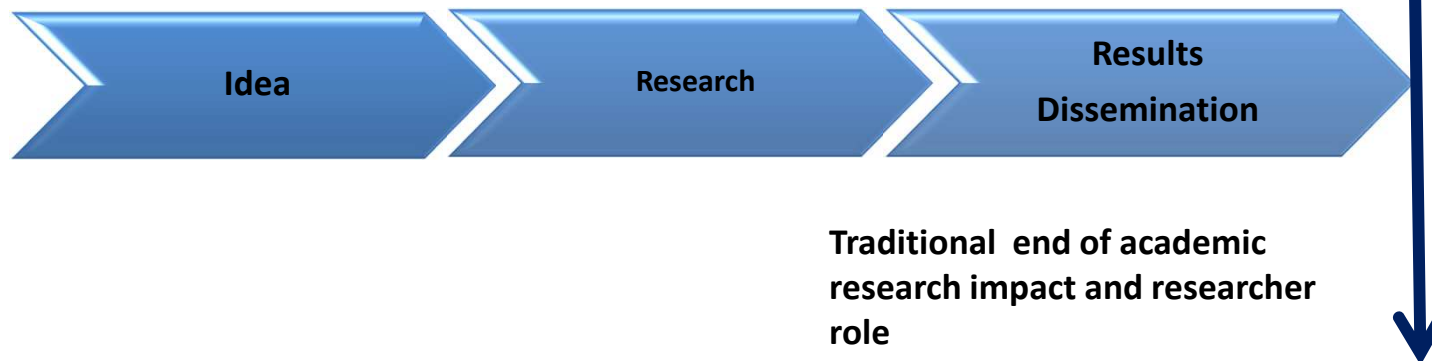
Transatlantic dialogue



The academic research mission

- Gain knowledge and an understanding of the world
- Disseminate and share results
- Train future STEM practitioners

Lens of Research Impact

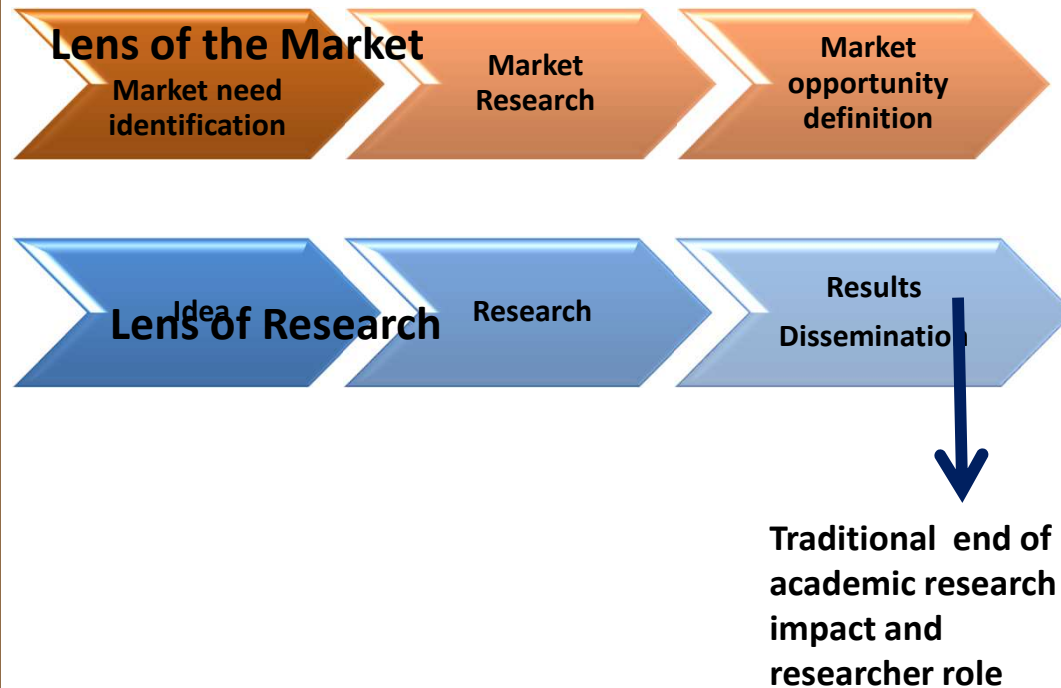


**Traditional end of academic
research impact and researcher
role**



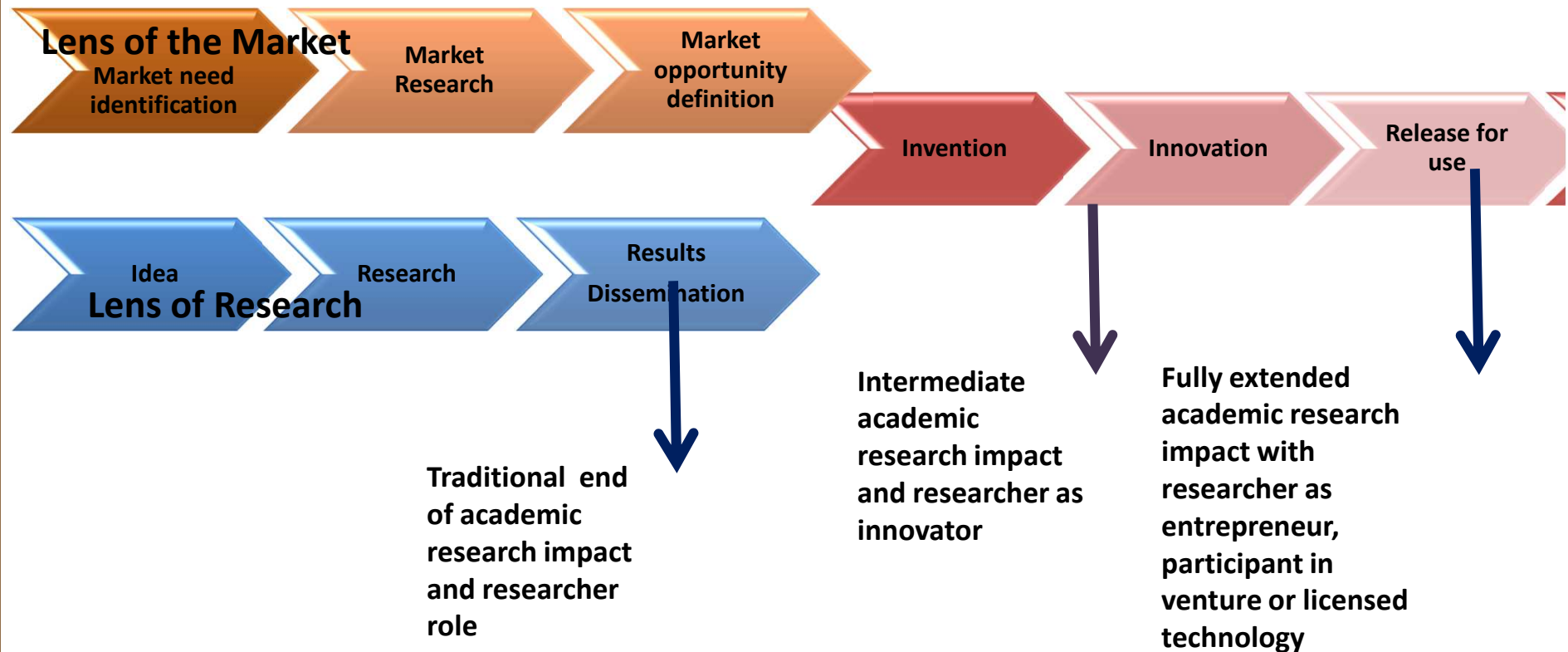
Academic research mission – extended view

- Use the lens of the market as another mechanism for providing a context for conducting research.

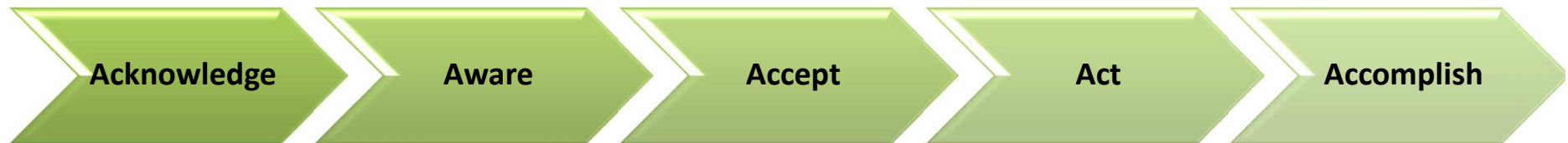


Academic research mission – extended view

- Use the lens of the market as another mechanism for providing a context for conducting research.



Embracing the extended view...



Means embracing a personal change process that goes beyond being solely a researcher..

The journey starts with:

- Acknowledging this is a possible *additional role*
- Planning for the trip – researcher, innovator, entrepreneur



VALLEY OF DEATH:

University science and engineering innovators are challenged in converting research into commercial innovations, the so-called “Valley of Death”



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TIME OF BRILLIANCE

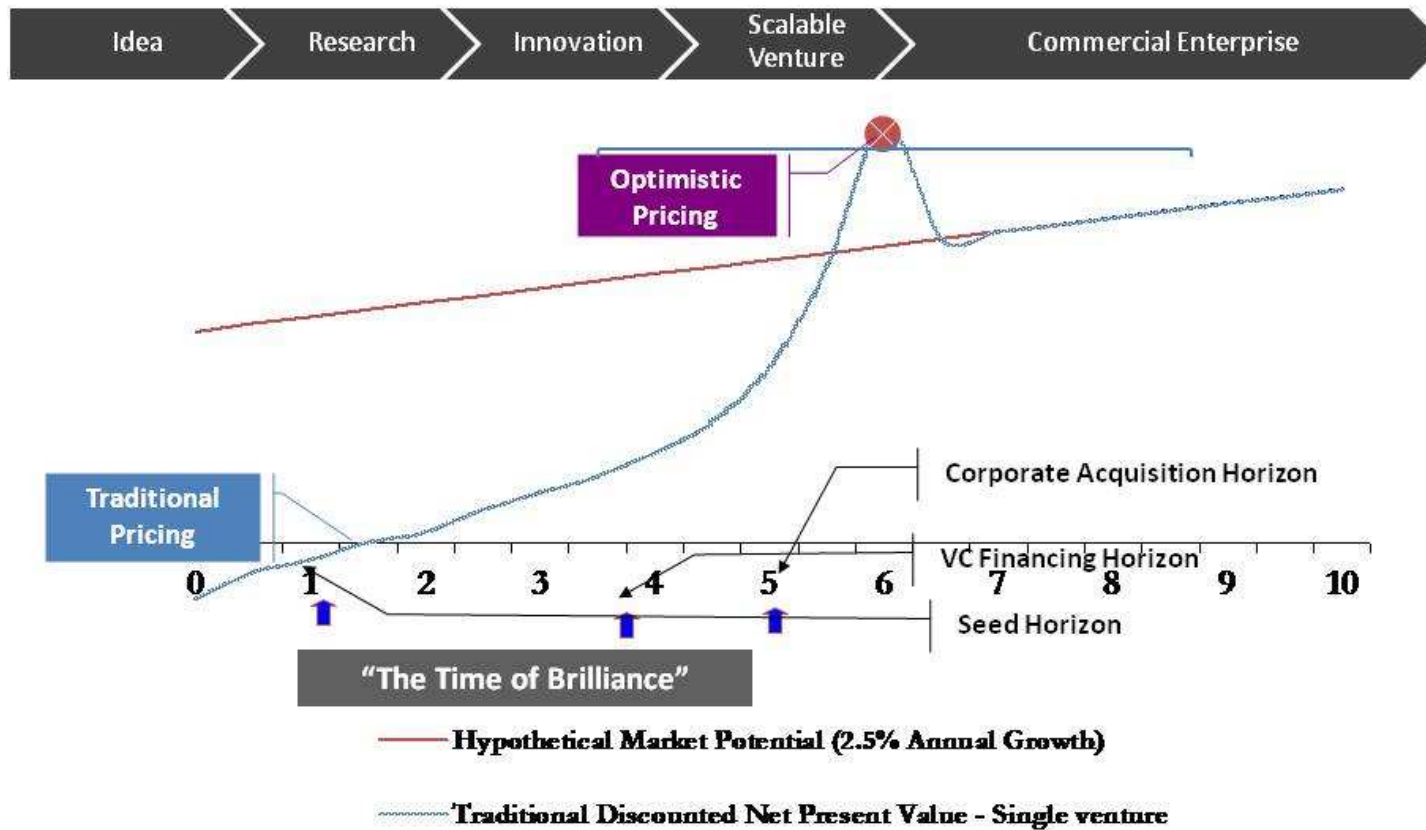


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TIME OF BRILLIANCE

Figure 2:

Stage Dependent Value of Research to Commercial Enterprise – years versus arbitrary \$



Nir Kossovsky, Judith Giordan
Steel City re

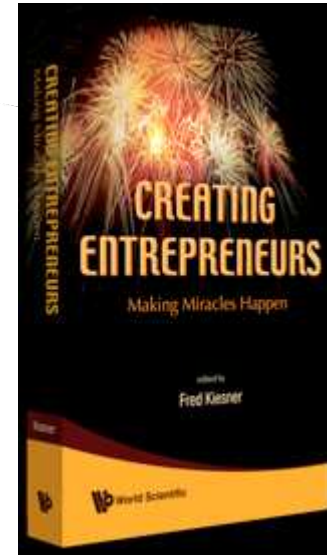
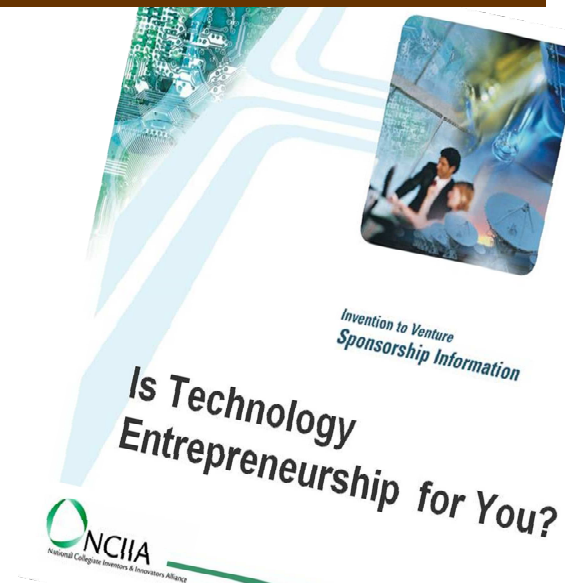
EDUCATE... TO INNOVATE

Only 1 percent of more than 200 [U.S.](#) entrepreneurs surveyed cited higher education as a significant motivator toward starting their own venture, while 61 percent cited their "innate drive."
Northeastern University Survey

Entrepreneurs are born, but can they be taught? By Jim Hopkins, USA TODAY



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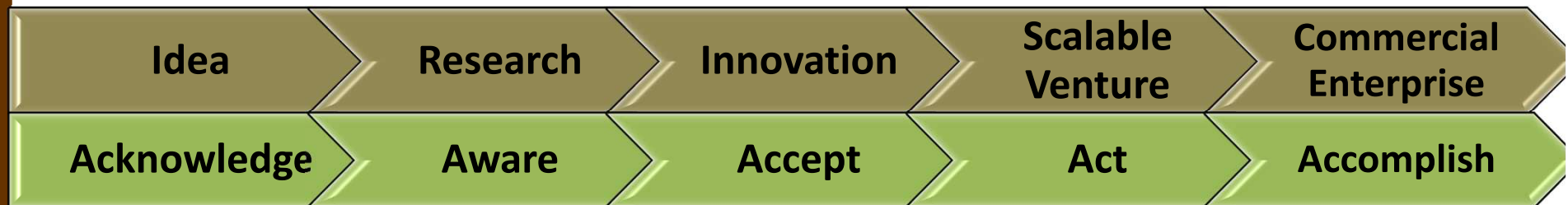
Are Entrepreneurs Born or Made?
Two-thirds of entrepreneurs claim they were inspired by innate desire, not education or training, according to a new survey.
By Leslie Taylor | Inc. | Oct 24, 2006

Southern Miss
Ole Miss

RESPECTing innovator and innovation

- Providing a systematic, focused, cost-effective, scalable approach to venture development and innovator support.
- BOTH build value!

Innovation

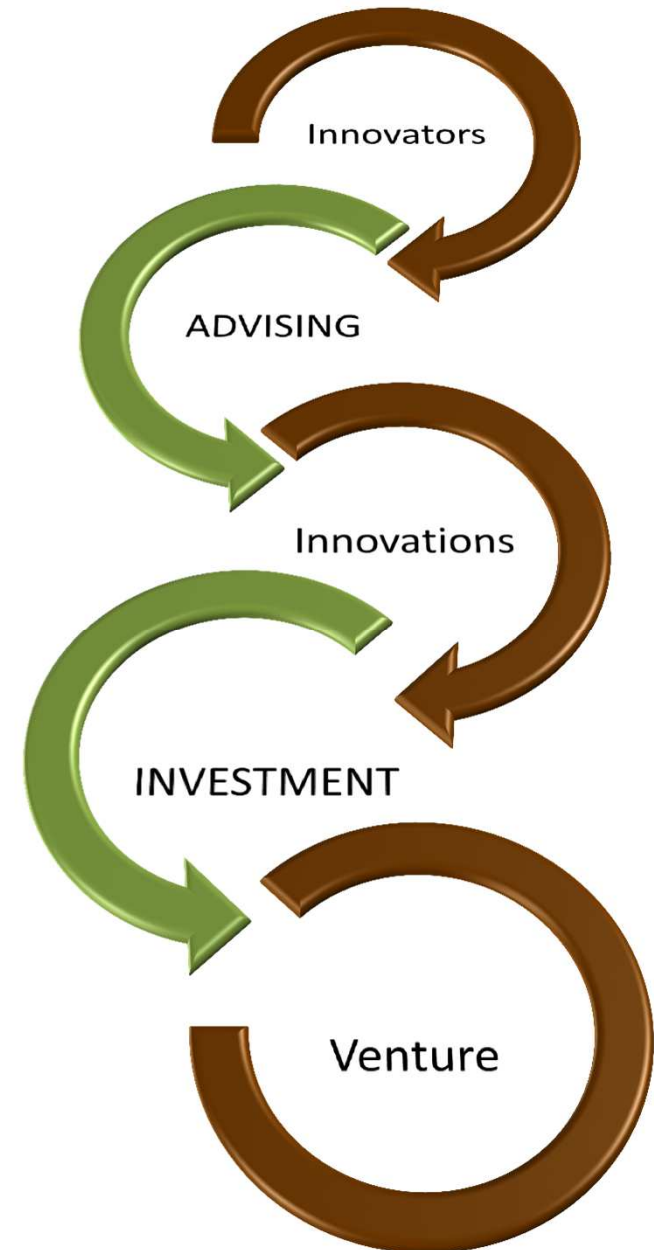


Innovators



Transforming the Valley of Death to a Time of Brilliance and REAP the benefits!

- **Respect** the *innovator* at least as much as the *innovation*
- **Educate** for research *and fast* innovation and iteration. R2I2V is an interdisciplinary process – which can be taught and learned.
- **Address** the challenges in venture formation head-on
- **Provide** rewards and recognition for innovation in an expanded view of the academic role



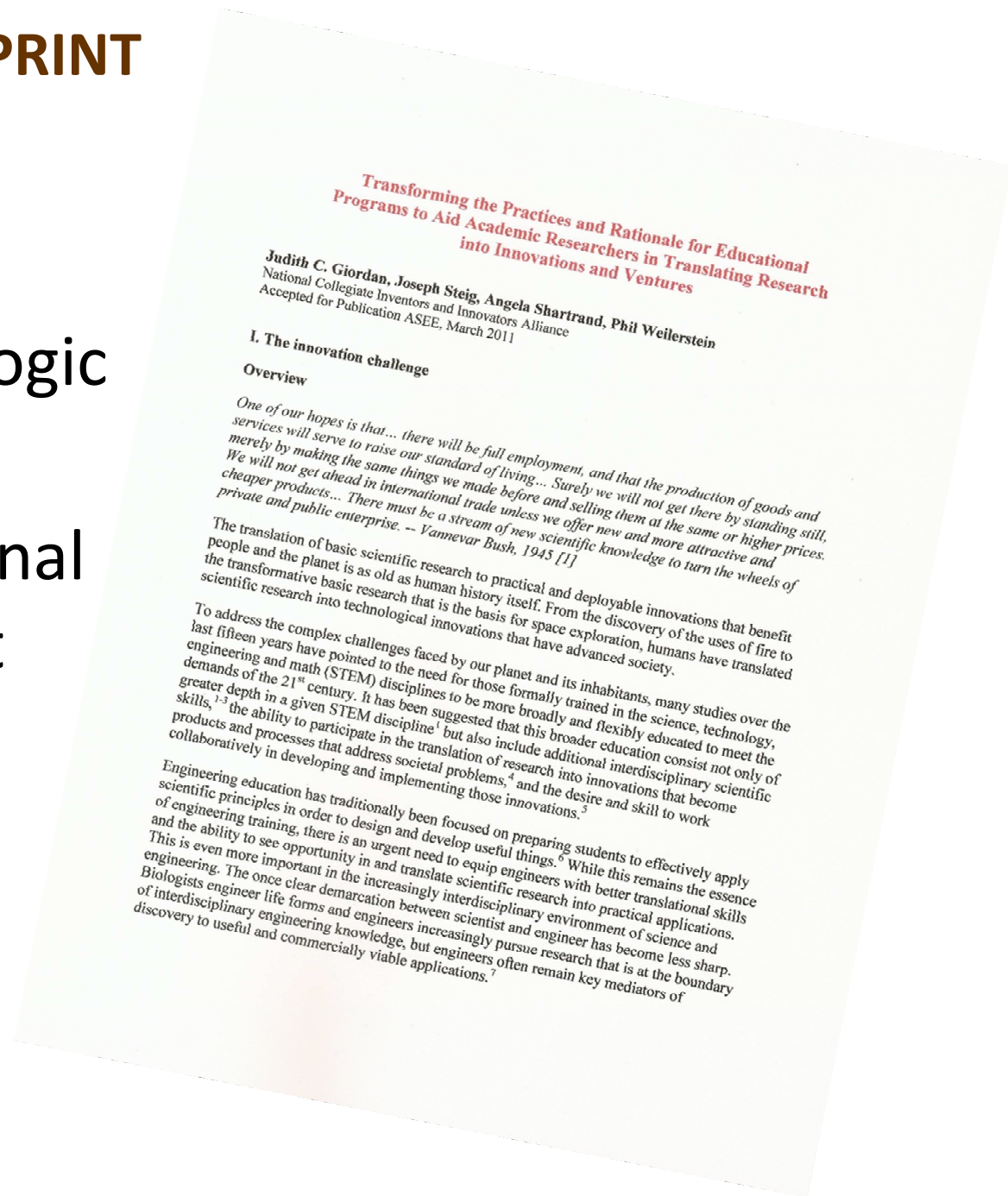
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PUBLICATION....PREPRINT

- ASEE
- Defines pedagogic background
- Discusses original research and lit references



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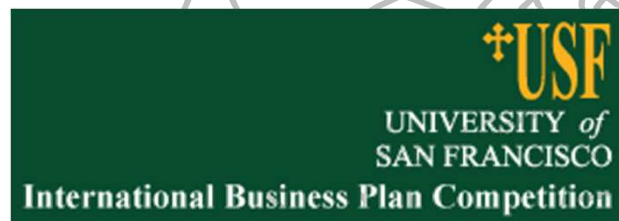


ADDRESS - CHALLENGE #1: dealflow

Innumerable undifferentiated “top of funnel” opportunities



accelerate>>MICHIGAN™
INNOVATION COMPETITION



mc mass
CHALLENGE



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CHALLENGE #2: PROCESS, ADVICE, SUPPORT and PRACTICE

An ecosystem that efficiently validates and structures seed stage deals exists only in Web 2.0, not for STEM ventures



Combinator



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CHALLENGE #3: Lost in translation

- Low success of STEM translation to commercialization
- Need to “fail fast and iterate”..not easy in STEM



Research 2 Innovation – The Art of the Possible...

- NO ONE can guarantee the outcomes of research...
- NO ONE expects all aspects of your research to produce innovations or commercial outcome...
- NO ONE is trying to make anyone into a business person....
- But EVERYONE can envision an innovation potential, set a goal and build a plan to get there!

Desire Open mind Skills Perseverance



Dr. Judith Giordan

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Dr. Judith Giordan is a Partner at ecosVC (www.ecosvc.com) , a venture developer and funder, and Sr. Advisor to the NCIIA (www.nciia.org) .

A serial entrepreneur, previous corporate executive positions include VP & Global Corporate Director of R&D at International Flavors and Fragrances, Inc.; VP Worldwide R&D for the Pepsi-Cola Company; and VP R&D, Henkel Corporation.

The author of over 200 articles and presentations in areas of technology, career development, and business development and strategy, Judy is the recipient of the 2010 ACS Garvan-Olin Medal of the American Chemical Society and received her PhD in Chemistry from the University of Maryland and was an Alexander von Humboldt Post Doctoral Research Fellow at the University of Frankfurt in Germany.

