



**LEHIGH**  
UNIVERSITY.



**BAKER INSTITUTE**  
for entrepreneurship, creativity and innovation

**Developing Entrepreneurial Mindset  
through Program-Required Startups:  
Lehigh's Master of Engineering in  
Technical Entrepreneurship**  
Create and Launch Your Company in One Year

**Professor John B Ochs, PhD, Founder  
& Program Director**  
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**NCIIA Open Conference**  
**March 21, 2014**



# The Problem: Need for Entrepreneurs



**Innovation fueled by creativity is this generation's most important economic development engine driving job creation<sup>1</sup>**

**People invest in innovation when it creates new products and services, producing an expected yield in long term growth and profits greater than other alternatives.**

**Innovation is necessary by not enough:  
we want people who can create, innovate and  
commercialize**

<sup>1</sup>Ten tenets of an Entrepreneurial Mindset, by John B Ochs – USAtodayeducation.com, May 24, 2012.



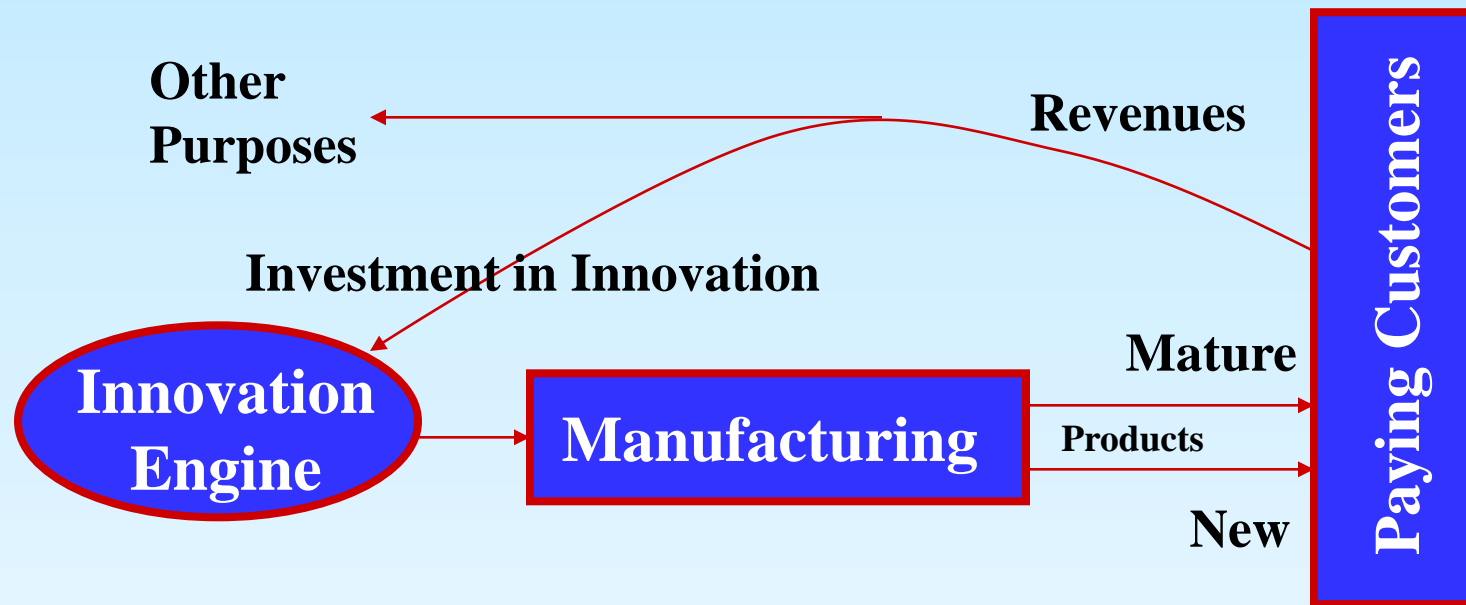




# The Problem: Need for Entrepreneurs



## Product Development Process: View from Space







# Our Solution: Technical Entrepreneurship



**The greatest opportunities for innovation occur at the intersection of disciplines.**

**Innovation is a process that can best be learned by doing it – over and over again.**

**Our program focuses on developing entrepreneurs who are needed to lead interdisciplinary teams...**



# Our Solution: Technical Entrepreneurship



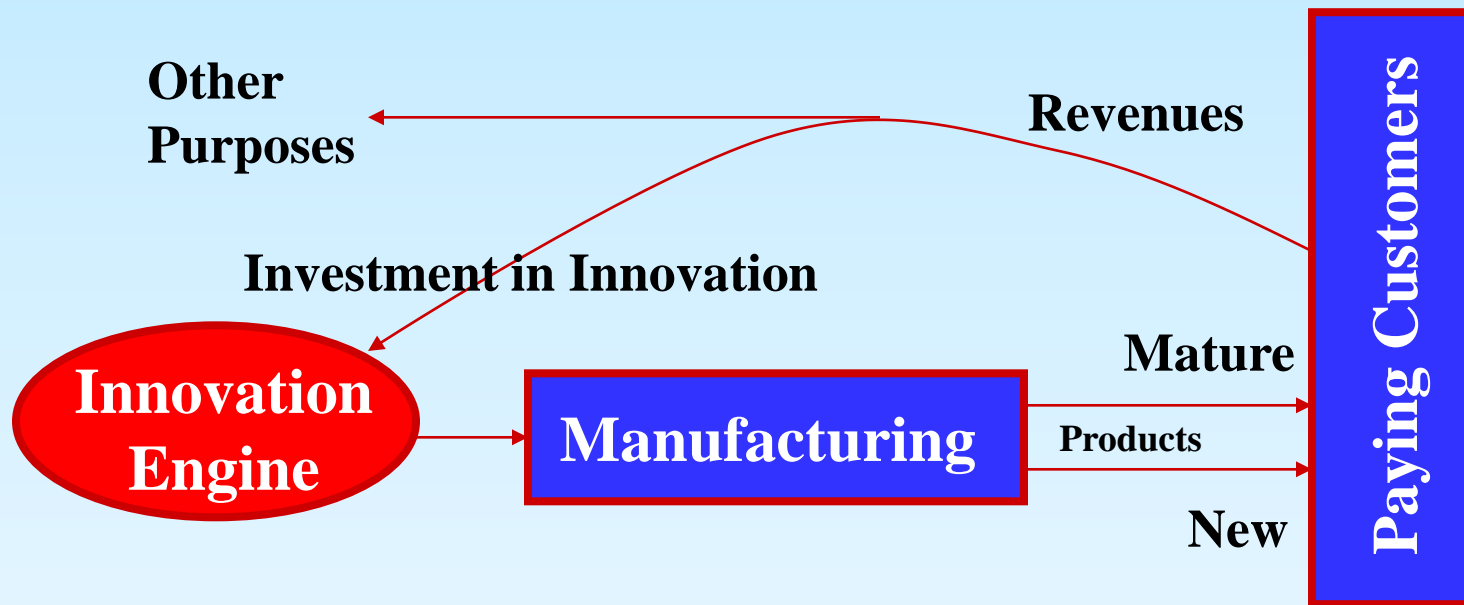
**... find and assess opportunities,  
identify and manage risk,  
manage the development to  
commercialization process,  
find and manage resources,  
lead the team by example of a  
superior work ethic,  
as well as exemplary ethical and  
professional behavior.**



# The Problem: Need for Entrepreneurs



## Product Development Process: View from Space but implemented on the ground



# Developing Student Entrepreneurs as well as Supportive Environments



Innovation Engine from inGenius by Tina Seelig



# Dedicated Curriculum



Summer Semester  
**Skill Building**  
Intellectual property • Creativity & Innovation • Prototyping • Visual Thinking

Fall Semester  
**Design**  
Business Models • Financial Management • Integrated Product Development



Spring Semester  
**Launch**  
Company Formation • Product Costing • Manufacturing









Business Model Canvas

Key Partners	Key Activities	Key Resources	Value Propositions	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> <li>partners</li> <li>manufacturers</li> <li>SBC</li> <li>loggers</li> <li>companies</li> <li>PEPs</li> <li>early users</li> </ul>	<ul style="list-style-type: none"> <li>designing</li> <li>code</li> <li>marketing</li> <li>sales</li> <li>support</li> </ul>	<ul style="list-style-type: none"> <li>technology</li> </ul>	<ul style="list-style-type: none"> <li>helping students</li> <li>improving learning</li> <li>reducing costs</li> <li>increasing productivity</li> </ul>	<ul style="list-style-type: none"> <li>partners</li> <li>schools</li> <li>agencies</li> </ul>	<ul style="list-style-type: none"> <li>schools</li> <li>agencies</li> </ul>
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Schools and education agencies

transition







# Founder's Pie









# Developing Student Entrepreneurs as well as Supportive Environments



Innovation Engine from inGenius by Tina Seelig

# Dedicated Lab and Studio/Classroom



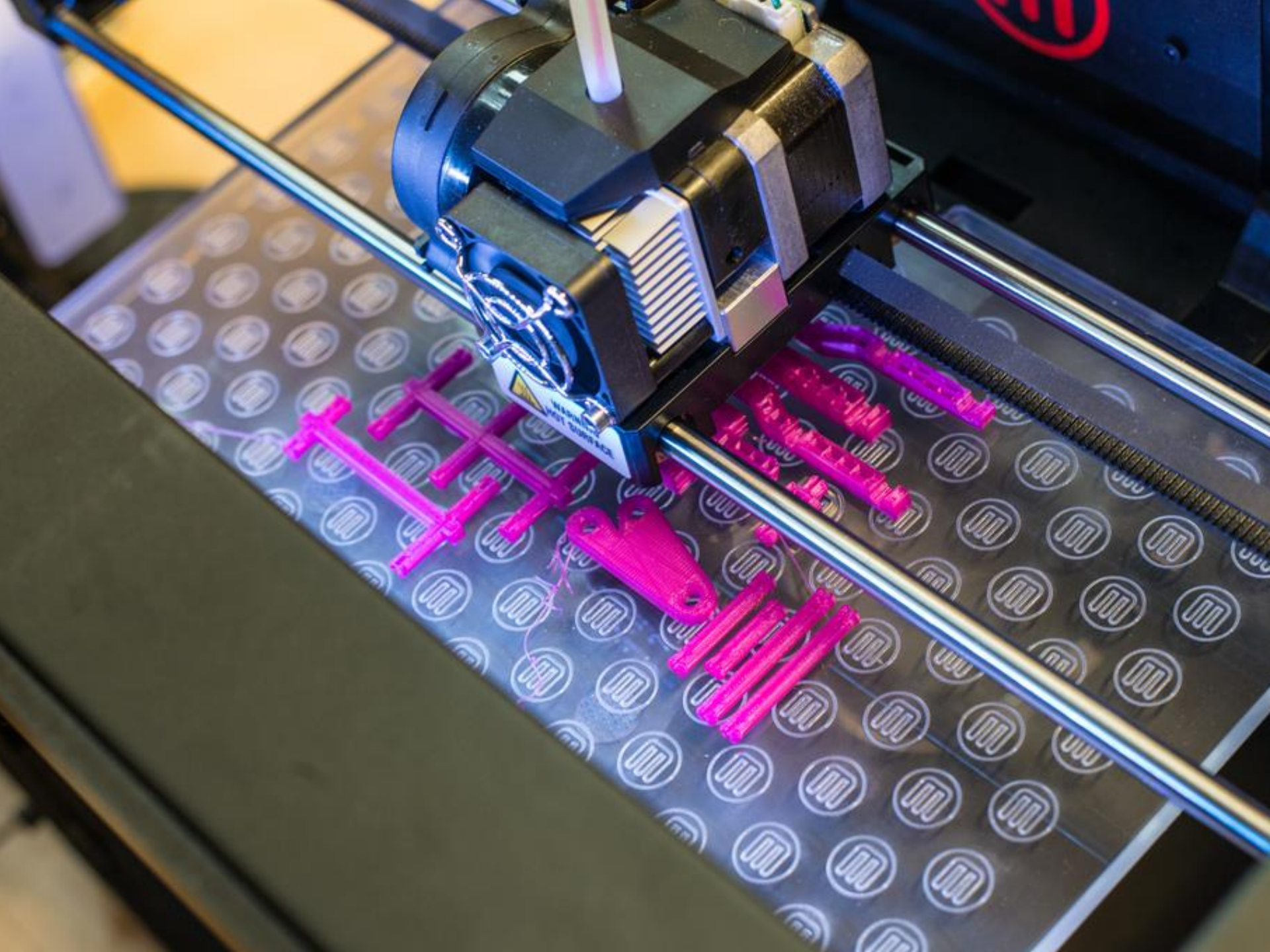












# Dedicated Faculty



**Michael Lehman, MD, MBA**  
**Professor of Practice**

- Entrepreneurship curriculum development
- Commercialization of new technologies
- Entrepreneurial Outreach



**Marc de Vinck**  
**Dexter F Baker Professor of Practice in Creativity**

- Product developer at MAKE Magazine
- Arduino and micro-controllers
- 3D Printing
- Creativity Program

**Joe Maenner**  
**IP Attorney,**  
**Maenner & Associates**

**Joshua Cohen**  
**IP Attorney,**  
**RatnerPrestia**

**Matt Sommerfield**  
**Founder, MTS Ventures**

- Design services
- Contract manufacturing

**Brian Slocum**  
**Manager, Design Labs**

- Prototyping
- SolidWorks



# Takeaways: How to Create Flexible and Responsive Career Pathways for Student Entrepreneurs



## Replicable and Scalable

Bootstrapped

Growth of 100% from year 1 to year 2

Can be scaled up (3 starting points/cohorts per year) Can be scaled down (series of workshops)

Facilities, Curriculum and Faculty will attract students

## Sustainable

Tuition-driven model

EDA-funded and university-funded scholarships

Emerging industry partners

## Original

Dedicated curriculum, dedicated space, dedicated faculty

Twelve month Master's of Engineering open to all majors

## Measurements of Success

	TE13	TE14
Successful startups launched	6	12 projected
Placements in innovative start-ups, large companies, academia	7	16 projected

**Thank you for your attention!**  
**Do you have any questions?**

For more information go to:  
[www.lehigh.edu/innovate](http://www.lehigh.edu/innovate)

# Building on a Track Record of Success



EcoTech Marine at the Smithsonian, 2006

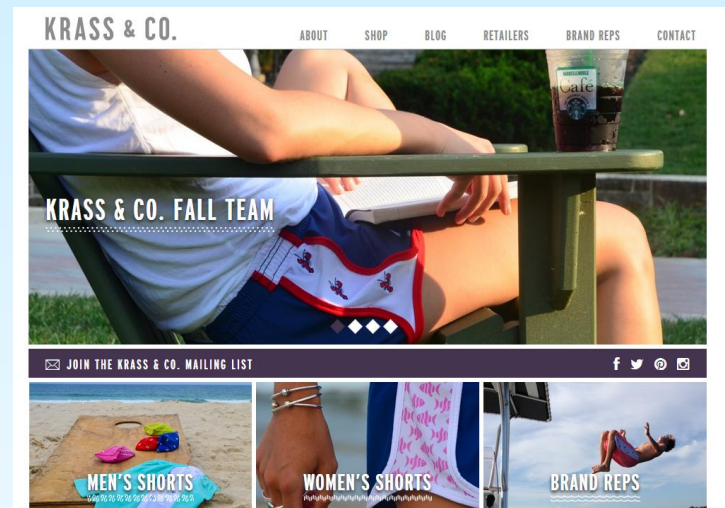
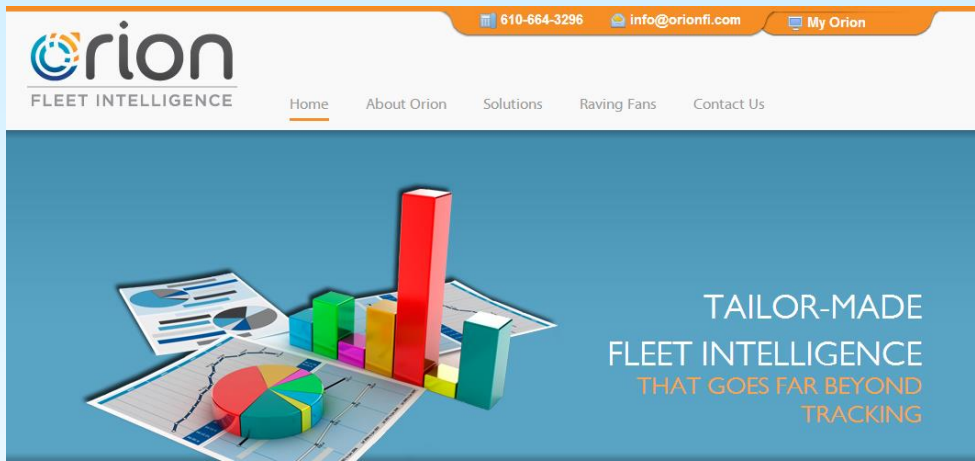


# Building on a Track Record of Success



Coffee Joules on Shark Tank, 2013

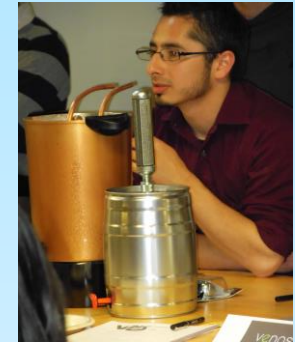
hField's Wi-Fire as seen on HSN, 2010



# TE Class of 2013 Start-Ups



**SecondShift** Innovations



**Das Bier Macher**  
Brew. Simple.



**T<sup>z</sup> OZUDA**

# TE Class of 2013 Placements



“The Technical Entrepreneurship Program developed skills that I am now applying in the corporate environment. I am able to treat my assigned project within the company as if it is a startup company itself. Analyzing a problem, brainstorming solutions, building a team, making financial projections, and seeking feedback...”

**Chris Hajjar**

**GOLD Associate, Catalent Pharma Solutions**

"I got the job at Offerpop, love what I'm doing, and am successful because the TE program provided me with a technical background in product development (which helped compensate for my lack of coding skills), enhanced my ability to learn quickly, iterate, fail without fear, and think creatively..."

**Bryan Postelnek**

**Associate Product Manager, Offerpop**

“The TE program taught me to be a leader, whether it's leading your own company or leading innovation within an existing organization. The leadership skills and entrepreneurial understanding I gained led to the job I have now helping fellow entrepreneurs in the Stanford Graduate School of Business.”

**Katelyn Noderer**

**Assistant Director, Center for Entrepreneurial Studies, Stanford Graduate School of Business**





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