University-Industry Collaboration
Key Findings and Perspectives on Success

Presented by
Arno Meerman, CEO, UIIN
Cameron McCoy, AVP Economic Engagement, Lehigh
John Matranga, Director Innovation and Academia, OSIsoft
Agenda

• UIIN: Relationships Matter
• Lehigh: Big Data Collaboration Leads to Big Impact
• OSIsoft: Perspectives on Success
• Panel session
A holistic perspective on University-Industry Interaction

16th October, 2017
Arno Meerman
meerman@uiin.org
Resource Platform Development

2011

First accreditation for entrepreneurial and engaged universities

2011

2017

Leading network in University Industry Interaction

200+ member organisation, largest conference on university-industry interaction, training provider

2017

Our History

Our Future

2020

More training, more networking, more knowledge

Largest study on university engagement of its kind, supported by the European Commission
A better understanding of the bigger picture of university-industry interaction
The history of universities

1088
University of Bologna

1810
Humboldt University of Berlin

1925
University of Wisconsin

2003
First Technology Transfer Office in Brazil

1st mission: Education

2nd mission: Research

3rd mission: Knowledge transfer
In 1991, the total license revenue for US universities was $130 million, in 2015 it was $2.4 billion.
However, 15 US universities produce nearly 70% of the US license income.
Since 1970, Stanford had over 5,000 patents issued, only 79 of those generated more than a million, only 3 generated more than $100 million.
Misconceptions in University-Business Cooperation

“University-business cooperation is technology transfer”
University-business cooperation is more than patents and licences

**Area**
- **Education**
  - Curriculum co-development
  - Curriculum co-delivery
  - Student mobility
  - Lifelong learning
  - Dual education programmes
- **Research**
  - Collaboration in R&D
  - Professional mobility
  - Contract research
- **Valorisation**
  - Commercialisation of R&D results
  - Academic entrepreneurship
  - Student Entrepreneurship
- **Management**
  - Governance
  - Shared resources
  - Industry support
University-business cooperation is more than patents and licences

N = 10,789
Scale: 1 = “Not at all developed” to 10 = “To a large extent”
Misconceptions in University-Business Cooperation

“University-business cooperation is technology transfer”

“All types of collaboration are connected, one interaction leads to a multitude of interactions”

“University-business cooperation will take place with the removal of barriers”
Barriers the top 3 most relevant

HEI Management
- Limited resources of SMEs
- Lack of government funding for UBC
- FUNDING FOR COOPERATION

Academics
- Limited resources of SMEs
- Insufficient work time allocated by the university for academics’ UBC activities
- RESOURCES, TIME & BUREAUCRACY

UBC businesses
- Lack of people with business knowledge within universities
- Differing CULTURAL DIFFERENCES
- Differing time horizons between universities and business

Scale: 1 = “Not at all relevant” to 10 = “Extremely relevant”
Misconceptions in University-Business Cooperation

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All types of collaboration are connected, one interaction leads to a multitude of interactions

“University-business cooperation will take place with the removal of barriers”

The removal of barriers does not trigger UBC, they do however need to be addressed

“University-business cooperation is about earning money”
Motivators the top 3 most relevant

**HEI Management**
- To obtain funding / financial resources: 8, 1
- FUNDING, GRADUATES, RESEARCH INTO SOCIETY: 8, 1
- To use the university’s research in practice: 8, 0

**Academics**
- Gain new insights for research: 7, 1
- RESEARCH INSIGHTS, RESEARCH INTO SOCIETY: 7, 1
- Address societal challenges and issues: 7, 1

**Businesses**
- Get access to new technologies and knowledge: 7, 6
- NEW DISCOVERIES AND INNOVATION: 7, 6
- Access new discoveries at an early stage: 7, 1

Scale: 1 = “Not at all relevant” to 10 = “Extremely relevant”
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“University-business cooperation is about earning money”

All stakeholders involved have different motivations to collaborate.

“University-business cooperation will take place with the support of intermediaries”
Facilitators the top 3 most relevant

- **HEI Management**
  - Existence of mutual trust: 8, 3
  - Existence of funding to undertake the cooperation: 8, 0
  - Existence of a shared goal: 8, 0

- **Academics**
  - Existence of mutual trust: 7, 9
  - Existence of funding to undertake the cooperation: 7, 8
  - Existence of a shared goal: 7, 9

- **Businesses**
  - Existence of mutual trust: 8, 0
  - Existence of a shared goal: 7, 9
  - Existence of mutual commitment: 7, 8

Scale: 1 = "Not at all relevant" to 10 = "Extremely relevant"
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“University-business cooperation will take place with the support of intermediaries”

Trusted relationships drive cooperation

“University-industry interaction can be done by anyone & is not a trade”
Individual & contextual factors influence UBC

Besides prior experience, there also exists hardly any training for either senior university managers, or professionals working with industry (or university) on how to change their organisation from within and more strategically manage their relationships.
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Engagement staff needs to be educated and have the right skills and mindset
50 Good Practice Case Studies on UBC

www.ub-cooperation.eu
Driving Innovation Through University-Industry Strategic Partnerships

Presented by Cameron McCoy, AVP Economic Engagement
About Lehigh University

- Founded in 1865
- 7000 students
- 4 Colleges
- 2500 acres
- Heart of Boston-DC corridor
- Interdisciplinary Nature
- History of Industry Collaboration
- Theory to Practice
Relational Theories

National Model

Triple Helix Model

(Elzkowitz & Leydesdorff, 2000, p.111)
“Triple Helix”

Equal overlapping roles

Constant analysis

Areas of interdependence

Transformational relationships

(Elzakowicz & Leyesdorff, 2000, p.111)
Layered Triple Helix

National/Global Layer

State/Regional Layer

Local/University Layer
From Theory to Practice

*note: these are representative entry points, not all of the possible
Organizational Models or “Why Lehigh?”

Aligned Organizational Approach

- DECENTRALIZED
- PHILANTHROPIC
- INDUSTRIAL
- HYBRID

common alignments
Initiatives
Alumni
luck

Theory to Practice
common partners

© McCoy, 2012
We believe People with Data can Transform their world
Academic Program Goals

Drive Innovation for Customers

Provide Candidate Pipeline to the Market

Support Bundled Uses in Academic Market

Provide OSIsoft Staff Career Development & Job Enrichment

Data Literacy of Time Series Data for Engineering Students Worldwide
What Lehigh ‘Sees’

Research & Professors

Student Engagement

Operations & Administration

HR Engagement
Research & Professors

- DoE Industry Advisor - Grid Security Grant
- DoT Industry Advisor – Multi Modal Resiliency
  - PITA Grant - $50,000 – Set Up PI for Project
- ESEI Institute Advisory Board Member
  - PITA Grant - $50,000 – Community
  - Customer Integration
- Energy Research Center – Power Plant Research
- Hosted Professor Visit in San Leandro HQ for LLNL Partnership
- Dean’s New Focus of Innovation
  - Energy Systems Institute – Industry Board Advisor
  - Data Science Institute – Industry Board Advisor

- Semantic Web Research
- Data Science Class Input
Student Engagement

- ChE Unit Operation Lab
- Introduction to Machine Learning and Data Science (Spring 2017)
- ESEI Masters Capstone Projects
  - US Navy – Facilities Energy Ranking
  - ZipPower – Site DER Model, City Wide Ranking
  - PPL – Investigation Joint Efforts
- Lehigh Silicon Valley ++
- Launch Bay C Student Incubator – CMU’s Energy Nexus to Product Offering
- ChE Seminar – “Current State and Future of Industrial Internet of Things”
- ESEI Seminar – “Distributed Energy and Distributed IoT Computing”
- Lehigh Hacks – Campus Hackathons
  - Fall 2016 – Energy Analytics, Spring 2017 – VR for Energy Use on Campus
- Student Engagement
Operations & Administration

- Campus-wide Building Level Energy Data
- STEPS Building Data
- Mountain Top Campus Industry Advisor
- Dean’s Living Lab Leader
- EV Car Charger
  - Advisor
  - Industry Connections
- Campus Wide Dashboard Collaboration
- Lehigh Goblet
• Interns – Summer 2017 – 3 Interns (All Return Offers)
• Full Time Offers – 5 in 2016/17 (Before the Recruitment Cycle)
• Call for Collaboration
  – Unit Operations Classroom
  – Energy Dashboard
  – OSIsoft Cloud Services
• Career Services Industry Advisory Board Member
• ChE Job Fair
• Campus-wide Job Fair
• ESEI Capstone Review Workshop
• Computer Science Department Resume Review Workshop
• High School Intern Workshop
• Harry Paul – Lehigh Security Workshop to OSIsoft Security Champion
• Paul Martin – Lehigh Hackathon Support to OSIsoft Development Community Support Specialist
• Seth Sauder – Lehigh Campus Rotational Advisor to OSIsoft System Engineering
### By the Numbers

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<td>Commercial operations</td>
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Questions

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State your name & company

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