Agenda

- UIIN: Relationships Matter
- Lehigh: Big Data Collaboration Leads to Big Impact
- OSIsoft: Perspectives on Success
- Panel session

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
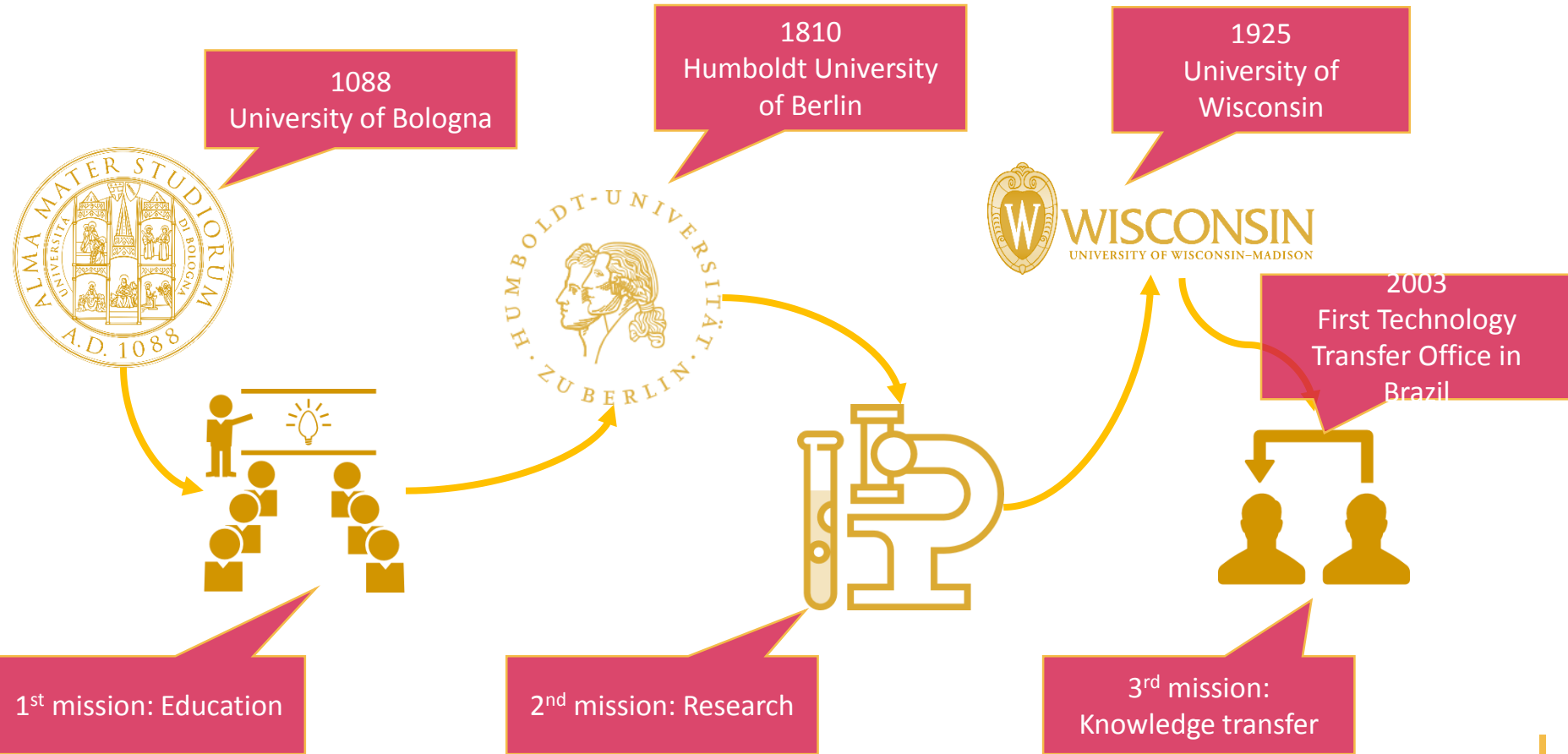
In 1991, the total license revenue for US universities was $130 million, in 2015 it was $2.4 billion.

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.
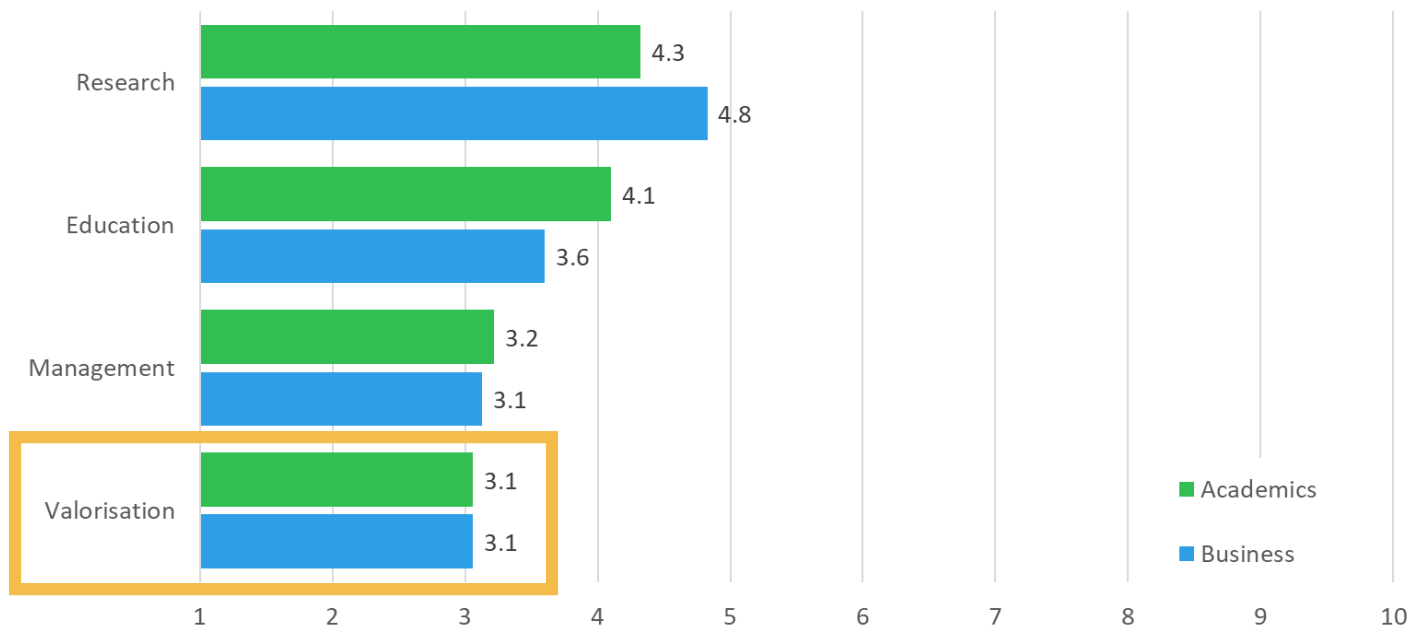
Misconceptions in University-Business Cooperation

"University-business cooperation *is* technology transfer"

University-business cooperation is more than patents and licences

Area

Education	Research	Valorisation	Management

Type

Curriculum co-development	Collaboration in R&D	Commercialisation of R&D results	Governance
Curriculum co-delivery	Professional mobility	Academic entrepreneurship	Shared resources
Student mobility	Contract research	Student Entrepreneurship	Industry support
Lifelong learning			
Dual education programmes			

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

7,4

FUNDING FOR COOPERATION

Lack of funding for

6,7

Lack of government funding for UBC

6,6

Academics

Limited resources of SMEs

6,9

RESOURCES, TIME & BUREAUCRACY

Bureaucracy related to UBC

6,7

Insufficient work time allocated by the university for academics´ UBC activities

6,7

UBC businesses

Lack of people with business knowledge within universities

6,0

CULTURAL DIFFERENCES

Differing cultures between universities and business

6,0

Differing time horizons between universities and business

5,9

Scale: 1 = "Not at all relevant" to 10 = "Extremely relevant"

Misconceptions in University-Business Cooperation

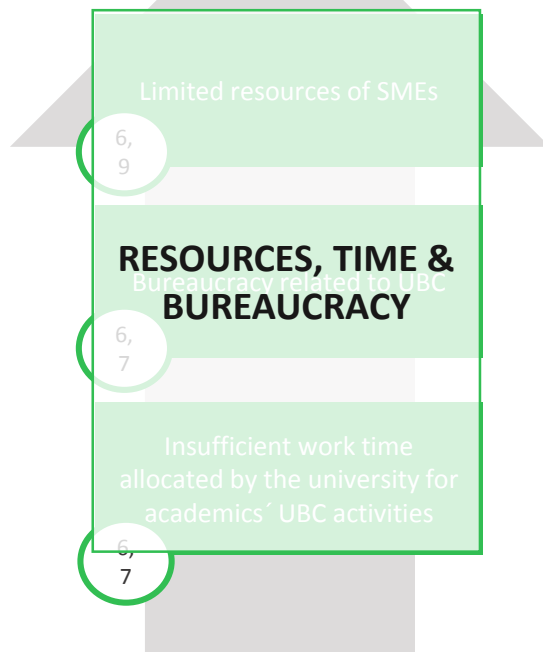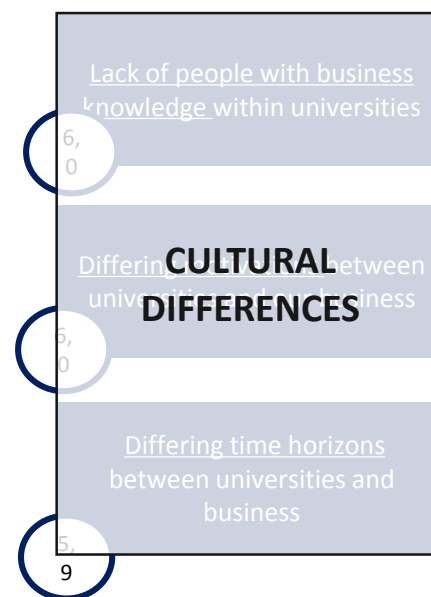|	
"University-business cooperation *is* technology transfer"	All types of collaboration are connected, one interaction leads to a multitude of interactions
"University-business cooperation *will take place* with the removal of barriers"	The removal of barriers does not trigger UBC, they do however need 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, 8

RESEARCH INSIGHTS, RESEARCH INTO SOCIETY

7, 7

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"

Misconceptions in University-Business Cooperation

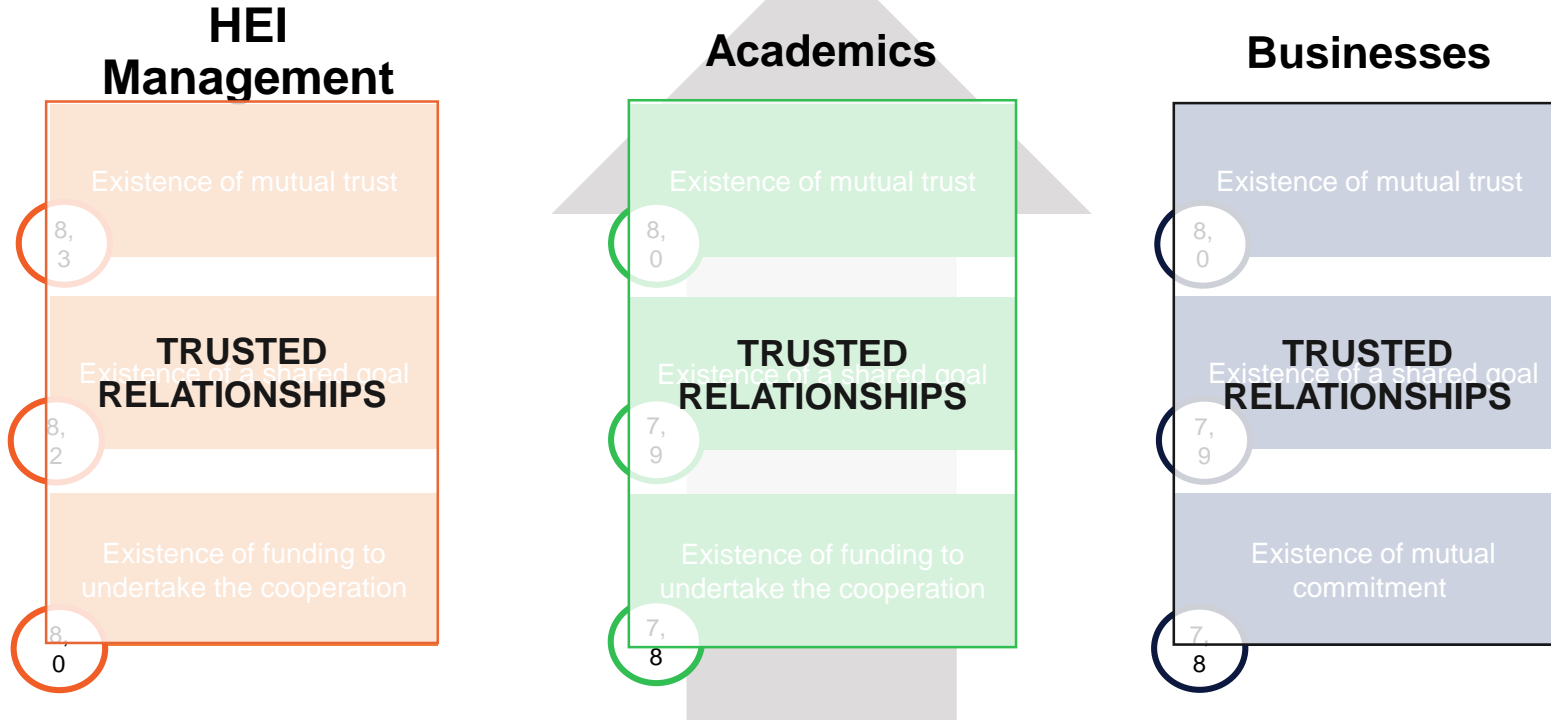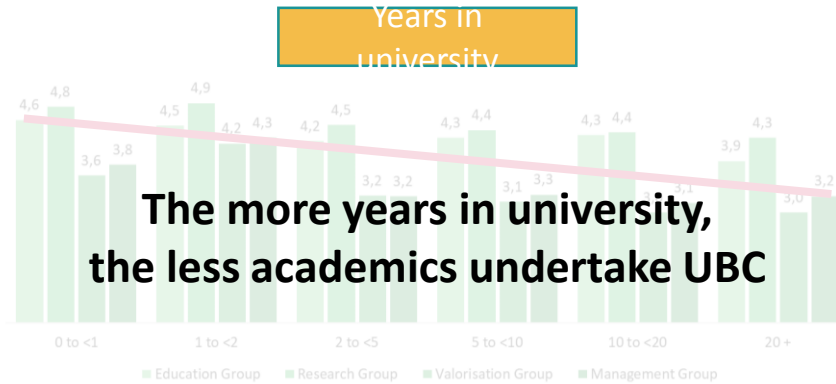|	
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"University-business cooperation *will take place* with the removal of barriers"	The removal of barriers does not trigger UBC, they do however need to be addressed
"University-business cooperation *is about* earning money"	All stakeholders involved 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
- **TRUSTED RELATIONSHIPS**
- Existence of a shared goal — 8,2
- Existence of funding to undertake the cooperation — 8,0

Academics
- Existence of mutual trust — 8,0
- **TRUSTED RELATIONSHIPS**
- Existence of a shared goal — 7,9
- Existence of funding to undertake the cooperation — 7,8

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

Scale: 1 = "Not at all relevant" to 10 = "Extremely relevant"

Misconceptions in University-Business Cooperation

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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"	Trusted relationships drive cooperation
"University-industry interaction *can* be done by anyone *& is not* a trade"	

Individual & contextual factors influence UBC

The more years in university, the less academics undertake UBC

Years in business

The more experience in business, the more academics undertake 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**.

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
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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"	Engagement staff needs to be educated and have the right skills and mindset

50 Good Practice Case Studies on UBC

www.ub-cooperation.eu
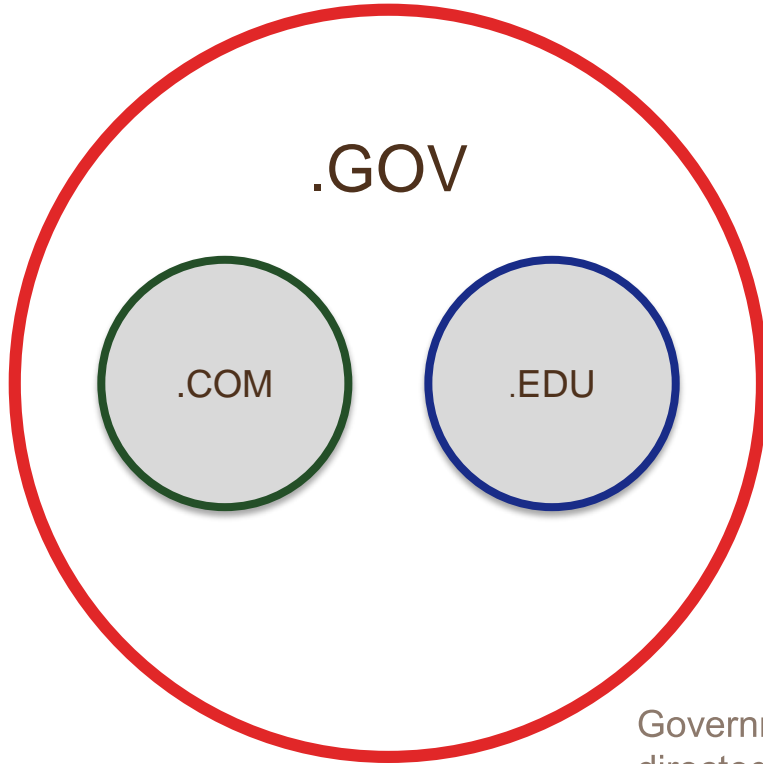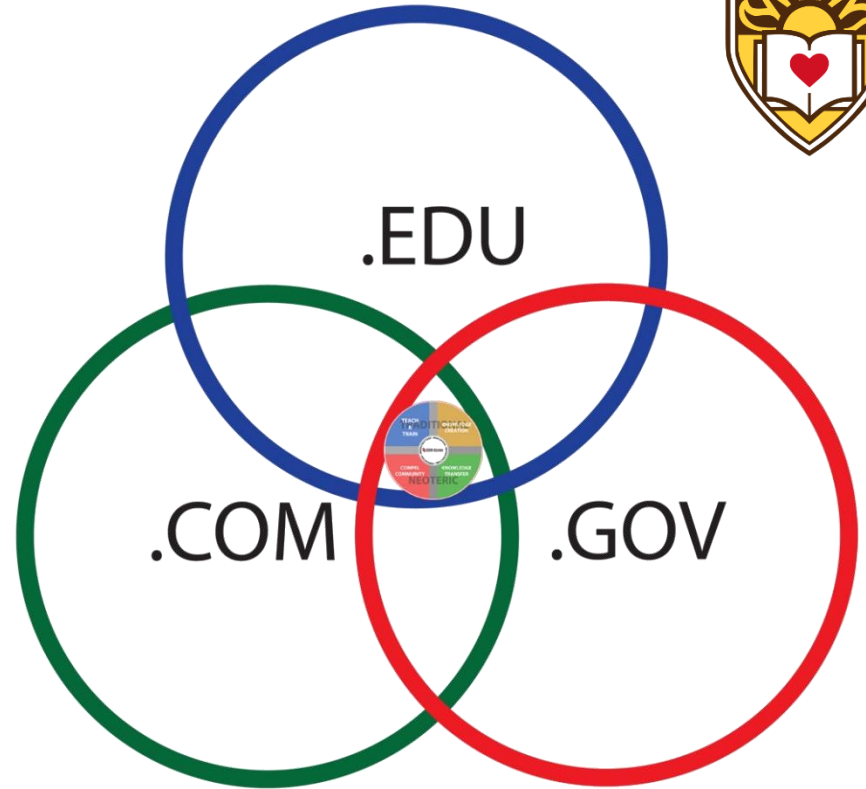
About Lehigh University

- 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

.GOV

.COM   .EDU

National Model

(Etzkowitz & Leyesdorff, 2000, p.111)

Government directed relationships

.EDU

.COM   .GOV

Triple Helix Model

"Triple Helix"

areas _{of} interdependence

Constant analysis

.EDU

.COM

.GOV

Area of focus

Equal overlapping roles

transformational relationships
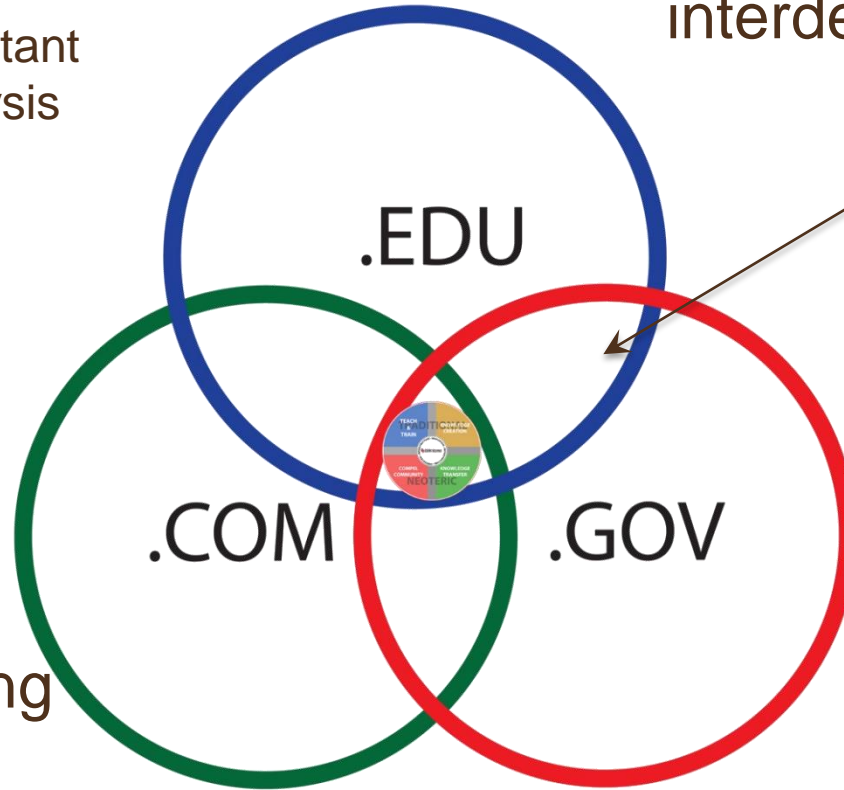
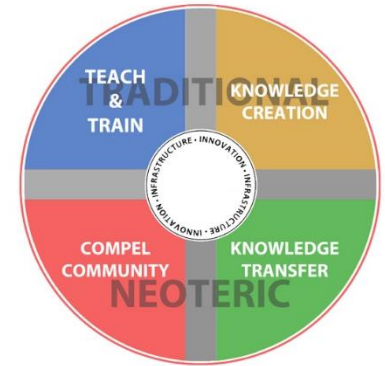(Etzkowitz & Leyesdorff, 2000, p.111)

Layered Triple Helix
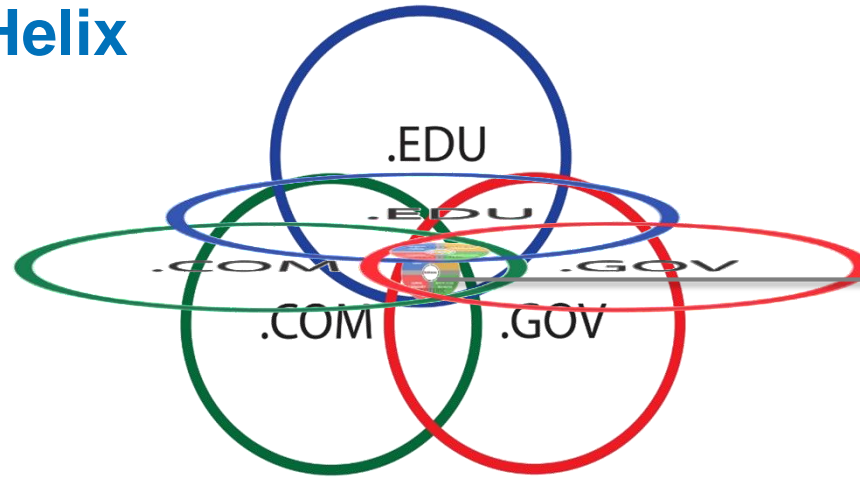
National/Global Layer

State/Regional Layer

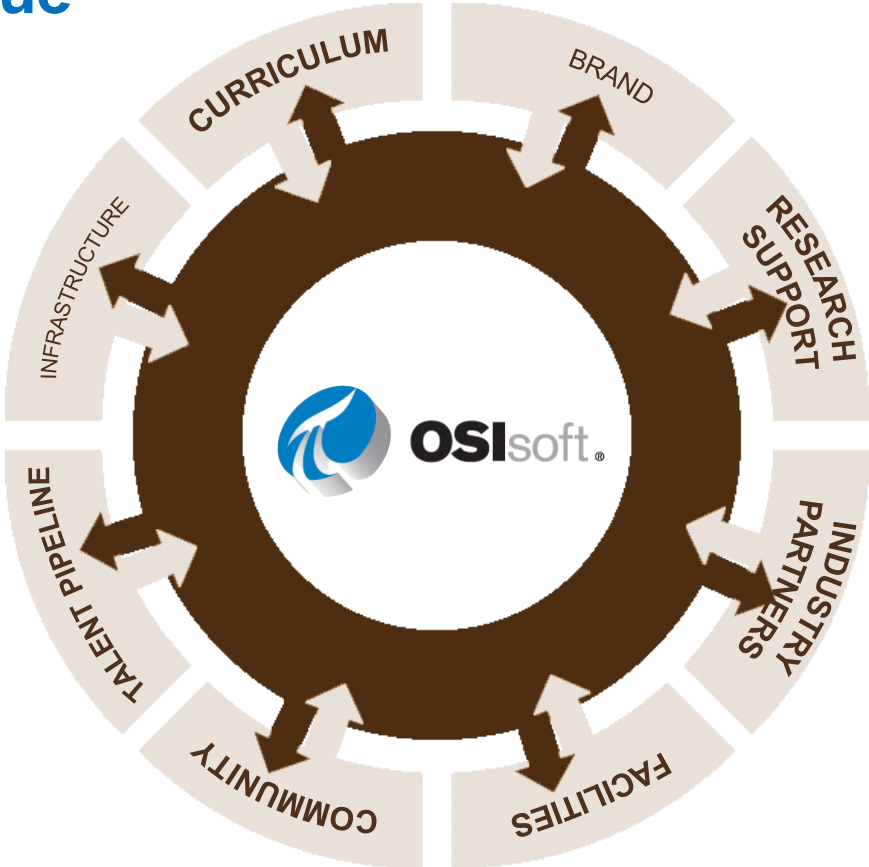Local/University Layer

Innovation
Pipeline

© McCoy, 2012

From Theory to Practice

*note: these are representative entry points, not all of the possible

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Organizational Models or "Why Lehigh?"

Aligned Organizational Approach

DECENTRALIZED   PHILANTHROPIC   INDUSTRIAL   HYBRID

common alignments   Initiatives   Alumni

Theory to Practice   luck

common partners

© McCoy, 2012

Maximizing Value

We believe People with Data
can Transform their world

Academic Program Goals

Drive Innovation for Customers

Provide Candidate Pipeline to the Market

Data Literacy of Time Series Data for Engineering Students Worldwide

Support Bundled Uses in Academic Market

Provide OSIsoft Staff Career Development & Job Enrichment
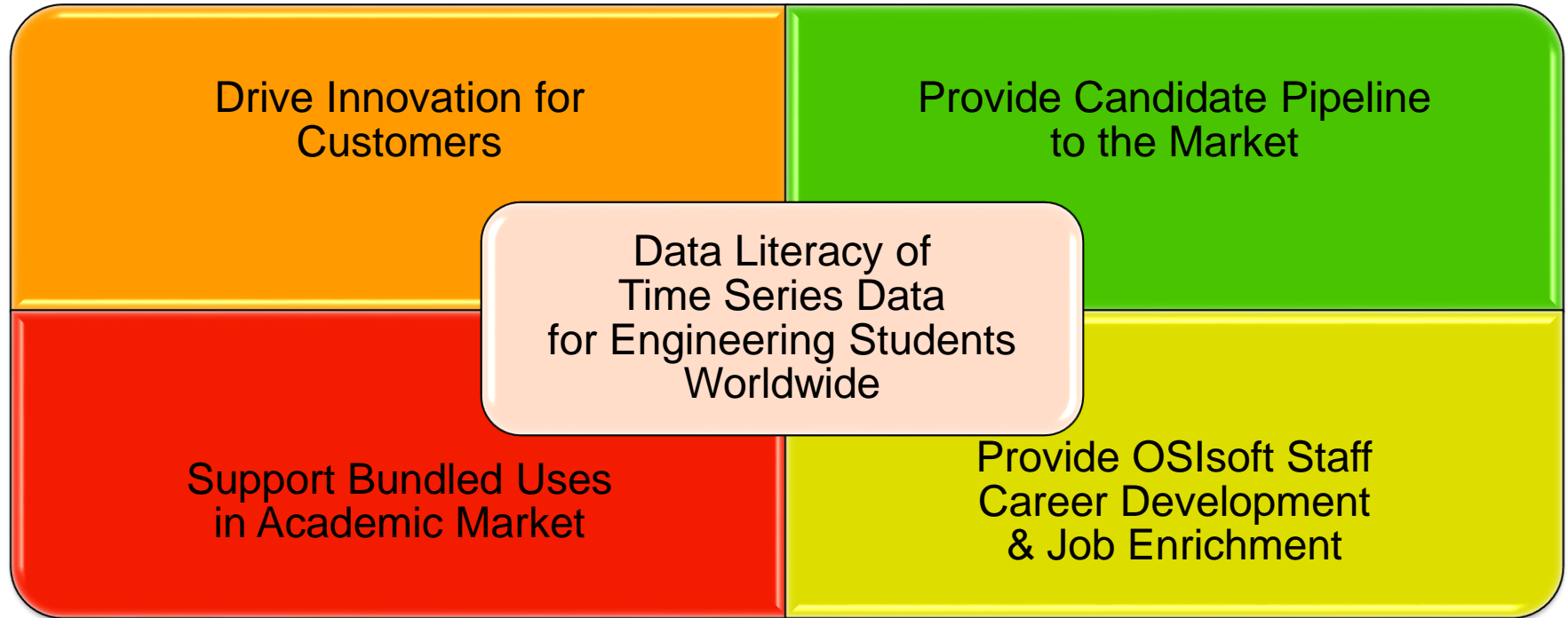
What Lehigh 'Sees'

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
- Hosted Professor Visit in San Leandro
- Dean's New Focus of Innovation
  - Energy Systems Institute – Industry
  - Data Science Institute – Industry B

- Semantic Web Research
- Data Science Class Input

Student Engagement

- ChE Unit Operation Lab
- Introduction to Machine .... pring
- ESEI Masters Capstone
  - US Navy – Facilities
  - ZipPower –Site DE
  - PPL – Investigation
- Lehigh Silicon Valley ++
- Launch Bay C Student Incubator – CM
- ChE Seminar – "Current State and Fut
- ESEI Seminar – "Distributed Energy a
- Computer Science Brown Bag Lunch –
- Lehigh Hacks – Campus Hackathons
  - Fall 2016 – Energy Analytics, Spri

Building: Williams
DPU: 68.26199 kWH
DEU: 1570.026 kW
WU: 55463.43 W
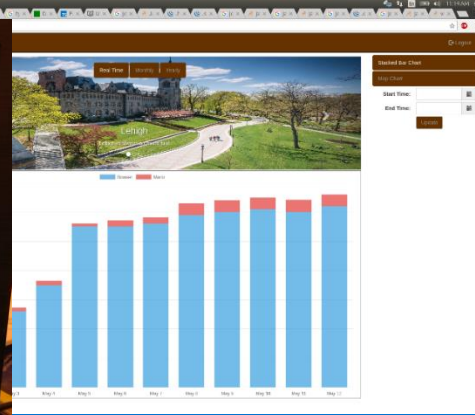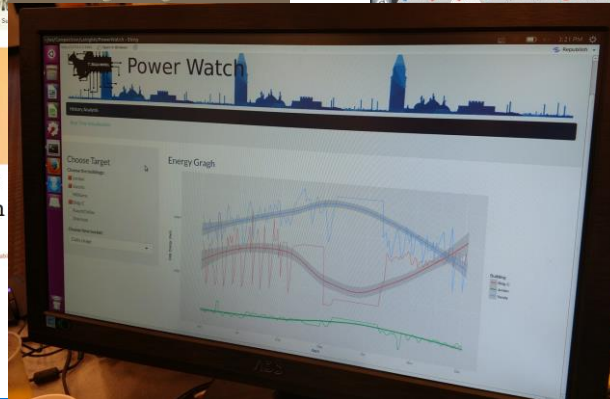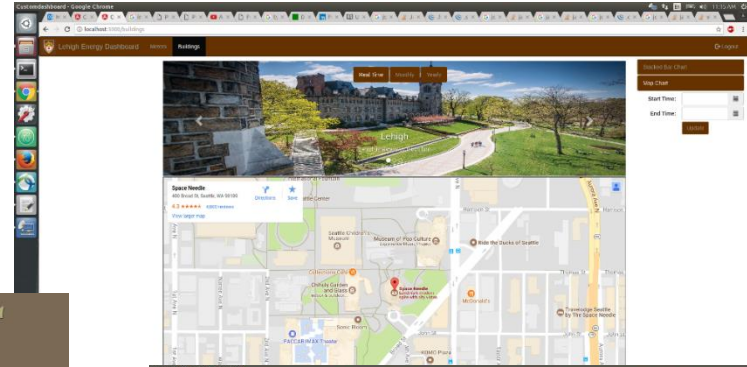DPU/sq ft: 68.59216
DEU/sq ft: 1577.62
WU/sq ft: 56667.55
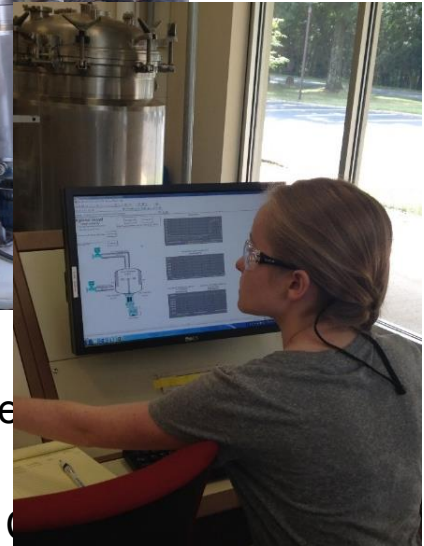
Operations & Administration

- Campus-wide Building Level Energy Data
- STEPS Building Data
- Mountain Top Campus Industry Advisor
- Dean's Living Lab Leader
- EV Car Charge
  - Advisor
  - Industry Co
- Campus Wide E
- Lehigh Goblet

HR Engagement

- Interns – Summer 2017 – 3 Interns (
- Full Time Offers – 5 in 2016/17 (Befo
- Call for Collabor
    - Unit Opera
    - Energy Das
    - OSIsoft Clo
- Career Services
- ChE Job Fair
- Campus-wide J
- ESEI Capstone
- Computer Scien   iew Worksh
- High School Inte   Schools and
- -
- Harry Paul – Le   SIsoft Secu
- Paul Martin – Le   OSIsoft Dev
- Seth Sauder – L   dvisor to OSIsoft System Engineering ?

By the Numbers

Area	2005-2015	2015-2017
Classroom - Presentations	1	5
Classroom - Class Uses	1 (2007)	4
Hackathons	0	2
internships	3	3
New Hires	11	5 + 2017 Class
Industry Presentations	0	4
Customer Based Meetings	0	2
Grant Commitment Sponsorship	0	3 ($100,000) +
Tech Transfer	0	2 Proposed
Commercial operations	0	0

Questions

Please wait for the **microphone** before asking your questions
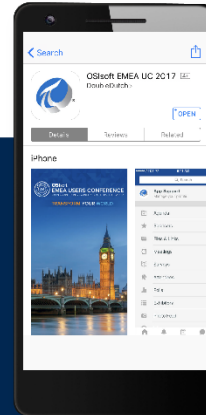
State your **name & company**

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Director Customer Innovation & Academia

OSIsoft