Supporting University-Industry-Government Cooperation in

Romania

TRAINING WORKSHOPS 17-20 November 2020



European Commission



MODULE 4: FOCUS ON BUSINESS AND CLUSTERS



European Commission Joint Research Centre

WORKSHOP CALENDAR

Day 1 17 Nov. 2020

KICK-OFF SESSION

09.00 - 11.00

MODULE 1 Focus on government (national and regional authorities)

11.30 - 14.00

Day 2 18 Nov. 2020

MODULE 2 Focus on universities and public research institutes

09.00 - 14.00

Day 3 19 Nov. 2020

MODULE 3 Focus on knowledge transfer professionals

09.00 - 14.00

Day 4 20 Nov. 2020

MODULE 4 Focus on firms and clusters

09.00 - 12.00

WRAP-UP SESSION

12.30 - 14.00









Dr. Victoria Galán-Muros

Dr. Todd Davey

Dr. Marina Ranga

MODULE 4: BUSINESS AND CLUSTERS

Α

IM:	AGENDA	
 Understand key features of innovating firms and clusters Get a better understanding of industry role in UIG cooperation, benefits and key success factors Understand collaboration with universities and PROs for shared value Identify barriers, drivers, facilitators & mechanisms supporting cooperation 	09.00 - 09.05	Welcome and introduction
	09.05 - 09.35	Innovative firms and clusters: why does it matter? - Marina Ranga
	09.35 - 09.45	Place-based cooperation: present and future prospects- Victoria Galan-Muros
	09.45 - 10.20	Understanding business´ barriers, drivers and facilitators of UIG cooperation and designing action to move forward - <i>Todd Davey</i>
	10.20 - 10.40	BREAK
	10.40 - 11.00	Business approaches & supporting mechanisms to UIG cooperation, incl. the stairway model to strategic partnerships - <i>Todd Davey</i>
	11.00 - 11.15	Characteristics of Romanian universities and implications for businesses - Victoria Galan-Muros
	11.15 - 11.45	International good practice case studies of UIG cooperation for business - Todd Davey
	11.45 - 12.15	The future of Romanian businesses: a vision towards 2030 - Victoria Galan-Muros
	12.15 - 12.30	Conclusions and key success factors

Place-based cooperation: present and future prospects

Victoria Galan-Muros



Commission

Joint Research Centre



Business Parks

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1.0



Science Parks

N. THE REAL PROPERTY AND

Innovation Districts

Ørestad Innovation City, Denmark

Well-connected high-density highly collaborative innovation spaces

Innovative Organizations Innovative Companies (Large, SMEs, start-ups, spin-offs, entrepreneurs) HEIs / Ris Intermediaries **Talented People** Talent attraction / retention **Quality Place** Third spaces Shared facilities **Mixed Governance** Sustainable Finance **Strategiees** Programming **Relationship with community**

Understanding business' barriers, drivers and facilitators of UIG cooperation and designing action to move forward **Todd Davey**

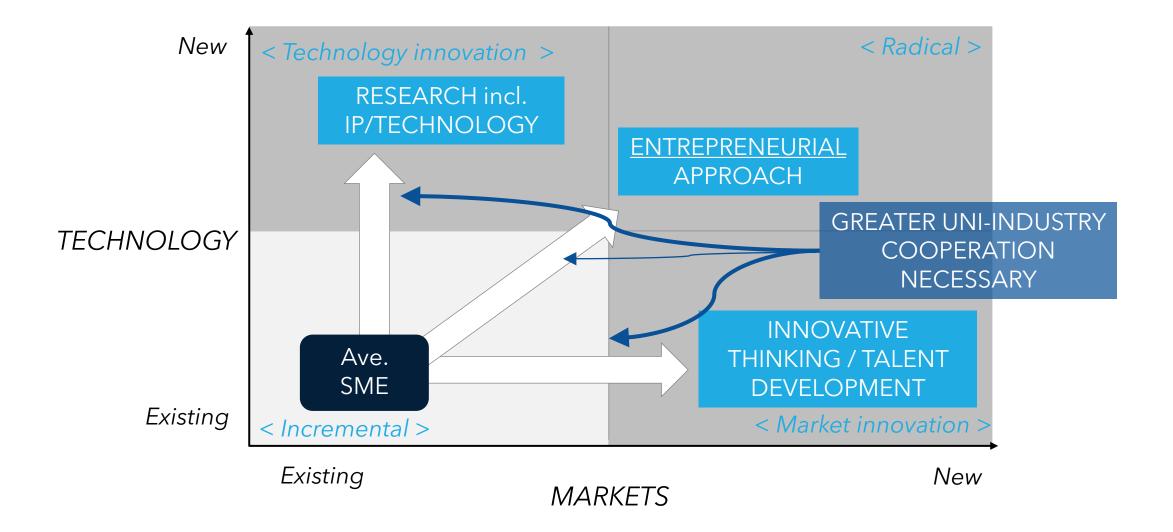


European Commission

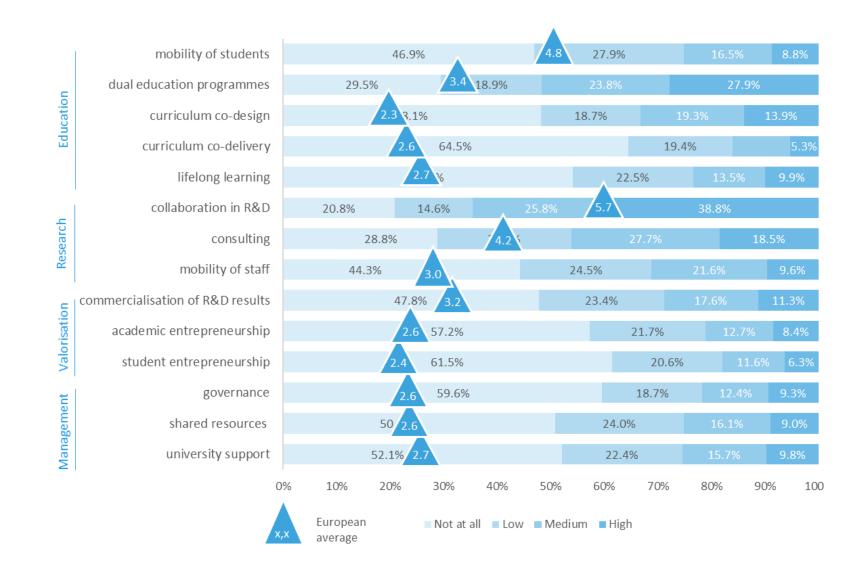


66 How does a 30 year project involving an entire supply chain of industry contribute €670 million back into the economy?

Towards a more competitive place



Most common ways for business collaborate with universities



There are a broad range of activities through which business can collaborate with universities

Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

...but, cooperation between industry and universities does not happen naturally

56 There are barriers and inhibiting factors that are reducing or preventing university and industry to cooperate

ROMANIAN BARRIERS | Top 3 most relevant



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

Source: Melonari, M., Fodor, A., Range, M., Davey, T., Meerman, A., Orazbayeva, B., Galán-Muros, V. (2018). The State of Romanian University-Industry Cooperation: the university | business perspective. www.ub-cooperation.eu/

EUROPEAN BARRIERS | Top 3 most relevant

MOTIVATIONS, FINDING THE RIGHT PARTNER, **INDUSTRIAL** Diffic EXPERIENCE



CULTURAL DIFFERENCES, **INDUSTRIAL EXPERIENCE**

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

Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

Study result:

Cooperating businesses perceive lower barriers.

Either its true for them OR Once you start, the barriers reduce

Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Industry Cooperation in Romania, European Commission, www.ub-cooperation.eu/

66

UIC BARRIERS | DISCUSSION

Is this what you experience? What can we do to address these cultural barriers in Romania?

Generation Removed the biggest barriers... now what?

55

Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Industry Cooperation in Romania, European Commission, www.ub-cooperation.eu/

66 Drivers incorporate both the <u>reason (motivators) for</u> cooperating and the <u>factors that</u> <u>underpin or support</u> (facilitators) university and industry to cooperate successfully

55

ROMANIAN FACILITATORS | Top 3 most relevant

University Management

ACCESS TO FACILITIES, EXISTENCE OF FUNDING, ACCESS TO SCIENTIFIC KNOWLEDGE

undertake the cooperation

Interest of business in accessing scientific knowledge

Academics

Existence of funding to undertake the

FUNDING, SHARED GOAL, ACCESS TO FACILITIES

Existence of a shared goal

Interest of the university in accessing businesssector R&D facilities



Business

Prior relation with the PRIOR RELATION, SHARED GOAL, FUNDING

goal

Existence of funding to undertake the cooperation

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

Source: Melonari, M., Fodor, A., Range, M., Davey, T., Meerman, A., Orazbayeva, B., Galán-Muros, V. (2018). The State of Romanian University-Industry Cooperation: the university | business perspective. www.ub-cooperation.eu/

LESSONS FROM INTERNATIONAL BEST PRACTICE

UIGC is a people's game? **PEOPLE!** Transctions

Prioritise the development of long-term relationships

ROMANIAN MOTIVATORS | Top 3 most relevant



Source: Melonari, M., Fodor, A., Range, M., Davey, T., Meerman, A., Orazbayeva, B., Galán-Muros, V. (2018). The State of Romanian University-Industry Cooperation: the university | business perspective. www.ub-cooperation.eu/

LESSONS FROM INTERNATIONAL BEST PRACTICE

66 Be really clear about why you are collaborating and commit the resources to make it work

> Increasingly, cooperating businesses are collaborating as a way to secure the best talent

UIC DRIVERS | DISCUSSION

How can we develop relationships between university, industry and government in Romania?

Organisational capability for cooperating

Our research shows that those business who undertake UBC to a medium / high degree believe the following:

They they are clear about what UBC offers them (vision)

That universities can play a <u>very important role</u> in their innovation efforts

That they have the necessary contacts and knowledge for UBC

That their business has a significantly stronger R&D profile than those that don't collaborate

That they are <u>capable</u> of absorbing that knowledge an technology coming from the cooperation

So can everyone really benefit from UIGC?

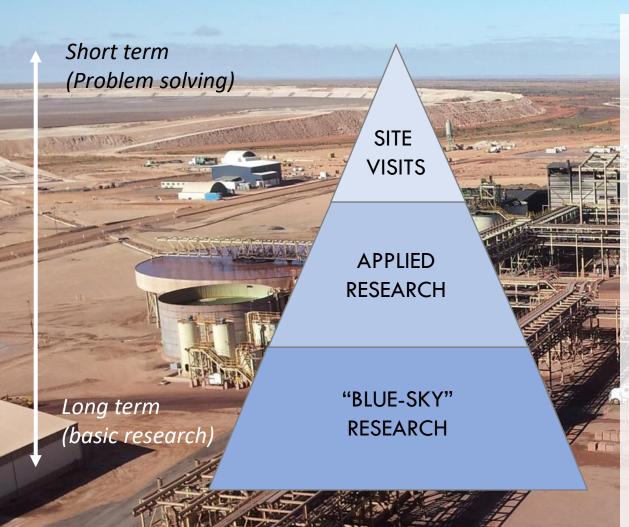
Yes.. an example

66

P260 Research projects driving future talent for the industry involving the entire mining

and minerals supply chain

Adelaide, Australia



Recognise motivations & (ideally) ensure desired stakeholder outcomes

AMIRA P260 SUPPLY CHAIN RESEARCH PARTNERSHIP

 Consortium of large mining / minerals companies

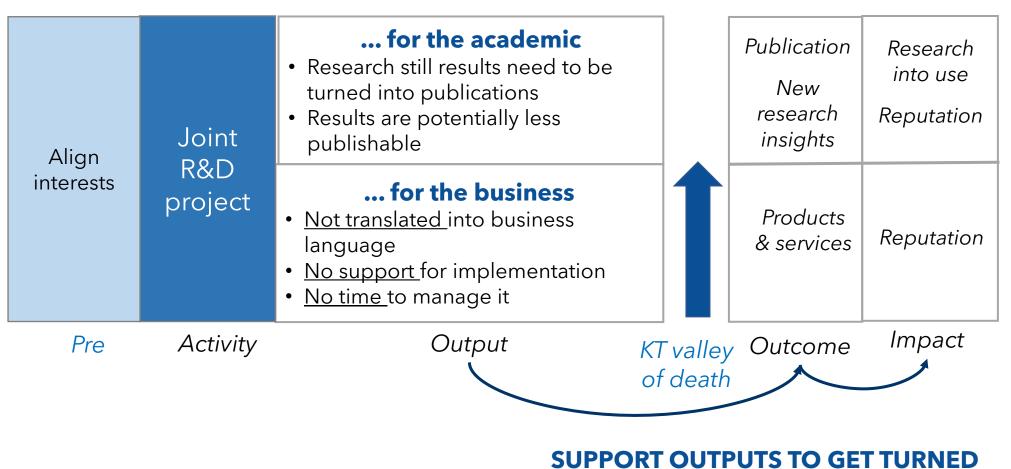
- SME supply chain partners
- Research institutions

Running for over 29 years Project iterations (3-4 years each) Co-funded (industry supplemented by government)

RESULTS 300 refereed research publications 50 PhD students 41 working mining and processing sector

Total benefits: \$1AU billion (€670 Million)

PARTNERSHIPS IN WHICH EVERYONE BENEFITS



INTO OUTCOMES AND IMPACT

Business approaches and supporting mechanisms to UIG cooperation, incl. the stairway model to strategic partnerships *Todd Davey*



European Commission Joint Research Centre Supporting mechanisms are the actions you can take to create and support UIG collaboration

Key supporting mechanisms (for business)

¥.	Regional innovation policies	IP rights legislation for academic research discovery	
	Tax incentives for business positively supporting collaboration between university and business	Public seed capital supporting UIC initiatives	
	<u>Finances</u> to support UIC	<u>Personnel</u> to support UIC	
	Dedication of <u>time</u> for undertaking UIC	The provision of <u>incentives and recognition</u> to engage in UIC	
	Board member or Executive <u>positions</u> responsible for UIC	Adjunct positions for business people	
	Knowledge transfer and cooperation <u>agencies</u> dedicated to UIC	Science / Technology Park <u>precincts</u> <u>Co-working spaces</u> accessible by business	
	Networks dedicated to UIC (e.g. entrepreneurship network)	Information sessions and forums about UIC	

<u>Promotion</u> of UIC activity and results within the company and in the press

<u>UIC activities</u> facilitating interaction with students/academics (e.g. student projects with business)

Policies

Strategies

Structures

SUPPORTING MECHANISMS FOR UIC

Business perspective

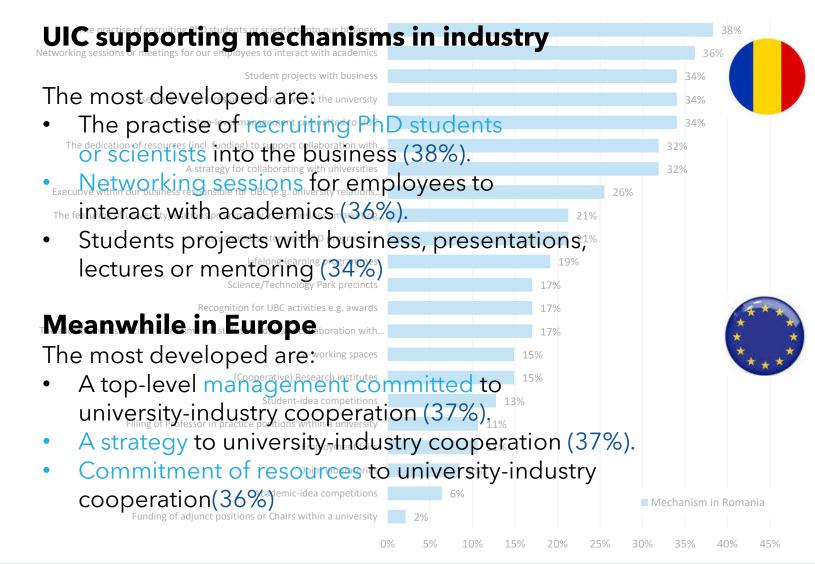
Mechanisms supporting UIC

'Do these supporting mechanisms for UIC exist in your environment?'

Takeaway

UIC supporting mechanisms in European industry are far more strategic than in Romanian industry.

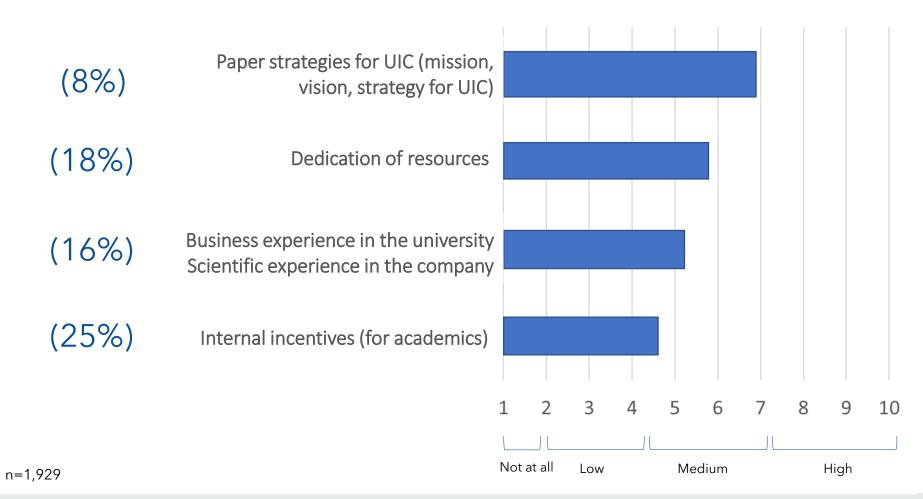
How can we get Romanian companies to see UIC more strategically important?



Source: Melonari, M., Fodor, A., Range, M., Davey, T., Meerman, A., Orazbayeva, B., Galán-Muros, V. (2018). The State of Romanian University-Industry Cooperation: the university | business perspective. www.ub-cooperation.eu/

DEVELOPMENT OF SUPPORTING MECHANISMS IN HEIS

IMPACTEXTENT OF UIC DEVELOPMENT

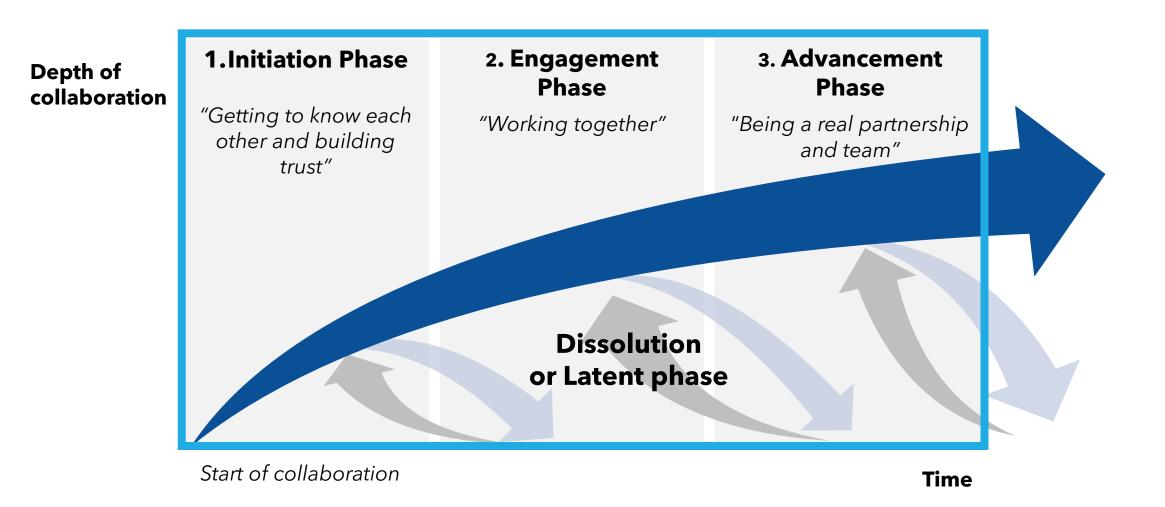


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PARTNERSHIP STAIRWAY MODEL

Commitment	AWARENESS	INTERA	CTIONS	LINKAGES	COOPERATION / COLLABORATION / ENGAGEMENT	RELATIONSHIPS / RELATIONS
Number / regularity of collaboration	Singular act	Recipro	cal act	Reciprocal development	Joint act	Joint development
Random / planned	No interaction	Random ir	teractions	Planned / ongoing interactions	Working together	Partnership
Formal / informal	Informal	Info	mal	Informal / formal	Formal	Formalised commitment
Short / medium / long- term	No activities	Initiation term a	of short- tivities	Short- / medium- term	Medium- / long- term	Long-term
Analytical / operational / tactical / strategic	Analytical / informational	Analı inform	ical / itional	Operational	Tactical	Strategic
Stakeholder	Prof. Laboratory	Prof. La	oratory	Prof. / Laboratory / Dean / Faculty	Dean / Faculty	Rectorate / University
				Pause / desist	•	

THE DIFFERENT PHASES OF ENGAGING IN UIC



SOURCE: Plewa, Korff, Johnson, Macpherson, Baaken and Rampersad (2013) The evolution of university-industry linkages – a framework. *Journal of Engineering and Technology Manag*ement, 30 (1), 21-44.

THE DIFFERENT PHASES OF ENGAGING IN UIC

Depth of collaboration	1.Initiation Phase	2. Engagement Phase	3. Advancement Phase		
	"Getting to know each other and building trust"	"Working together"	"Being a real partnership and team"	Stage of UIC development effects what is important to	
Communication	Quality of communication	Bi-directional, open communication	Discussions going beyond project	focus on	
Understanding	Understanding of partner's needs	Understanding partner & its environment	Acting in an integrated manner	Apply strategies for companies	
Trust	Trust in reputation and credibility	Trust in the individual	Trust in the relationship	depending Their experience with UIC	
Individual	Synergy, based on similarity	Development of personal relationship	Personal relationship, often friendship	with OIC	

Start of collaboration

Time

Characteristics of Romanian universities and implications for businesses

Victoria Galan-Muros / Todd Davey



European Commission

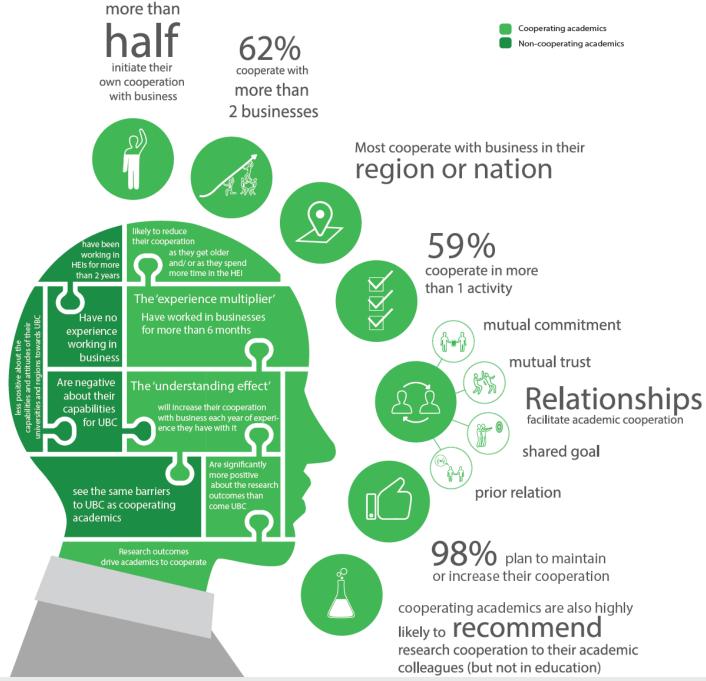


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LESSONS FROM INTERNATIONAL BEST PRACTICE

A key success factor in UIC is finding the right people & organisations to work with

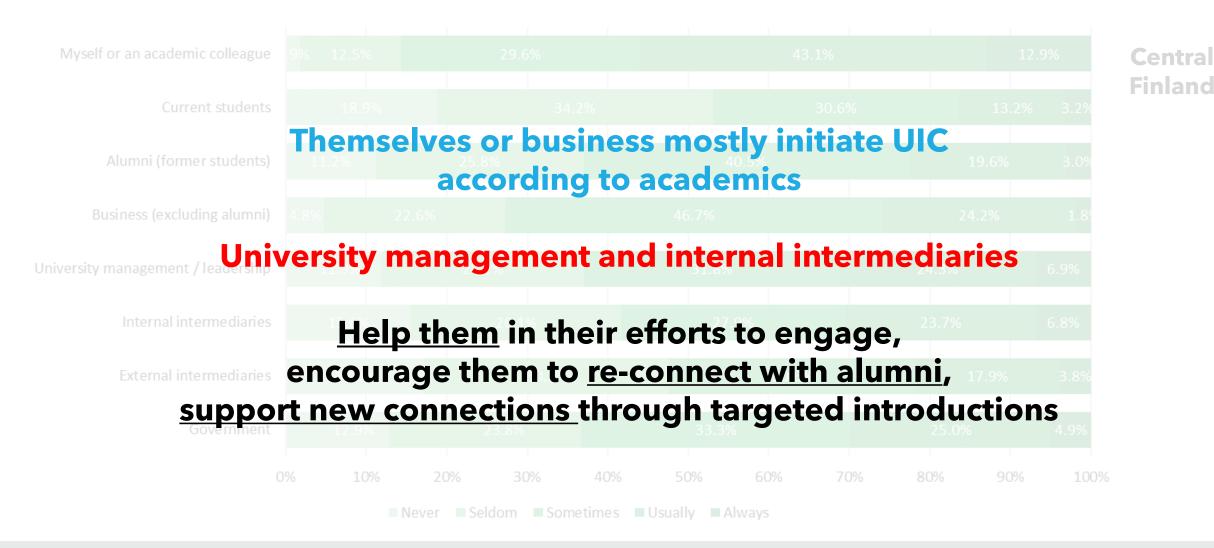
So, how could you more strategically find potential collaborators and increase collaboration?



Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

PROFILE OF THE "ACADEMIC COLLABORATOR"

COOPERATING ACADEMICS | WHO INITIATES COOPERATION?

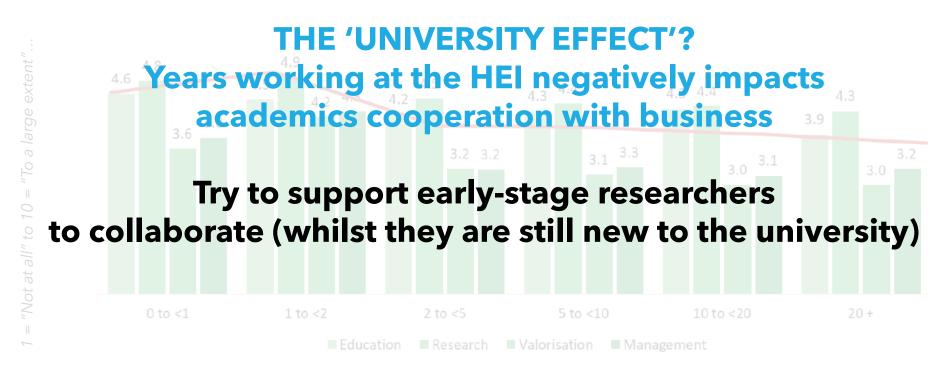


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ACADEMICS | YEARS WORKING IN HEI vs. AMOUNT OF COOPERATION

The 'university influence'? – The greater the number of years that an academic

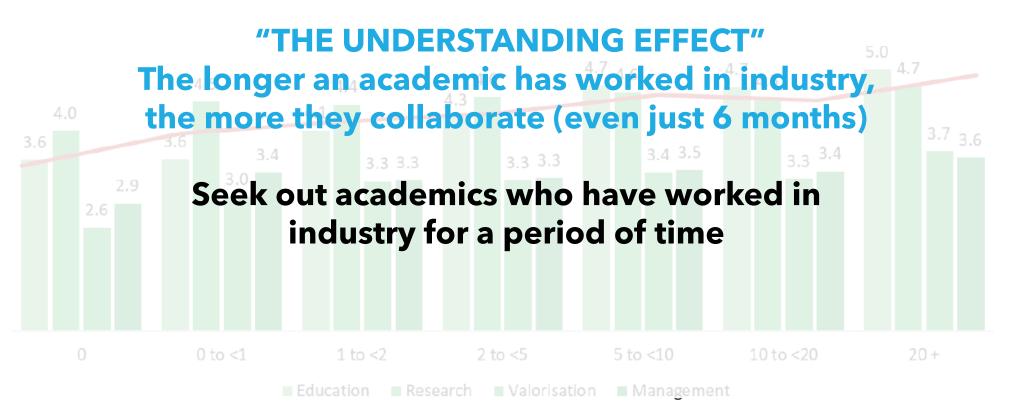
works at an HEI the less they tend to cooperate with business



ACADEMICS | YEARS WORKING IN INDUSTRY vs. AMOUNT OF COOPERATION

The 'understanding effect'? - The greater the number of years that an

academic works in business the more they tend to cooperate with business

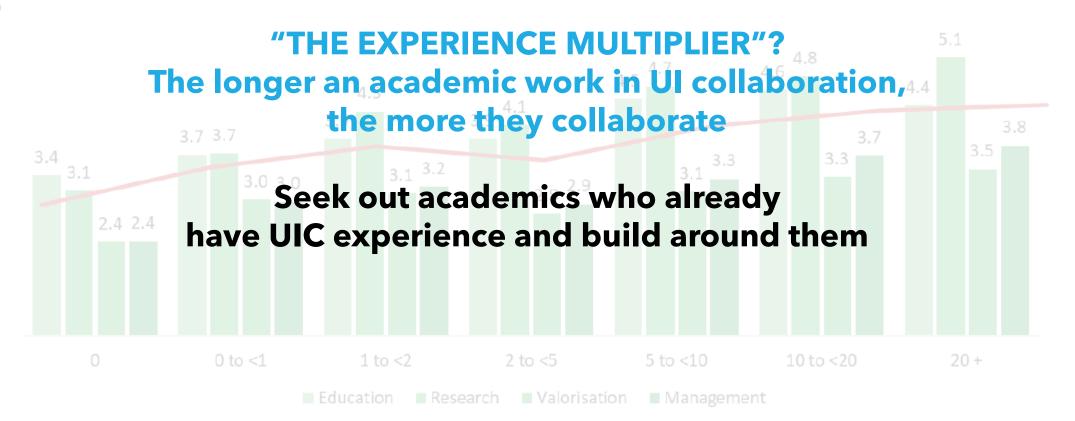


Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

ACADEMICS | YEARS WORKING IN UIC vs. AMOUNT OF COOPERATION

The 'experience multiplier? – The greater the number of years that an

academic cooperates with business the more cooperation they undertake



Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

COOPERATING ACADEMICS DIFFERENT TYPES OF COOPERATION where resources and the second state of the second st



Legend: dark green/blue = high correlation: .5 to 1.0, medium green/blue = medium correlation: .3 to .5

Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

COOPERATING ACADEMICS | DESIRE TO CONTINUE COLLABORATING

UBC indicators answered by cooperating academics

How likely is it that you would recommend to an academic colleague to engage in UBC for <u>education</u>?

How likely is it that you would recommend to an academic colleague to engage in UBC for <u>research</u>?

Cooperating academics overwhelmingly want to maintain or increase cooperation with industry Build around those academics who already undertake UIC and engage them as champions

Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

POTENTIAL COLLABORATORS

nature

career BRIEF · 26 MARCH 2018 More than one-third of graduate students "One thing many PhD students have in common is dissatisfaction. Some describe their work as "slave labour".

report being de PhD students are presently underutilised by Although a doctorate is designed as training for a job in academia, the number of PhD positions is students are under the prometer of phD students are under the prometer of phD students are under the prometer of the prometer o

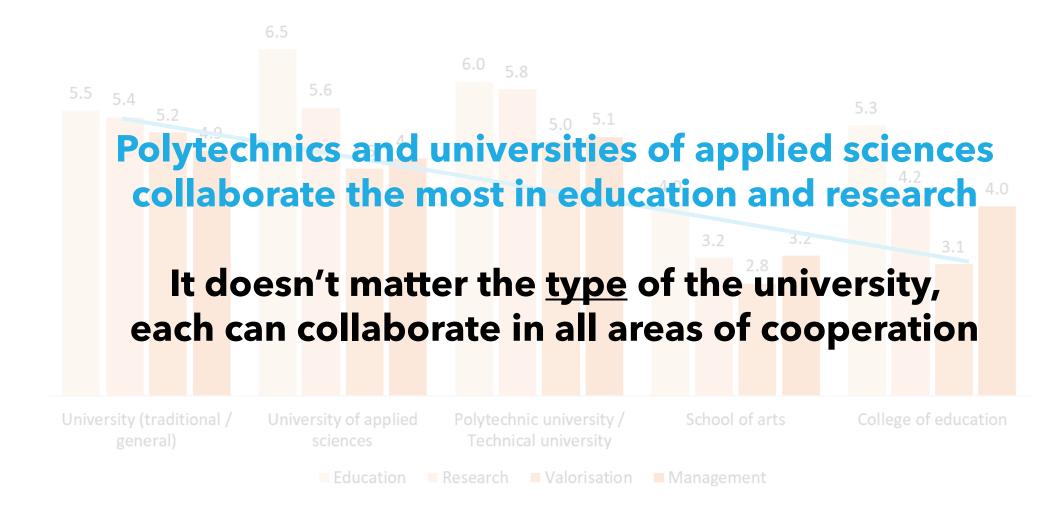
PhD can boost are not teaching the right things. The fiercest are not teaching business (Industry or entrepreneurship PhDs) research doctorates to Ponzi or pyramid schemes."

October 26, 2015 7.14pm G

Academia and business can learn from each other What should an undergraduate student who's inspired to change the world do? Should they continue their education in a PhD or found a startup? I have recently done both – at the same time – and my experience suggests the combination is better than you - The Economist

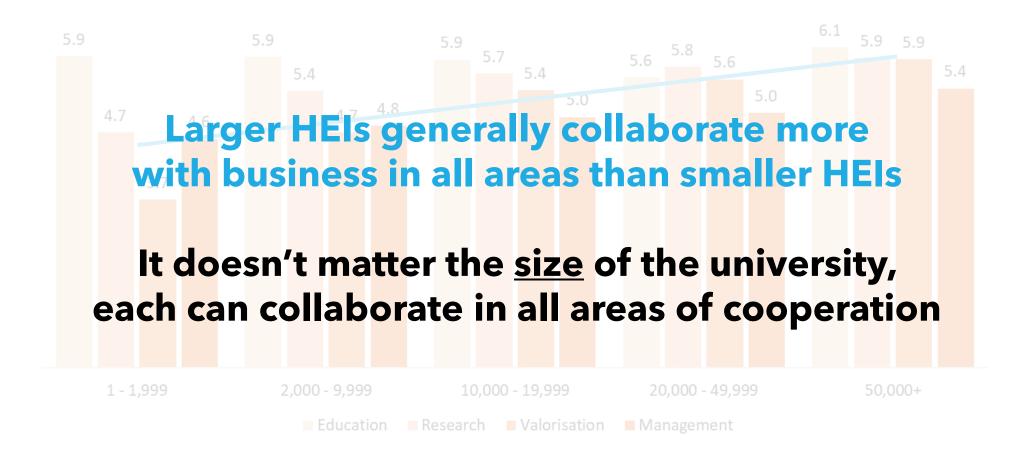
might expect.

SIZE OF UNIVERSITY | AREAS OF COOPERATION



Source: Davey, T., Meerman, A., Galan Muros, V., Orazbayeva, B., Baaken, T., (2018). State of University-Business Cooperation in Europe, European Commission, www.ub-cooperation.eu/img/finalreport2018.png

SIZE OF UNIVERSITY | AREAS OF COOPERATION



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International good practice case studies of UIG cooperation for business **Todd Davey**

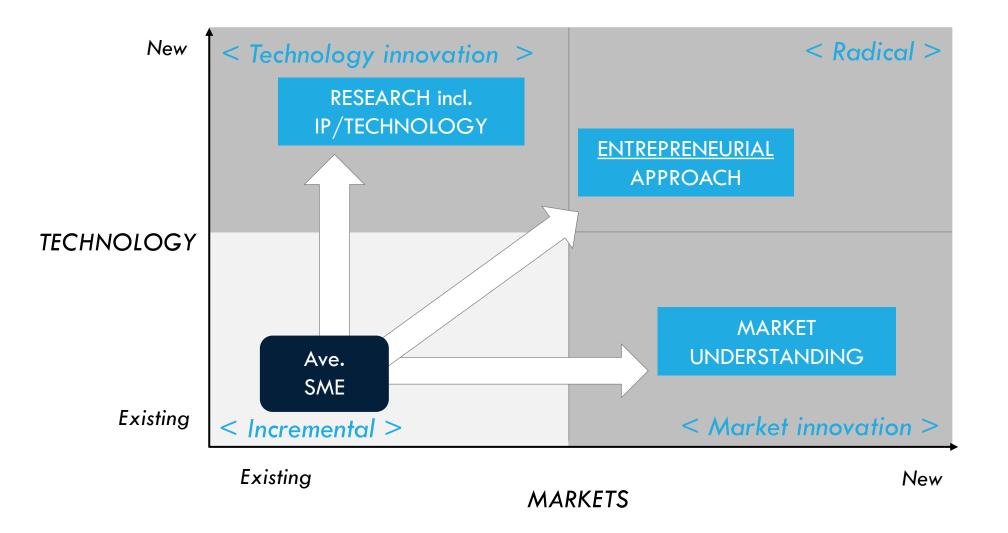


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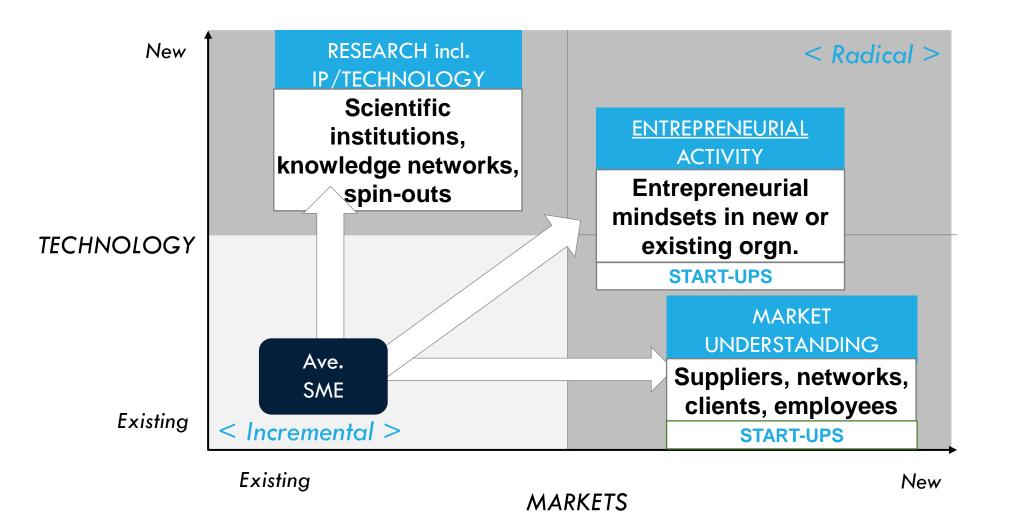


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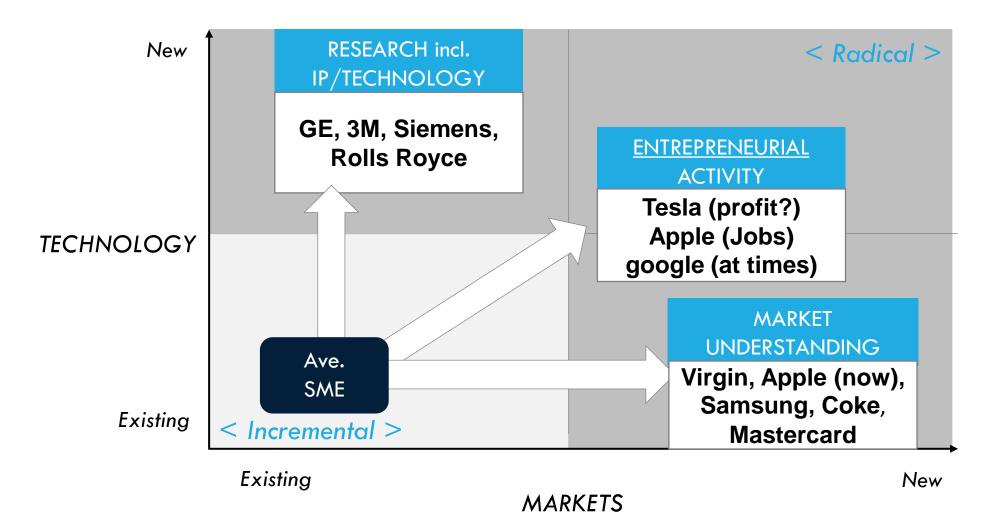
Towards a better place



... how?



... for example



Dual study programmes

Baden-Württemberg Cooperative State University, Germany

An emerging **hybrid form of higher** education, which offers the participant the opportunity to complete a:

- 1. A degree programme at a higher education institution
- 2. A certification of practical vocational training or work experience in a company.

In Germany:

- **70%** of these courses are related to the engineering field and to economics and business studies.
- The remaining **30%** is made up by computing, social sciences and others.

Baden-Württemberg Cooperative State University (DHBW) VOLKSWAGEN & BADEN-WÜRTTEMBERG COOPERATIVE STATE UNIVERSITY (DHBW)

The Volkswagen (VW) Group has a long history of involvement in Bachelor dual study programmes (Duales Studium) through its brands in Germany (VW, Audi, MAN, Porsche etc.).

About VW's dual study programmes:

- lasts 8 semesters on average.
- students to earn whilst they learn through a monthly payment
- ultimately leads to a **job at VW**.
- can be undertaken in a range of topics including: information technology, mechanical engineering, electrical engineering etc.

Key Success Factors

- Content linkage link between the contents of the study and the practical work for the student
- **Time linkage** having focussed practical and academic time
- Structural linkage regular exchange
- between representatives of the company and the HEI.

Dairy Crest

- Dairy Crest (DC), a <u>leading British dairy</u> <u>company</u>
- Looked to develop capability in <u>foodtech</u> and food security
- Started cooperating in joint research and development R&D projects with a local university, Harper Adams University in Shropshire (England)
- DC also provided <u>additional education</u> <u>input</u> to the design and delivery of curricula



- Set up a £4m (€4.8m) innovation centre on the campus of Harper Adams University
- Aims to deliver <u>10% of year-on-year</u> <u>growth</u> through new product development; with scientific research, technology and product development at the core of this objective
- The partnership has been <u>awarded the</u> <u>'Most Innovative Contribution to</u> <u>Business-University Collaboration</u>' category in the Times Higher Education (THE) Awards 2016

SMR Automotive

Re-Timer

- SMR Automotive, a medium-sized Australian <u>contract manufacturer</u>
- They <u>supply the automotive sector</u> as well as other consumer and medical components
- Wanted to grow and diversify.
- Competencies in lighting and <u>injection</u> <u>moulding</u>
- Partnered with a (university) incubator
- University recruited an entrepreneur to develop the academic spin-out within the university incubator.
- University provides the patent license and incubation and takes a share in the enterprise

RE-TIMER[™]

Change your sleep rhythm to suit your lifestyle



Developing effective HEI-employer relationships in Sweden

- The regional embeddedness of Linköping University
- Linköping University (Sweden) leads an HEI-driven regional innovation system
- The University has a strategic relationship with Saab
- Saab managers also work as **adjunct professors** (20% of their time is spent at the University). They:
 - Sit on university **boards**,
 - Teach in courses,
 - Supervise theses,
 - Mentor researchers and students
- Industrial PhDs" (who spend 50% of their time in Saab's workplace and half at the university department), collaborative projects and co-publications are further avenues of cooperation
- Students become more employable (even directly)
- **SAAB** becomes a **more engaging place to work** and so improves their staff recruitment and retention.



Clemson University International Center for Automotive Research

An exemplary automotive-sector public-private cooperation in research and education

Deep orange

- <u>Vehicle prototype 24-month program where students, multidisciplinary faculty, and participating industry partners work together</u> to produce a new vehicle prototype each year.
- <u>Hands-on learning</u> experience in multi-disciplinary teams.
- Sponsored by major automotive industries of Toyota, Mazda, General Motors and BMW.

"It's the only program of its kind where students begin with nothing more than ideas and finish with a vehicle"







Deep Orange Vehicle Prototyping Program U is an extraordinary initiative that gives students the opportunity to create a prototype vehicle in two years

ATOYOT

URBAN MOBILITY FOR GENERATION Y & Z DEEP ORANGE 5

Airbus Group





Airbus Group





Airbus' strategic needs!



300k students reached

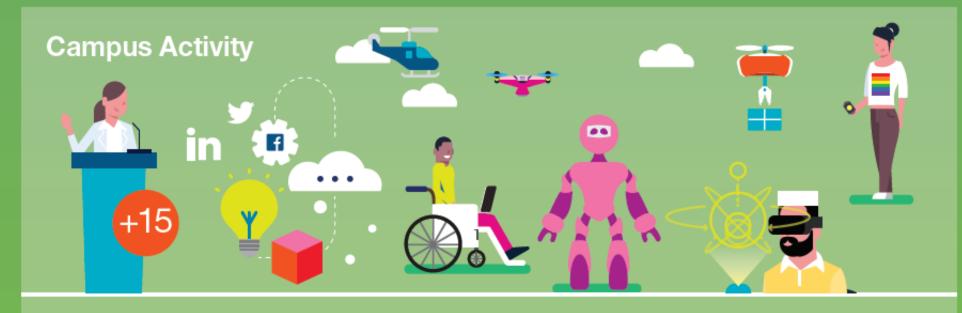
Partnership signing ceremony for **5 universities** 250+ students involved in 20+ activities at Airbus Innovation Space



30% international students

Airbus Group

... and engage and attract the diverse workforce of tomorrow.



15 new Campus Ambassadors 3000+ students participated in 100+ activities on campus Bilateral activities Drone Dash 1 virtual classrooms Airbus Day 1 workshops 1 job fairs 1 hackathon

etc.

Leading strategic oriented research with Airbus

Quantum Technologies Innovation Centre - Bristol

Aerospace Integrated Research Centre - Cranfield

Joint Centre for Aeronautic Systems Integration - Carlos III Madrid C ...and many more

REDARC Example

An Australian based company originally only 8 employees in 1997, now 200 people.

A world-class, <u>advanced electronics manufacturer</u>: specialises in electronic voltage converters, inverters, power supplies and battery chargers.

Built reputation in innovation through:

- Internal investment in R&D
- Entreprenurial CEO developed and innovation culture
- <u>Winning awards</u> for their product development
- Supplemented with state <u>R&D funds</u>
- <u>Partnered</u> with local universities
- <u>Patent</u> protection
- <u>Acquisitions</u>

THE POWER OF



SIEMENS

Siemens university-industry interaction approach is based on various stages, from one-time collaboration, to framework contracts to a strategic partnership

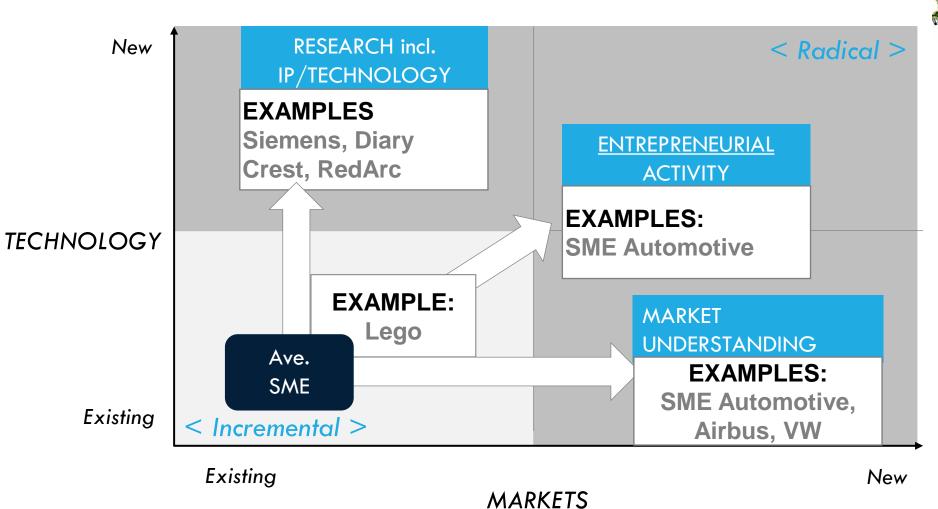
Key success factors:

- 1. Long-term commitment e.g. CKI programme
- Relationship management e.g. Siemens CKI Managers resident within universities.

EVENS

3. Aligning research and innovation to talent acquisition

Summary... for example



Characteristics of Romanian universities and implications for businesses

Victoria Galan-Muros



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UIC ACTIVITIES IN ROMANIA

		Academics	Business	
	Mobility of students	3.2	5.3	
	Dual education programmes	2.4	4.4	
Education	Curriculum co-design	2.6	2.5	
Edu	Curriculum co-delivery	2.5	3.0	
	Lifelong learning	2.3	3.7	
-S	Collaboration in R&D	2.8	5.2	
<u>Research</u>	Consulting	2.6	4.5	
Re	Mobility of staff	2.3	3.4	
tion	Commercialisation of R&D	2.0	3.6	
<u>Valorisation</u>	Academic entrepreneurship	2.2	2.8	Legend
<u>Valo</u>	Student entrepreneurship	2.2	2.6	Mo dev
nent	Governance	2.1	3.4	2nc
<u>Management</u>	Shared resources	2.4	3.8	3rd
Man	Industry support	2.4	3.8	Lea

Most

developed

2nd most

3rd most

Least



00.



Have a say on the curricula

Communicate your future skills needs



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latey transpillfunTransPark callback for it() 1 testRenderer 1 Applicat

Share your knowledge directly with the students

E Terrinal E Terrinit 465 date available // Update // Plugin settings... // Ignore this update thoday

YOUR DOORS

to students and researchers for high quality practical experiences

Keep the skills of your staff updated...and use the university for this

Technical consultancy? The university might be your place

Most radical innovations come from science...just saying!

Be the first client of those innovative start-ups and spinoffs

tim

6 1 300



GO BACK

to your university and explore opportunities



our patience with others is good.





Patience, science in progress

Be aware of what the other party wants and expect





The future of Romanian businesses: a vision towards 2030

Victoria Galan-Muros



European Commission Joint Research Centre

TALENT PARTNER



SKILLS DEVELOPER





INNOVATION ENGINE

HOME BASE





CORPORATE VENTURING

Some the trouble is, if you don't risk you risk even more

Erika Jong

Supporting University-Industry-Government Cooperation in

Romania

TRAINING WORKSHOPS 17-20 November 2020



European Commission

