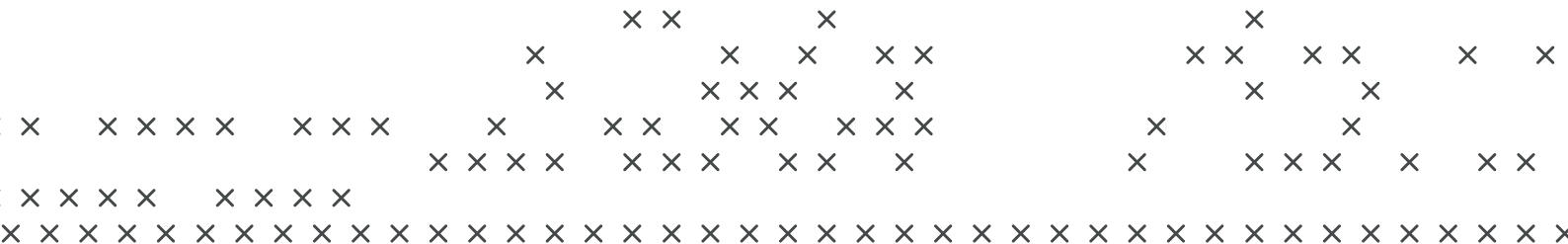




# EXTENDING INDUSTRY TO ACADEMIA. UNIVERSITY – BUSINESS COOPERATION THROUGH SUCCESS STORIES.



# EXTENDING INDUSTRY TO ACADEMIA.

## University – Business Cooperation Through Success Stories.

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# Sandis Kolomenskis

Member of the Board, DPA



It is possible to battle against changes, run away from them, or yield before them. Today we have mobile and cloud technologies that have changed the way in which innovations are implemented. This has changed not just dynamics, but also forms of operations. The Pandora's Box has now been opened, and any businessperson can choose the best form of innovation, then allowing users to vote for it with their "pocketbooks."

To be a step ahead of competitors with innovations and to develop these in-depth innovations in a very brief period of time, we can only yield before the "fast train" of the rapid pace at which the world is developing and changing. This is seen in the past 20 years of Latvia's history. In 1992, we had our first Internet connection. Today, Latvia has the fourth fastest Internet connection in the world.

Partnerships are an essential factor for competitive innovations. Public desire for innovations poses the question of how to divide up eight economically effective hours so that innovative products can be invented, manufactured and sold as part of the battle of competition.

Innovations are like an iceberg. We only see the tip of the iceberg, and most of the work is hidden.

The invisible part of the iceberg of innovations is based on partnerships with scientists, universities and other academic institutions. Society will be strong and at a high level of quality if it is based on traditions, and if scientists and businesspeople come together, speak the same language, and "breathe" with the same rhythm.

As a businessman, I must determine the direction, scope and speed of specific innovations. I am like the conductor of the "fast train" in this process. I begin the process and ensure the necessary fuel. The speed and success of innovations depend on the depth of ability of scientists, innovation and, most importantly, being ready and able to work together with others. None of this can be achieved quickly.

High-quality partnerships with good results take just as long to establish, as is the case with any other tradition that is affected by several external factors: political support, availability of resources, quality of business ideas, quality of human resources, cultural aspects, and public "attractiveness" index.

Only with all of these aspects can we ensure victorious competitiveness and create innovations.

# Līga Menģelsone

Director General of the Employers' Confederation of Latvia



LATVIJAS DARBA DEVĒJU KONFEDERĀCIJA

The competitiveness of the economy is increasingly dependent on the availability of a qualified and entrepreneurial workforce. Universities are at the heart of knowledge triangle – interaction between research, education and innovation, which are key drivers of a knowledge-based economy. Universities have the potential to become significant players in the economy, being able to respond better and faster to the demands of the market and to develop partnerships which foster scientific and technological knowledge.

Today, the level of cooperation between universities and business remains very unequal across different higher education institutions and academic disciplines. Significant progress has been achieved in relation to business involvement in higher education, but there are still only few examples of really strategic and long-term partnership between universities and businesses in Latvia. At the same time we are witnesses of a very positive change, and the exercise of success-story search has helped us to see it. Success sharing can inspire others and make ourselves to be proud and

confident. Success which has not been made visible and has not inspired someone else, is only half-success.

We still have to learn to share our success more, and I am grateful to the team of the project „University and Business Co-operation Through Success Stories” which has accomplished a very significant work through compiling and promoting considerable number of examples of good practice about university-business cooperation in Latvia and other Baltic and Nordic countries. I hope they will inspire both, universities and businesses, to work together to develop human resources and better businesses and better societies, and to share their success with others.

# Līna Dzene

Chairwoman of the Board, Knowledge Triangle Network



According to Gartner, in 2013 more than 967 million smartphone units were sold globally reaching an increasing number of users. Notably, the smartphone as we know it is the outcome of research projects at universities where all major components such as CPU, GPS, touchscreen were actually developed. This is just one of many outstanding instances that demonstrates the so called 'third mission' of universities alongside of education and R&D.

Knowledge Triangle Network (K3Network) was founded for the purpose of fostering interdisciplinary cooperation between universities and various other stakeholders, including businesses. In 2014 "University Business Cooperation Through Success Stories" has been a major project to K3Network and I am pleased with the results we have achieved. It has given the opportunity to learn from institutions in the Nordic and Baltic countries about the different ways universities can cooperate with businesses. The major conclusions are included in this Handbook, coupled with research from other countries on the subject matter, as well as practical suggestions to universities, businesses and policy makers on how to encourage more powerful

collaborations.

One of the lessons that I have taken from this project is that universities hold treasure troves filled with great ideas. Those who venture out to put these ideas to the test of the market have the potential to gain financial returns as well as to improve society with another great product or service. The question that logically follows from this observation is – how do we enhance this type of cooperation? Furthermore – how do we ensure cross-boarder cooperation between institutions of different sectors, based in different countries?

Lastly, I would like to thank the Nordplus Horizontal program and IT company DPA Ltd. for their financial support, as well as the Investment and Development Agency of Latvia for helping to reach out to wider stakeholder audiences. I am also grateful to all project partners for their contribution. Without all your input it would have been much more difficult to complete the project with such a great value for all.

Wishing everybody new inspirations for the next decade of university-business cooperation!

# Executive Summary

The aim of this Handbook is twofold. First, the Handbook serves as an outline of the main activities and outcomes of the project “University-Business Cooperation Through Success Stories”. The project took place from November 2013 until December 2014, covering 7 different Nordic and Baltic countries and the aim of the endeavour has been to understand what factors have the most bearing on the success of cooperation between university or research institute and a business. Conclusions from this particular research have been juxtaposed with outcomes of research on this topic conducted by others in different nations. The second aim of this Handbook is to convey a set of recommendations to universities, businesses and policy makers on how to ensure an environment where successful and meaningful cooperation between universities and businesses takes place.

Please visit project’s website [www.university-business.net](http://www.university-business.net) for results of the project (including all case studies).

# Introduction

The dialogue between education sector and business is crucial for enhancing innovation capacity of a country, region and the world at large. If a country or a region aspires to take a leading role in innovation and entrepreneurship, it cannot ignore the need to foster university-business cooperation (UBC). UBC is a strong driver for innovation as it encourages the sharing and transfer of knowledge, fosters long-term partnerships and mutually beneficial value creation between businesses and universities. However, despite practically undisputed recognition of UBC importance among relevant stakeholders, the practical results in terms of university-business cooperation remain suboptimal. According to a study conducted by Science Business Innovation Board in 2012<sup>1</sup> university-industry cooperation patterns across Europe are significantly uneven. The United

Kingdom, Germany, Scandinavian countries and the Netherlands demonstrate long-term partnerships with deep history, while Eastern-European countries are lagging behind.

The aim of the project “University – Business Cooperation through Success Stories” has been to enhance cooperation between higher education institutions (HEIs) and businesses. This has been achieved through the analysis of already successful cases of such cooperation in order to understand the prerequisites for successful, meaningful and valuable cooperation as evaluated by actors involved. The project covered 7 countries, namely Latvia, Lithuania, Finland, Sweden, Norway, Estonia and Denmark, the first five being the countries where the project’s partners are based.





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The project “University-Business Cooperation Through Success Stories” had 4 phases. First, there was a roundtable discussion among experts from the partner organisations on the prerequisites for HEI-business cooperation that is successful, meaningful and valuable, after which the project partners were urged to actively look for real-life case studies on HEI-business cooperation. Second, a one-day forum - the UBC Assembly - was held where people from government institutions, HEIs, business and employer organizations were presented with the findings from the roundtable discussions and from the analysis of the case studies submitted by the project partners. Third, HEIs and businesses from the whole Nordic region were invited to submit their University-Business Collaboration cases, which were then examined for success prerequisites

identified from previous literature and discussions with stakeholders. The fourth phase of the project has been dedicated to dissemination activities of the project, including the production of this Handbook.

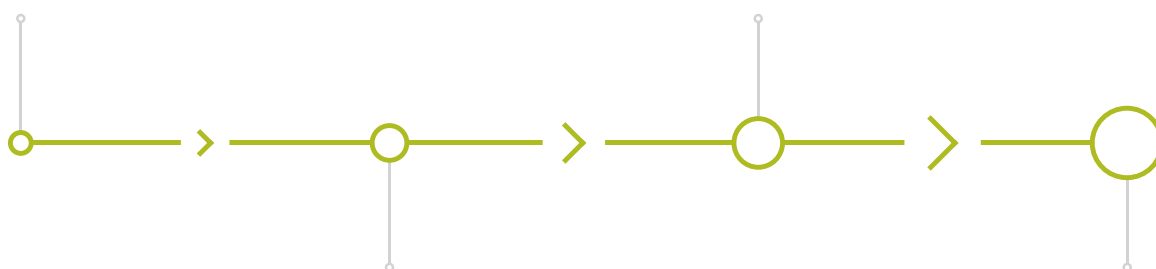
Results of the UBC project (including all case studies) are available on project’s website: [www.university-business.net](http://www.university-business.net).



**ROUNDTABLE  
DISCUSSION**



**COLLECTION OF  
CASE STUDIES**



**UBC ASSEMBLY**



**HANDBOOK**



# Methodology

The six areas explored within the UBC project have been research and development, commercialisation, curriculum development and delivery, lifelong learning, governance, and mobility. These areas were agreed upon by the project partners at the roundtable meeting on November 28, 2013 (discussions were based on the results of previous research done by European Commission<sup>2</sup>, UNESCO<sup>3</sup> and Library House<sup>4</sup>). One important type of UBC that has not been particularly explored within this framework is university and industry collaboration in policy discussions. There is supportive evidence in United States and several European countries indicating that cooperation between industry and academia in policy discussions significantly increases the probability of favourable policy outcomes. The 30% increase in European R&D budget in 2014 at the time of reductions in all other types of spending has been largely attributed to successful collaboration between industry and academia demonstrating unified budget priorities in discussions with European Union policy makers<sup>5</sup>.



## Research & Development

R&D cooperation includes:

- discovering, developing or testing a new idea outcomes of which cannot be known or determined in advance on the basis of current knowledge, information or experience;
- joint R&D activities, contract research, R&D consulting, cooperation in innovation;
- joint publications with firm scientists, researchers;
- joint supervision of theses with firm scientists, researchers in cooperation with business, and student projects in cooperation with business.



## Curriculum development and delivery

Curriculum development and delivery is the process of creating a learning environment and the development of human resources relevant to modern society.

This includes cooperation in:

- development of a fixed programme of courses, modules, majors or minors;
- planned experiences as well as guest lectures by delegates from private and public organisations;
- cooperation within undergraduate, graduate, PhD programmes or through further professional education.



## Governance

UBC in governance is cooperation between HEI and business at the management level of the HEI or firm.

Cooperation between a university and a business in the field of governance includes:

- business leaders involved in HEI decision-making;
- business leaders sitting on the boards of HEIs;
- business leaders involved at a faculty management level;
- academics involved in firm decision-making or sitting on the boards of firms.

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## Commercialisation

Commercialisation involves bringing scientific R&D results to the market in cooperation with business through spin-offs, disclosures of inventions, patenting or licenses.

Commercialisation is the process through which:

- research discoveries are brought to the market place;
- new ideas or discoveries are developed into new products, services or technologies that are sold around the world.



## Lifelong learning

Lifelong learning is the provision of adult education, permanent education and/or continuing education involving the acquisition of skills, knowledge, attitudes and behaviours at all stages of life by HEIs.

The lifelong learning approach recognizes that high-quality higher and vocational education and training are fundamental to success. In a rapidly changing world, lifelong learning needs to be a priority – it is the key to employment and economic success, as well as enhancing creativity and innovation.



## Mobility

There are two types of mobility, namely, student mobility and academic or staff mobility:

- student mobility includes temporary or permanent movement of students from HEIs to business;
- academic mobility involves temporary or permanent movement of teaching staff or researchers from HEIs to business, as well as temporary or permanent movement of employees, managers and researchers from businesses to HEIs.

# Main findings

When the six areas of the UBC cooperation had been defined, project partners were asked to submit case studies from their own institutions and to encourage other universities to follow the lead. Each UBC case submitted was evaluated according to 5 success criteria, in order to understand what the most important factors are to ensure that cooperation between a university and a business is fruitful. The four success criteria examined concerned such aspects as formal cooperation, finances and infrastructure, human capital, and marketing and communication.

## SUCCESS CRITERIA

## FACTORS

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Formal cooperation aspects

Is there a memorandum of understanding, a letter of intent or practical level co-operation agreement signed between the university and the partner? Are there clear roles and responsibilities defined for university and the partner? Is the cooperation project related to the strategic priorities of university and the partner?

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Financial and infrastructure aspects

Have the parties invested financial or in-kind resources in the cooperation project? Do the parties gain financial or non-monetary (albeit measurable) returns from the collaboration?

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Human capital aspects

What type of human capital does the university devote to the cooperation project - academic staff, research staff, students, or administrative staff? Conversely, does the business provide any human resources to the project?

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Marketing and communication aspects

What marketing and communication channels have been used to communicate outcomes of the collaboration project (mass media, social media)? Have the project results been presented in trade-shows, conferences, seminars, etc.? Have the outcomes been communicated through the academic and scientific channels?

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These are the most important takeaways drawn from selected case studies\*:

### Formal cooperation aspects.

University-Business cooperation formally can be structured in a number of ways. The most popular arrangement used for collaboration is a formal practical level agreement, followed by memorandum of understanding, letter of intent or in some cases even service level agreements are signed. However, these practical level agreements had different specifications, depending on the type of UBC cooperation.

78% of UBC partnerships have a formal practical level agreement and only 7% of successful UBC partnerships have a formal service level agreement.

### Financial and infrastructure aspects.

Business partner invests financial resources in 70% of partnerships, while university only in 56% of partnerships. Almost half of partnerships are financed by both partners, while

22% of UBC projects do not receive funding

\* 31 case study was selected for an in-depth analysis.

from neither of partners. Projects that in most of the cases do not require funding are student mobility programmes as well as lifelong learning and R&D programmes that are funded by their customers.

UBC delivers non-monetary but measurable benefits 1.7 times more often than monetary benefits.

### Human capital aspects.

In 81% of cases

both business and university devote their human capital to the project. This speaks against occasionally voiced opinions that UBC projects are mostly about delegating research-intensive business tasks to universities.

### Marketing and communication aspects.

85% of partnerships employ internal communication channels

for disseminating the results of UBC partnerships. The most popular external communication tool is mass media (81% of cases), while social media is used the least (48% of cases). It is a good sign that most UBC projects recognise the importance of marketing and communication – only 4% marked them as irrelevant. It is also important to note that

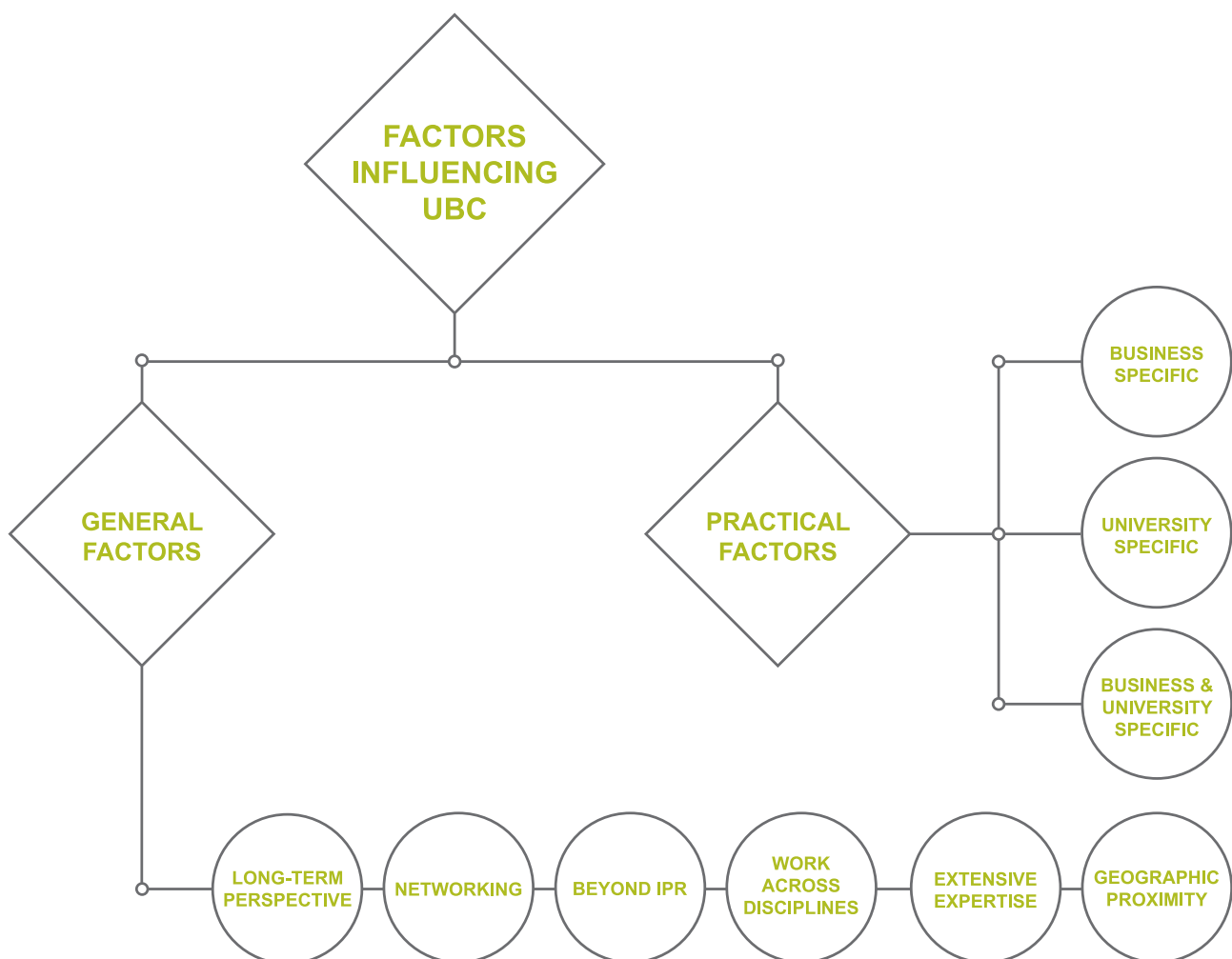
74% use at least three communication channels to disseminate the results.

### Other findings.

Each case study that has been analysed contained a section on main lessons learnt from the collaboration project. In 54% of case studies there were references made to clear and flawless governance, definition of roles and measurement of success as critical aspects while working on UBC projects. Every second lesson learned was related to information flows and communication during project implementation. Every fourth case featured some form of government support. Clear and measurable agreement and regular and purposeful communication were both found to play an important role regardless of UBC type.

# Factors influencing UBC

World practice outlines a set of factors conducive to successful university-business cooperation. Some of them are general trends, some depend on both parties (university and business) and some are party-specific. This section begins with general factors conducive to UBC and further outlines practical-level factors that are in the power of university, business, or both. It is evident that the findings in the UBC project fit these party specific factors, as will be shown through quotes from the case studies collected. The following graph outlines the factors that influence the success of UBC projects:



# General factors

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## LONG-TERM PERSPECTIVE

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There is a movement towards a smaller number of partnerships with deeper commitment.

Partnerships with smaller commitment are valuable tools for testing the viability of a potential partnership, building mutual relationship and trust. However, high quality university-business partnerships are time-consuming and therefore the initial number of partnerships is reduced, while commitment is deepened. Because higher-value commitments tend to be longer-term partnerships, agreements on measurements and deliverables must be more flexible to reflect the actual value to both parties as the partnership evolves.

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## NETWORKING

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Informal meetings are important to productive collaborations.

The importance of informal gatherings as a catalyst for productive collaborations between researchers and business employees at operational level is becoming more and more recognised. Informal gatherings and information exchanges such as seminars, workshops or lectures with subsequent provisions for networking have proven to be fruitful catalysts for cross-fertilising ideas and valuable partnerships. Business representatives attending technology gatherings and scientists attending business conferences is another trend in fruitful UBC.

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## BEYOND IPR

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Often intellectual property is not the sole benefit of a partnership.

Tacit knowledge, professional development and the impact of UBC projects on learning experience is often much more valuable for universities. The trend to consider cooperation altogether and not only narrow it down to intellectual property ownership encourages more UBC. For example, it is becoming more common for universities that want to take active role in IP commercialisation to form joint new ventures with industrial partners to take advantage of more efficient decision making.



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### WORK ACROSS DISCIPLINES

More value can be gained from cross-functional cooperation.

Multidisciplinary approach to innovation is encouraged in European Union programmes, particularly within 8th Framework Programme Horizon 2020. UBC partnerships provide more value if cross-functional collaboration is encouraged, both within business and university. Universities and businesses begin to incentivise their people to collaborate across disciplines. Policy makers start acting as catalysts fostering and incentivising idea exchange between departments of state universities, as well as between universities and industry.

### EXTENSIVE EXPERTISE

More partnerships are about deeper cooperation.

While many UBC partnerships involve partnering with universities in order to have researchers solve an existing business problem, an increasing number of strategic partnerships incorporates a deeper dimension. In order to remain at the top of competition, global business players allocate budgets for exploring the potential of possible next disruptive technologies and are interested in partnerships with highly experienced researchers who have established themselves as experts in the respective spheres.

### GEOGRAPHIC PROXIMITY

Research quality is more important than geographic proximity.

Closeness of partner location has been widely discussed as one of possible factors conducive to UBC, yet there is no clear evidence to support this view. The most solid work about the role of geographic proximity in fostering UBC analysed an extensive sample of UBC projects in the UK and concluded that being located close to a lower-tier university reduces the propensity for firms to collaborate locally, while co-location with top-tier universities promotes collaboration, particularly for research-intensive businesses<sup>6</sup>.

# Practical factors

General trends are mostly external and it is difficult for single actors to influence them. This section outlines the factors that can be practically leveraged by businesses, universities or both, regardless of general factors.

## Business-specific factors conducive to UBC.

### beyond business background

Business should ensure that UBC project manager has adequate understanding of both technological and business aspects of the project. Additionally, involving employees with academic background can help navigate the complex decision mechanisms at universities that are common barriers for successful UBC projects. For example, many technology-intensive businesses tend to have a unit consisting of people with PhD and research experience managing UBC partnerships.

‘Granting the industrial PhD position to a current employee is an advantage in terms of prior knowledge and insight into the company. This makes for better (and more directly applicable) results.’

– Ole Lauge Sørensen, industrial PhD student at Aalborg University/Rambøll Management Consulting (Aalborg Industrial PhD case)



### sharing of vision

Since many UBC projects involve development of technology that provides the business with competitive advantage, the company is often reluctant to share the full strategic implications of the project with researchers, especially in transactional or operational level partnerships. However, the business must also realise the risk of receiving a solution that matches the technical specifications, yet is not in line with company’s strategy and therefore unusable. For example, the new assembly line may match all requirements for an efficient setup of the current product, yet be incompatible with, e.g., the equipment available in desired factory location or company’s ambition of adding other products later on.

‘The Actulus project demonstrates how valuable industry research collaborations can be for both the industrial partners (actual marketable product, supported by cutting-edge research) and the university partners (better real-life anchoring of research problems, practical validation of research ideas, inspiration for student projects).’

– Dr. Jørgen Staunstrup, Provost, IT University of Copenhagen (Actulus case)



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It is imperative to have operational input from people who will be implementing the final solution already during development phase. This will ensure a result that not only matches the outlined characteristics but is also practically compatible with existing infrastructure and considers all operational constraints. Additionally, involving relevant people into the development process helps win their support for integration of the new technology.

early  
involvement



‘It is necessary to bring together business decision makers and IT representatives of the same company to achieve better business results.’

– Gatis Oss, DPA SQUALIO Member of the Board (DPASQUALIO case)

Investment in R&D and open search practices are predictors of possible UBC. Firms already investing in R&D internally are found to be more likely to reach out to universities for collaboration. Additionally, businesses with open search practices are more likely to become involved in UBC.

investment  
in R&D



‘Setting up a research unit with (e.g.) 4 industrial PhD students makes for a dynamic academic environment within the company.’

– Ole Lauge Sørensen, Industrial PhD student at Aalborg University/Rambøll Management Consulting (Aalborg Industrial PhD case)

## University-specific factors conducive to UBC.

Researchers are more likely to engage in UBC projects if they know other researchers who have successfully carried out a UBC project. This is why formal and informal sharing of experience and success stories is so important. Universities can organise formal seminars and conferences featuring successful UBC examples, as well as facilitate informal gatherings and experience sharing events among the researchers.

communication  
of success



‘Every successful case study motivates other researchers from other fields to think more about the progress of their product’s development and commercialisation’

– Linda Gabrusenoka, Head of Technology Transfer Office, Riga Stradins University (Labdaris case)

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### industry experience

Same as business employees with academic experience on business side, researchers with industry experience are conducive to successful UBC partnerships on university side. University can both recruit academics with industry experience, as well as develop programmes that provide industry experience to existing university researchers.

‘Liaising with new cooperation partners provides new opportunities for the professional development.’

– Anda Kazusa, Head of the Auto Transport and Production Technologies Department (WorldSkills case)



### encouragement of initiative

Because UBC is not naturally embedded into university system, it is important that the university proactively ensures structures and procedures encouraging initiative. It is also important to support leaders who inspire their co-workers for UBC, as well as demonstrate clear and actionable support from formal university leadership.

“The project has led to academic development for me, as well as whetting and strengthening my motivation for my job. I am seeing my work through more interesting and more qualified eyes than before I initiated the project. I have also become more academically oriented in my approach to my consultancy job.”

– Ole Lauge Sørensen, industrial PhD student at Aalborg University/Rambøll Management Consulting (Aalborg industrial PhD case)



### right incentive schemes

Even if UBC is formally positioned as a strategic priority, it does not automatically translate into new partnerships without proper incentive schemes in place. By design traditional university system provides incentives based on research publications and does not reward the additional effort devoted to UBC and teamwork. Adding UBC as a valid factor into university's incentive schemes, especially for young and active scientists, drives UBC partnerships.

‘The whole project cannot be based on the knowledge and expertise of one person. It is important to have a team where the knowledge is spread, so that the project does not fall apart if the main person leaves the project.’

– Linda Gabrusenoka, Head of Technology Transfer Office, Riga Stradins University (Glycomune case)



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Traditionally, university system stimulates narrow and deep specialisation of researchers and rewards them based on individual performance. This system is conducive to cultivating expertise, yet does not encourage shared problem-solving and multidisciplinary approach that is essential in most serious business challenges. Incentive schemes that reward teamwork and researchers engaged in multidisciplinary problem-solving will stimulate attracting new and enhancing the quality of existing UBC partnerships.

multidisciplinary  
approach



‘Cooperation between students and staff from different departments significantly improves productivity. Additionally, in this way, there is no need to outsource tasks.’

– Mara Adina, Project Manager, Art Academy of Latvia (Wooly World case)

Researcher's propensity to network outside of his or her field, take on initiative and engage in applied problem-solving is also a factor of their individual characteristics. Universities shall identify and support those researchers who possess required UBC traits, while at the institutional level transition to the right incentive schemes takes place to encourage others to follow. Researchers with appropriate individual characteristics can also spearhead the UBC process and take on the lead in fostering UBC efforts and initiatives.

appreciation  
of active  
researchers



‘The role and impact of coordinating lecturer is very high in finding links between business and students.’

– Henrika Sakiene, Head of Science and Business Centre (Tomorrow Projects case)

Most UBC partnerships are built upon previous interactions between the company and the university – either on formal or personal level. This is why incentivising researchers to interact with the industry, e.g., while visiting industry-specific conferences, seminars, events and informal gatherings helps build the necessary network and pipeline for potentially successful UBC partnerships. These incentive schemes are most likely to cultivate more UBC projects, particularly in R&D sphere.

interaction  
with industry



‘It is crucial to use external experts and mentors, who can help attract partners.’

– Linda Gabrusenoka, Head of Technology Transfer Office, Riga Stradins University (Labdaris case)

### importance of business skills

Entrepreneurial experience and skills are not only beneficial for commercialisation activities, even though this is the most straightforward application. Entrepreneurial experience brings academics closer to business thinking and its benefits extend to other UBC areas, too. Universities tend to have a commercialisation unit or even dedicated business incubators; however, the incentives for other researchers to interact with these units are typically low. Building incentive schemes and practically beneficial skill development programmes enhances UBC-readiness of university researchers.

‘Scientists are not always aware of the possible utilisation of their inventions. Entrepreneurs can sometimes find new ways of commercialisation by talking to experts from other fields.’

– Girts Ozolins, Managing Director, Eventech Ltd (Eventech case)



## Business & University specific factors.

There are important factors that can be influenced by both actors and require their collaboration to leverage them:

### defining the strategic context

It is important that both partners define the strategic context of the UBC partnership, both internally and among each other. Typically UBC projects will require additional commitment and in most of the cases number of UBC opportunities can ascend among partners. Therefore, it is imperative that both partners have a clear strategic roadmap for navigating their options and eventually forming productive and focused partnerships. Converging limited operational resources on a smaller number of higher value partnerships delivers the expected long-lasting benefits only if the choice of partners is rooted in organisation's strategic priorities. This aspect is particularly important in strategic partnerships and is not intuitive for smaller partnerships, yet because those are often viewed as stepping stones for subsequent strategic partnerships. Avoiding discussion about long-term priorities early-on may impede this development and damage the relationship.

‘It is important that the partner knows precisely what he or she wants.’

– Mara Adina, Project Manager, Art Academy of Latvia (Grindamit case)



Neither businesses, nor universities tend to invest time and effort into choosing new partners for every UBC project. The natural tendency is to first consider partners from previously successful projects and eventually build long-term strategic relationships. Both parties admit, that internal referral mechanisms have been the driving force behind most UBC partnerships, at least to some extent. So even though the decisions about long-term strategic partnerships are business-driven, personal relationships play an important role in securing the initial pipeline of potential partners that is then being considered.

building  
personal  
relationships

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‘It is useful to have alumni at the management level of companies to form new partnerships with businesses.’  
– Assoc. Prof. Dr. Jurga Turcinaviciene, Faculty of Natural Sciences, Vilnius University (VU Mobile Bioclass case)

UBC partnerships deliver the most value when they are managed with clarity and consideration. Investing time into establishing and implementing an explicit regular communication routine maintains the focus of UBC partnership and eventually saves time and resources for both parties. There is no clear evidence in favour or against in-person or long-distance communication, yet it is important that the communication is regular and has an established routine.

regular  
communication

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‘The closer cooperation, especially eye-to-eye monthly meetings allowed better understanding and assessment of needs and possibilities by both parties in the means of equipment, method and process implication, qualifications and specializations of human resources, etc.’  
– Monika Kavaliauskė, Head of Intellectual Property Management and Commercialization Department (FASTREMOVE case)

Especially in projects that develop a particular outcome (transactional or operational UBC), it is important to maintain open communication channels also during its implementation and/or evaluation phase. For business the classical example would be communication with R&D team during implementation of the newly developed technology. For university it can be, e.g., communication with business as lecturers begin to use the newly developed educational materials or evaluation of student internship experience.

open  
communication  
channels

”

‘Our spin-off LIDARIS is providing a good feedback for university department regarding the future needs of R&D activities.’  
– Monika Kavaliauskė, Head of Intellectual Property Management and Commercialization Department (LIDARIS case)

### UBC as a priority

It is important to have UBC as a priority, and not only officially outlined, but also supported with actions, e.g., allocated budgets, clearly divided responsibilities, regular progress reports and actions taken upon them.

‘Commitment on the part of university is very important. The project partner has to see that university is serious about the joint venture’

– Assoc. Prof. Dr. Jurga Turcinaviciene, Faculty of Natural Sciences, Vilnius University (VU Mobile Bioclass case)



### matching strategic interests

For a partnership to be successful and grow into a strong strategic partnership it is important to consider strategic interests of both parties early on. Establishing a UBC partnership that matches at least one strategic priority of each partner enhances the likelihood of success. UBC partnership should be based on a vision rooted in strategic priorities of both partners that must then be translated into partnership strategy. Sufficient high-level information exchange is imperative to accomplish this. Even if a UBC partnership is currently for a short period of time, regular high-level information exchange about possible common strategic interests enhances the likelihood of success.

‘There is a significant value in a formalized governance structure. The overall governance is done by a steering group led by the industrial partner. There is a very good balance between research and commercial interests in the steering group.’

– Dr. Jørgen Staunstrup, Provost, IT University of Copenhagen (Actulus case)



### measuring what matters

While clear deliverables are an integral part of a successful partnership, regardless of its length and magnitude, it is imperative to measure only what truly matters and not secondary or too procedural indicators, especially in strategic partnerships. Strategic alliances often produce unexpected benefits in addition to the initially intended results. Besides that, easily quantifiable indicators such as number of publications, hours worked, number of resources spent, number of trials conducted and other similar metrics that can be common in transactional or operational partnerships are often too procedural for strategic alliances. The more strategic the alliance, the higher need arises to devise appropriate bigger-picture metrics that can measure what matters and not track smaller indicators that are easy to measure.



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‘Both training programmes were oriented to achievement of specific results by the end of each program. It was crucial to set and prepare the instruments for evaluation and measurement of individual skills, performance and achievements.’

– Asta Varanauskiene, Head of Science and Business Centre  
(SMK Cross-border coaching case)

Signing an agreement greatly facilitates project management and enhances the likelihood of success and repeated interaction. It is important to agree on divisions of roles, responsibilities and rights for project output, as well as clearly define what project success means, how it will be measured, characteristics and timeline for project deliverables.

clear  
agreement



‘It is worth investing in a good cooperation agreement. Also, it is important to utilise specialists to develop a proper licensing agreement.’

– Girts Ozolins, Managing Director, Eventech Ltd (Eventech case)

Since both universities and businesses tend to have complex internal systems, it is important that the partnership structure is devised by a person who understands both sides. Additionally, it is important for the structure to be known to and confirmed by actors involved, so that it actually depicts the most efficient way to accomplish the project goals, as well as incorporates appropriate incentive systems.

the right  
structures



‘There is a significant value in a formalized governance structure. The overall governance is done by a steering group led by the industrial partner. There is a very good balance between research and commercial interests in the steering group.’

– Dr. Jørgen Staunstrup, Provost, IT University of Copenhagen  
(Actulus case)

Find all UBC case studies on project's website: [www.university-business.net](http://www.university-business.net)

# Takeaways by UBC area

## Research and development

- It is important to understand and clearly outline the expectations of both parties. Formal practical-level agreements are the most widely used form of agreements that are conducive to successful UBC partnerships.
- Intellectual Property (IP) is not the only value aspect and can be approached with certain degree of flexibility. Tacit knowledge and value to study process provided by R&D partnerships with the industry should not be underestimated.
- It is important to involve both management and operational staff in the project. This maximises the likelihood and extent of practical applicability of R&D project results, as people who will be implementing them are able to provide valuable input and thereby embed practical direction into the R&D process.
- Contract should foresee communication with researchers after the R&D phase – during implementation of results. This approach maximises the practical impact that a business achieves from utilising the results of R&D UBC partnership.
- Readiness to share project's strategic context helps develop more applicable solutions. Presenting the researchers with too narrow project goal description may result into an R&D result that formally meets the set criteria but is practically inapplicable for the business because it contradicts strategic context.

### Example case study: SOLUTION FOR MEDICAL CAPSULES (Latvia)

Mechanism: PhD thesis at Riga Stradins University for BF-ESSE Ltd. – a capsule solution for effectively withholding pine tree extract.

Result: the developed capsule technology implemented in an actual product, international patent and trademark with production in Belarus.

#### Takeaways:

- The role of an active industry partner was very important – business shared their strategic interests, regularly monitored the progress and ensured availability of all necessary resources.
- Shared IP per se are not a hindering factor – partner cooperation as a whole is more important.
- Readiness for a long-term cooperation motivates both sides to invest more and higher quality resources.

Read the full versions of case studies on [www.university-business.net/case-studies](http://www.university-business.net/case-studies).



# Curriculum development and delivery

- Curriculum development and delivery is a long-term cooperation and it requires established mutual trust.
- Shorter projects, e.g. development of study materials or company's employees delivering lectures in particular courses at the university can be a good instrument for building trust and assessing cooperation opportunities.
- While it is important for business to cooperate with university during curriculum development process, so that the resulting programme incorporates both business interests and industry know-how, it is also essential that the study programme is valuable to students who may not necessarily choose to pursue careers in particular business after graduation.

## Example case study:

### DEVELOPMENT OF A HANDBOOK (Latvia)

Mechanism: cooperation between DPA SQUALIO testing laboratory and University of Latvia in developing a study material.

Result: study material – a practical handbook in Latvian about software testing.

Takeaways:

- It is important that company's decision makers and technology professionals work together.
- Joint values and need, i.e. there is still demand for study materials in Latvian and other less-spoken languages.
- Attention and joint effort for dissemination and popularisation of value created.



## Example case study:

### DESIGNING A STUDY PROGRAMME (Lithuania)

Mechanism: Barclays specifies what knowledge IT graduates should have if they want to work for Barclays Technology Centre. In turn, Vilnius University takes that into consideration when designing a new study programme.

Result: a 3.5 year bachelor study programme "Information Technologies" was launched in 2008. So far, approximately 80 students have graduated the programme.

Takeaways:

- For companies to be willing to cooperate with universities they either must have much resources or have a specific interest in the particular institution.
- Universities have to approach businesses with their possible commercial interests in mind, not those of the university.

Read the full versions of case studies on [www.university-business.net/case-studies](http://www.university-business.net/case-studies).

## Governance

- Business involvement in university governance is particularly valuable to universities where research in particular area is in its early stage or universities who are only starting to define UBC priorities.
- For businesses participation in university governance structures allows to influence significant decisions in industry's professional education.
- It is important that both partners have at least one shared strategic priority.
- For national or regional publically funded universities another important aspect is national/regional development priorities.
- Existence of a dedicated UBC unit at a university is conducive to successful collaboration.



### Example case study: BUSINESS REPRESENTATIVES AT UNIVERSITY BOARD (Denmark)

Mechanism: IT University Copenhagen board governance structure with majority of industrial members and clear accountability mechanism.

Result: 3.5m euros external research funding per year, predominantly for UBC projects. Several prizes for IT University as Denmark's most entrepreneurial university.

Takeaways:

- External industrial perspective in HEI's leadership helps obtain results and impact.
- External industrial board members have greatly influenced university's culture.
- Policy makers can foster UBC in governance by requiring it in national university law.

Read the full versions of case studies on [www.university-business.net/case-studies](http://www.university-business.net/case-studies).

## Commercialisation

- University's labs, equipment and other resources can significantly help a small business. Cooperation with a university enables sharing vital equipment on more favourable terms and minimises risks.
- The experience of university's specialised researchers and expert network can significantly shorten the time needed for technological solution development. Many commercialisation projects are already building upon ideas of experienced researchers from the university. However, commercialisation projects particularly benefit from multidisciplinary collaboration between researchers and experts from different fields and university can and should serve as an enabling platform for that.
- Personal characteristics of involved people play an important role. The key distinctive feature of commercialisation projects is the enhanced role of the team and its personal characteristics, as spin-off with academic background is going to compete in the business world.
- A company is in a more advantageous position for commercialising research due to the complex university structure.

### Example case study: TECHNOLOGY FOR MICROBIOLOGICAL ANALYSES (Latvia)

Mechanism: start-up founded by Riga Technical University scientists providing a product that significantly shortens the timespan of daily microbiological analysis required in food production industry.

Result: seed investment from Imprimatur and first RTU spin-off.

Takeaways:

- The most important success factor was a team where members complement each other and each has a clearly defined role.
- Accessibility of university infrastructure and research base played an important role.
- Effective access to competences that are not company's strengths.
- Positive commercialisation examples are very important to encourage other researchers to commercialise their ideas.

### Example case study: METHODOLOGY FOR CaptureIn TESTING (Latvia)

Mechanism: cooperation between DPA SQUALIO testing laboratory, University of Latvia and start-up RelativeCC in developing software testing methodology for complicated cloud based solutions to be used both for study and business needs.

Results: new learning resources and unique software testing methodology is developed, the right test approach for the CaptureIn solution is created and delivered.

Takeaways:

- It is useful to bring together business and academic representatives to think outside the box.
- It is more useful to modify an existing test method or to develop a new one to provide the best result.

Read the full versions of case studies on [www.university-business.net/case-studies](http://www.university-business.net/case-studies).



## Lifelong learning

- For businesses involvement in lifelong learning programmes is an opportunity to find potential employees or solutions to particular business problems.
- If universities want to develop a successful lifelong learning programme, they must consider students as clients in program design.
- Because lifelong learning is oriented at working professionals, the programme must be conducive to work-life balance.
- It is important to offer recognised programmes and certificates (e.g., courses structured into an elastic, module-based MSc programme).
- Student selection criteria is a very important indicator of programme quality. Developing unique selection criteria supporting programme's purpose and added value cultivates a positive image for the university. Businesses gain more value from supporting programmes with carefully designed criteria that match business interests. Students can evaluate their own fit to the programme and the quality of potential fellow students by looking at selection criteria.
- An additional positive sign are publically available programme effectiveness criteria and programme's performance in relation to them. Measurable internal goals have proven to improve programme's performance with respect to them. However, programmes can benefit from using these internal performance indicators as a marketing tool, so that both potential business partners and students understand the priorities of the university and programme's definition of success.

### Example case study: TRAINING OF BUSINESS CONSULTANTS (Lithuania)



Mechanism: SMK University of Applied Social Sciences experts provide practical SME training consulting to Kaunas Chamber of Commerce and Kaliningrad Chamber of Commerce and Industry.

Result: 20 business coaches prepared, 20 businesses and 40 employees received consulting.

Takeaways:

- Personal characteristics of consultants are particularly important for programme success.
- Training consulting must be provided by specialists who are not only well-versed in their own topic, but can also successfully operate in various business cultures.
- It is important to clearly define success criteria, measurable objectives and project timeline in the very beginning.

Read the full versions of case studies on [www.university-business.net/case-studies](http://www.university-business.net/case-studies).

## Mobility

- Mobility opportunities can relate to students, academic staff, research staff, business professionals.
- It is important to clearly define needs and objectives of both parties. This allows to design a cooperation model that provides maximum value for both.
- It is important to align internship offers with the “right” student archetypes. Clearly defined business priorities and targeted communication saves resources on reviewing inappropriate applications or considering unfitting partnership models.
- It is important to identify a partner university corresponding to business strategy. Smaller cooperation can be started with several universities, however, eventually narrowing down the number of partners allows to focus on building higher value partnerships.
- Long-term strategic partnership with university ensures a better reputation among students and higher interest from university side to integrate components important for the business into study curriculum, not merely distribute internship offers on transactional basis.

### Example case study: INDUSTRIAL PhD (Denmark)

Mechanism: Aalborg University provides a PhD project for Rambøll Management Consulting employees allowing them to work on real business problems in academic setting.

Result: New methods of HR development, publications for university, salary subsidy for business.

Takeaways:

- A successful UBC project must be productive for the company, it is important to clearly align interests.
- Hold regular meetings with both the university supervisor and the company supervisor.
- Setting up a research unit with (e.g.) 4 industrial PhD students makes for a dynamic academic environment within the company.
- Granting the industrial PhD position to a current employee is an advantage in terms of prior knowledge and insight into the company. This makes for better (and more directly applicable) results.



Read the full versions of case studies on [www.university-business.net/case-studies](http://www.university-business.net/case-studies).

# Recommendations

The following section outlines practical recommendations for three key actors involved in fostering university-business cooperation – universities, businesses and policy makers. Despite the fact that policy makers are typically not directly involved in UBC, their role as catalysts is very important. Policy decisions are shaping the nature of university-business collaboration and can both foster and hinder UBC projects. Suggestions provided in this section are largely based on insight from case studies gathered, complemented by input from other relevant research projects on university and business cooperation (please see the bibliography at the end)<sup>7</sup>.

## Recommendations to universities.

1

### **Focus** on your strengths.

Do not try to cover every possible knowledge area. Instead, it is important to strive for a UBC framework where universities specialise and excel in their strengths, while businesses choose the right combination of universities, each strong at particular aspects, for UBC projects. Most R&D and, to an even greater extent, commercialisation cases demonstrate the value that deep knowledge and excellence in particular area brings to UBC partnerships. Instead of developing rivalry competences, universities can form clusters, establish networks and develop referral mechanisms to direct businesses to the most fitting university.

2

### **Foster** programmes that provide practical work experience for students.

This refers to most mobility projects, but also to R&D projects where doctoral or in some cases master students are involved. It is particularly important for lifelong learning programmes where the clientele consists of already well-educated professionals who need particular practical value.

3

### **Recognise** the value of extracurricular and entrepreneurial activities as an important complement to the formal study, academic and research process.

This includes supporting student initiatives, but also taking part in exhibitions and competitions, as well as establishing motivation and recognition schemes for academics and researchers to incentivize UBC activities. Additionally, it is important to establish mechanisms for postgraduate students and postdoctoral staff to acquire enterprise skills and business experience. Enhanced visibility of possible careers in SME sector and self-employment will contribute to decreasing the misalignment between graduate aspirations for a corporate position and low availability of such positions.



### **Engage** with local business partnerships.

Partnering with a group of smaller businesses can yield positive results, if managed well. More often than not small businesses do not even realise there is a potential for partnering with a university until they are made aware of this opportunity. University can proactively seek out these partnerships, often by cooperating with relevant government agencies, industry organisations or local municipalities.

4

### **Benefit** from having a policy agenda and strategy for interaction with government.

Participation in policy discussions, particularly together with businesses, is conducive to UBC. The topics could range from public R&D budgets to particular fiscal incentives or infrastructure incentives for UBC, e.g., establishment of favourable enterprise zones in vicinity of universities. Government, public institutions, chambers of commerce can also engage in UBC directly and work together with researchers to improve public services.

5

### **Inform** businesses about collaboration options sought.

For new partnerships to occur there has to be explicit, distinct and publicly available information about specific offerings that university has for businesses. That is, the institution has to be clear on the type of cooperation (e.g., curriculum development, mobility, commercialisation, etc.), the areas of specific industries, the length of cooperation and so forth. Dissemination of such information has to be systematic and of high quality both within the specific industry, as well as within the university itself in order to ensure bigger impact once cooperation takes place. Establishment of a 'one-stop-shop' is recommended so that university has one point of contact for a business to explore and convey services and cooperation options. Once a project has been initiated, an agreement has to be made as to the regularity and type of communication that will be used throughout the project (adherence to this agreement is a must).

6

### **Communicate** about UBC projects internally.

Much bigger impact can be achieved from UBC projects if there is a steady information flow about them within the university. Staff from different departments may be interested in offering their expertise to UBC projects, thus, gaining new contacts within different industries that can be valuable in the future. In addition, information about successful cooperation projects may serve as an inspiration for others at the institution to embark on collaboration projects.

7

## Recommendations to businesses.

1

**Define** project's strategic context before engaging in UBC and selecting partners.

It is important to examine the existing company's research portfolio, define clear needs and expected outcomes, as well as determine the route to implementation of these outcomes on operational level. The role of an active industry partner who knows its objectives cannot be overstated and it is emphasised in numerous cases, irrespective of collaboration type. The importance of an active industry partner is particularly evident in R&D cases, but equally also within curriculum development, mobility and lifelong learning partnerships.

2

**Entrust** the UBC project to a boundary-spinning manager.

A boundary-spinning manager is a person with sufficient knowledge of the technology, inclination to network across functional and organizational boundaries and the ability to connect academic research to its real-life applications in company's products. It typically tends to be a person on company's existing R&D team who understands the business context, yet is also able to navigate the complex academic environment and steer cooperation in the right direction.

3

**Share** strategic vision with university researchers.

The natural tendency in many cases is to avoid sharing strategic vision, particularly when development of a new technology is involved. Yet while this secrecy protects the business against potential information leaks, it also poses a threat that the solution developed may match formal requirements yet be practically unusable in the context of company's strategic vision. Because researchers are a part of the operational team, sharing strategic context with them maximises their practical impact. In addition to that, it is very unlikely that a researcher who signs a non-disclosure agreement and is interested in further development of the UBC partnership will leak strategic vision of the company to its competitors.

4

**Focus** on building long-term UBC relationships and understand the role of personal relationships.

Focus on long-term partnerships develops higher levels of trust and eventually results in more successful collaboration. Personal relationships also play an important role in initiating UBC. Therefore building upon existing partnerships and maintaining relationships with key researchers even if they are not directly involved in current projects is important for prospective UBC projects.

**Establish** a clear and regular communication routine between business and university researchers.

While there is still no clear evidence whether face-to-face meetings are considerably more useful than well-organised virtual meetings, it has been established that a clear and regular communication routine is a must. Therefore, regardless of the chosen communication form, everyone involved must share the understanding of how communication will take place and the communication has to be regular. Half of the cases analysed within the UBC project indicate the importance of clear and regular communication as a factor leading to successful cooperation.

5

**Ensure** broad awareness of the project within the company and input from all relevant departments.

Broad awareness of the project is conducive to ensuring input from all relevant departments that are related to potential practical implementation of UBC outcomes already during the research phase of the project. In 85% of the case studies analysed, the cooperation project was communicated internally. This has helped to enhance collaboration across relevant departments, both in businesses and universities.

6

**Keep** organisational support and communication channels open also after the UBC project.

Because many UBC projects aim to develop solutions that are consequently implemented into a product or process it is imperative to ensure communication between people involved into developing the solution and people implementing it. This is not only true for R&D projects but also in marketing and communication with customers. Open communication channels, monitoring the results and building upon existing partnerships are also critical success factors for future cooperation projects between the two.

7

# Recommendations to policy makers.

1

### **Provide** stable environment.

Key contribution policy makers can make towards thriving long-term UBC partnerships is predictable environment of funding and regulation. It is not a good practice to provide generous funding for certain industries in grant forms and then abruptly stop the funding because of external factors like financial crisis or change of leadership. Instead, government should create an environment conducive to UBC to encourage industry to take on more investment and collaboration with universities. In this case the research partnerships will not be based on grants but on real business cases that generate economic value and in case of unexpected events they will be less likely to be shut down and more likely to be reorganised.

2

### **Ensure** freedom to operate for universities.

The best European universities already operate with a fair degree of autonomy from political control and this has proven to be a beneficial practice. University boards should be diverse, open and have real governance powers – including the power to influence the budget. They should be free to set the university's strategy, and set employment and admission policies. However, this power must be coupled with the responsibility to be held accountable for their decisions.

3

### **Reward** active, collaborative universities.

Funding incentives must encourage UBC, or at least not discourage it. For the universities, this can be a bonus in public funding – such as the British government innovation incentive programme or the German government Excellence Initiative. For companies, it can be a specific tax incentive for collaboration, initiatives fostering clusters of smaller businesses or public co-financing of R&D activities. Several commercialisation projects are largely made possible due to EU co-funding.

4

### **Support** university excellence and devise the right incentives.

Global industry players want to collaborate with world's best universities, so it is important for policy makers to support leading universities striving for excellence and building their brand, recognition, position on global scale. It is important that incentive schemes employed to allocate government funding are linked to the metrics used to determine world class universities internationally.

### **Attribute** clear responsibility for UBC support.

Both businesses and universities must clearly understand who is the first point of contact in the government for UBC-related communication. It is also important that the first point of contact is accessible to foreign companies, i.e., that information is available in English.

### **Foster** experience sharing and informal information exchange.

Proactively supporting contact seminars, experience sharing events and matchmaking incentives is one way of encouraging UBC. Government is well-positioned to provide a neutral platform for seeding potential UBC partnerships. In addition to that, fostering exchange of positive experience from researchers and businesses who have been involved in successful UBC projects is found to encourage other businesses and researchers to consider engaging in UBC.

### **Cooperate** with universities for public services.

While UBC emphasises cooperation between private sector and universities, public sector can also benefit from a similar cooperation. In fact, there are numerous ways how academic activities or research carried out by universities can bring value to public services, advance policy decisions, reduce environmental risks, increase social security and a like.

### **Consider** HEI regulation directly promoting certain types of UBC.

Mandating certain types of UBC such as joint curriculum development for professional level programmes or requirement to have industry representatives in university board may prove beneficial to everyone involved. In such a way, for example, the rise of joint research projects has been an organic consequence of more intense interaction between universities and industry.

5

6

7

8

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- See also notes 1.,2. and 4.

# UBC Project Partners



Knowledge Triangle Network (K3Network, an NGO) was established in 2012 with the objective to foster excellence in higher education through developing strategic interdisciplinary cooperation and knowledge transfer tools within the EU and elsewhere. K3Network is the coordinator of the UBC project.

[www.k3network.org](http://www.k3network.org)



The University of Stavanger in Norway has about 9200 students and 1300 faculty, administration and service staff. Academic life at the University of Stavanger is organized into three faculties, comprising a total of 14 departments/schools and two National Research Centers, as well as the Museum of Archaeology. Furthermore, University of Stavanger has a tool for commercialization of research ideas – Prekubator Technology Transfer Office and a tool for running incubator activities and helping new enterprises start up – The Stavanger Innovation Park.

[www.uis.no](http://www.uis.no)



The University of Latvia with its 15'000 students, 13 faculties and 21 research institutes is the largest higher education institution in Latvia and one of the largest comprehensive and leading research universities in the Baltic States. At University of Latvia, research is conducted in over 50 research fields which represent four main areas of inquiry: the humanities, sciences, social sciences, and education sciences.

[www.lu.lv](http://www.lu.lv)



The University of Turku is an internationally competitive university, the operation of which is based on high-quality multidisciplinary research. The University promotes free research and academic education and provides higher education based on research. The University is part of the international academic community and works in collaboration with society. With its seven faculties, 11 independent units and 20,000 students is the second largest university in Finland as measured by student enrollment.

[www.utu.fi](http://www.utu.fi)



The Employers' Confederation of Latvia (LDDK) is the largest organization representing interests of employers in Latvia. LDDK acts as a partner in socioeconomic negotiations with the Parliament, the Cabinet of Ministers and the Free Trade Union Confederation of Latvia. Furthermore, LDDK is a member of the European Business Confederation "BUSINESSEUROPE". Members of LDDK employ 37% of all the employees in Latvia.

[www.lddk.lv](http://www.lddk.lv)



SMK University of Applied Social Sciences is one of the largest private Universities in Lithuania (according to the number of students) and is offering non-university higher education. The studies in the SMK are being provided in two languages and in 14 study programs. Moreover, the University has an extensive experience in provision of services for business and public sector institutions, which is being done through the Science and Business Center.

[www.smk.lt](http://www.smk.lt)



Vilnius University, one of the oldest and most prominent higher education institutions in the Central and East Europe has 23 core academic and other equivalent divisions. There are about 20 000 students studying at the University and there are 1668 academic degree holders working at the University. Since 2013 Vilnius University has established 4 registered open access centers (IT, lasers, physical sciences, life sciences). Vilnius University has 6 start-up companies from biotech and physics sectors.

[www.vu.lt](http://www.vu.lt)







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