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MS8 „NEEDS AND OPPORTUNITIES ANALYSIS AND ANALYSIS OF CAREER OPPORTUNITIES FOR EARLY-CAREER RESEARCHERS IN THE INNOVATION ECOSYSTEM" STAKEHOLDERS SURVEY

Work done under T4ERI WP3 THE BEST CAREERS FOR THE BRIGHTEST MINDS

Prepared by: University of Silesia in Katowice
WP3: The best careers for the brightest minds.

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1. INTRODUCTION

Cooperation between science and business is often seen as the key to success for both sides. At the same time, this type of collaboration faces several challenges. Based on existing analyses and interviews with stakeholders, it was possible to identify the key conditions under which collaboration must take place in order to be successful.

Stakeholders indicate that for the future collaboration to be even more effective, the focus should be on building and maintaining partnerships based on the ongoing meetings, short-term assignments and long-term research and development projects. The university is also expected to simplify its procedures and improve communication. It is important that the universities know how to promote its R&D potential, through a transparent offer of services and cooperation opportunities aimed at the business. It is crucial for the scientists to have some understanding of the market, so that the cost-effective and practical solutions can be incorporated into the existing technological processes.

From the university's point of view, the science-business cooperation is also significant, as it enables the development and practical application of knowledge in the implemented solutions. However, it can be a challenging for a scientist to balance the responsibilities without compromising their scientific and teaching activities. On the other hand, the scientists can gain experience in the industry through internships, staff exchanges or temporary contracts. It is very important to promote the scientist's career model based on their regular cooperation with the business.

As the ever-changing market forces development, business invests in innovation and commercialization of the scientific research. This cooperation is seen as a source of competitive advantage and prestige arising from conducting R&D with a reputable university. The presented research was aimed at gathering information on improving collaboration between the business and the Universities of the T4EU alliance.

2. METHODOLOGY

In order to collect the information on the cooperation of the universities with the business we have conducted a survey.The survey was conducted anonymously and contained 10 open-ended questions (Tab.) It was sent to the 19 stakeholders nominated by the T4EU partners: Vytautas Magnus University in Kaunas, VMU (Lithuania), The University of Silesia in Katowice, USIL (Poland), Sofia University, SU(Bulgaria), The University of Alicante, UA (Spain), The University of Trieste, UNITS (Italy), The Estonian Academy of Arts in Tallinn, EKA (Estonia), Saarland University, USAAR (Germany).

Tab. 1 Open-ended questions included in the survey.

No.	Question
Q1	What general factors/actions can enable smoother interpenetration of the professional development in academia and business?
Q2	What specific actions should be taken to start the above-mentioned interpenetration of both spheres of professional/scientific functioning?
Q3	On the part of scientists, factors that hinder career development are emphasized above. How do they influence the interpenetration of academic and business paths?

Q4	Please consider this in the context of supporting networking and mentoring for young scientists, including in the field of business.
Q5	What training activities for promoters and tutors of young scientists should be undertaken to facilitate the interpenetration of careers and minimize barriers to d eveloping the above-mentioned researchers' careers?
Q6	How to make it easier for business employees to return to research or start research?
Q7	How to enable scientists to start cooperation with the business?
Q8	What should be the role of the university in this process?
Q9	What should be the role of business partners in this process?
Q10	What does a business need to use the scientific development opportunities offered to their employees by the academia?

3. RESULTS AND DISCUSSION

Four stakeholders accepted to the request to answer the questions included in the survey. Their answers are presented below.

Q1. What general factors/actions can enable smoother interpenetration of the professional development in academia and business?

1	Transparency of processes; productive mentoring; expectations and needs shared among actors
2	Have a clear vision of oneself and one's potential to be directed towards the right actions, to develop skills and knowledge that allow one to advance in one's career: personal growth has a natural positive impact on the professional level.
3	The general factor, which can improve the interpenetration of these two groups is a common work on the same level.
4	Active participation of quadruple helix entities in the interpenetration process, willingness of operative cooperation and knowledge transfer between many territorial realities and good governance in investing on theory-practice-go-to-the-market initiatives within the Universities

When asked what factors or actions can enable a smoother transition of professional development in academia and business, the answers that we received are to a large extent as follows: transparency of processes and proper communication. Expectations and needs should be communicated between the entities in order to meet mutual expectations and knowledge transfer. It is also very important to have a coherent vision of the scientist, which allows to direct activities and personal development.

Q2. What specific actions should be taken to start the above-mentioned interpenetration of both spheres of professional/scientific functioning?

1	To organize proper mentoring programs; to assess the needs assessment bet
2	Dismantle those personal and professional habits that prevent us from growing; create our own personal and professional growth plan with precise objectives to be achieved through a specific strategy; attend valid training courses.
3	The better interpenetration of professional development in academia and business would enable joint projects, that bring profit to the business and at the same time help to conduct research.
4	Open Innovation and Open Science workshops and events, Laboratories between Entrepreneurs and Students focused on products, services and end market-linkages, Meetings/Matching between advanced Startups and early-stage ideas, visits to the Companies with prepared Q&A sessions and not only simply visiting

Respondents indicate that in order to start the permeation of these two spheres as soon as possible, appropriate mentoring programmes should be organized, which can be supported through initiatives such as Open Innovation, Open Science or Open Labs. Efforts should be focused on creating of a transparent offer (which will bring profit while requiring research) for the end markets.

Q3. On the part of scientists, factors that hinder career development are emphasized above. How do they influence the interpenetration of academic and business paths?

1	Hinder the concentration of resources where necessary and useful
2	The lack of harmony between the "Academy" and the "Company" is caused by an image of academic paths that is different from the needs of companies, which discourage choices towards paths in higher scientific training: a crisis of a vision of Science and Society. Getting out of it requires a critical and self-critical rethinking of both sides
3	Scientists and practitioners are perceived as separate groups that need each other but do not cooperate directly with each other.
4	-

The academic environment is perceived as something a closed environment, which does not respond to the demands of today's world. There is also an image crisis of scientific institutions caused by their inability to communicate with the society. The business community perceives

scientific units as the institutions with complicated and lengthy procedures that are giving only theoretical solutions to problems instead of practical ones.

Q4. Please consider this in the context of supporting networking and mentoring for young scientists, including in the field of business.

1	It is a fundamental part of the process in the way that promote the right assessment of the human and academic resources
2	It is necessary to create "competitions" that involve the best young minds, pushing them towards in-depth study of disciplines such as science, technology, engineering, and mathematics, generating interest and curiosity in science, with the obvious effects – also economic – on the productive world and constituting the starting point for many successful careers.
3	We should convince the business to run the scientific project in their own companies. It could be chance for young scientists to understand business.
4	-

The responses we have received indicate that it would be important to create activities and competitions that engage the talented young scientists in STEM fields, which have a direct economic impact. Building an understanding of technological processes and leading projects in companies is the starting point for many successful careers.

Q5. What training activities for promoters and tutors of young scientists should be undertaken to facilitate the interpenetration of careers and minimize barriers to developing the above-mentioned researchers' careers?

1	-
2	Support the motivation of the promoters/tutors by making them know and well understand the work objectives; provide them with support in their self-efficacy so that they feel able to tackle the activity proposed to them; help them recognize a "personal" interest in the task in order to foster learning motivation. B) support discursive interaction oriented towards the elaboration of ideas by building cognitive structures that help to develop investigation strategies and to place new knowledge in a complex but connected picture; enter the debate by taking care of decreasing one's own actions of help with respect to the learner, to allow the latter to become autonomous in the elaboration of knowledge.
3	Studies do not prepare you to work with people, to build task teams, to overcome real problems. Lecturers should inform young scientists about these challenges.

Q5. What training activities for promoters and tutors of young scientists should be undertaken to facilitate the interpenetration of careers and minimize barriers to developing the above-mentioned researchers' careers?

4	Open Innovation and Open Science workshops and events, Laboratories between Entrepreneurs and Students focused on products, services and end market-linkages, Meetings/Matching between advanced Startups and early-stage ideas, visits to the Companies with prepared Q&A sessions and not only simply visiting

Our respondents answered that promoters are primarily responsible for building business mindset in the young scientists. They are responsible for fostering the motivation for research, understanding the market and encouraging young scientists to be innovative and brave. They should also develop the ability in young scientists to work and solve problems in the task groups. Promoters also should encourage participation in the Open Innovation, Open Science or Open Labs workshops and events.

Q6. How to make it easier for business employees to return to research or start research?

1	To promote research leave; to work on research programme
2	Stimulating innovation and empowerment, emphasizing the importance of employee engagement coupled with smart working.
3	Employees should receive support in the form of fewer tasks or a flexible work time.
4	Paying them competitively

The survey participants believe that the most important factor that would encourage employees to return to research work is primarily the employer's support. Creating the right conditions such as flexible working hours, fewer responsibilities, stimulating innovation, or competitive pay would encourage employees to return to research.

Q7. How to enable scientists to start cooperation with the business?

1	To outsource the research part to competent people outside the business whenever there is no chance within the organization
2	Focusing on the concept of the "entrepreneurial university" (an academic structure and a university function performed through the alignment of economic development, teaching and research as academic missions).
3	The public sector and companies should organize induction programs for researchers.

Q7. How to enable scientists to start cooperation with the business?

4	At Educative Ministry level, fixing dedicated space/events/matching sessions (high-qualitative ones) in their scientific paths in a mandatory way, by growing the need for this cooperation.

Establishing cooperation between business and science should start from outsourcing the research part to the scientific institutions whenever possible. Business should also organize the educational/informational implementation programmes for scientists. A very important element of cooperation between the scientists and the business would be for the universities to present the offer that meets economic and business development goals.

Q8. What should be the role of the university in this process?

1	A role of intermediation among public and private actors
2	The university should ensure that research results are considered - in a not too long period - as 'proprietary' until their economic value is protected (so academic scientists will be able to reconcile their desire for priority science with their or their university's willingness to secure proprietary rights to scientific discoveries); allow the transfer of research into market products - in forms acceptable to the university - by promoting the participation of national and international third parties capable of providing spin-offs with the tools to grow and establish themselves on the market.
3	The university must cooperate with the business environment and create vocational education paths together with business.
4	Facilitating the matching process and trusting on students' value. Professors must be awared of this need and have to dedicated part of their ordinary activities this facilitation process. Professors must be active in the cooperation process between students and business realities. They are equally responsible for that, as the institution.

According to our respondents, the role of the research institutions in the process of starting cooperation with business is to mediate between the stakeholders. Universities need to create a business-friendly environment by creating the curricula that meet the challenges the business will bring in the future by simplifying procedures and enabling the transfer of knowledge between the stakeholders while preserving the researchers' copyrights at the same time.

Q9. What should be the role of business partners in this process?

1	To foresee workplace for scientists and to reach out for competencies outside the business

Q9. What should be the role of business partners in this process?

2	Commercial partners, with their skills and resourcefulness of their research groups should facilitate the birth of new companies that bring the application of the latest scientific and technological discoveries to the market.
3	Business should not dismiss scientists as theoreticians who are unfit to work in business. It should create conditions to use their potential.
4	Bigger Interaction/ Contribution on new research studies and related results.

We received answers that the business should organize the implementation programmes for scientists and outsource research to the scientific units, if possible. The business community should also support the idea of an entrepreneurial university whose syllabus would answer the needs of the modern market and economic development. It was noted that certain activities should take place at the level of the Ministry of Education which would promote events combining the science and the business.

Q10. What does a business need to use the scientific development opportunities offered to their employees by the academia?

1	-
2	They need a University/Company collaboration model in which the university training activity is conceived and implemented on a scale with the company application environment, so that the employee sees his/her ambitions, the will to do, the results of one's effort.
3	The business should appreciate those employees who want to pursue their interests scientifically by creating a special path of professional development.
4	Trusting on academic results, thus academia has to enrich its interpenetration approach in the final market.

According to those surveyed organizations, business should develop the appropriate models for cooperation with scientific units. Models that include a curriculum for young scientists who will be able to quickly and seamlessly implement new solutions in the technological process. The business sector should also encourage its employees who show interest in science to follow that interest by creating specialty development paths specifically for them.

4. CONCLUSIONS

Clearly, both sides are keen to strengthen cooperation. The entrepreneurs are keen for scientists to be able to cooperate with an increasing ease in a business context and scientists are keen for the solutions based on conducting innovative research. The success of such

cooperation, however, depends on a particular case. Building an effective science-business relationship should be based primarily on the removal of barriers that effectively inhibit it, and these include:
- the lack of experience of scientists in the industry and difficulties in dealing with the competitive market
- costly solutions that exceed the financial capacity of the end user
- difficulties in finding the right specialist
- the time-consuming and complicated paperwork and application processes for external funding
- legal restrictions
- divergence of the scientific and the business goals

From the entrepreneur's point of view, an ideal cooperation with a scientist would be characterized by close collaboration based on the efficient communication and frequent working meetings. Such cooperation would require knowledge of the market and experience of work in product implementation by the scientist to be able to propose the solutions that are compatible with the capabilities of the business partner. The proposed solutions should be possible to implement as soon as possible and the responsibility for them should be shared.

As far as cooperation with the scientific units is concerned, entrepreneurs would like, first of all, simplified procedures, a clear offer which will present the scientific and research potential of the unit in a simple and clear way, possibilities of financing implementation activities through competitions with simplified procedures. Entrepreneurs expect from the scientific units to provide qualified technical as well as engineering staff and a curriculum that is based on the transferable skills.

The benefits of the science-business cooperation should be promoted on both sides. Studies show that such cooperation is possible and overwhelmingly successful. The biggest challenge apart from encouraging collaboration, are the practical implementation of work results and sustaining the relationship in the future.

5. STAKEHOLDER ENGAGEMENT

Since the beginning of the project, we have noticed that it is very difficult to get our stakeholders interested and involved in the project activities. The situation was the same in the case of this survey. Out of 19 questionnaires we had sent out we have received only 4 responses, so the interpretation of this survey cannot apply to the entire T4EU alliance. We have to consider a systemic solution to build and maintain relationships with the existing stakeholders, as well as develop a new way of selecting new ones for the project. A good idea for a systemic solution on the alliance level would be to allocate stakeholders at university business cooperation departments. Maybe something like a stakeholders' council would be a solution that would give them a real influence on the activities at the university, for example, jointly shaping the university's offer for business or jointly applying for the national and European grants. Such council could have a common management board and a meeting schedule.

The new stakeholders should have the time for the cooperation, and be interested in the project's affairs. They must also see that this cooperation will be beneficial to them. The alliance's universities should prepare a clear offer of services and cooperation opportunities aimed at the business.