A synthesis of the current situation of University–Industry cooperation in Albania following the Triple Helix Model

Dr. Ketrina ÇABIRI MIJO[1]
DEPARTMENT OF MANAGEMENT AND MARKETING, EUT
ketrina.cabiri@uet.edu.al

Prof. Dr. Ermira QOSJA[2]
DEPARTMENT OF MANAGEMENT AND MARKETING, EUT
ermira.qosja@uet.edu.al

[1] Dr. Ketrina Çabiri Mijo has completed her PHD on Corruption and Decision Making in Public Procurement at the European University of Tirana, followed by a fellowship at the Institute of Social and Economic Research (ISER) at Essex University (2016) supported by the Civil Society Scholar Award and a research stay at the Department of Political Sciences and Sociology, University of Salzburg as a Sigma Agile Fellow (2015-2016). Ketrina received a master's degree in European Politics from the University of Sussex, United Kingdom in 2009. Ketrina has been a research Fellow at TRAIN programme 'Fostering Policy Dialogue in the Western Balkans' lead by German Council on Foreign Relations (DGAP) in 2017. Since 2011 Ketrina has been working at the Office for Project Development and Partnerships at UET and currently she is the Head of Office. Previously she has worked as an expert of European Research Programs in the Agency for Research, Technology and Innovation in the Council of Ministers in Albania. She has an extensive experience in project writing and management, while she has been involved in several EU Projects such as Tempus, IPA CBC/Interreg MED/Balkan Med, LLP/ Jean Monnet, ERASMUS +, ESPON and other national and international donors like World Bank and British Council, Open Society Foundation, Friedrich Ebert Sifting, OSCE, UNWOMEN, GDN (Global Research Competition), etc. Ms. Çabiri has published in national and international journals and publishing houses, such as Bentham Science Publishers, Kluwer Law International, Oxford University Press, International Journal of Sustainability in Higher Education (Emerald Publishing), etc.

[2] Prof.Dr. Ermira Qosja is a Doctor in Management, Polytechnic University of Tirana; doctoral studies at Politecnico di Bari, Italy; specialized in SME management at the University of Washington, Seattle, USA, as well as other universities, in France and Portugal. She became involved in the senior management of several businesses in Albania, General Director of Shekulli publications, Spektër, Radio +2, Sporti Shqiptar; Director of PR&HR and development projects in "Deka" and "OLIM" companies; Director of the first Community College under the "Harry Fultz" Institute, etc. Author of several publications related to entrepreneurship, entrepreneurship education, leadership in higher education, etc., at home and abroad. She has initiated several projects for UET connection with business, organizing competitions on business plans & ideas, interacted with Chambers of Commerce, creating an entrepreneurial culture within the university, as well as becoming part of European projects on entrepreneurship. During April 2018- March 2019, she has been Head of Management and Marketing Department, UET; April 2019 - November 2020, UET Vice Rector for Institutional Development and Students.

Abstract

Albanian universities face a variety of challenges which reflect the national and international factors in the political, social, and economic sphere. On one hand Universities should establish high teaching standards which equip students with necessary competences requested by the labour market and on the other hand they should play an important role in boosting innovation within industries through scientific research, to impact the economic development of the county.

The goal of this research is to analyse the existing collaboration among universities and the industry in Albania, from the perspective of universities and companies.

This research uses a qualitative methodology, based on the questionnaires of work page 1 of the KALCEA project. In total, the sample consists of 43 respondents, 16 of which are university senior management staff and 27 leaders/administrators and senior managers of large Albanian companies.

Findings of the paper indicate that cooperation between Universities and industry do exist and is claimed as important by both parties. However, it still lacks strategic plannings and structural approaches which establish, inter alia, the necessary culture of synergy and common innovative product.

Keywords: cooperation industry–university; triple helix model, scientific research.

I. Introduction

This work is originating from the KALCEA Project "Knowledge Triangle for a Low Carbon Economy", funded in the frame of ERASMUS + Programme. KALCEA project aimed at increasing institutional capacities of Western Balkan Countries (WBC) by creating a systematic and structural approach for implementation of knowledge triangle principles, including knowledge sharing, information and skills for joint exploitation of research capacities for sustainable growth based on innovation in WBC[3].

The paper is based on the results of the questionnaire and focus groups which are conducted through the Work Package 1 of the KALCEA project and then extended by the authors of the paper, in order to have proper number to ensure a qualitative analysis of the situation. These two methods try to assess the current level of cooperation between Higher Education Institutions (HEIs) and the business sector in Albania, as a part of the wider effort to analyze the current situation in knowledge triangle (education, research and innovation) in WBC.

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[3] https://kalcea.com/

The role of universities in modern society is very important in the development of knowledge. For years, policymakers have taken action to develop a "third mission" within many universities, aiming to connect them with knowledge users and facilitate technology transfer, an approach known as the "third mission" of universities (Etzkowitz, 2004).

Undoubtedly, this mission or third dimension, which makes knowledge and research applicable to the industry, is gaining attention within Albanian universities and policymakers in the field of education. The most recent law on Higher Education in Albania empowers departments within Faculties, expending their academic freedom - in addition to teaching and scientific research activities- to develop creative and innovative activities, as well as to generate income through legitimate financial autonomy[4].

The goal of this research is to analyze the existing collaboration among universities and the industry in Albania, from the perspective of universities and companies. *The research question is*: Is the current model of collaboration between universities and the industry in Albania following the triple helix model?

This research is based on qualitative methods, composed of the questionnaires of work package 1 from KALCEA project, and the focus groups conducted in the Polytechnic University of Tirana. The questionnaire presents a general group of questions as well as specific questions which relate to the category of respondents. In total, the sample consists of 43 respondents, 16 of which are university leaders and 27 leaders/administrators and senior managers of large companies in Albania, who intend to or have already established collaboration with universities and are working to formalize the collaboration.

Findings of the paper indicate that universities should approach to and develop the third mission in a more extended way, while companies need not only qualified staff, but also start-up and innovative ideas, consultancy, training, etc. Last but not lease, policymakers need to identify and implement instruments that promote this cooperation, in support to the country's economic growth.

II. Literature Review

Universities nowadays are required to equip students with the necessary skills and competences to meet local needs. In the last two decades, the role of universities continues to change, adding to the dimension of teaching and research, a dimension of social and economic impact (Fagerberg, Mowery, & Nelson, 2005).

Arguments in favour of additional roles that universities should undertake grow continuously, besides teaching and research, thus influencing economic development

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[4] https://arsimi.gov.al/ligji-nr-80-2015-per-arsimin-e-larte-dhe-kerkimin-shkencor-ne-institucionet-e-arsimit-te-larte-ne-republiken-e-shqiperise/

of countries (Branscomb, Kodama, & Florida, 1999). Researchers believe that the university-industry partnership is an opportunity for diffusion of technology, which is a very important contribution to innovation (Scott & Martin, 2000). Research-oriented universities in developed economies are constantly looking for ways to commercialize research as an opportunity to associate universities to economic performance. Collaborations between industry and universities have increased significantly in the last twenty years and the prospects of these collaborations look deeply promising (Scandura, 2016), (OMAR AL-TABBAA & SAMUEL ANKRAH, 2018). This growth is due to increased pressure from both parties, universities and the industry. The urge for the industry arises from shorter product life cycles, rapid technological change and aggressive global competition that have fundamentally transformed the competitive environment for most firms (Wright & et al, 2008). Universities are compelled by the immense new knowledge engendered and the challenges of rising costs and funding concerns. In addition, there is increasing societal pressure on universities to be seen as engines of economic growth (Philbin, 2008).

Based on the literature review authors highlight the following models of collaboration between universities and the industry:

The Linear Model - this model argues that universities play a key role in economic growth and therefore government research funding should be increased. Funding research is the only possibility to promote innovation (Fagerberg, Mowery, & Nelson, 2005).

Mode 2 framework - creates a closer connection between universities and the industry, arguing the need for interaction with other institutions within the national innovation system, hence creating a broader and more diverse knowledge base (Fagerberg, Mowery, & Nelson, 2005)

Triple Helix framework - argues that universities can play a more dominant role in the innovation process in knowledge-intensive countries. This model demands a boost in collaboration between essential actors in the innovation process of developed societies, where the academy must take on the entrepreneurial role, both in terms of creating companies and firms, as well as in the knowledge transfer process between them. The model has been criticized for its inability to state the extent to which the entrepreneurial role of universities is being performed worldwide (Etzkowitz & Leydesdorff, 2000).

In the triple helix model, each actor of the system has to play a specific role while working in close synergy with others: universities produce new knowledge and technologies that can have an industrial application; government acts as a public entrepreneur in addition to its traditional regulatory role in setting rules of the game; venture capital and large companies act as engines of innovative systems, bringing capital, managerial skills, and a network of relationships that foster the development of innovative businesses (Samuel & Omar, September 2015).

Research on university-industry collaboration shows that the way the process develops, and its final form largely depends on the initial conditions of the collaboration (Heimeriks & Boschma, 2014) and on this basis we identify 3 forms: 'embedded', 'emergent', and 'engineered'' (Ring, Doz, & Olk, 2005).

Embedded - collaboration has previously existed and is based on mutual trust, but the subjects share no common interests and are not dependent on each other (Salerno, Landoni, & Verganti, 2008). Therefore, the rationale of collaboration is based on 'hoped' potential value and assumed mutual commitment, rather than concrete collective targets and obligations.

Emergent - relationships when they perceive a need for joining their resources in order to proactively seize an opportunity or reactively respond to a change in the external environment (Ring, Doz, & Olk, 2005)

Engineered - the collaboration was initiated by an external party. Relevant literature asserts that the first two cases are more widespread, whereas for the third case there is limited knowledge (OMAR AL-TABBAA & SAMUEL ANKRAH, 2018).

III. Methodology and Analysis

The purpose of this paper is to analyse the status quo of university-industry collaboration in Albania, from the viewpoint of university leaders and large firms. This paper comes as is an integral part of a larger research programme of the European University of Tirana (UET) which is supported by several European projects in which the UET has been involved in recent years. Erasmus + Projects co-funded by the European Commission, such as: KALCEA, KNOWHUB[5], USIA[6] have made a substantial contribution add capacities towards a systematic and sustainable approach to the implementation of the triple helix model.

However, to fully accomplish the analysis of this paper, the following objectives have been set:

1) Mapping the existing situation in knowledge triangle activities at major part of HEIs in Albania (well-balanced geographically), with a focus on knowledge transfer and innovation;
2) Detailed analysis of the conditions that create obstacles for effective integration of higher education, research and innovation in national level;
3) Analyze current cooperation between HEIs and business sector at national level;

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[5]   https://knowhub.eu/
[6]   https://usia.al/

4) Analyze participation of business sector representatives in different activities at HEIs in Albania, Bosnia and Herzegovina and Kosovo*,
5) Analyze capacities and identify main actors at HEIs in Albania, necessary for cooperation with business sector in research project,
6) Analyze existing policies at HEIs in Albania, Bosnia and Herzegovina and Kosovo*, necessary for implementation of knowledge triangle mechanism, like research polices.
7) Identification of knowledge triangle mechanisms in Albania.

Following these objectives, the research question would be: Is the current model of collaboration between universities and the industry in Albania following the triple helix model?

As mentioned, this research is based on qualitative methods, composed of the questionnaires of work package 1 from KALCEA project, and the focus groups conducted in the Polytechnic University of Tirana.

The questionnaire presents a general group of questions as well as specific questions which relate to the category of respondents. In total, the sample consists of 43 respondents, 16 of which are university leaders (rector/vice-rector/dean) and 27 leaders/administrators and senior managers (managers/HR managers/administrators) of large companies in Albania, who intend to or have already established collaboration with universities and are working to formalize the collaboration. The distribution was coordinated through a database of contacts provided by the authors of this paper.

As can be seen from the graph on the left of Figure 1 the sample is comprised of 63% companies and 37% universities. The graph on the right of the same figure shows the content of the sample from the viewpoint of ownership for each group, so out of 16 universities 10 are public and 6 are private, whereas of the 27 companies 25 are private and 2 are public.

FIGURE 1. Composition of the sample of respondents

a)

b)
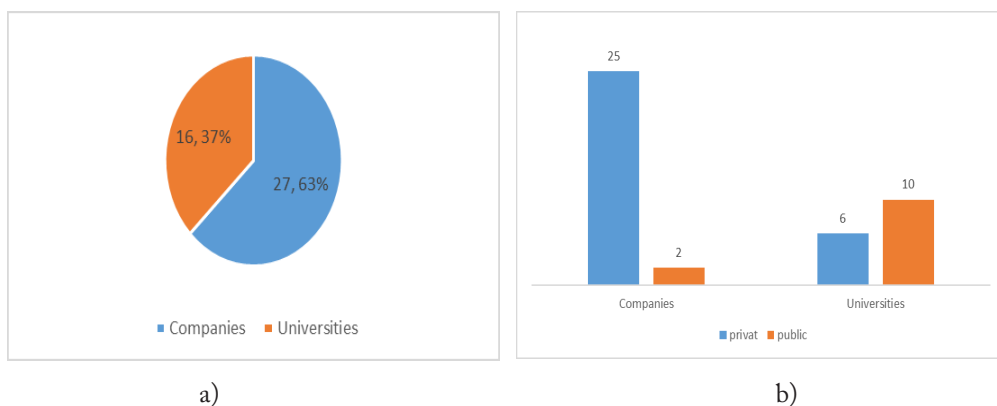
This questionnaire was used to understand the stakeholders' expectations, experiences, needs and their level of understanding triangle concept and mechanism.

The results of the questionnaire were distributed and discussed in a focus group with representatives from business sector, students and academic staff at national level.

Participants in this focus groups were the following:

1. HEI staff: Two core functions of the universities are to educate students and to generate new knowledge through research and innovation. Both functions are directly connected to knowledge triangle activities. Therefore, academic staff were identified as one of the target groups. They need knowledge on establishing strong cooperation between the HEIs and industry sector. Furthermore, teaching staff need to improve their competences in terms of providing new skills and knowledge requested by the labor market and to transfer it to students at BSc and Master level. They need support and knowledge in transferring/creating research activities at HEIs in cooperation with industry sector (applicable research) and transforming research into innovation.

2. Students: especially students at PhD and Master level. Currently they have limited access to solving real-life problems originating from the industry sector. Based on the information from strategic documents there is a need for making studies more effective in terms of practical knowledge. Consequently, young professionals after their studies cannot find appropriate employment in the sector.

3. University authorities (Rector, Vice-rectors, deans, head of department units): were a distinct target group, since such structures and activities need to be endorsed by the University ecosystem and need to be horizontal in order to be successful. Their involvement is of crucial importance in introducing a systematic approach at the institutional level (HEIs).

4. Industry sector, including companies, Chambers of Commerce, Energy associations, Business communities Professionals and practitioners: were also a target of focus group. Companies and businesses, especially those with limited or no R&D capacity, rely on HEIs and Research Institutes for new knowledge and innovation, acting as an end user of the knowledge produced by the HEIs. Currently, they have limited access to this knowledge and this problem will be overcome by establishing strong cooperation with HEIs. They also need continuing education in new technologies and solutions that will make them more competitive on the market.

Findings from the focus group were used to support and validate the answers collected from the questionnaires distributed during the first stage.

IV. Findings of the paper

The information collected through the questionnaires was processed and gave us the opportunity to discuss the following findings, which are of particular importance to universities to consider while devising their strategies and plans for collaboration with the industry, but also for policymakers and companies.

University-Business collaboration

Regarding university-business collaboration, the respondents were asked if there was a university-business and business-university collaboration. The responses of the two surveyed groups are presented in the graph of Fig. 2, where it shows that the answer "YES" is a overwhelming, 81% for companies and 87% for universities, both parties are clearly interested in collaboration; businesses due to the high costs of training the workforce aims to obtain an internship and hire talented employees, whereas the universities are compelled to collaborate in order to comply with their development strategies, the pressure coming from policymakers to generate funds to cope with local and regional competition.

FIGURE 2. Distribution of responses for university-business collaboration
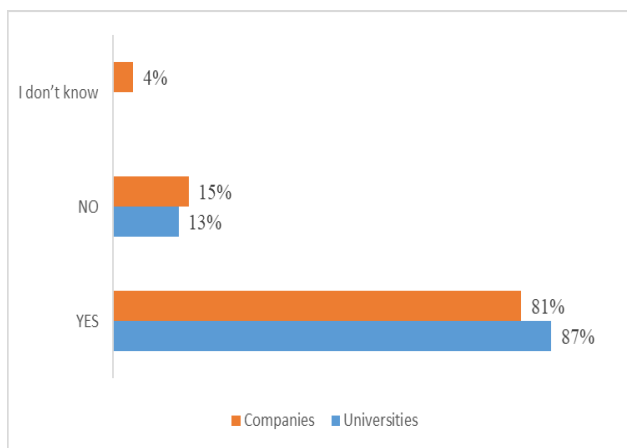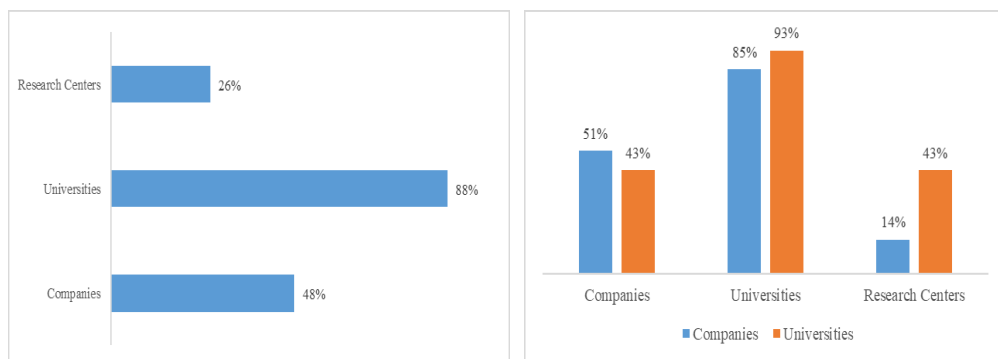

Initiators of the University-Industry collaboration

Responses to the question "Who should be the initiator of university-business collaboration", to the entire sample are given in the graph on the left of Figure 3, and on the right the responses are separated for companies and universities.

The data makes it evident that over 85% of the two parties perceive the university as the initiator of the collaboration, then the companies and least the research centres. This allocation of responsibilities shows that the cooperation of universities with the industry has now become an organic element of the development of universities and firms share this view as well. Nevertheless, it appears that companies are less proactive in this process and this is perceived as such not only by university leaders, but also by business leaders themselves.

FIGURE 3. Initiators of the University-Industry collaboration


Most useful mechanisms to promote University-Industry collaboration

Figure 4 indicates responses to the question of *Most useful mechanisms for promoting university–industry collaboration*, compared to several alternatives: personal contact, local organizations, student associations, knowledge transfer networks, etc. It is evident the most important alternative perceived by both parties is "personal contact" (94% of respondents for universities and 70% for companies). This result is partially due to the small size of the country and market in Albania, but it also proves that the form of collaboration is *Embedded*.

If we consider that businesses are compelled to collaborate primarily based on their interest in skilled employees, it means that the research product has not yet been commercialized, student start-ups have not yet found the path that leads them to find a business and therefore it is still missing a formal collaboration framework based on demand and supply for innovative products and processes.

FIGURE 4. Most useful mechanisms to promote University-Industry collaboration

a)

b)
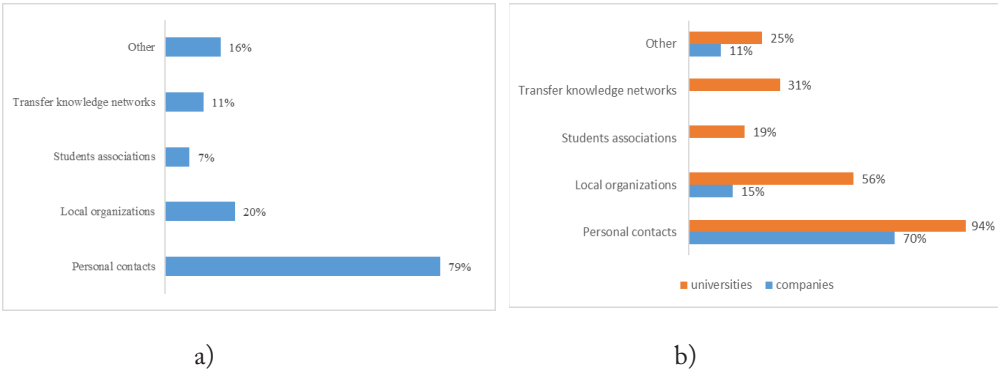
Reasons for collaboration: Education - Research - Monetization - Common Interests

The collaboration between business and HEIs spins around four main pillars: Education, Research, Monetization and Common Interests, which, according to respondent's opinion, provide the basis of collaboration business-HEIs as follows (see Figure 5): Regarding education, the purpose of collaboration Business-HEIs mostly comes to carry out student internships and student employment (93%), followed by university lectures (63%), development of new curricula (49%) and finally scientific guidance (20%) (fig.5.a.left.). The graph on the right of Fig.5.a. where the responses are divided between university and company shows that universities have a better understanding of the nature of the collaboration they seek with industry.
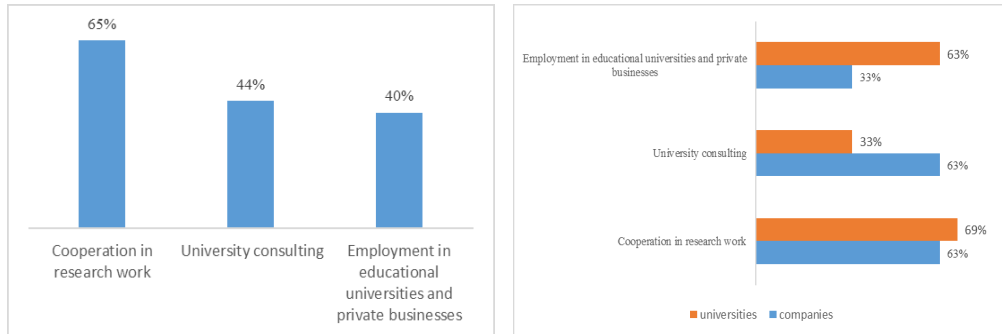
FIGURE 5. a. Reasons for collaboration for the indicator - Education
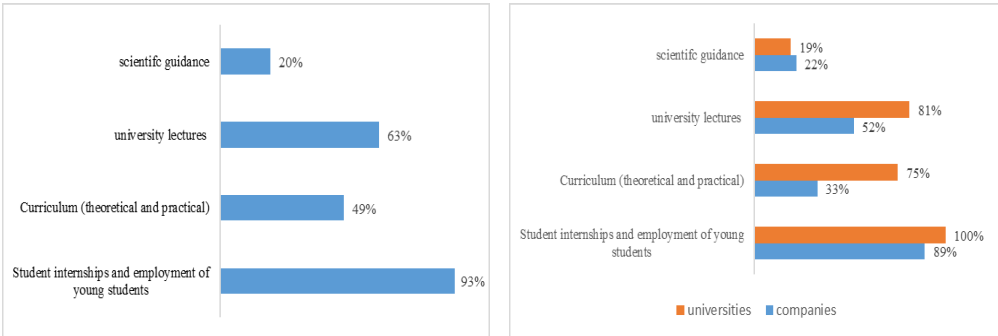
Regarding *research*, the purpose of collaboration Business-HEIs primarily arises from research collaborations (65%) to university consulting (44%) and then employment in educational universities and private businesses (40%) (Fig. 5.b. left). The graph on the right of figure 5.b. shows that the responses differentiate the representatives of the

industry from those of the university because the industry has more expectations from the consultancy that can be obtained from the universities (63%), whereas university representatives find interest in employment in the industry (63). Responses regarding the alternative "collaboration in research work" are very similar.

**FIGURE 5.** b. Reasons for collaboration for the indicator - Research work

Regarding *valorisation*, the purpose of collaboration Business-HEIs (Fig. 5.c) primarily arises for the "application of research results" (56%) followed by "academic entrepreneurship" (35%) and "new venture" by students (35%). The graph on the right of Figure.5.c. shows that companies are more restrained in their expectations regarding the valorisation of their collaboration with academia.

FIGURE 5. c. Reasons for collaboration for the indicator – Valorisation
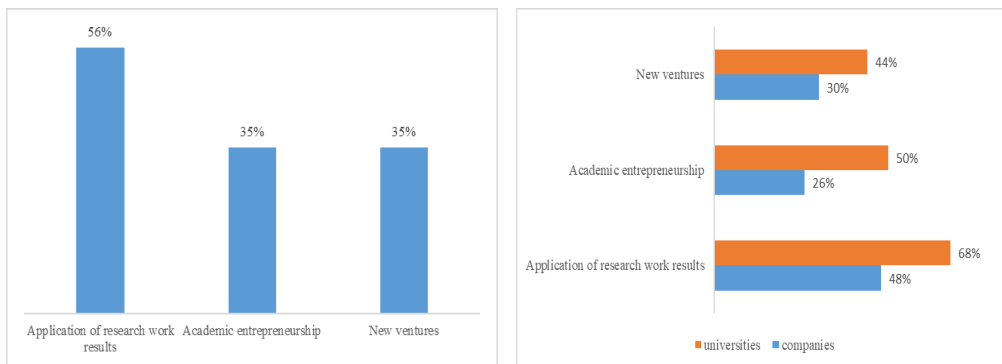
Regarding *shared interest*, the purpose of collaboration Business-HEIs mainly arises for "Shared Resources" (63%) followed by benefit from "Grants, Sponsorships, Scholarship" (47%) and finally from "Participation in Joint Management Boards" (44 %) (Fig.5.d.left). From the graph on the right it can be deduced that companies are more reserved in their expectations, there is an increased interest compared to universities regarding the participation in Management Boards and this is mainly related to PR and the influence that companies want to have.

FIGURE 5. d. Reasons for collaboration for the indicator – Shared Interest
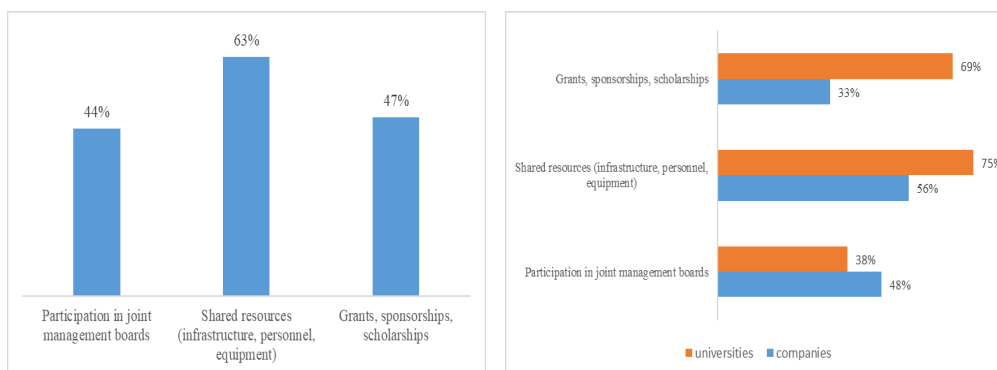
The results of current University-Industry collaboration or in the last three years

Respondents were asked on the results of collaboration between universities and the industry between several alternatives: testing research results in practice; the use of research results for developing new products and practices; suggestions from universities and businesses for problems to be addressed; job opportunity; generation of additional income for employees in universities and scientific centres; integration of research groups with companies; access of academics, students or scientific workers to industrial facilities; attracting new research papers; creating new connections between academia and industry; modification of research results in practice; aid for the improvement of the educational curriculum; etc.

FIGURE 6. The results of current University-Industry collaboration or in the last three years
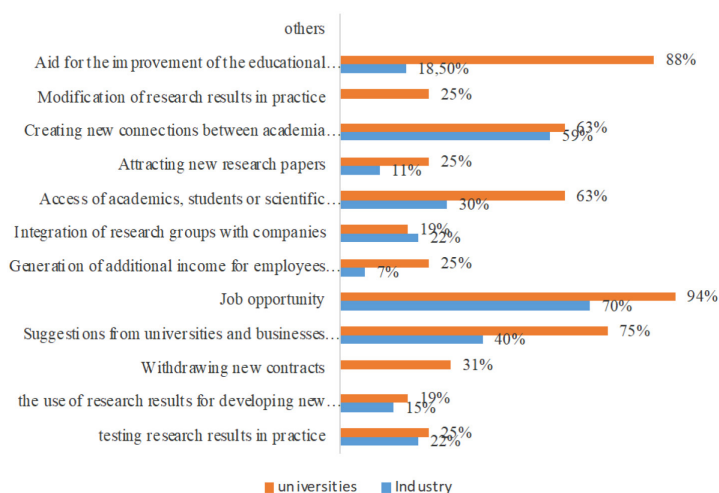
Figure 6 graphically illustrates the distribution of the responses, and it can be noted that to universities the three most important factors are: job opportunity (94%); aid for the improvement of the educational curriculum (88%); suggestions from universities and businesses for problems to be addressed (75%). From the business respondents, the 3 most important factors are: job opportunity (70%), creating new connections between academia and industry (59%); suggestions from universities and businesses for problems to be addressed (40%). For both parties the main factor is job opportunity. Results that would prove the triple helix approach still seem far from the perception of both university and business leaders.

Five most significant factors that affect the advancement of University-Industry collaboration

One of questionnaire questions focused on the choice of five factors that have the greatest impact on the advancement of University-Industry collaboration between the alternatives: ability of university staff to work outside the institution; willingness to donate time and financial or human resources; understanding and mutual expectation between companies and universities; efficient communication among companies and universities; close personal relations; available funds; unequivocal determination of goals and objectives; partner flexibility; commercial orientation of universities; short geographic distance between the partners; better integration of employees in educational or research-scientific institutions; innovation risk sharing; better recognition of the possibilities of collaboration; a well-defined framework of collaboration (contracts, procedures, management structure); etc. Graph of Figure 7 illustrates the distribution of the results for universities and companies on the five factors that have the greatest impact on the advancement of University-Industry collaboration.

FIGURE 7. Five most significant factors that affect the advancement of University-Industry collaboration
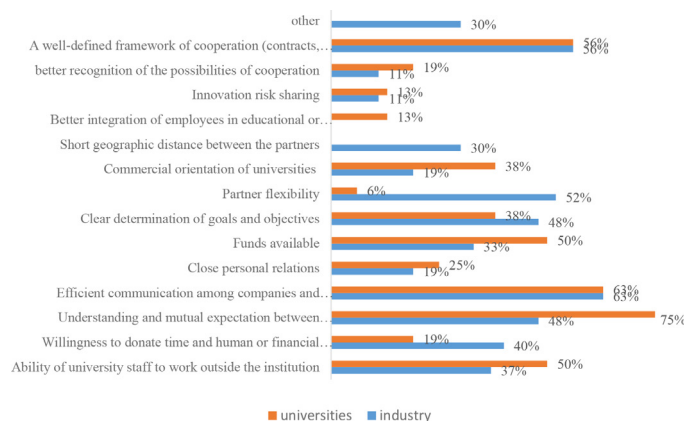
To business leaders, these five factors have the greatest influence on the advancement of collaboration: efficient communication among companies and universities (63%); a well-defined framework of collaboration (contracts, procedures, management structure) (56%); partner flexibility (50%); unequivocal determination of goals and objectives (48%); understanding and mutual expectation between companies and universities (48%).

To university leaders, these five factors have the greatest influence on the advancement of collaboration: understanding and mutual expectation between companies and universities (75%); efficient communication among companies and universities (63%); a well-defined framework of cooperation (contracts, procedures, management structure) (56%); available funds (50%) and ability of university staff to work outside the institution (50%).

It can be deduced that the most important common factors are more of a structural, planning and mentality nature. From the university's point of view, the factors related to "funds available" and "ability of university staff to work outside the institution" are also deemed important.

Five main obstacles that limit University-Industry collaboration

The collaboration between universities and the industry is reviewed under the lens of obstacles as well. Leaders of universities and companies were presented with the following alternatives, from which they had to choose five which they deem most important: insufficient government funding; insufficient private funds; lack of university staff with sufficient knowledge of business and its development inside and outside the country; lack of trust between university staff and business representatives; lack of a well-defined framework of cooperation; complex and tiresome bureaucratic procedures; focus on narrow scientific publications without impact on business practice; not recognizing the opportunities that can come from collaboration; difficulties in finding the right partners; lack of a shared vision; not properly assessing each other's intentions; absence of interactive or intermediary structures that enable communication; different ways of communication between businesses and universities; frequent changes of academic or business staff; inadequacy of fiscal incentives; concern regarding negative effects that collaboration can bring; being in the development stage (collaboration may be required in the future); there were no obstacles.

Graph of figure 8 illustrates the distribution of results of university and company respondents on five main obstacles that limit university-industry collaboration.

FIGURE 8. Five main obstacles that limit University-Industry collaboration
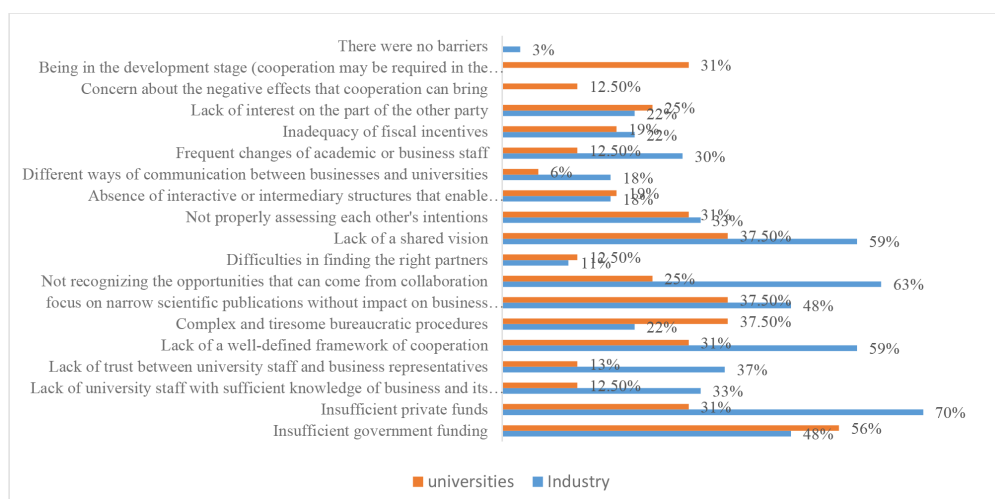
To university leaders, these five obstacles hinder university-industry collaboration (Fig. 8): insufficient government funds (56%); complex and tiresome bureaucratic procedures (37.5%); lack of shared vision (37.5%); focus on narrow scientific publications without impact on business practice (37.5%); being in the development stage (collaboration may be required in the future) (31%);

To company managers, these five obstacles hinder university-industry collaboration (Fig. 8): insufficient private funds (70%); not recognizing the opportunities that can come from collaboration (63%); lack of shared vision (59%); lack of a well-defined framework of cooperation (59%); insufficient government funds (48%).

Comparing the choices between the groups infers that private or public funds are a significant factor; but great importance bear also the factors that arise from a distancing culture which does not allow recognition of the opportunities that come from collaboration in order to build appropriate collaboration framework on these grounds, while for universities it is important to change their approach in order to make their research products valuable to the industry.

Challenges of University-Industry collaboration

The last issue deals with the challenges presented by university-industry collaboration. Based on this, leaders of universities and companies were presented with the following alternatives: differences between two different organizational cultures; lack of knowledge on the business side of the specifics of scientific work; lack of knowledge on the business side of the goals and structure of higher education programs and the learning process; complex and tedious bureaucratic

processes; very high requirements regarding human resources; negative effects on research work or learning; other challenges or obstacles; there were no challenges/difficulties. Distributions of the responses are presented in the graph of figure 9.

FIGURE 9. Challenges of University-Industry collaboration
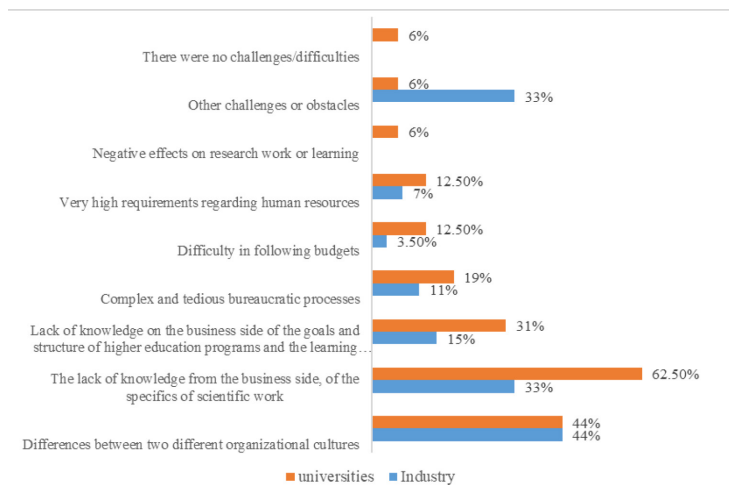
To university leaders, the most important challenges of university-industry collaboration are: lack of knowledge on the business side of the specifics of scientific work (62.5%); the differences between two different organizational cultures (44%) and lack of knowledge on the business side of the goals and structure of higher education programs and the learning process (31%).

To company managers, the most important challenges of university-industry collaboration are (Fig.9): differences between two different organizational cultures (44%); lack of knowledge on the business side of the specifics of scientific work (33%); other challenges or obstacles (33%). This implies that the most important challenge for the collaboration between universities and the industry is a cultural one, perceived equally by both universities and industry.

V. Conclusions

The purpose set forth in this paper was to analyse the status quo of university-industry collaboration in Albania, from the standpoint of university leaders and large companies. This was made possible through the use of a qualitative methodology, based on a KALCEA project questionnaire. Of a total of 43 respondents, 16 of them are university leaders and 27 are heads of mainly large companies.

The university-industry collaboration appears to be equally important to both universities and businesses and they claim such collaboration exists. A large pool of respondents (88%) believe that universities should be the initiators of this collaboration, while they consider personal contacts as the most useful mechanism to promote this collaboration (79%). This means the form of university-industry collaboration is *Embedded*, so it is mainly based on mutual trust as the parties do not yet have a dependence on one another or common interests (Salerno, Landoni, & Verganti, 2008). It is worth emphasizing that the significance of the collaboration depends heavily on the way the parties approach this process from the beginning.

The collaboration between businesses and universities is primarily based on their interest for skilled employees, while it is accepted by both parties that the research product is not commercialized, student start-ups have not found the path that leads them to found a business, there is still a lack of a formal collaboration framework driven by the demand and supply for innovative products and processes. Based on this reasoning, the collaboration model is far from being "Triple Helix".

Companies are more sceptical of the results of collaboration with universities. Beyond the primary interest for employees, consulting and training to increase the skills of staff/managers, as well as participation in Management Boards, companies do not seem to have any other expectations regarding the valorisation of this cooperation.

V. Recommendations

Universities should aim to strategically approach the collaboration with the industry, starting by changing their internal culture regarding scientific work, building sustainable structures and then generating funds.

Universities should plan round tables and seminars through which to present the capacities of their scientific work and then proceed to concrete projects with industry.

It is very important to conceive and implement sabbatical semesters for lecturers with the business and tangible products of their work with the industry. In the criteria for evaluating the performance of lecturers, research work based on the needs of the industry, consultancies, and projects with them should be marked with high coefficients, the same approach should be considered with doctoral theses. If examples of cooperation are not created, models of success cannot be established.

Universities should be viewed and managed as generators of innovative ideas, start-ups and patents, hence innovation centres (where they are not created) should generate innovative ideas through competitions and collaboration with industry.

Local, regional and European projects are a good opportunity for collaboration with the industry, which in addition to capacity building, also serve for infrastructure that can create new opportunities for innovation and research.

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