
Research in Lebanon: From Rigor to Relevance

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Abstract

This study describes the current academia/industry relationship in Lebanon and highlights the actions taken by key players to create stronger links in order to increase the research relevance. The research is based on primary and secondary data. A review of the literature addresses how the creation of strategic partnerships between academia and industry could have a positive impact on economic growth. It describes the rigor/relevance research gap and proposes the structural reform of academic institutions as a solution to produce more relevant research. It also describes policies formulated around the world to build stronger academic/industry linkages and highlights the main challenges. A questionnaire is distributed to a sample of faculty members at the “Faculty of Economics and Business Administration at the Lebanese University” to explore the current status of academia/industry collaboration. The study identifies main actors who took measures to link academic research to practice in Lebanon, describes the measures taken, and highlights the main challenges. Finally, the analysis of the sample results reveals that the academic/industry collaboration is not strong among the respondents for many reasons. The researchers suggest several recommendations to strengthen this collaboration and render research more relevant.

Keywords: Research, rigor, relevance, strategic partnerships, Lebanon.

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1. Introduction

Universities and industries have been cooperating for more than a century. However, the emergence of globalization and the rise of the knowledge economy have increased the need for new forms of strategic partnerships that go beyond the conventional exchange of research for funding. There is an urgent challenge to transform the industry/university relationship and interaction. The research university in the 21st century has to become an essential center of competences driving economic growth (AISBL, Science/Business Innovation Board, 2012).

Research undertaken should be not only rigorous but also relevant. By rigorous we mean that it relies on unbiased data collected and analyzed based on consistent theories. Relevance, on the other hand, means useful for practitioners to understand their own situation (Vermeulen, 2007). Hence, researchers and practitioners from all disciplines need to collaborate in developing the research agendas. New theories have to fit the local context or else, it will lose relevance.

In particular, research published in management journals are viewed as faintly connected to the true world of working managers (Lundberg, 2001). Academic researchers seem to be far from the concerns of practitioners who look for “actionable” knowledge. They rarely refer to academic research and prefer to contact consultants instead (Beer, 2001). The consultants are thought to simplify complex organizational issues of the real business world. On the contrary, practitioners perceive that academic researchers tend to complexify issues in their attempt to build theories about the organizational phenomena (Brannick and Coghlan, 2006).

Simon (1967) urged researchers to consider the real world as a producer of basic research problems and a supply of data. To bridge the gap between practice and theory, practitioners should supply the researchers with organizational problems, and researchers should supply practitioners with relevant solutions. Universities have to leave the campus and engage with industries. Partnerships between universities and the industries could take several forms such as collaborative research, onsite co-location, an access to world-class talent, as well as continuous professional development (Destler, 2008). Universities could expand the transfer of technology to the industry

via the patenting and licensing of the academics' inventions, or creating "spinoff" firms to commercialize the faculty inventions (Mowery, 2010).

However, a knowledge/technology transfer system is more than just national laws allowing the ownership of intellectual property, it requires institutional framework which provides incentives to each of the players in the system. The experience is varied among nations and adopting the experience of another country uncritically would not be the best option. The need for new forms of strategic partnerships between universities and the industry that go beyond the traditional exchange of research for funding is a big leap and requires new forms of engagements from both parties. For successful partnerships, each side has to overcome the existing barriers to be able to explore the full potentials existing.

The purpose of this study is to *describe* the current academia/industry relationship in Lebanon and to highlight the actions taken by key players to create stronger links in order to increase the research relevance. The study gives a special attention to the "Faculty of Economics and Business Administration at the Lebanese University".

To serve this purpose, the researchers will rely upon both primary and secondary data. For secondary data, a review of the literature is necessary to set the theoretical framework. The framework addresses how the creation of strategic partnerships between academia and industry could have a positive impact on economic growth. It then describes the rigor/relevance gap and proposes the structural reform at the level of academic institutions as a solution to produce more relevant research. Since Lebanon could benefit from the international experiences, the researchers describe policies formulated around the world to build stronger academic/industry linkages and highlight the main challenges. Secondary data is collected about Lebanon as well to identify the main actors/measures taken to increase research relevance. To collect primary data, a questionnaire was distributed to a sample of faculty members at the "Faculty of Economics and Business Administration at the Lebanese University". The purpose is to explore the current status of academia/industry collaboration, the prevailing culture and practices.

As far as we know, and after reviewing the literature, there is no study that has been made recently to describe the position of Lebanon regarding

the production of relevant research. The study gains even greater importance given the current economic situation in Lebanon. While 45% of the population is young, the unemployment rate is between 11% and 35% among youth. Therefore, "Lebanon has to create 23,000 jobs per year to employ the new entrants to the Labor force" (El Khoury, 2013, p.5). However, the GDP growth rate is as low as 2.5%. Thus, Lebanese skilled youth is emigrating and "the country ranks 120 out of 144 countries in the world in brain drain losses according to the Global Competitiveness Index" (El Khoury, 2013, p.6). The study suggests that research directing to the creation of new business models as well as marketable goods and services will be a major cause of the revival of the Lebanese economy.

This article is subdivided into three sections. After a general introduction, we set the first section the needed theoretical framework. In the second section, we discuss the research methodology while in the third section we present and discuss the research findings. This section is followed by a conclusion and a number of recommendations.

2. Theoretical framework

The 21st century is characterized by international economic competition based on knowledge. Thus, supporting innovation became vital for all economies. The research universities are among the actors who could play a major role in this realm. The high-risk/high-reward marketplace tempts young entrepreneurs to develop daring ideas. To enable these young thinkers to pursue their ideas, universities are introducing campus spaces known as academic incubators where students can connect to fellow entrepreneurs and interested financiers (Gensler, 2016). Such incubators are designed to ignite strategic partnerships between academia and industry. Universities, on one hand, need to remain competitive and relevant in today's economy. Thus, they are keen to promote a start-up spirit and have to rethink their role in preparing the next generation and in speeding the transformation of innovative ideas from concept to reality. Businesses, on the other hand, need the access to knowledge and expertise, to reconfigure it in novel ways, and sell it to generate profits (Gibbons, 2000). Accordingly, universities and businesses need to work closely together to build competitive regional economies.

Academics have to illustrate that their research has an impact outside of

their own institution. The economic impact of a research and its possibility of commercial success matters. Technology transfer for universities is encouraged when they are allowed to patent and license their technology to industries. Research alone is therefore not enough (Destler, 2008). There is a need to transfer knowledge to the market to create new models, products and services. The environment of research careers is thus changing (Saleh, 2002). Publications in refereed journals are no longer a sufficient measure of a researcher's success and productivity. He/she must ensure a sufficient flow of income to the research group, secure property rights and seek profit since universities are increasingly more involved in commercializing their Research and Development (R&D).

2.1. The rigor/relevance gap

Some scholars, like Kieser and Leiner (2009), believe that academic research should be distant from practice to enable critical reflection on current practices. The collaboration of scholars with practitioners will lead science to lose its legitimacy because it will no longer produce knowledge different from the knowledge of practitioners. Others like Kimberly (2007), Luhmann (2005a and 2005b) and Staw (1995) consider that a research cannot be rigorous and relevant at the same time because the barriers between the academic and practice world are undefeatable.

This article, however, adopts the approach of another group of scholars like Anderson, Herriot & Hodgkinson (2001), Pettigrew (2001) and Rynes, McNatt & Bretz (1999) who consider that the cooperation of academic researchers with practitioners is possible and will increase the research relevance. "Practice needs theory to shape it while theory is tested and developed through practice" (Burgoyne & Reynold, 1997, p. 4)

The influence of management research on management practices is limited (Pfeffer & Fong, 2002). Miner (1984) reviewed 32 established organizational theories and found that it is of little usefulness for practitioners. Rigby (2001) studied 25 management tools and techniques and found that only 7 originated from academia. Unlike basic sciences striving mainly to expand the understanding of issues with a little focus on application and use, management is an applied science that ought to focus on the applicability side as much as on the understanding side. Management research is being criticized for emphasizing rigor while sacrificing relevance

(Bennis & O'Toole, 2005). Ghosal (2005) went far in describing this gap by saying that poor management theories were destroying fine management practices. Thomas and Tymon (1982) identified five areas of expectations practitioners seek from academic research. First, the descriptive relevance of the research checks how much the research findings captures the phenomena encountered by practitioners. Is the research dealing with a real organizational problem? Secondly, the goal relevance checks if the research findings potentially help practitioners to have a better control on critical factors for the survival of the company (dependent variables of the study) such as productivity, quality, sales, costs, etc. Thirdly, the operational validity relevance checks whether the practitioners can control the independent variables of the study. Practitioners are less interested by given independent variables that they cannot maneuver. Fourthly, the non-obviousness relevance checks whether the research results go beyond the intuitions of the practitioners. Finally, the timeliness relevance ensures that the research results are available on time for practitioners to use.

Knowing that, the culture, legal framework, geography, or other context is very important for an organization to be able to develop its strategies and practices, what makes researchers opt for rigor rather than relevance?

One potential reason is that researchers tend to replicate by building their theoretical frameworks on western concepts that do not necessarily fit the local context (Gupta, 1994). They fall under the pressure of creating universal knowledge aligned with the North American paradigm (Khatri, Ojha, Budhwar, Srinivas & Varma, 2012) that does not necessarily help them to understand the way local organizations operate. This pressure goes back to the need to publish in international peer reviewed journals which tend to emphasize methodological rigor over local relevance. Knowledge produced through methodologically rigorous processes is believed to produce insights that might contribute to the advancement of scientific knowledge (Brown, 1995). Thus, academics feel trapped between local relevance and international publications.

Another major reason is that the collaboration between researchers and practitioners requires the creation of strategic partnerships between the two groups; long-term partnerships that go beyond research for funding. This requires a structural reform at the university level. Traditional university structures are not designed for knowledge/technology transfer, rather

designed for research and education (WIPO, 2003). The success of the collaboration lies in universities and industries cultivating lasting relationships with one another based on two-ways investment of time and resources.

2.2. The need for structural reform

The collaboration between companies and universities could achieve better results if more attention is given to the relationship structure (Perkmann & Salter, 2012). Technology transfer is only the top of the iceberg (Perkmann & Salter, 2012). Rather than merely licensing the invention, companies could benefit a lot from the help of the universities during the whole life cycle of the innovation project. This requires universities to recognize businesses as a main contributor in the knowledge based economy. The process of knowledge creation is changing and becoming more and more about setting and solving problems in the context of application. This necessitates more trans-disciplinary approaches, diversified skills, and a direct participation of all stakeholders (Johnson, 1998). Universities must after consulting business, students and other stakeholders implement models of university governance that directly deals with issues such as providing life-long learning, application of knowledge in the areas of innovations, and providing individuals with the opportunity to contribute to the society (B-HERT, 2012). Hamnetts (1999) suggests that universities need to play a third role besides teaching and research; namely community engagement. Cairney (2000) suggests that universities should measure their success by the degree of the globally accepted quality of their teaching and research as well as by their contribution in the region's social, economic, and cultural development.

Business leaders and professionals have to be appointed more and more in the planning committees and advisory boards of universities. They can be more involved in the content and delivery of courses. Moreover, semi-formal structures are to be designed to ease the interaction and exchange between universities and businesses. Furthermore, universities are having more industry representatives in the committees in charge of course accreditation and designing precise programs that offer students greater involvement in industry based projects. They are using co-location with other training providers as well. Many universities have also introduced

professional doctorates that provide post graduate training that is strongly connected to the needs of the industry. In addition, flexible programs were introduced to allow working students to pursue their education. Collaborative researches are done in many universities as well.

Given the importance of forming strategic partnerships for both universities and industries, the success of the research collaboration becomes a major concern for both. Defining success in knowledge/technology transfer is a matter of defining what results are most wanted, then following and measuring performance in the view of those desired results (Rast, Khabiri & Senin, 2012). It is a complex process. In recent years, evaluation metric models were designed to evaluate the success of the research collaboration activities. Various approaches to determine knowledge transfer have been designed around the globe. Among these measures we list the following three models: AUTM, HEFCE, and UNICO (Rast et al, 2012). The Association of University Technology Managers (AUTM) holds a survey of licenses in Canada and the US each year since 1991. This approach is among the early ones adopted. However, it was recently acknowledged that the measurement of the income generated by the Intellectual Property (IP) is not a complete measure of knowledge transfer performance. In the UK, the approach has been widened with the Higher Education Business and Community Interaction (HE-BCI) survey managed by the Higher Education Funding Council for England (HEFCE). It is an annual survey run since 2001 that covers knowledge exchange between universities and the wide world businesses and the community as well as between universities and colleges themselves. A new metric for the evaluation of knowledge transfer activities in universities was modeled by a project conducted through “UNICO Technology Transfer Association in UK”. It conducts a survey among stakeholders to discover their views of knowledge transfer, uses the feedbacks to construct the evaluation metric for the UK, then compare the UK to the US and Canada.

2.3. The main challenges of linking academia to practice

The creation of new forms of partnerships between universities and the industry is a big leap. It poses many challenges of which two are the most common. First, academic science is open in nature while firms tend to protect technologies used. Second, academic research tends to focus on long

term challenges whereas the industrial R&D is driven more by day-to-day project solving. Thus, for a successful partnership between academia and business, the structure of collaboration needs to take into consideration the degree of openness and the time horizon (Perkmann and Salter, 2012).

The international literature provides us with many success and failure stories from which we can learn key lessons. According to a study of the cooperation between university and business in Europe in May 2010 (European Commission, 2012) most European universities are not collaborating with the industry and when they do, often the potential for collaboration is let down by failure of communication. A report was published in 2012 and made by the “Science/Business Innovation Board” (“AISBL”, 2012). It stated that new forms of engagement are required from both parties. Universities are discovery-driven while industries are more innovation driven. For successful partnerships, each side has to overcome the existing barriers to be able to explore the full potentials existing. The report states that the cultural split between universities and the industry runs deep but could be overcome with “strong university leadership, faculty who understand business, incentives and structures for academics to bridge the gap” (AISBL, 2012, p. 7). According to the practitioners who contributed to the report, the most fruitful cooperation is strategic and long-term. They are built on a common vision, creating profound professional ties, confidence and shared gains that work to reduce the cultural gap between academia and industry.

The driving force behind the success of such partnerships is people who understand both worlds. Ultimately, a well-managed corporation generates an increasing number of academics and graduates who can think and act across the cultural differences. They know how to connect to the research interests of the companies and can work in harmony to produce common strategic goals.

Destler (2012) argues that universities typically have no idea of what it takes to take an idea to the point where it can be transformed into a new product or service for which there is market demand. This makes the negotiation with academia over Intellectual Property (IP) and royalty very frustrating for enterprises. The fact that universities insist on owning the IP rights on research project as brought to them and funded by corporations frequently results in the research never being funded at all. Universities

should avoid getting hung up on IP. The companies tend to avoid universities that are very rigid on their approach to IP (AISBL, 2012). The role of the IP is exaggerated. The real value of R&D is often the implicit knowledge it creates. IP is important, however, it should not be perceived as the center of the industry-university strategic partnership. A successful lasting partnership should rather be built on a broad agreement and the details should be worked-out on a case by case basis.

A good example of a long lasting partnership is the Calit2. In 1999, the State of California represented by its governor agreed on a partnership with the “10-campus University of California” and industry to enhance the cooperation among all these stakeholders and increase the benefits to the society (AISBL, 2012). “The Calit2 project resulted in the creation of more than 25 spin-outs from the university research, the foundation of the first nanotech classroom facility on campus in San Diego shared by more than 60 companies. It created more than \$100 million in funding from around 300 industrial partners since 2000, in addition to \$600 million federal research funding” (AISBL, 2012, p. 12). It also helped researchers get nearly 1000 federal, state, and non-state, industrial and international grants.

Another example is the “IBM” \$90 million “Nanotechnology Center” created in 2011 in Zurich. The partnership between “IBM” and the “Swiss Federal Institute of Technology” led to the foundation of the “Binnig and Rohrer Nanotechnology Center” as a cornerstone of a 10-years strategic partnership aiming at advancing energy and information technology. “IBM” has been working for the past 20 years with the “Imperial College London” as well; a strategic alliance tackling issues in digital economy (AISBL, 2012). “SIEMENS” has currently long term strategic partnerships with eight universities; four in Europe, two in China, and two in the US (AISBL, 2012).

Finally, in 2008, “Microsoft”, “CISCO” and “INTEL” launched an industry-university partnership with the “University of Melbourne” costing \$2.5-3 million (AISBL, 2012). The partnership is called “ATC21S Assessment and Teaching of 21st Century Skills” and focuses on the vital skills needed in a global knowledge economy. This partnership had a great impact on teaching. It managed a very composite comprehensive academic research work across 60 research institutions to build up a computer-based

collaboration and problem-solving tools to evaluate competences that will form the starting point for new curricula.

2.4. The international experiences in linking academia to practice

Policymakers around the world formulated several policies to support the creation of partnerships between academia and businesses. If we take a glimpse at the world's effort to orient research towards the market needs, we find that experiences vary. "Developed countries have around ten times as many R&D scientists and technicians as developing countries (3.8 versus 0.4 per 1000 population)" (Saleh, 2002, p. 9). "Together, Western Europe, North America, Japan and newly industrialized East Asia countries produce about 85% of scientific articles published, and more than 97% of patents are registered in Europe and the United States" (Saleh, 2002, p. 10). The pace of change has accelerated in developed countries, while it has hardly began in many of the developing countries. There is a clear need for increasing resources, and more important, improving the efficiency in resource usage.

Among the most influential initiatives in the United States, the "Bayh-Dole Act" of 1980 is that has been cited as an significant factor in the competitive recovery of the US economy during the 1990s (Mowery, 2010). The Act did not legalize anything that was formerly illegal since US universities had long been active in patenting. However, the Act is considered important because it simplified the process through which US universities could receive patents on publicly funded research results and retain the royalties. This law produced significant results for the US economy since it increased the patents filed by universities, generated millions of royalties, many start-ups and spin-offs (WIPO, 2003). The act is considered as a part of a wider shift in the US policy towards stronger IP rights since a small-minded focus on licensing as a main or only way for technology transfer is not enough.

The Act inspired many governments starting the 1990s to issue laws and policies to encourage the collaboration between the university researchers and the industry (Mowery, 2010). The "Organization for Economic Cooperation and Development (OECD)" has documented different practices in several member countries including: the emulation of "Bayh-Dole" in Japan, Germany and Korea, the reform of employment laws in Austria,

Denmark, Germany and Norway, and the insurance of “National Codes of Practice or IP Guidelines” in Canada and Ireland (WIPO, 2003).

In October 2010, Innovation Union was adopted as a roadmap to boost the innovation capacity in Europe (Destler, 2008). This roadmap proposes 34 measures referred to as “commitments” to be adopted to improve the conditions of operation of scientists, researchers, entrepreneurs and companies. It aims at removing the barriers that hinder businesses from transforming its research into new products and services. Moreover, the European Commission “Commissioner for Research, Innovation, and Science” launched in July 2012 the “Reinforced European Research Area Partnership for Excellence and Growth” (Destler, 2008). The Member States of the European Union launched the “European Research Area ERA” initiative to create a unique market for knowledge across Europe to enhance the mobility of researchers, research institutions and businesses across borders for better cooperation and stronger competition. The European Commission invited research stakeholders such as the European University Association to expand and put into operation programs to increase mobility and formulate the Industry-Academia Pathways and Partnership initiative. To be able to complete the “European Research Area ERA”, the European Union has, from 2014 onwards, adopted a new funding instrument for European research and innovation; it is the Horizon 2020 (Destler, 2008). This program differs from all previous research framework programs. It brings all the European funding for research and innovation under one roof and gives greater importance to innovation and economic impact. Horizon 2020 offers Small and Medium size Enterprises (SMEs) a single comprehensive program adapted to their needs and funds more close-to-market activities. The European Union budget proposed for the period 2014 to 2020 is 80 billion Euros and Horizon 2020 is just one chapter of it. The aim is to restructure this budget towards growth and competitiveness (Destler, 2008).

Nowadays, North America, Europe and the Western Pacific are considered the three main regions for global university research. However, compared to a well integrated scientific system and a reasonably homogeneous society where everyone speaks English in North America, and a much more integrated Europe where many use English as a language for research, the Western Pacific is still dealing with highly nationalized and

linguistically divided higher education systems (Maslen, 2014). Nevertheless, the number of university partnerships is growing in the Western Pacific. This is helping institutions improve the quality of their research and is creating a trend of investing in academic and industrial research and development. Over ten years to 2011, China's investment in university R&D increased by four times in real terms, while the investment of South Korea, Taiwan and Singapore increased by two times (Maslen, 2014). Until the 1990s the Hong Kong's university system was small and focused mainly on teaching rather than research (Baark, 2006). In 1989, plans were announced for an important growth in the Hong Kong university system. University-assigned patents were almost non-existent in Hong Kong before the 1990s, but applications increased rapidly during the 1990s, to reach its peak during the years 1996-2000 (Mowery, 2010). Hong Kong universities had started programs to support the commercial utilization of academic research results.

In Australia, the "Business/Higher Education Round Table (B-HERT)", a non-profit organization established in 1990 to strengthen the relation between business and higher education, considers that there is an urgent challenge in Australia to start a makeover in business-university relationship and interaction (B-HERT, 2002). Universities need to leave the campus and connect with industries. Simultaneously, industries are to assist the development of closer ties with universities by going onto the campus for establishing discussions, trainings and collaborative research. B-HERT constitutes a platform where leaders of Australia's businesses, research and academic communities can discuss issues of common interest, to advance the interaction between universities and businesses in Australia and to influence the public opinion and the policy makers on selected issues.

The contribution of the Arab countries is minimal in the realm of scientific publications and registered patents. "Dr Sultan Abu-Orabi, secretary general of the Association of Arab Universities (AARU)", states the problem in Arabian higher education as follow: "*The Arab world... faces a host of hurdles when it comes to higher education and scientific research including a lack of clear focus in research priorities and strategies, insufficient time and funding to meet the research goals, low awareness of the importance and impact of good scientific research, inadequate*

networking opportunities and database, limited international collaborative efforts and brain drain” (ICEF, 2014, p.1).

In March 2014, the 22 Arab countries met at the “14th Congress of Ministers of Higher Education and Scientific Research in the Arab World” and signed off on a “Regional Strategy for Science, Technology and Innovation (STI)”. The strategy aims to improve education and research and raise financial support for research and development (Sawahel, 2014). Among the major challenges to be tackled by the STI is the research institutions in the Arab world which are not adequately serving the needs of neither industry nor society (ICFE, 2014). Moza Al-Rabban, the general director of the Arab Scientific Community Organization (ARSCO), notes that “30,000 research papers are published by Arab research centers every year, and 270,000 since 1993, most of these don’t have any impact on the development of Arab countries or the well-being of their people” (ICFE, 2014, p.2). There is a disconnection between research, society and the economy. According to “Mahmoud Nasruddin, head of the Center for Middle-Eastern Strategic Studies (CESMO)”, “if scientific research is not linked with development through applicable strategies and identified research priorities, there can be no expected impact, whatever the budget increase” (ICFE, 2014, p.2).

3. Methodology

The description of a situation is important since it provides important information to understand it. The purpose of any descriptive research is to answer the following questions about a *phenomenon*: *who, what, when, where, and how?* It does not however give an answer to the *why* question (Zikmund, 1997).

This article in particular aims to describe the *phenomenon* of research production by academics in Lebanon and its relevance to the needs of practitioners with a particular focus on the “Faculty of Economics and Business Administration at the Lebanese University”. The study tries to answer the following questions:

Who are the key actors playing a role in supporting the collaboration between researchers and the industry to produce more relevant research?

What are the measures taken by the different actors to serve this end?

When where these measures taken?

Where are we at this point with respect to their implementation?

How did these measures influence the phenomenon in question?

Moreover, as a descriptive research, it will shed the light on issues such as *why* are these measures not fully implemented and will discuss the main challenges. However, since this is not a causal research, it will not pretend the identification of cause-effect relations between the different variables.

The research explores the situation at the “Faculty of Economics & Business Administration at the Lebanese University” to answer the following questions:

What are the prevailing research culture and practices? How strong is the academia/industry relationship?

3.1. Secondary data

To answer our research question, secondary data are collected using relevant books, journals, reports, and websites. According to Zikmund (1997), secondary data is useful to find facts about a certain situation. In our case, we use secondary data to describe the different measures (such as policies, laws, circulars, etc) taken around the world as well as in Lebanon to support research/industry collaboration. Moreover, secondary data are collected to describe international success and failure stories to draw lessons. Collecting secondary data is also necessary to go beyond fact finding towards building a theoretical framework to support the research. In our case, a review of the literature is necessary to explain the structural reform necessary to shift from the traditional funding in exchange of research towards strategic academia/industry partnerships.

3.2. Sampling and the questionnaire

The researchers decided to select the “Faculty of Economics and Business Administration at the Lebanese University” organizing the International Academic Conference on Economics and Business (IACEB) as a case to study since the “Lebanese University” is the only public university in Lebanon and is by far the largest as well. The majority of the

university students in Lebanon (40%) are enrolled in its various faculties and the majority of teachers (32%) are employed in it (BankMed, 2014).

The faculty consists of 495 teachers distributed over six branches; with 163 (33%) teaching on a full time basis and 332 (67%) on part time basis. The sample in this research consists of 50 full time faculty members i.e. (31%) of the full timers. Part timers were excluded since they are mostly teaching rather than research oriented because they either teach at many universities simultaneously or they are practitioners teaching on a part time basis. The researchers opted for convenience sampling. It is a non-probability sampling techniques where respondents are selected based on availability. This technique is fast and not expensive. Although the researchers will not be able to generalize its results, the findings would be of importance especially for this type of exploratory research. They could reveal interesting findings for further investigation.

To reach this group of respondents a self-administrated questionnaire is used. The questionnaire is subdivided into five sections and consisted of 47 closed questions plus 2 open questions (see Appendix). The purpose is to know whether the culture of academia/industry partnership is diffused at the faculty and whether or not it reflects on research production. The coming section will present and discuss the central findings of this research.

4. Findings and discussion

In a study performed by the “National Council for Scientific Research (NCSR)” in Lebanon in 2009, it was clearly stated that despite the high level of educational attainments, “*Lebanon suffers from low levels of productivity, innovation, competitiveness and a very low level of networking and connectivity between its economic, educational and professional organizations*” (NCSR, 2009, p. 32).

Our study will identify actors who are playing a major role to link academic research to practice in Lebanon, describe the measures taken and highlight the main challenges that hinder the full shift of research in Lebanon from the rigorous to the rigorous and relevant side.

4.1. The higher education sector

Lebanon does not suffer from a shortage in qualified human capital. Historically, it has been the home of several higher education prestigious institutes. Its cultural diversity and multilingual population adds to its assets. Lebanon's higher education system is the oldest in the region and dates back to 1886 when the "American University of Beirut (AUB)" formerly known as the "Syrian Protestant College" was established followed by the "Université Saint Joseph (USJ)" in 1875, then by the "Lebanese American University (LAU)" formerly known as the "Beirut College for Women" in 1947. The "Lebanese University (LU)", the only public university in Lebanon, was established in 1951 followed by "Haigazian University (HU)" in 1955 then the "Beirut Arab University (BAU)" in 1960. Currently, there are 42 higher education institutions in Lebanon, most of which were legalized in the late nineties. According to the European Commission's report about higher education in Lebanon (European Commission, 2012, p. 6), "the body of students in higher education consisted of 195,000 in 2010/2011; 175,000 students are enrolled in a bachelor program, 17,500 in a master's program, and 2,500 in doctoral studies".

However, despite the relatively large number of institutions, the majority is teaching rather than research oriented and very few of these institutions offer doctoral studies. Recently, three doctoral schools have been established at the "Lebanese University (LU)" including one "School of Law, Political, Administrative and Economic Sciences", one doctoral school at the "American University of Beirut (AUB)", and one in the "Université Saint Joseph (USJ)". In addition, there are several joint PhD programs (co-tutelle) launched with schools at the international level in France, Canada, the USA, etc.

Moreover, direct government spending on higher education does not go beyond 0.5% of the GDP and only part of it is dedicated to finance research. This percentage is below the average of 1% in OECD countries. The direct government spending is channeled mainly to the "Lebanese University", the "Ministry of Education and Higher Education", the "National Council for Scientific Research (CNRS)", and to financing some bilateral programs with foreign countries such as France.

4.2. The “National Council for Scientific Research (NCSR)”

With respect to financing research in Lebanon, the “National Council for Scientific Research (NCSR)” is the single state-funded source for funding research at the national level. It was established in 1962 with an advisory as well as executive mission. On the advisory side, it is in charge of formulating guiding principle for national scientific policies to meet the needs of the country, enhance creativity, and boost national development. On the executive side, the Council ensures the realization of its policies through its own four research centers or in coordination with other academic and research institutions. The Council was initially focusing on basic and applied sciences. However, it expanded its original mandate in 2004 to cover human and social sciences as well.

The Council has a program to support scientific research. It totally or partially finances projects which are executed in collaboration with public and private universities or in the affiliated centers. Since 1998, the program has supported more than 1000 projects with a total budget of 6 billion Lebanese pounds (NCSR, 2009). The Council has another program to develop human resources. Between 1999 and 2015, it offered 450 scholarships for PhD students studying in Lebanon and abroad (NCSR, 2017).

Between 1999 and 2015, 40%-79% of the NCSR funds were allocated to students of the “Lebanese University” depending on years, followed mainly by the “American University of Beirut (AUB)”, the “Université Saint Joseph (USJ)”, then by many other institutions (NCSR, 2017). Scholarships, between 1999 and 2007, were given to France (71%), Lebanon in co-tutelle programs (15%), UK (5%), USA (5%), Canada (2%), and to other countries (2%) (NCSR, 2009).

The NCSR works on disseminating scientific information as well. For the purpose, it publishes a Newsletter every quarter and a Research Directory twice a year listing all research projects it sponsors. Researchers can access a database available within the Council about these projects as well.

However, despite the fact that the law that established the Council in 1962 set 1% of the national budget for scientific research, this has never been implemented. In 2005, the budget of the NCSR was 9 Billion LBP

(US\$6 million) in addition to €600,000 from a range of European support programs (NCSR, 2009). The NCSR faces budget as well as institutional constraints such as a limited potential to expand specialized centers and the absence of incentives for scientific research from the private institutions and from the productive sector. Most important of all challenges is that the gap between the university research and tangible economic and social applications is large.

To bridge this gap, the NCSR formulated the Science, Technology and Innovation Policy (STIP) in 2006. STIP is a five-year program of action to endorse new directions in scientific research in Lebanon and to serve community needs. The STIP aims to gradually transform Lebanon into a knowledge based society. It was launched in April 2006 in an official ceremony organized by the NCSR under the patronage of the Lebanese Prime Minister with the participation of the Director-General of the UNESCO. It is the outcome of three years of a joint effort by a large number of Lebanese and international researchers and experts who analyzed the local conditions keeping a forward-looking eye on the regional and international trends in scientific and applied research. The team undertook a SWOT analysis to identify the most pressing socio-economic needs to be able to formulate a priority of research programs (NCSR, 2009). STIP is a comprehensive vision meant to change the operation of the NCSR itself and its relationship with the various stakeholders. It emphasizes the need to build partnerships with all the stakeholders in the Lebanese society to be able to effectively implement it.

The policy considers that *“without partnership, dialogue, and mutual understanding between government and companies on the one hand, and scientists, engineers, universities and institutes on the other hand, the gap that inevitably exists between science efforts and their useful and tangible economic and social applications will not be bridged.”* (NCSR, 2009, p. 58)

Thus, the STIP *“aims to represent a change in the culture and in attitudes”* (NCSR, 2009, p. 61). It aims to change the perspective of the private firms in Lebanon that are mostly small family businesses that are not very productive in R&D and to increase the awareness of these firms that innovation pays off.

The policy is to focus mainly on three issues: to increase the funding of

the “Research and Development and Innovation (RD&I)” through the STIP action plan, to strengthen the networking of the economy with the RD&I activities, and to strengthen the networking among researchers at the national, regional, and international level. The issue of networking would be strengthened by encouraging the formation of teams of researchers based on several campuses in addition to effective articulation between RD&I centers and businesses for mutual benefit. This necessitates the improvement of the information and communication infrastructure which improves the capacity of people and institutions to reach out and function in networks.

Unfortunately, the implementation of the STIP was slowed down by the financial constraints imposed by the Lebanese political and economic situation. Nonetheless, the NCSR was able to implement some of the recommendations from within internally available resources, namely; adopting the STIP priorities in the grants offered to finance research projects undertaken at universities in Lebanon, initiating measures with the support of the UNESCO leading to the establishment of the “National Observatory of Science, Technology, and Innovation”, and calling on Lebanese universities for the common establishment of “Associated Research Units” in priority areas defined by STIP.

4.3. The Lebanese Industrial Research Achievement (LIRA) Program

The Lebanese Industrial Research Achievement (LIRA) Program was established in 1997 as a result of the cooperation between the NCSR, the Association of Lebanese Industrialists, some universities, with the support of the German-based public institute foundation Friedrich Ebert Stiftung (LIRA, 2017). LIRA encourages the cooperation between universities and the industry to build knowledge based economy. It works on matching the university research activities with the industry needs for more productivity and also provides a national platform for new products and services. It helps engineering and science students to develop their research project outputs into industrial quality prototypes at minimum cost to reduced brain drain.

To serve its objectives, LIRA initiated an annual forum: the “Conference of Industrial Research and Development and the Exhibition of Industrial Research Achievements”, an event that provided a chance for industry, academia and research centers, public and private, to get together and

exchange their research findings. Since then, the annual conference has helped in the creation of new production lines in numerous factories and even launched new technical firms. It also assisted in improving some of the universities engineering course offerings. Currently, LIRA is trying to attract more local and international sponsors to support the realization of its objectives.

4.4. The TEMPUS and ERASMUS programs

The national strategy for education was formulated in 2007 and approved by the government but was never ratified by the parliament. Among the reforms recommended in the policy, it is the encouragement of university-enterprise cooperation, the support of research as well as the reinforcement of cooperation among local universities in research activities. The European Union agenda in the field of higher education became an inspiring reference for many initiatives taking place in Lebanon (European Commission, 2012).

TEMPUS is a cooperation program between universities created by the European Union (EU) to assist the partner countries to up to date and reform their system of higher education. The program was established in 1990 and covers till present 26 countries in the Western Balkan, Eastern Europe and Central Asia, North Africa and the Middle East. The “National Tempus Office of Lebanon” was established in 2003 to manage and endorse the TEMPUS program in Lebanon and to improve its effectiveness and impact on the country. The National ERASMUS+ Office is the legitimate successor of the National TEMPUS office. The office is located at the “Ministry of Education and Higher Education” in Beirut and has been acting since 2008 on behalf of the “EACEA- Education, Audiovisual and Culture Executive Agency”. The European Union Commission body is in charge of managing the program.

Since its implementation in 2003, TEMPUS/ERASMUS/ERASMUS+ office played a major role in the modernization agenda of the Lebanese higher education sector. It has funded 58 projects to date. Each project involves beneficiary home institutions from Lebanon as well as institutions from other countries involved. The projects duration varied between 12, 24 or 36 months. Table 1 indicates the number of projects funded and the budget per year.

**Table 1: Number of projects funded and the budget per year
in Lebanon**

Year	Projects	Budget in €		Year	Projects	Budget in €
2002	5	2,438,267.35		2008	4	4,568,504.00
2003	5	1,805,945.00		2009	3	2,743,681.50
2004	6	1,815,690.00		2010	7	7,220,487.24
2005	5	1,662,473.50		2011	2	1,775,912.06
2006	2	277,470.00		2012	7	6,721,705.80
2007	0	0		2013	12	1,267,399,000.00

Source: National Tempus Office website www.tempus-lb.org

The subjects covered a wide range of issue such as the development of the students support services, creation of interdisciplinary programs, establishment of new masters' programs and doctoral schools, quality assurance, institutional effectiveness, university management, leadership and innovation.

In particular, the office funded in 2012 the "Innovation and Development of Academic-Industry Partnerships through Efficient Research Administration in Lebanon" (IDEAL Project) (IDEAL, 2017). The project duration was 36 months and the budget €904.877,49. The main objective of the project is to raise the ability for research and innovation at the Lebanese higher education institutions by creating systems able to support and promote pertinent research and create systems to transfer innovation from academia to industry. The project aims also to create partnerships between government academic circles and industry for the long term management of research for Lebanon. Among the activities that took place, are the recruitment offices and research support, training on research administration, academia-industry three networking events and entrepreneurship mentoring for business startups.

In 2013, the office funded 3 projects over 36 months each namely; the "Modernizing Academic Teaching & Research Environment in Business and Economics at Lebanon & Syria- MATRE" with a total budget of € 975.201,49, the "Partnership with Enterprises towards Building Open Source Software Communities & rejuvenation of Technical education &

Innovation- OSSCOM” with a total budget of € 862.762,92, and the “Service pour l’Employabilité et la Mobilité sous forme de Stages des Entreprises pour Etudiants du Maghreb/Machrek- SEMSEM” with a total budget of € 1.324.704,99. It is worth mentioning that the Lebanese University was a partner in each of the four projects.

4.5. The Ministry of Economy and Trade

According to the “Lebanese Ministry of Economy and Trade”, Small and Medium Enterprises (SMEs) constitute between 93 and 95% of enterprises in Lebanon and employ 51% of the workforce (MoET, 2014). However, the SMEs in Lebanon face many challenges hindering its productivity and competitiveness worldwide. One of the main challenges is the delay in the transition to the knowledge economy mainly because of poor infrastructure and insufficient R&D expenditures and efforts. The budget dedicated to innovation is low despite the availability of the human capital.

The Ministry of Economy and Trade proposed in December 2014 in its SMEs Strategy roadmap to the year 2020 several initiatives to develop the SMEs (MoET, 2014). Under the title of enhancing the capabilities and innovation capacity, the ministry emphasized the need to ensure better linkages to academia, training and R&D centers. Furthermore, it suggested the need to refocus budgets in R&D to further develop the capabilities of the SMEs in main sectors and create a comparative advantage for Lebanon. Moreover, it suggested the establishment of a Technology and Creative Commercialization Office to assist Lebanese inventors to effectively transform their IP into viable commercial products and services. The ministry suggested encouraging SMEs to invest in R&D through the introduction of tailored tax credits and tariff breaks. It suggested as well several actions to upgrade the legal environment such as the twinning of the IP office at the ministry with international IP offices to introduce best practices as well as the introduction of examination stages to current registration processes and reducing filling costs for SMEs.

Despite the patent law in 2000 and the “Intellectual Property Protection Office at the Ministry of Economy and Trade”, the deposit-based framework is still weak. In 2012, the country ranked 127 out of 144 countries in infrastructure and 119 in innovation (El Khoury, 2013). A study about “The Intellectual Property Rights in Lebanon” was performed in 2009 by the

“Arab Center for the Development of the Rule of Law and Integrity-ACDRLI” with the assistance of the Consultation and Research Institute. It covered a sample of 165 respondents “coming from the private sector (45 respondents), the public sector (40 respondents), and the legal sector (80 respondents)” (ACRLI, 2009, p. 11). The study concluded that familiarity of respondents with the business/commercial laws and regulations and intellectual property right law and regulations is weak. Moreover, the majority of respondents were dissatisfied with the “Intellectual property Right IPR Protection Office” within the “Ministry of Economy and Trade” regarding the “general performance, independence of political interventions, technical competence, enforcement authority, human and financial resources, speed of reaching decisions, clarity and transparency of procedures, etc” (ACRLI, 2009). The respondents complained about the frail presence of specialized IPR court staff and judges and the shortage of complementary laws and regulations.

4.6. The Central Bank of Lebanon

During the last few years, the Central Bank of Lebanon (Banque du Liban- BDL) took several initiatives to support academic research and entrepreneurs’ efforts that leads to economic growth. BDL issued “circular No 313 on January 14, 2013” addressed to banks and financial institutions. The circular states that the BDL shall grant credits to banks “for research and development works in the productive sectors, conducted jointly by productive institutions in the Lebanese private sector and any university, research center or business incubator, with the purpose of developing existing products or creating new ones, provided the reimbursement period of the loan principal does not exceed ten years, starting from the expiry of a grace period ranging between two and four years from the loan granting date” (BDL, 2013a).

Another circular was issued in August 2013 to support the financing of startups, accelerators, and incubators through banks and financial institutions (BDL, 2013b). According to this circular, banks are authorized to invest as much as 3% of their own funds in startup companies, accelerators, and VCs. The banks willing to finance such companies will profit from interest-free loans from BDL guaranteeing up to 75% of banks’ investment for a maximum period of 7 years.

Moreover, BDL organized in 2014, 2015, and 2016 the BDL Accelerate conference. Around 1600 local, regional and international entrepreneurs, investors, speakers and professionals from 25 countries gathered in 2014 in Beirut. The conference was attended by 6600 in 2015 and the number of attendees reached 25000 in 2016. The conference was the biggest in the MENA region in 2016.

To conclude this section, Lebanon has recognized years ago the need to link academia to practice and has taken several initiatives in this direction. In 1997, LIRA was established and in 2006 the NCSR performed a detailed diagnostic study about the status of academic research in Lebanon and formulated a policy to upgrade it. Moreover, the national strategy for education was formulated in 2007 and it promotes university-enterprise collaboration. The MoET formulated in 2014 a policy to encourage SMEs to collaborate with the academic sector as well. Finally, some funding is available through the TEMPUS/ERASMUS/ERASMUS+ office in Lebanon since 2007 and the Central Bank of Lebanon since 2013. However, some of these initiatives were not taken to their full potential yet. The NCSR policy implementation was slowed down by financial and administrative constraints imposed by to the political and economic situation Lebanon is passing through since 2006. The national strategy for higher education is not ratified by the parliament yet and some of the MoET road map suggestions namely the establishment of the “Technology and Creative Commercialization Office” and the upgrade of the IP Office did not take place yet. Some time is needed before assessing the full impact of the MoET and the Central Bank initiatives since they are recent.

To explore the impact of the taken initiatives on the research relevance, the researchers decided at this stage to explore in details the extent of the link between academia and industry at the “Faculty of Economics and Business Administration at the Lebanese University” and study its reflection on research. This investigation gains greater importance knowing that the Lebanese University is the biggest in Lebanon in terms of the number of teachers and of students, it is a public university thus it ought to serve the State’s educational vision, and has been among the main beneficiaries of the NCSR and the TEMPUS/ERASMUS funding.

4.7. The questionnaire findings

The following section is an overview of the survey findings analyzed by the researchers. The detailed answers are provided in the appendix.

The questionnaire is distributed to 31% of the full time members at the “Faculty of Economics and Business Administration at the Lebanese University”. Half (50%) of the respondents’ rank is associate professors, (30%) professors and (20%) lecturers.

4.7.1. The results of section one

The first section of the questionnaire includes 9 questions. Respondents had to answer each with a yes or no. The results indicate that the majority of the respondents gave a negative answer to 8 out of 9 questions. It is evident that according to the respondents, the university does not encourage students (60%) nor staff (90%) to visit industrial institutions. Surprisingly, (70%) considers that it does not have an industrial internship in the curricula. Although senior students are obliged to go through an internship period before graduation, most respondents probably consider that the internship period is not spent in relevant industries. The answers split 50-50 to whether the university involves staff from the industry in the teaching program. A good explanation to this could be the large number of part-timers who teach at the faculty and who are practitioners as well. This is a good opportunity for the faculty to seize to build stronger links with the market.

All the respondents (100%) said that the university does not have an industrial liaison office. It is important however to mention that the faculty decided in July 2016 to establish a Research, Documentation, and Publication Center to formulate research policies for the faculty, establish needed laboratories, adopt research programs, organize conferences and workshops, supervise the faculty research and refereed journal, produce a useful database for researchers and calculate major national economic indicators. The Center is supposed to conduct research for the Lebanese University, the public sector as well as the private sector.

All the respondents (100%) said that the university does not provide collaboration linked increments and promotions to academic staff. The researchers suggest that academics will be more motivated to venture into collaborative research with the market if this was linked to promotion and

pay raise. Moreover, if the university publicizes about industry related activities and conducts joint seminars with practitioners, which it does not according to (60%) of the respondents, faculty members will have higher chances to know about what is going on in the market and might be interested to engage with the industry in collaborative research. Finally, most of the respondents (90%) consider that it is not obligatory for faculty to undertake a certain amount of work within the industry.

Thus, according to the respondents, three reasons will probably lead to weak collaboration between the industry and the academic members at the “Faculty of Economic Sciences and Business Administration at the Lebanese University” namely; collaboration is not obligatory, it is not linked to promotion and pay raise, and finally information about possible opportunities is not well diffused.

4.7.2. The results of section two

Section two consists of 15 questions. Respondents had to choose whether they “strongly agree, agree, disagree, strongly disagree or they are neutral to each statement”.

Although faculty members are motivated for industry oriented research (60%) and consider that the teaching/administrative load does not prevent them from undertaking industrial projects (60%), that Academic-Industry collaboration does not have a negative influence on the pedagogic mission (80%), and that the standard of education will improve with academia industry collaboration (90%); most of the respondents consider that there are no active research teams/groups that are focused on industrial projects (60%). Moreover, they consider that the communication between university and industry is not a regular activity (60%).

It is worth mentioning that a high percentage (30%) is neutral to whether or not industrial collaboration is part of their job, is it a question of a missing industry/academia collaboration culture? Another (30%) is neutral regarding the existence of active research teams/groups that are focused on industrial projects. Moreover, (60%) is neutral regarding the availability of enough laboratories to support academic-industry partnerships. Neutrality could reveal lack of information regarding the subject.

Half of the respondents (50%) do not know (neutral) if the university has

clear procedures and processes in place to support Academic-Industry collaboration despite the fact that the faculty has decided to establish as mentioned a research center last year. Only (20%) affirm the existence of such procedures and processes. Half of the respondents (50%) consider that the results of time and resources spent on industrial projects are not measured whereas (40%) is again neutral. Once more, half of the respondents (50%) are neutral to whether the university has email lists, online forums, chat rooms and web based communities to encourage the formation of industry collaboration and (30%) disagree. Only (20%) are affirmative about the availability of these services at the faculty; those are probably referring the new Center promised services.

Half of the respondents (50%) are neutral and the other half negative regarding any implemented changes in the processes within the university to encourage the development of industrial linkages. Again, the majority (60%) is neutral when it comes to the existence of systematic processes for gathering and sharing of knowledge about Industry, only (20%) is positive. It seems clear that the initiative of the establishment of the Research, Documentation, and Publication Center within the faculty is not known to most of the respondents. Moreover, respondents probably do not know much about projects such as the IDEAL and MATRE implemented within the faculty and funded by the TEMPUS/ERASMUS/ERASMUS+ office.

4.7.3. The results of section three

This section consists of 18 questions. For each question, the respondent had to select among the following answers: Very high, high, neutral, low, and very low.

Half or more of the respondents described as low or very low their level of personal contact with the industry, level of attendance of industrial training programs, level of exchange of industrial information, literature, data with other colleagues, and level of engagement in consultancy. On the other hand, half of them described as high or very high the level of their attendance at seminars, symposiums, workshops and conferences.

It is interesting to mention that (30%) are neutral to whether they believe that academics are competent enough to take up industrial research and (20%) give a negative answer. This might lead us to think that faculty

members need more training and support to venture into collaborative research with the industry.

There is a contradiction between (60%) who consider that the level of pride of academics for being associated with the industrial projects is high or very high and (50%) who consider that the level of motivation among academics to undertake industrial research is low or very low. It seems that motivation is linked to pay raise and promotion and not to pride. Moreover, (40%) considers that the level of acknowledgement from the university to people who gets industrial projects and the level of enthusiasm in top management for academia industry collaboration are both high and very high. One would wonder if it is a question of enthusiasm without any promotion or pay raise that does not have any impact on motivation.

Half of the respondents consider that the level of proper mechanism to collaborate with the industry is either low or very low, (30%) consider that the level of communication between the university and the industry is low, and (60%) consider that the level of the financial support from the university top management for academia industry collaboration is either low or very low as well. Moreover, (60%) consider that the level of commercialization potential of the university's research is low or very low. Thus, the respondents consider that collaborative research with the industry is not only hard to undertake but also not fruitful.

This could clarify why (0%) of the respondents stated as high/very high the level of use of laboratory facilities belonging to the university for industrial research and another (0%) agreed that the number of joint research projects between the university and the industry is high/very high.

Finally, (60%) of the respondents are not satisfied from the current industry/academia collaboration in product development.

4.7.4. The results of section four

This section consists of 5 questions. The respondents had to give a numerical answer for each question or state that the answer is not available.

The respondents are asked about the number of total patent applications made by the faculty, of registered patents, of successful industrial projects made, of successful commercial products as an outcome of academia industry collaboration, and of unsuccessful projects even after consuming

all the time and funding. All the respondents stated that the answer is not available to all of the five questions. Once more, although such answers would be available at the faculty administration, information about it seems not well spread among the faculty members.

To conclude this section, our analysis of the questionnaire results reveals that the collaboration between practitioners the faculty members at the “Faculty of Economics and Business Administration at the Lebanese University” is low due to several reasons namely; it is rather optional, it is not linked to promotion or pay raise, and the existing infrastructure at the faculty does not facilitate the dissemination of information whether about the market needs or about the faculty new policies and procedures. Therefore, the research will end with some concluding remarks and a set of recommendations formulated based on the researchers’ analysis of the findings as well as the feedback of the questionnaire respondents.

5. Conclusion and recommendations

Our study is a descriptive research of the actual status of academia/industry collaboration in Lebanon and its implication on research. After an extensive overview of the literature, the researchers are capable of presenting a theoretical framework based on international experiences which favors the creation of strategic partnerships between academia and industry to render research more relevant. Moreover, they identify main actors in Lebanon who take initiatives to strengthen the academia/industry collaboration and described their initiatives and faced challenges. Finally, primary data is collected through a questionnaire administrated to a sample of faculty members at the “Faculty of Economics and Business Administration at the Lebanese University” which reveals that the academic/industry collaboration is not strong among the respondents for several reasons. Here are few recommendations that could help improve the collaboration between academia and practice at the “Faculty of Economics and Business Administration at the Lebanese University”;

- The international experience shows that overcoming the cultural split between universities and the industries is possible through a leadership role faculty members who understand businesses could play since they are capable of building strong lasting ties with practitioners based on a shared vision. The “Faculty of Economics and

Business Administration at the Lebanese University” should build upon the experiences of its part timers who are the majority (67%) especially those who are already practitioners.

- To increase the motivation of faculty members to participate in joint research projects with the industry, it is recommended to link the collaboration to promotion and pay raise.
- Bureaucracy and centralization are slowing the spread of information among faculty members about new measures, policies, projects implemented within the faculty. Thus, decentralization, reduced bureaucracy, more competent staff and a better use of today’s electronic communication means are recommended for a more transparent faculty.
- Most of the respondents’ suggestions centered around the need to nurture the culture of industry/academia collaboration, to organize more conferences with different productive sectors, to create procedures to facilitate collaboration and sign joint research agreements with industries, to embrace entrepreneurs, to create a research agenda and specialized research centers/groups, and to commercialize the research results. The establishment of the Research, Documentation, and Publication Center at the faculty is a big leap that fulfills most of these suggestions. The center is supposed to create a research agenda for the faculty and more importantly orient it to the local market needs thus make it more relevant. It will serve as a platform to facilitate the creation of research groups to favor joint rather than individual effort. The database the center is intending to create is very important because it will make it easier for researchers to access data about previous researches and contact lists of other researchers and practitioners. The database will enable the faculty to document the previous research achievements of its members as well. Organizing more conferences, workshops and seminar will also be part of the center’s activities. This center will thus create the needed liaison between the faculty and the market and will nurture through its various activities the culture of producing relevant research. Therefore, it is crucial for the center to start fully operating without any delay. Finally, the center will operate better if faculty members are given the incentive besides the opportunity to participate,

preparing the necessary framework (legal, administrative, etc.) to commercialize the research outputs will be a good source of income to consider.

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Appendix (Questionnaire with percentages)

Lebanese University

Faculty of Economics & Business Administration

“Research in Lebanon: From Rigor to Relevant”

This research is being carried out by researchers at the Lebanese University to identify the current status of Academia-Industry Collaboration in Lebanon. We would appreciate your taking the time to complete the following survey. We will do our best to keep your information confidential.

Rank	Lecturer 20%	Associate Professor 50%	Professor 30%
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Section One			
Your University			
	Statement	Yes	No
1	Encourages industrial visits for students	40%	60%
2	Encourages industrial visits by staff	10%	90%
3	Has industrial internship in the curricula	30%	70%
4	Involves staff from industry in teaching programs	50%	50%
5	Has set up industrial liaison office	0%	100%
6	Publicizes industry related activities	40%	60%
7	Conducts seminars/workshops for staff from industry	40%	60%
8	Has made it obligatory for faculty to undertake a certain amount of work within Industry	10%	90%
9	Provides collaboration linked increments and promotions to academic staff	0%	100%

Section two						
Do you Agree/Disagree with the following statements AT YOUR UNIVERSITY?						
SA= Strongly Agree A = Agree N = Neutral D= Disagree SD = Strongly Disagree						
	Statement	SA	A	N	D	SD
10	Faculty is motivated for industry oriented research	10%	50%	10%	20%	10%
11	Teaching/administrative load prevents faculty from undertaking industrial projects	0%	30%	10%	40%	20%
12	Academic researchers do not consider industrial collaboration as part of their job	20%	10%	30%	20%	20%
13	There are active research teams/groups that are focused on industrial projects	0%	10%	30%	20%	40%
14	Faculty is fully aware of the industrial research opportunities	20%	60%	20%	0%	0%
15	Academic-Industry collaboration has a negative influence on the pedagogic mission	10%	0%	10%	10%	70%
16	Communication between university and industry is a regular activity	10%	20%	10%	20%	40%
18	Your university does not have enough laboratories to support academic-industry partnerships	10%	10%	60%	10%	10%
19	The University has clear procedures and processes in place to support Academic-Industry collaboration	0%	20%	50%	20%	10%
20	Results of time and resources spent on industrial projects are measured	10%	0%	40%	30%	20%
21	The university has online forums, email lists, web based communities and chat rooms to encourage creation of industry collaboration	10%	10%	50%	10%	20%

Do you Agree/Disagree with the following statements AT YOUR UNIVERSITY?						
SA= Strongly Agree A = Agree N = Neutral D= Disagree SD = Strongly Disagree						
	Statement	SA	A	N	D	SD
22	There have been changes in the processes within the university which encourage the development of industrial linkages	0%	0%	50%	50%	0%
23	Systematic processes for gathering and sharing of knowledge about Industry have been implemented	0%	10%	60%	10%	20%
24	The standard of education will improve with academia industry collaboration	40%	50%	10%	0%	0%

Section Three						
Answer using						
VH= Very High H = High N = Neutral L= Low VL = Very Low						
	Statement	VH	H	N	L	VL
25	As an academic, rate level of personal contact with industry	10%	20%	10%	40%	20%
26	Your attendance at seminars, symposiums, workshops and conferences	30%	20%	10%	40%	0%
27	Your attendance of industrial training programs	0%	30%	20%	20%	30%
28	Level of exchange of industrial information, literature, data with other colleagues	0%	30%	20%	50%	0%
29	Level of use of laboratory facilities belonging to university for industrial research	0%	0%	50%	30%	20%
30	Level of engagement of university faculty in consultancy	0%	10%	40%	50%	0%

Section Three						
Answer using						
VH= Very High H = High N = Neutral L= Low VL = Very Low						
	Statement	VH	H	N	L	VL
31	Number of joint research projects between university and industry	0%	0%	40%	30%	30%
32	Level of your believe that academics are not competent enough to take up industrial research	0%	20%	30%	30%	20%
33	Level of motivation among academics to undertake Industrial research	0%	40%	10%	40%	10%
34	Level of commercialization potential of university's research	0%	30%	10%	30%	30%
35	Level of proper mechanism to collaborate with industry	0%	10%	40%	30%	20%
36	Level of communication between university and industry	0%	30%	40%	30%	0%
37	Level of pride for academics for being associated with the industrial projects	20%	40%	30%	10%	0%
38	The level of acknowledgement from the university to people who gets industrial projects	10%	30%	50%	10%	0%
39	Level of enthusiasm in top management for academia industry collaboration	20%	20%	50%	0%	10%
40	Level of financial support from university top management for academia industry collaboration	0%	30%	10%	20%	40%
41	Number of research projects in university to solve industry's technical problems	10%	20%	40%	10%	20%
42	Level of satisfaction from industry of current academia industry collaboration in product development	0%	10%	30%	30%	30%

Section Four			
If you do not have an answer for the following statements, answer with NA (Not Available), otherwise specify the number:			
During the last 10 years			
	Statement	NA	N.
43	Total patent applications made	100%	
44	Your University registered patents made	100%	
45	Your University successful industrial projects made	100%	
46	Successful commercial products as an outcome of academia industry collaboration	100%	
47	Unsuccessful projects even after consuming all the time and funding	100%	

Section Five	
List briefly.	
48	List FOUR changes you suggest will further facilitate/improve Academia-Industry collaboration at your university? 1. 2. 3. 4.
49	List FOUR main obstacles in academia-industry collaboration at your university. 1. 2. 3. 4.