



Review article

A review on the relationship between university and industry and the effect of significant parameters

Mir-Michael Mousavi^a, Maryam Azizi-lalabadi^b, Parvin Dehghan^{c,*}

^a Student Research Committee, Department of Food Science and Technology, National Nutrition and Food Technology Research Institute, Faculty of Nutrition Science and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran

^b Research Center for Environmental Determinants of Health (RCEDH), Kermanshah University of Medical Sciences, Kermanshah, Iran

^c Department of Food Sciences and Technology, Faculty of food science, Tabriz University Medical of Sciences, Tabriz, Iran

ABSTRACT

There has been no systematic research of the characteristics of the universities and academic researchers that seem to have contributed most to industrial innovation. This article assesses the emerging 'technology transfer' in academic goals as a factor which could affect the economic problem. Transferring of science, technology and graduated student from university to industry have studied as an essential goal to academics-industry. The most considerable effect by companies is enhancing the access to new research, inventions and the project. The most important advantage of faculty members has finished their academic research by protecting results for graduate students and lab equipment. This condition corrects by increasing of disciplines, declining participation of students in their own educational curriculum, and award structures which emphasize on the promotion process. The results show that, the industry concerns with technological change and to policy makers attempting to increase the economic payoff from the nation's academic research.

Keywords: University, Academic research, Innovation, Technology transfer, Industry

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1. Introduction

1.1. Past Research (Friedrich List and National System)

Transferring of science, technology and graduated student from university to industry have been studied as an important goal to academics-industry. Since WWII the United States were the pioneer to create scientific and technological resources, international and industry research and development (R&D) laboratories, and institutions of higher education. Recently, because of considerable changes occurring in the science and technology, policy has come under critical reexamination (Alavi et al., 2001; Andersen et al., 2003; Arbo et al., 2007).

In the 1970s, American universities have engaged to improve new technologies rather than using them in the private sector. To face the major differences between findings of university and the company, there was a significant problem of global competitiveness of American firm (Arbo et al., 2007; Bagchi-Sen et al., 2012). To omit potential obstacles for university-industry, the National Congress in 1980 tried to establish related law, which is now known as the Bayh-Dole Act (Baumeister, 2002; Bell, 1993).

A uniform patent policy across federal agencies was instituted by Bayh Dole, which has removed the barriers on science, and permitted academy taking patents which arise from federal research grants, hence the university get the chance to be more flexible in the contract and the company would be more eager to collaborate with them, so commercialization of new technologies and improving economic achievements could accelerate university-industry relationship (Alavi et al., 2001). The modern policy discusses about transferring university in the United States starts with the theory of which universities have a rich reservoir for science and technology, but the resources were not entirely exploited in the industrial sections. The main reason for lessen university-industry collaboration was the 'two cultures' problem (Bercovitz et al., 2006; Berman, 2008; Bloedon et al., 1994).

The most important problem was Germany overtaking England, Germany not only protected infant industries, but also designed a variety of policies to increase industrialization and economic growth (Bagchi-Sen et al., 2012). Germany improved one of the perfect systems for technical education and training systems and this system was founded for superior skills and lots of the production in German industry (Bloedon et al., 1994; Blumenthal et al., 1986).

*Corresponding author.

E-mail address: dehghan.nut@gmail.com (P. Dehghan).

1.2. Globalization

It has been discussed a range of international institutions have affected by economic growth and technical changes in different countries. Variability of national systems has been described as an extreme contrasting case, although they had significant developments in the second half of the twentieth century. The uneven development of the world economy and the lag between growth rates have shown a great importance by a comparison between dozen national systems of innovation (Arbo et al., 2007; Bok et al., 2009). In 1993, by a comparative study, Ireland was compared with other small countries that demonstrated the same results of comparing Denmark and Sweden by Edqvist and Lundvall (Feller, 1993) have shown the existence of big differences between neighboring countries that show similarities in various paths (Boucher et al., 2003). To speak of international differences in innovative abilities specifying national performance has been argued which transnational collaboration was changing present of the world economy in the direction of globalization (Feller, 1990, 1992, 1993).

1.3. Comparability of national systems innovation

Due to fewer hurdles to trade, domestic companies and industries continue significant growth with technology and skill sources competitive advantage is protected. Lundvall (Feller, 1993) noted that bounded rationality and localized learning were presented as realistic and basic hypothetical about behavior than the traditional hypothetical of perfect information and the difference between local and national cause to disparate ways for developing and increasing variety rather than to standardization and convergence (Brimble, 2006; Brundenius et al., 2011). The largest corporations all over the world have often been invested in new different locations (Bruneel et al., 2010). These investments, not only have been in the division and service networks, or produce facilities, but also has included in R&D project. Even though the greater part of the 1980s' investment has been within the OECD area and the countries which produce oil-product and they could be more accurately distribute as "globalization" (Bruneel et al., 2010; Carroll et al., 2006; Chew Hernández et al., 2014).

As Andrade (Andersen et al., 2003) long ago pointed out, the multinational firms would unite the human race. Since the basic laws of chemistry, biology and other sciences, there is a concentrate technology, which could apply anywhere with identical or very similar results (Cohen et al., 2002). Global transnational-corporations were able to purchase their products and services worldwide and to produce them in many different locations; in fact, they have acted as strong agencies that have enthusiastic to worldwide standardization of technology and output. Lawson-Body and Limayem showed that the diffusion process could increase the resemblance between adopters (Berman, 2008; Correa et al., 2013). In the case of consumer goods, it would continue to be wide variations in consumer tastes and we were sufficiently familiar with such products as "Coca Cola" which provided by McDonalds to determine the reality of global production and distribution networks, standardized products and services world-wide (D'Este et al., 2005; Dewan et al., 2000).

Supporting this view were not only clear examples of hotel chains, soft drinks, canned beer, tourist agencies and credit cards, but theoretical economic discussion based on static and dynamic economies of scale in production, advertising, marketing, design

and finance, as well as the ability of large multinationals to get advantage of differences between nations in costs of capital, labor, energy and other inputs (Andersen et al., 2003; Dewan et al., 2000). Even though it could be unrealistic to think, these enthusiasms were necessarily only for the world economy (Andersen et al., 2003). In fact the discussion to protect and encourage diversity sometimes more important shorter-term advantages derived from standardization, but both processes (global standardization in some areas and increasing diversity in others) co-exist. Some materials and processes, for example, those already mentioned, where local variations in taste, regulation, climate, and other circumstances could ignore (Di Gregorio et al., 2003; Du Boff, 1993; Etzkowitz et al., 2000).

Indeed, the globalization of R&D has already caused adjustment and change of products for national variations. Companies such as Honda claimed to have a strategy of diversity in world-wide design which goes beyond the simple modification of a standard product to the idea of local variation in the design stage in several different parts of the world. But the majority of Japanese-based transnational corporations remain necessarily Japanese companies with international operations than international companies and the same is true of the US and most other multinational corporations in relation to their home environment (Feldman et al., 2002; Feller, 1990). Most R&D activities of multinational corporations were extremely conducted in the domestic base of the company and have affected by the local national system of innovation, but controls overwhelmingly were remain based on the domestic platform (Andersen et al., 2003).

Gradational innovations could easily adapt; this may not be the case with extreme innovations which by definition involve a factor to create destruction. When we were speaking about large group of extreme innovations joined with rapid processes of incremental innovation, structural and social adjustment could be very important as a big problem (Feller, 1992). It is clear, when we have considered aspects of the change in managing of techniques and skill-mix, but applied other types of institutional change in standards, patents, new services, new infrastructure, government policies and public organizations. The concept of "national systems of innovation" accepted a great importance (Feller, 1990), doubtless the recognition of the scope of the computer revolution, was increased by the microprocessor in the 1970s, and has been succeeded by enhancing recognition of the importance of organizational and managerial change (Feller, 1993; Flint et al., 2002).

2. Academic advising program

Recently faculty and the university were concerned about the close relationship between (university-industry) UI, because they taught, this collaboration could have been undesirable effects (Franklin et al., 2001). It is obvious, this concern have influenced the response of faculties to several institutional policy alternatives, but they would have some benefit for university in different approaches, for example: to create chances to conduct a visible impact on economy of state or region, increasing the earning streams training and employing chances for students (Freeman, 2010; Gilpin, 2016)

In the study, the researcher, has examined which extent close UI collaboration affected university life (Gilpin, 2016; Guimón, 2013).

The most important concern was a close UI collaboration could influence academic agenda. Feller (Feller, 1990) studied the effect

of privatization of research, as macro-economic assumption and he taught about this idea which technological innovation might be slowed down by “privatization of research” (Hagedoorn et al., 2000). Academic research rates in the market might be blocked, due to existing rates of universities limit, diverting findings of faculty to correct the firms. Feller (Feller, 1990) has discussed, because of another approach in academic research that created debilitating effects on the quality of research (Ham et al., 1998). The university research centers should focus on the research basics employment and transfer that might be helpful to businesses (Kaiser, 2007). An approximate advantage was, in the basic research and the history; it could be obvious that was where our greatest productivity and contribution to the society were. To shift emphasis to more applied problems it was a big mistake (Kenney et al., 2004). The people participated for an adverse effect cite of decreased quality of Ph.D. theses, low quality education and decreasing time in teaching and the others which believe no adverse effect, insist on close UI collaboration could give students better life education and better chance to find a good position and the number of the second group was outnumber the first (Kenney et al., 2009; Knut et al., 2010).

2.1. Institutional policy

Faculty members could enhance their transfer activities (innovation-oriented research and industry outreach efforts) and must believe their attempts cause to considerable awards (Guimón, 2013; Knut et al., 2010). One of the valued goods in the university life is publication, as well as the high regards of colleagues for their research (Freeman, 2010; Koschatzky et al., 2009). For faculty members it is important to understand whether the research cause to significant inventions will (or will not) be treated similar to refereed publications (Gilpin, 2016; Lam, 1986). In the United States, since WWII, applied research was not rewarded much validate promotion consideration (Lawson-Body et al., 2004). The main rationale for most of the funding have followed and be expected that the research would yield practical benefits" (Lawton-Smith, 2006). We could not speak about, decisively whether these concerns were based on actual experience or some pre-conceived notions (Gilpin, 2016; Lee et al., 2005).

Blumenthal et al. (1986) and Bloedon et al. (1994), all pointed out incidences of publication delays imposed on some researchers engaged in industrial contract research and based on other research for instance, (Bloedon et al., 1994; Walden, 1991) dismiss these incidences as exceptions rather than a rule. They discussed that, recently industries have been eager to permit the university researcher publish results without postponing and more experimental research was, to examine these competing claims and to distinguish the circumstances that various rules and policies were practiced (Bruneel et al., 2010; Carroll et al., 2006).

2.2. Academic disciplines

The powerful supporters of the university transfer policy were faculty members in engineering and applied sciences. Yong and his colleague have claimed that 83.4% of the engineering and applied faculty were enthusiastic to get a validation form for user-oriented applied research, whereas, this percent was 73% and 42% in basic sciences and social sciences respectively (Carroll et al., 2006). On some question about important patentable inventions, the engineering, basic sciences faculty and social science faculty trails

were tied 73% and 56% respectively (Chew Hernández et al., 2014). The engineering and applied science faculty support for their university's commercialization of research and encouragement for faculty consulting has also been greater than the basic science faculty support and the social science faculty support (Cohen et al., 2002). Although in some region with a weak support, the advocate of the engineering and applied science faculty was relatively powerful than their colleagues in the basic and social sciences, and the analysis underscores, the importance of academic specializations when analyzing the behavior of university transfer (Correa et al., 2013; D'Este et al., 2005).

3. University or/and industry

The idea of university-industry collaboration is an important social experiment in the nation innovation system (Flint et al., 2002). This research evaluated the maintenance university-industry collaboration with concentration on the actual “give-and-take” results between industrial companies and faculty members (Franklin et al., 2001). Due to the some studied which done in 1997, participants in research collaboration want to know considerable advantages expected or unexpected (Freeman, 2010). The most important advantage understood by companies and faculty members have an increased access to up to date university research and funding, and conducting their own academic research by preserving funds for graduate students and lab equipment, with look for into their own research, respectively. Some participants pointed out, based on their collaborative experience, it could be a good choice to develop and continue the present level of collaboration (Gilpin, 2016; Guimón, 2013).

The American system of higher education has different purposes for instance transmission of culture, preparation of educated citizens, teaching of professionals, and create of knowledge by do research (Hagedoorn et al., 2000). The university which create this goals side by side in a single institution, can conflict (Ham et al., 1998) and in the contemporary research university it was so difficult to pursuit of instructional and research goals (Kaiser, 2007). To complicate this contrast were the distinct emphases of academic researcher, who concentrate on campus responsibilities, and faculty with the activity was driven by the concerns and goals of their disciplinary peers. Developing of the academic research has been affected by alters in the international schedule (Kaiser, 2007; Kenney et al., 2009).

A good option to assess, the literature on business university liaisons, to develop economic and good education, and the factors which clarified the roles of academic to improve economic competitiveness and high quality of instruction, are the implications of these dilemmas for academic institutions and also the possible conflict for universities between pursuing stronger ties with industry and enhancing the number of undergraduate education is also investigated (Knut et al., 2010; Koschatzky et al., 2009). Based on some sources by the National Science Foundation, this trend evaluated for high-demand technical fields. These trends had shown more specifically the nature of this potential conflict (Lam, 1986; Lawson-Body et al., 2004).

4. Technology-based university

The major technology has taught about firms, for instance, the distribution of knowledge of industry to the country (intra-firm transfers of technology). In fact, researcher concentrates on the

transferring flow of technology to R&D institution (Mowery, 1983; Mowery et al., 2005). Indeed, it could be a better option to focus on this factor instead of transferring scientific knowledge from universities to firms and the important factor in this case including: (1) university researchers, who find out new inventions, (2) university technology managers and administrators, who cause as liaisons between academic scientists and industry and manage the university's intellectual property, and (3) firms/entrepreneurs, who commercialize university-based technologies, even though it is not a comprehensive list of stakeholders. For example, the federal government that does research on any information could be as a stakeholder (Mowrey, 1982). A general model of UIITT and stakeholder is examined in Fig. 1. It has started with the finding the university researcher in a laboratory. Then the scientist taught about patent the innovation to back up their intellectual property and TTO should assess the potential for commercialization because of the subsequent and the cost of this decision (Knut et al., 2010).

Interest in the technology from an industry made enough defenses for filing a patent. In other cases, the TTO put a judgment prior to interest being expressed by industry and it could be essential decision, though the universities have restricted budgets to dedicate the patents, that could be more priceless if the school found global patent protection. Schools have wanted to apply for domestic patent protection that preserves the technology at a much lower cost (Mowery et al., 2005; Nelson, 2001).

When the invention has been rewarded, the TTO could choose the technology, and faculty members could engage in this process for identifying potential corporate licensees and then involve staff with the entrepreneurs to protect the agreement for the intellectual property (Mowrey, 1982; Ponds et al., 2010). The contract could include some advantages for the university as royalty allowances and an equity stake. Finally, the technology has changed to a commercialized yield and keeps on their attempt with the company by advocate resources to preserve of licensing agreements. Moreover, faculty members may serve as technical advisors or boards of directors (Ponds et al., 2010; Programme, 1992).

4.1. Suggestions for university-based improvements

In this section, researchers have assessed some suggestion for university-based improvements which have been shown in Table 1. The results recommended that universities must have promotion their knowledge (Rothaermel et al., 2007). Over 75% of technology transfer offices (TTOs) directors and university noted that a good relationship between universities and industry to improve their knowledge was essential, but we saw some misunderstanding on both sides, which cause of the onus lies with universities and academics. Some researcher pointed out, invention is like a magic and if we have a power of prediction we could discover science before the other, why does someone want to commercialize their invention? Do they really have a product? What is their goal and how do they want to reach it? (Salomon, 1981).

This problem related to cultural misunderstanding and has needed more flexibility on the part of universities and industry. Being unchangeable has a negative effect on the TTO's ability to market university-based technologies and act like a hurdle in the process of negotiating a licensing agreement. Often the manager company has stated their botheration at the university's shortage of a "deal-making" mentality and intellectual property rights. In defense of universities, it is important to say that they have a legitimate fear of being accused of "giving away" a technology to a private firm. This can be a relations nightmare for universities,

especially when they are lobbying to get an additional funding in the state legislature (Schmandt et al., 1990).

Possibly, this subject could be problematic with inflexibility, and the consequences cause to researcher has tried to circumvent more formal university–industry technology transfer (UIITT) processes. Finally more informal interaction between university scientists and managers/entrepreneurs in the private sector is an essential subject (Ponds et al., 2010).

4.2. Suggestions for firm-based improvements

Changing behavior of entrepreneurs could be viewed as the customers of UIITT and the conventional wisdom which the customer is always right. But, industry view UIITT as a quintessential example of a public–private partnership. If the university wanted to manage this partnership successfully, they could need a large number input from the company (Smith, 2007; Smith et al., 2008). Thus, in the bottom panel of Table 1, we have mentioned a number of suggestions for the industry and tried to conduct the cultural gap with academic. Based on, previous recommendations, cultural obstacle pervasive in UIITT, given the managers operate under diverse organizational environments and cause different norms, standards, and values. For instance university and companies were different in their perspective on the type of knowledge (Stephan, 2001; Walden, 1991). Industrial managers were not enthusiastic to publish their results and share information with faculty and university because they believed; result of technology must be kept and used for strategic profit (Ponds et al., 2010; Wunsch-Vincent, 2012; Zuniga, 2011).

The next suggestion is: companies have gained some profit of all avenues to tap into UIITT social networks. Then, transferring knowledge was implanting the transfer ability of human via graduate students, postdoctoral fellows, or a faculty member on leave or sabbatical from the university (Lendel, 2010; Özgüner et al., 2006). Many industry managers noted that, the process of hiring has an impact form of technology transfer, and it could be more appear from of UIITT result, such as a licensing contract or invention, did not emerge in the short run. Industry must use of the scientists, equipment and gifted graduate, due to this people could be more effective for university-industry collaboration to test and examined the sophisticated equipment (Ponds et al., 2010).

5. The Impact of improving factors

5.1. Factors that support university-industry relationship

During the surveys, informants have recognized some of the essentials they believe contribute to the growth or the support of university industry partnerships. These factors are drawn both from the successful experiences some of the informants have had, as well as from their confidences on what they view as the essential circumstances for creative companies. All informants agreed on the central task the state should play in encouraging university-partnerships, through policy and funding instruments (Guimón, 2013; Mytelka et al., 2002). Also, they distinguish that institutions should continue to build abilities, chiefly by improving their human resources, education and employing qualified academic employees. Also, every category of informants seems to agree that universities should communicate more with the outside world and engage in more economically pertinent performance, both to improve

graduate employment and raise their appeal to the productive part (Lawson-Body et al., 2004).

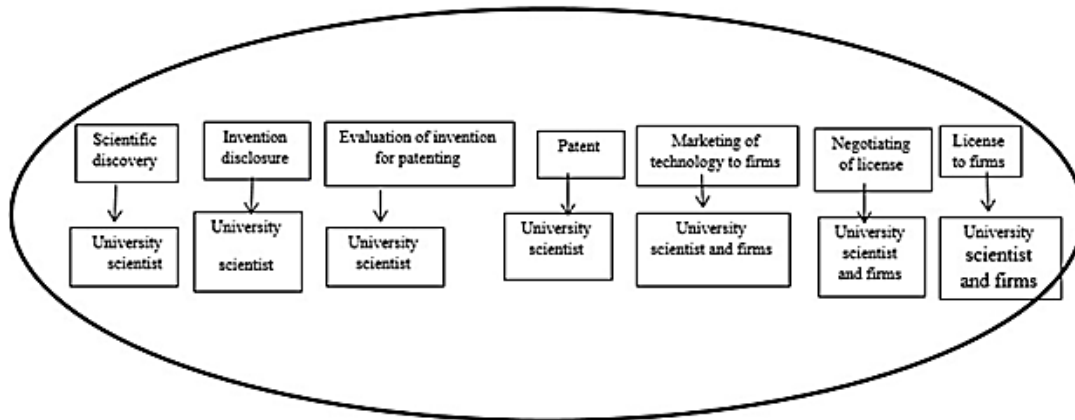


Fig. 1. How a technology is transferred from a university to a firm or entrepreneur (according to theory).

Table 1. Suggested university and firm-based improvements to the UITT process.

Suggested university-based improvements to the UITT process
Universities could promote their understanding of the needs of their true customers and potentially commercialize their technologies
Adopt a more flexible stance in negotiating technology-transfer contracts and streamline UITT policies and procedures
Hire licensing officers and TTO managers with more business experience
Change to incentive compensation in the TTO
Hire research administrators with a strategic vision, who can serve as effective plans
Devote additional resources to the TTO and patenting
Increase the rewards for faculty participation in UITT by valuing patents and licenses in promotion and tenure decisions and allowing faculty members to keep a larger share of licensing revenue
Recognize the value of personal relationships and social networks, involving scientists, graduate students, and alumni
Suggested firm-based improvements to the UITT process
Be proactive in their efforts to bridge the cultural gap with academia
Hire technology managers with university experience
Explore alternative means for tapping into UITT social networks

5.2. Government support

When it comes to the role of the government, the data propose that the absence of a national policy addressing university-industry partnerships is of huge penalty. Informants dispute that policies should be developed so that stakeholders have a frame to work with (Lee et al., 2005). They call for a “national policy on innovation” or a “national research policy”. In spite of the framing, such a policy would describe in exact terms the role of the public universities and how they relate to other part of the society, believed important for national development (Lundvall, 2010).

Conversely, some informants acknowledge that their respective countries already have policies on research and innovation, on which university-industry partnerships can be built upon. In that sense, they rather lay the blame on limited institutional capacity. In addition, of having a national structure for research and innovation, informants dispute that the state should also develop different mechanisms to support the personal part to partner with

universities. Many informants advocate for the introduction of incentives to motivate industry. They argue that financial incentives could help start first contacts between firms and universities (Guimón, 2013; Mai, 2007).

At the international level, the data suggest that informants, chiefly from university and international organizations, want more involvement of the state in setting up international partnerships. Informants whose institution have been involved in an international partnership insist on the need for governments, through suitable ministries, to support institutions in their application for international partnership proposals (Gilpin, 2016). Many examples of successful partnerships between the university and the productive sector have been accomplished with the support of international aid agencies. Establishing these international relationships requires participation at the ministerial and state level, as well as the expertise and commitment of the state apparatus (Kenney et al., 2009; Lam, 1986).

5.3. *Improve communication between universities and industry*

One of the frequent themes that came out of the data is the claim that the university is not opening sufficient in its community and personal part. According to informants from the university and the private sector alike, this honesty of universities can take numerous procedures. The first aspect is opening university governance to industry participation (Kenney et al., 2009; Lundvall, 2010). Furthermore, the influence of the private sector could take the form guest lecturers and teaching, chiefly in specialized programs. Also, industry can donate in the development of programs. During the course of developing new plans, each faculty at the institution is mandatory to consult with the particular industries that could possibly employ graduates of the program. Industry representatives provide input in the development of the curriculum (Correa et al., 2013).

A second module of opening up universities and industry is through the improved communication of university research accomplishments. Two informants insist on the need to keep an attendance in the media by frequently communicating research findings to the public. More importantly, beyond the use of academic language, the communication approach of academics is too often not comprehensible the industry (Knut et al., 2010; Zuniga, 2011).

6. Barriers to university-industry (U-I) collaboration

6.1. *Incentives and conflicts between public and private knowledge*

At the central of the problems to U-I collaborations are the diverse institutional standards governing public and private knowledge (Dasgupta & David, 1994). The making of dependable and public knowledge has been essential to the growth of universities, leading to support from the government for research to increase the pool of economically beneficial knowledge (Knut et al., 2010; Wunsch-Vincent, 2012). The institutions of science contain strong competitive mechanisms and influential incentive governments. The importance of establishing a reputation through publication is precarious to academic victory and career sustainability. Peer esteem cannot be bought and must be produced by appealing reputation among colleagues (Chew Hernández et al., 2014; Correa et al., 2013).

In contrast to the relatively open nature of the science system, the practice of knowledge formation in the private sector is controlled by efforts to suitable the economic value knowledge in order to achieve a competitive benefit (Teece, 1986). This 'private' knowledge is mainly closed, remaining hidden within the firm or disclosed in a limited way through patents filed principally for the purposes of obtaining temporary monopolies (Dasgupta & David, 1994). Despite instances of openness, the main motivation of firms' knowledge creation actions is the adoption of knowledge for private achievement, and open to external performers is used as a tactical mechanism to gain benefit over participants (Chesbrough, 2006; Gilpin, 2016). Given these two diverse schemes of knowledge production, private organizations often struggle with university researchers over the subject of research and timing and form of disclosure of research results. While investigators may be strong to reveal information to gain priority, companies may wish

to keep secret or proper the information (Chew Hernández et al., 2014; Wunsch-Vincent, 2012).

6.2. *Conflicts over Intellectual Property (IP) and university administration*

The development over the past 30 years of universities as economic performers in their own right has also been significant in shaping the nature of the communication between universities and companies. The growth of the university Technology Transfer Office (TTO) and the growing attempts of universities to capture official IP have had a deep impression of the nature of scientific efforts (Berman, 2008; Freeman, 2010).

These efforts have led to the construction of a new profitable focus on the part of the universities to make valuable IP and exploit it for financial advantage (Bruneel et al., 2010; Chew Hernández et al., 2014).

For some, this attention on commercialization undermines the public commons of science, weakening the organizations of open science through the burden of private standards on public actions (Smith et al., 2008). For others, the increase of the university as a financial actor creates a new motor of economic growth that in the past has been rarefied and isolated (Ponds et al., 2010). It is clear that in some cases, efforts by universities to detention the commercial profits from research have led to important conflicts between universities and industrial partners over IP and/or disclosure of the consequences (Brundenius et al., 2011; Smith, 2007).

Although we know a significant quantity about the factors that lead some companies to cooperate or attraction knowledge from universities (Berman, 2008; Özgener et al., 2006), we know little about how the barriers observed by industry to working with universities may be mitigated. Our present considerate tends to trust on information from non-collaborators, which does not offer insights into how those organizations that do collaborate with universities overwhelmed these barriers. In this paper, we emphasize on three possible tools to decrease the difficulties to U-I-collaboration knowledge, breadth of communication, and inter-organizational confidence (Lendel, 2010; Salter et al., 2009).

7. Conclusion

The most significant approach to improve university-industry collaboration depends on the country's technological and institutional talent and it is causing to the promotion of university-industry relationship as part of a wider science, technology, and innovation policy subject. Fortunately, rather than unfortunately, cultural differences do exist between University-industry and they should demand to reform this gap, back up and respected than criticized as barriers. It is obvious which; companies have various ideas and goals with respect to intellectual property. As these two sectors coordinate but conflicts are inevitable. Even though university-industry technology transfer (UITT), must promotion their understanding of up to date knowledge and new inventions as their involvement in UITT. In fact, UITT provides better equipment and financial resources to evaluate a number of experiments, as well as new ideas from industry scientists. Finally, it is considerable that all these subjects could affect the curriculum, as faculty members draw on their experiences with industry to conduct instruction that is related relevant to high-technology firms.

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