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University Relationship Management

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Abstract—*In recent decades, to gain a competitive advantage, firms have improved their relationships with universities as the main generators of science and technology in modern societies. There are various goals and drivers that inspire firms to engage in such relationships. These goals and drivers, along with several facilitators, in turn indicate the existence of different types of relationships between firms and universities, which are characterized by different elements, like trust, commitment, and communication. It is very important for firms to manage the level of different elements in these relationships for different types of interactions, in what we call university relationship management (URM). The main purpose of this paper is to propose a generic framework for URM, to discuss the most important antecedents and consequences of URM, and to provide conclusions and avenues for future research.*

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1. INTRODUCTION

IN an environment with high competitive pressure and a high rate of technological changes, knowledge helps firms gain a competitive advantage. As such, knowledge, as a main basis of economic growth (Eun et al., 2006), can be considered to be an external source for firms, helping them be innovative and realize a competitive advantage. Firms can obtain the knowledge they require from different sources, including suppliers, competitors, research institutes and government laboratories. Since universities are among the most important knowledge creators in modern societies, they can be considered as a prime potential knowledge source for firms. Moreover, the results of academic research regarding innovation are important to firms, especially in science-based industries like biotechnology and semiconductors, which is why firms in those industries tend to show greater enthusiasm when it comes to working together with universities (Ponds et al., 2010, Salimi et al., 2015a). It is a relationship that becomes even more important when the collaboration with one single university is critical and

strategically important to the firm in question, for example the strategic importance of Eindhoven University of Technology to Philips in The Netherlands.

Although there is a tendency for universities and firms to work together, in some cases, the collaboration is not successful due to lack of proper relationship management (Dodgson, 1991).

Understanding how a firm-university relationship can be managed effectively has become important to universities and firms alike, because it is critical to the success of their collaboration (Salimi et al., 2016; Salimi and Rezaei, 2016). There are different types of interaction channels between firms and universities, including joint research and development (R&D), publishing, patenting and licensing. Their interaction is affected by a number of factors, like the collaborating partners' motivations/drivers and collaboration facilitators. Moreover, each type of interaction between university and firm is characterized by different elements (Thomson and Perry, 2006), such as trust, commitment and communication.

As such, each collaboration is managed in a different way and the firm in question, as the initiator of the collaboration, should implement different types of management strategies to manage and control the level of these elements (characteristics) (Salimi et al., 2015b), in what we call university relationship management (URM), an important strategic activity that, surprisingly enough, has so far been neglected in the literature regarding university-industry collaboration.

In literature, university-industry collaboration has been examined from different angles, including the role of university in economic growth (Owen-Smith and Powell, 2003; Rothaermel and Thursby, 2005; Bramwell and Wolfe, 2008), different channels of knowledge transferring between firms and university (Agrawal, 2001; Cohen, 2001; Balconi and Laboranti, 2006; Bekkers and Bodas Freitas, 2008) and the knowledge transfer process that takes place in these relationships (Cortés-Aldana et al., 2009). However, researchers have not considered how managers can manage the elements of university-industry relationship in order to build a successful relationship. In this paper, we study the position of URM in an overall framework including its antecedents and results. Antecedents are the firms' drivers, facilitators, interaction channels, and

university selection process. Developing and maintaining the collaboration between firm and university are the most important results of URM.

To summarize, the aim of this paper is to propose a generic conceptual framework to improve our understanding of URM. More precisely, we identify the elements of the collaboration between firms and universities that decision-makers can manage in their attempt to build a successful collaboration.

In the next section, we discuss a general framework containing URM, followed by the conclusions and possible avenues for future research.

2. UNIVERSITY RELATIONSHIP MANAGEMENT: A GENERIC FRAMEWORK

In this section, we introduce a framework, including URM, and its antecedents and outcomes (see Figure 1). The antecedents are facilitators, firm's drivers, type of interaction and university selection process, while the outcomes are in fact the results of the collaboration (developing and maintaining the collaboration). The type of interaction channel is determined by the firm's drivers and motivation to be involved in the collaboration, and facilitators that help develop the relationship.

Drivers, facilitators and interaction channel are components that must first be considered and examined by the firm when approaching a potential university, after which the decision-makers should follow a university selection process (USP), selecting the most suitable university based on certain evaluation criteria. When that has been done, the next phase involves considering and managing the elements of collaboration. In each type of interaction channel, the level of collaboration elements (e.g., level of integration, joint commitment, joint decision-making, and trust) will be different. For instance, many firms, by defining internship projects for master students, try to absorb the students after their graduation. In this type of relationship, partners engage in a collaboration on a limited basis and for a short period of time. That is to say, the relationship between university and firm is likely to end as soon as the students have been recruited. On the other hand, in research and development (R&D) projects, it is necessary to involve more functional areas of both partners in the collaboration. In this type of collaboration, the level of elements like mutual trust, openness, shared risk and rewards should be high.

Because of the unique characteristics of each type of collaboration, there is no ideal relationship that applies to

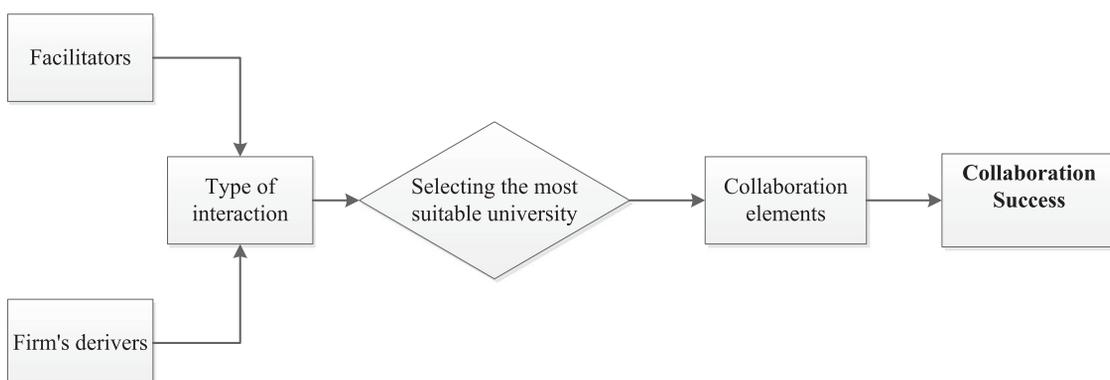


Figure 1. A conceptual framework for university relationship management (URM).

every single situation, which means that it is essential for a firm to adopt a structure for managing the elements of the relationship, in order to develop and maintain that relationship. Based on this discussion, we define university relationship management (URM) as “a strategic management activity of the firm to control and govern the elements of the collaboration with the university, in order to maintain and develop that relationship”. In the following sections, we take a closer look at the different components of the framework.

2.1. Firm's Drivers Firms must have the confidence in that working together with a university will benefit them in ways that not working together would not. Furthermore, for a continuing collaboration, there must be long-term benefits (Lambert, 2008). There are several reasons for universities and firms to work together. From the university's perspective, these can include having access to research funding and the firm's facilities (Dooley and Kirk, 2007), and revenues from licensing and patenting (Barnes et al., 2002). In addition, there may be job opportunities for their graduates, and access to applied technological areas (Santoro and Chakrabarti, 2002). For firms, potential drivers may include access to scientific knowledge, increased absorptive capacity, recruitment of graduate students, access to networks (Thune, 2009), reducing employment costs (Azaroff, 1982), improving the R&D activity (Butcher and Jeffrey, 2007), cost and risk reduction, meeting government regulations (Geuna et al., 2003) and gaining access to research skills (Meyer-Krahmer and Schmoch, 1998). According to Scharfetter et al., (2001), there are four types of benefits to firms in working together with universities: hiring educated and highly skilled personnel, getting new ideas for new products and processes, accessing general and

useful information and receiving support to process development. Moreover, firms are forced by government to engage in collaboration via tax incentives and funding programs (Santoro and Bierly, 2006). In short, firms benefit from working together with universities in the following areas (Lee, 2000):

- To solve specific technical or design problems
- To develop new products and processes
- To conduct research leading to new patents
- To improve product quality
- To reorient their R&D agenda
- To gain access to new research via seminars and workshops
- To maintain an ongoing relationship and network with the university
- To conduct “blue sky” research in search of new technology
- To conduct fundamental research with no specific applications in mind
- To recruit university graduates

2.2. Facilitators In addition to the drivers, the environment of firm should also support the relationship if it is to be successful. The elements of a cooperative environment facilitate the development of the relationship between partners (Lambert, 2008). We can consider two types of facilitators. The former are related to the external characteristics environment that can be a facilitator of or barrier for the collaboration, while the latter are related to the firm's scientific field and can be viewed as internal facilitators. We first take a closer look at the external facilitators.

Collaboration experience and the level of interaction and trust between partners can reduce the barriers to a collaboration and facilitate that collaboration (Bruneel et al., 2010). Moreover, Santoro and Bierly (2006) argue that social contacts between individuals at university and firm, and

the firm's absorptive capacity are two additional facilitators. Geographical proximity between the partners in a collaboration is considered to be among the most important elements in facilitating collaboration, by various authors, including Boschma (2005), Ponds et al. (2007), Sonn and Storper (2008), Torre (2008), and Salimi et al. (2016). Geographical proximity reduces uncertainty and increases communication between partners, and facilitates interactive learning and innovation (Santoro, 2000; Boschma, 2005). In other words, geographical proximity can influence the success of transferring knowledge from university to firm through building trust between partners (Boschma, 2005). Moreover, a prior relationship between university and firm will affect the selection process for the firm in question (Santoro, 2000; Butcher and Jeffrey, 2007; Lambert, 2008; Thune, 2009). If the earlier relationship was successful, the firm in question may want to continue and expand that relationship (Santoro, 2000), and if it was not, the firm may decide to look elsewhere for a collaboration partner. A willingness to share sensitive information between the two both partners can also facilitate a successful collaboration (Lambert, 2008).

The second type of facilitators, the internal facilitators, are related to the internal characteristics of the industry involved. The first internal facilitator has to do with the nature of the knowledge that will be transferred from university to firm, and there are three important dimensions:

- (1) Tacit vs. explicit knowledge: tacit knowledge is embedded in people and cannot be expressed verbally or even in the form of patent, books and scientific documents or articles (Lee, 2001). Moreover, transferring tacit knowledge is possible only by through involvement of the people involved (Brennenraedts and Bekkers, 2006). Explicit

knowledge, on the other hand, is simply shared formally in codified forms like manuals (Chen, 2012). Nonaka and Takeuchi (1995) state that tacit knowledge is related to “knowing how” and that it contains personal beliefs, perception and perspective. Therefore, transferring and sharing this type of knowledge is difficult since it is accumulated through personal experience (Connell et al., 2003) and can only be transferred in face-to-face communication and close relationship (Brennenraedts and Bekkers, 2006).

- (2) Multidisciplinary vs. mono-disciplinary research: Brennenraedts and Bekkers (2006) mention that, to development knowledge, combinations of knowledge from different disciplines are essential in compare to traditional way in which knowledge has been developed by specialists in one discipline.
- (3) Basic vs. applied research: Applied research involves developing knowledge with a specific application in mind, while the aim of basic research is to develop knowledge without a specific application in mind (Niiniluoto, 1993).

Furthermore, the regimes in which a firm operates also affect the type of knowledge-transfer channels being used. Pavitt (1984) introduces three regimes: supplier-dominated firms, production-intensive firms and science-based firms. Brennenraedts and Bekkers (2006) argue that, based on the regime in which a firm operates, different channels for transferring knowledge are used. One other element that can affect the interaction channels is related to level of maturity of a firm’s activities. Freitas et al. (2013) argue that the importance of tacit knowledge increases when the industry is in the

early stage of its lifecycle. Therefore, personal contacts and close relationships, like taking part in meetings, can provide a suitable channel for transferring knowledge. On the other hand, in mature industries, where the focus is more on the codified knowledge, regular contact between partners is less important (Freitas et al., 2013).

It becomes clear that a firm’s drivers and cooperative environment influence the way it interacts with the university. For example, what Philips Company decided to do in 1914 with Eindhoven University of Technology was influenced by the company’s drivers and facilitators. Considering the main goal/driver of Philips Company (to develop future technologies and products), and some very important facilitators (e.g., the firm is located close to the Eindhoven University of Technology, they have had good history of collaborations), perhaps the best relationship channel has been the development of a joint research center. Together, they set up the “Philips research Eindhoven”, which focuses on the three market sectors in which the company operates: healthcare, lighting and consumer lifestyle.

2.3. Firm-University

Interaction Different firms work together with universities to gain knowledge through different channels (Agrawal and Henderson, 2002), including joint research and development (R&D), publishing (Bekkers and Bodas Freitas, 2008), spin-offs, patent, licensing, consultancy, graduate and researcher mobility (Schartinger, 2001; Wright et al., 2008). Generally speaking, the types of collaboration between university and industry vary based on resource distribution, and the level of length and agreement formalization (Schartinger, 2001).

Literature has suggested a number of interaction classifications.

For example, Schartinger et al. (2001), conducting a survey, identified the four most frequent types of interaction: supervising/financing Ph.D. and Master theses, contract research, joint research and employment of university researchers by firms. These types of interactions contain formal agreements, like contract (D’Este and Patel, 2007) and research corporations (Hagedoorn et al., 2000)], and informal networks, such as meetings and conferences without any formal and signed agreement among partners (D’Este and Patel, 2007). Generally speaking, in informal research collaborations, universities play a short-term role as partners. Bongers et al. (2003) identified ten different categories of knowledge-transfer channels between firms and universities, as reported in the work paper by Brennenraedts and Bekkers (2006) (Table 1).

Below, we take a closer look at the different elements presented in Table 1.

- **Publication:** interaction via publication is a way to transfer explicit knowledge (Brennenraedts and Bekkers, 2006). Cohen et al. (1998), in a survey among 1478 US research and development lab managers, examine the importance of ten knowledge-transfer channels. Based on their survey results, among ten channels (patents, publications, meetings or conferences, information channels, hires, licenses, joint ventures, contract researches, consulting and personal exchange) publication is considered to be one of the most important channels for transferring knowledge, especially in science-based firms (Brennenraedts and Bekkers, 2006). Studies show that geographical proximity among

university researchers and company employees can facilitate joint publications (Lundberg et al., 2006).

- **Participation in conference professional networks and boards:** in this channel, the interaction is based mainly on informal personal relationship between university researchers and industrial experts (D'Este and Patel, 2007), making it possible for experts in the field to provide direct feedback. Moreover, this channel can facilitate the creation of future social networks (Brennenraedts and Bekkers, 2006).

- **Mobility of people:** the importance of mobility as a knowledge-transfer channel is recognized by several authors, including Schartinger et al. (2002), who in a survey among Austrian universities in 49 different economic sectors found that research cooperation and personnel mobility are a more usable knowledge transfer channel, especially in chemistry, biotechnology, engineering and information technology. Ph.D. graduates are considered to be among the most important sources of knowledge (Thune, 2009; Salimi

et al., 2015a, 2015b, 2016; Salimi and Rezaei, 2016) and they can be employed by firms after graduation, which is also proposed as one of the incentives for firms to hire Ph.D. candidates after graduation by Mangematin (2000).

- **Other informal contacts/networks:** here, the interaction is mainly based on informal relationship between university researchers and industrial experts (Meyer-Krahmer and Schmoch, 1998; Cohen et al., 2002). In most cases, relationship between university and industry begins by personal contacts (Bongers et al., 2003)
- **Cooperation in R&D:** One of the main areas of collaboration involves R&D activities, where interaction is based on research agreements with clearly defined objectives. Here, the collaboration has a long-term focus, compared to more informal channels, like conferences (Brennenraedts and Bekkers, 2006). In addition to bringing money from firm to university and transferring knowledge from university to firm, this type of interaction requires the active involvement of both parties (Brennenraedts and Bekkers, 2006). Consequently, both parties benefit, which is essential for maintaining a long-term relationship (Lambert, 2008). Brennenraedts and Bekkers (2006) believe that large firms, compared to smaller firms, are more inclined to engage in R&D collaboration with universities, an important reason being that they simply have more financial resources at their disposal.
- **Sharing facilities:** both partners (university and industry) can reduce cost by sharing facilities. (Brennenraedts and Bekkers, 2006) believe that facilities, like

Table 1. Different Types of University-Industry Relationship (Adopted From Bongers et al. (2003) and Brennenraedts and Bekkers (2006))

Type of relationship	Forms
<i>Publications</i>	Scientific publications Co-publications Consulting of publications
<i>Participation in conference professional networks & boards</i>	Participation in conference Participation in fairs Exchange in professional organizations Participation in boards of knowledge institutions Participation in governmental organizations
<i>Mobility of people</i>	Graduates Mobility from public knowledge institutes to industry Mobility from industry to public knowledge institutes Trainees Double appointments Temporarily exchange of personnel
<i>Other informal contacts/networks</i>	Networks based on friendship Alumni societies Other boards
<i>Cooperation in R&D</i>	Joint R&D projects Presentation of research Supervision of a trainee or Ph.D. student Financing of Ph.D. research Sponsoring of research
<i>Sharing of facilities</i>	Shared laboratories Common use of machines Common location or building (Science parks) Purchase of prototypes
<i>Cooperation in education</i>	Contract education or training Retraining of employees Working students Influencing curriculum of university programs Providing scholarships Sponsoring of education
<i>Contract research and advisement Intellectual property right</i>	Contract-based research Contract-based consultancy Patent texts Co-patenting Licenses of university-held patents Copyright and other forms of intellectual property
<i>Spin-offs and entrepreneurship</i>	Spin-offs Start ups Incubators at universities Stimulating entrepreneurship

laboratories and equipment, are mostly shared to test innovations.

- **Cooperation in education:** the first role of universities is to produce qualified students. D'Este and Patel (2007) argue that training can be taken on two forms: (1) postgraduate training in firm, such as joint supervision of the PhD's involved in collaborative projects between university and industry; (2) training the firm's employees through course enrolment or personnel exchanges. That is to say, the firm wants to improve its employees' education by sending them to university for training.
- **Contract research and advisement:** In consultancy and contract research, interaction begins via contract-based research with clearly defined objectives between university researchers and industry (D'Este and Patel, 2007).
- **Intellectual property rights and the creation of physical facilities (e.g., spin-offs and incubators):** Meyer-Krahmer and Schmoch (1998) argue that, due to the high costs, scientific institutes are willing to invest in patent applications only if a firm is also interested in commercializing the new findings. To create new companies and physical facilities (including spin-offs, campuses, laboratories, incubators and cooperative research centers), more organizational university commitment and industry funding are necessary (D'Este and Patel,

2007; Thursby and Kemp, 2002). Therefore, a close relationship between university and industry is necessary to share patents, as confirmed in the empirical study by Becher et al. (1996). The aim of spin-offs is to commercialize university knowledge in the form of patent or licenses (Thursby and Kemp, 2002).

2.4. University Selection

Process As mentioned earlier, the drivers and facilitators for firms are key in identifying the best way for firm and university to interact. Once a firm understands which collaboration channel is suitable for achieving the goals of the collaboration, it is time to select the most suitable university. It is important to select a university that is sufficiently willing to cooperate and able to fulfill its planned role. The importance of selecting suitable partners is supported in literature by several researchers (Bailey et al., 1998; Kale et al., 2001, among others). In the university selection process (USP), the firm chooses a set of available universities. Then, based on a number of qualitative and quantitative criteria, the firm evaluates the universities and selects the best one. Some of the criteria that can be used to evaluate universities are: networking and knowledge exchanging ability (Bramwell and Wolfe, 2008), willingness of university to collaborate and reputation. For comprehensive information about the university selection process, see Salimi and Rezaei (2015).

2.5. Collaboration Elements After selecting the best university for the collaboration, the firm has to properly

manage its relationship with that university. In Section 2.3, we discussed different types of interactions between firm and university. In this section, we present a new approach to this type of relationships, using our URM concept. In this approach, we consider different types of relationships between firm and university in a continuum, from arm's length relationship (consisting of either a one-time meeting/conference or attending multiple ones) to a closer, more involved and productive partnership of two partners under conditions of trust and commitment, joint decision-making and risk/reward-sharing (see Figure 2). An example of such productive partnership is the SALC National Laboratory, which was built in the 1960s as a joint venture between the Stanford Research Institute (SRI) and the Air Force of America (University). As we move from the former to the latter type of interaction (Figure 2), the level of integration, trust and commitment, and joint decision-making increases. For example, when the level of trust and commitment are high and university and firm share a sufficiently successful history of collaboration, partners are persuaded to set up spin-off companies, cooperative research centers and incubators. In this situation, the partners benefit from a number mutual advantages. It is worth mentioning, however, that, in such close relationships, by sharing funds to engage in joint operational activities, the partners increase the risk involved in collaboration. Therefore, managing such relationships is becoming more



Figure 2. A continuum of different types of interactions between firm and university.

important for a firm, compared to having some of its employees attend a university conference. As such, for an effective collaboration, a firm should apply different strategies to handle different relationships/interactions. Although the elements are the same in every collaboration, they should be managed in different ways. As Lambert (2008) argues, what makes a difference between different collaborations is in fact the way the elements of each collaboration are implemented and managed, including mutually agreed projects (Barnes et al., 2002; Lambert, 2008), joint investment in technology, shared assets, and risk/reward sharing (Lambert, 2008). One of the most important elements in collaboration between university and firm involves supervisors/project managers (Barnes et al., 2002). The level of enthusiasm to engage in collaboration, shared ideas among university and firm supervisors, and the level of agreement on a project

timetable or deliverables list for project requested between supervisors can affect the success of a collaboration (Butcher and Jeffrey, 2007). Frequency and quality of communication between partners to discuss progress, strategy, direction and issues of policy are another key element of collaboration (Barnes et al., 2002; Butcher and Jeffrey, 2007). Furthermore, social proximity (Boschma, 2005) or trust and commitment (Santoro and Gopalakrishnan, 2000; Barnes et al., 2002; Plewa and Quester, 2007) are additional elements of collaboration.

Firms should have different strategies for managing different types of interaction. In other words, manager should try to find the best level of elements in each collaboration.

2.6. Collaboration Success There is a close relationship between university research and development

(Mansfield, 1991). Moreover, university-industry collaboration is a significant part of each national innovation system (Lee, 2000). Therefore, identifying the elements that make a collaboration into a success is important. The aim of university relationship management (URM) is to turn a collaboration into a success, which happens when the goals of the collaboration are met. There are two views on how to measure the success of university-industry collaboration. The former view is based on civic republicanism, and assumes that partners, regardless of their differences, try to implement shared preferences through collaboration based on mutual understanding and trust (March and Olsen, 1989). However, there is another approach, which Lee (2000) calls “behavioral outcome” and Barnes et al. (2002) “subjective view”, which involves the interpretation of each partner on the value of the research outcomes, and how well

Table 2. Characteristics of Each Type of University-Industry Collaboration Based on the Proposed URM Framework

Collaboration channel	Drivers of firm	Necessary facilitators	Main collaboration elements
Participation in conference professional networks & boards	<ul style="list-style-type: none"> - Receiving explicit knowledge - Receiving direct feedback - Creating social network with the specialist 	<ul style="list-style-type: none"> - Existence of explicit knowledge - Prior personal relationship between researchers - Industry sponsoring 	<ul style="list-style-type: none"> - Informal contract - Short-term orientation
Training	<ul style="list-style-type: none"> - Receiving tacit knowledge - Hiring educated and highly skilled personnel 	<ul style="list-style-type: none"> - Existence of tacit knowledge - Immature industry - Geographical proximity - Prior successful experience 	<ul style="list-style-type: none"> - Formal contact - Short-term orientation
Consultancy and contract research	<ul style="list-style-type: none"> - Receiving more tacit knowledge - Improving product quality - Producing new product 	<ul style="list-style-type: none"> - Large firm - Basic or applied research - Prior successful experience 	<ul style="list-style-type: none"> - Formal contact - Long-term orientation - Joint decision-making - Trust and commitment - Agreement on a project timetable or deliverables list for project - Defined project objective
Joint research	<ul style="list-style-type: none"> - Cost reduction - Risk-sharing 	<ul style="list-style-type: none"> - Prior successful experience 	<ul style="list-style-type: none"> - Formal contact - Long-term orientation - Joint decision-making - Trust and commitment - Agreement on a project timetable or deliverables list for project - Risk/reward sharing
IPR and creation of physical facilities	<ul style="list-style-type: none"> - Having patent - Commercialization 	<ul style="list-style-type: none"> - Applied research - Prior successful experience 	<ul style="list-style-type: none"> - Formal contact - Long-term orientation - Close relationship - Trust and commitment - Industry funding - Organizational commitment by university

their respective expectations have been met. In fact, each partner feels satisfied/dissatisfied depending on achieving their own goals without considering the other partners' interests. This view measures the level of satisfaction about meeting the partners' objectives (Van Gils, 2010).

There are several indicators of collaboration success in the literature that are considered as objective measures, such as quality of knowledge, application of external knowledge and continuation of internal activity (Van Gils, 2010), knowledge development and tangible technological development (Santoro, 2000), knowledge transferring ability between partners (Salimi et al., 2016), development and commercialization of a new product (Bekkers and Bodas Freitas, 2011), number of publications, patents (Barnes et al., 2002), continuation of collaboration between university and firm (Salimi et al., 2016).

2.7. Characteristics of Each Type of University-Industry Collaboration

In this section, we categorize the different types of university-industry collaboration based on the firm's drivers for choosing the specific channel, facilitators that support the presence of specific channels and the requirements for maintaining specific channels. The table is based mainly on literature and can be used as a guideline for firms to shape their relationship with universities, whereby each element can be adjusted or extended by individual firms.

Table 2 shows that different levels of elements and facilitators are

needed for different types of collaborations, based on the firm's drivers and goals. That is to say, firms should first consider their business strategies and more particularly their R&D and innovation strategies to get a better understanding of their needs when it comes to collaboration with a university. This will make an alignment between the firm's needs and the type of collaboration, which can lead to a successful outcome. Maintaining a healthy and productive relationship between the two partners is heavily depends on (i) choosing a proper channel by the firm to satisfy its needs; (ii) selecting the right university to make the relationship through the chosen channel; (iii) building the relationship and managing its elements with the university.

It appears that firms to successfully manage the relationship with universities (especially for large companies that have several collaborations at any time) need to devote enough attention through, for instance, considering a number of employees (or even a unit, like, URM unit) to this strategic activity. Such unit would be responsible for analyzing the relationships and giving advise to the people and departments which are involved in different collaborations. The URM unit might advise that, for instance, for participation in conferences and training, a high level of involvement and trust among the partners are not necessary elements. In these two types of collaboration, university and industry contact for a short time to meet their respective goals. However, real joint involvement and high level of trust begin at consultancy and contract

research and attain their maximum level in IPR and creation of physical facilitators. For these types of collaboration, having a close relationship and an active involvement in the decision-making process from both partners are essential factors.

3. CONCLUSION

In a competitive environment, with an increasing importance of knowledge for firms to gain a competitive advantage, universities are a key partner as knowledge creators. That is why the topic of university-firm relationship has been receiving more attention. Although this type of collaboration has its own benefits for both of the partners involved, each collaboration is also costly in terms of time, energy and budget. Therefore, having successful collaboration with university and the ability to maintain and develop that collaboration is of strategic importance to firms. In this paper, we introduced the concept of university relationship management (URM) and its elements, and tried to provide a broader picture of its main antecedents and outcomes. The proposed framework provides a systematic structure for ensuring that the collaboration is developed and managed in a way that will benefit the firm in question. A future research avenue involves operationalizing the concepts proposed in this framework, in addition to conducting empirical studies to test the model. Finally, while we consider URM from a firm perspective in this paper, adopting a university point of view may also yield some very interesting results.

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