Received 16 June 2014
Revised 23 October 2014
3 February 2015
Accepted 6 February 2015

# Organizational cross-cultural differences in the context of innovation-oriented partnerships

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## Abstract

**Purpose** – The purpose of this paper is to empirically examine organizational cross-culture differences in public-private research-oriented relationships. More precisely, it focusses on the analysis university-industry collaborations partnering for research agreements with the aim of fostering the transfer of knowledge and innovation. It analyzes the key organizational cross-cultural differences that could hinder the successful performance of these agreements from a relationship marketing (RM) perspective.

**Design/methodology/approach** – Based on a comprehensive literature review of organizational culture and RM, a quantitative study was carried out and a structural equation model was proposed and tested.

**Findings** – Cross-cultural organizational differences in private-public sectors are proved to negatively influence relationship performance. Market orientation difference appears as the most significant barrier to relationship performance, followed by time orientation difference and to a lesser extent flexibility difference.

**Originality/value** – By integrating organizational culture and RM literatures, the main contribution of this paper is the cross-cultural analysis of private-public relationships (in this case university-industry relationships) from the perspective of RM. Hence, this research will inform management seeking to develop successful public-private collaborations by enhancing their understanding of cross-cultural factors underlying relationship success and failure.

**Keywords** Innovation, Cross-cultural differences, Relationship marketing, Market orientation, Technology transfer

**Paper type** Research paper

## 1. Introduction

The speed of innovation and rapid technological change (Palmer, 2002; Monreal-Perez *et al.*, 2012) have forced private and public sector organizations to join together in order to encourage the transfer and diffusion of knowledge and to create innovation-oriented linkages (Zilian *et al.*, 2014; Brewer, 2008; Organization for Economic Co-operation and Development (OECD), 2002). University-industry relationships (UIRs) constitute a fine example of these linkages. UIRs are considered to be innovation oriented since they facilitate the transfer of knowledge and technological diffusion through the licensing to industry of inventions and/or intellectual properties resulting from university research (Siegel *et al.*, 2003). This transfer of knowledge has been frequently cited as stimulating for local economic development and innovation (Burnett and Williams, 2014; Siegel *et al.*, 2003; Cohen *et al.*, 1998).

Thus, this paper bridges a very important gap in innovation by identifying the differences between the academic and the business communities. As businesses seek more practice-based approaches to solving innovation problems, universities are challenged to

Cross Cultural & Strategic Management
Vol. 23 No. 1, 2016
pp. 128-157

2059-5794
DOI 10.1108/CCSM-06-2014-0059

provide research that is less theoretically focussed and to provide guidelines for managers. This paper addresses the diversity in these two approaches that is under-researched and suggests how this gap between the two approaches can be "bridged."

While an understanding of business-to-business services has largely been developed in the literature of management (Leisen *et al.*, 2002; Leo *et al.*, 2005; Cao *et al.*, 2009), Research & Development (Triulzi *et al.*, 2014; Soh and Subramanian, 2013) and mergers and acquisitions (Weber and Tarba, 2012; Evans, 2006; Kahn, 2001), it has mainly been focussed on private sector organizations (Decter *et al.*, 2007). In these areas, organizational cultural differences (OCD) have been studied either from an individual level or an organizational level. From an individual level, characteristics such as ethno-cultural background differences between individuals' organizational values have been reported to impact those of their organizational culture (Hendel and Kagan, 2012); cultural differences have also been found to have a direct impact on individuals' job satisfaction levels (Froese and Xiao, 2013; Lok and Crawford, 2004); likewise, OCD have been considered to have a negative impact on leadership and ethical decision making (Kuntz *et al.*, 2013); and age or cultural differences have also been reported to affect organizational performance (McNamara *et al.*, 2012). From a purely organizational perspective, M&A literature and strategic alliances literature have mainly focussed on national clashes between private organizations (Vaara *et al.*, 2012) or the effect of cultural differences on organizational performance measured mainly in economic or financial gains (Kroon *et al.*, 2009; Lee, 2000).

However, this prior research has a major limitation. While these preceding studies highlight important factors for the effective integration of M&As that may be affected by OCD (Moorman *et al.*, 1992; Weber, 1996; Lee, 2000; Leisen *et al.*, 2002; Kroon *et al.*, 2009; Vaara *et al.*, 2012), they are focussed on a purely private business-to-business setting. The effect of cultural differences between public-private organizations in research-oriented partnerships has scarcely been empirically examined to date. Also, in the specific setting of UIRs, the effect of cultural differences on the effectiveness of the integration process and relationship performance have barely been explored from a relationship marketing (RM) approach (Jarrat and O'Neill, 2002; Plewa *et al.*, 2005, 2013). Therefore, cross-cultural differences in public-private partnerships constitute an under-researched topic in RM.

This paper furthers and advances our understanding of the effect of organizational cross-cultural differences on relationship performance in innovation-oriented partnerships in two ways: first by studying these linkages in two fundamentally different sectors: private-public cooperations; and second by applying a RM approach to this study. This new approach includes additional outcome measures of relational performance – i.e., satisfaction and relationship sustainability- instead of the traditional financial perspective.

Therefore, in order to address these gaps, the main objective of this paper is to study the effect of OCD in private-public linkages in the context of research-oriented university-industry relationships (UIR hereafter) from a RM perspective. This paper answers previous calls on further understanding the effects of OCD on relationship performance and success (Van Gelder, 2011; Plewa *et al.*, 2005; Plewa and Rao, 2007; Plewa, 2009; Hewett *et al.*, 2002; Sarkar *et al.*, 2001; Müller *et al.*, 2009; Stahl and Voigt, 2004). Thus, the main research questions addressed here are the following ones:

*RQ1*. Do organizational cross-cultural differences prevent the evolvement and success of innovation-oriented private-public sector relationships?

*RQ2*. What are the main factors in OCD that managers working under private-public settings would have to take into account to prevent relationship failure?

Thereby, the main contribution of this paper is the cross-cultural analysis of private-public relationships from the perspective of RM. Hence, this research will inform management seeking to develop successful public-private collaborations by enhancing their understanding of cross-cultural factors underlying relationship success and failure.

This paper is structured as follows. First, the importance of UIR as a relevant research context is addressed and a literature review of the concepts of RM, organizational culture and OCD is presented. Following this, a conceptual model and hypotheses are developed and tested. Next, the methodology is discussed and the main results are presented. The paper concludes with some managerial implications, limitations and guidelines for further research.

## 2. Theoretical background

### *2.1 Relevance of the context of analysis*

*2.1.1 The need for university-industry cooperation*. University-industry linkages have changed considerably during the last few years. In this respect, firms are now under pressure to speed up the process of innovation through the creation and development of new products and technologies (Santoro and Chakrabarti, 2002; Zilian *et al.*, 2014; Monreal-Perez *et al.*, 2012). For its attainment, they are currently looking for new ways of outsourcing R&D activities (Casper, 2013). On the other hand, universities are also on the lookout for additional financial resources, due to factors such as the decrease in government funds, the fact that the potential funding from student fees is limited, and the increase of competition regarding research (Marzo-Navarro *et al.*, 2008). In view of these challenges, the commercialization of knowledge – i.e, the external knowledge exploitation (Lichtenthaler, 2005) – has grown rapidly over the last few years. This commercialization would unquestionably constitute an advantage for both parties – and it would definitely foster the innovation process of private companies, – as well as for this knowledge society. According to RedOtri (2010) – a public Spanish national report on R&D – the investment gained in Spain by R&D activities with organizations and other institutions amounted to 617 million Euros in 2009. The larger increase was reported to be achieved in research activities with third parties that involved financial support for the Spanish university. Notwithstanding the relevance of these collaborations, there has been a large number of failures in technology transfer attempts between these two type of institutions (Lee, 2000) and research carried out in this context from a RM approach has been very limited. (Few notable exceptions include the studies reported by the Knowledge Commercialization Australasia, Plewa *et al.* (2005), Plewa and Quester (2006a, b, 2007, 2008), Plewa and Rao (2007), and Plewa (2009)). Furthermore, despite its growing importance, the technology transfer literature has primarily focussed on one-way transaction rather than relational exchanges. A research stream on UIRs does not exist and a thorough understanding of these relationships is still very scarce. Therefore, UIRs constitute a very good context for the analyses of private-public relationships and their cross-cultural differences.

*2.1.2 RM*. While a comprehensive understanding of RM is beyond the scope of this paper, a general understanding of this concept is considered appropriate for the purpose of this research. RM attempts to involve and integrate customers, suppliers and other infrastructural partners into a firm's developmental and marketing activity (Parvatiyar and Sheth, 1994). "The purpose of RM is, therefore, to enhance marketing productivity by achieving efficiency and effectiveness" (Sheth and Parvatiyar, 1995, p. 400).

RM was first coined by Berry (1983). However, the conceptual background of RM can be traced back to the existence of three major lines of research. The Industrial Marketing and Purchasing Group from the industrial sector (Häkansson and Ford, 2002); the Nordic School of Services (Gummesson, 1998, 2002; Grönroos, 1994) from the services field and the North American and Anglo-Australian School (Sheth and Parvatiyar, 1995; Sheth, 2002; Christopher *et al.*, 1991, 2002). Each stream contributed to the evolution of the RM and all had in common, among other things, the establishment of long-term relationships between buyers and sellers (Grönroos, 2002, 2004), the relevance of understanding the perspectives of both sellers and customers and the need to develop policy actions appropriate to the specific circumstances of the relationship (Payne *et al.*, 1998). RM emerged as a response to the need for differentiation that characterized a market which had evolved from being a mass market to become a much more complex one. This new market has promoted the existence of increasingly demanding and selective customers, mainly due to a number of structural factors such as increased competition – or hyper-competition – globalization, and mega-alliances between nations, deregulations, technological development, economic growth and many other factors. In this context, the creation of an added value constitutes a critical strategic factor.

A lot of research has been carried out in RM for inter-firm relationships. However, in these relationships both parties belong to the same private setting, and thus, are not so likely to collide in the long term (Reynolds, 1986). However, we may have different reasons to clash in a private-public cooperation. Private-public UIRs stem from fundamentally different sectors that may cause a greater level of friction. This paper focusses on collaborative research relationships between the university and the industry. These relationships are characterized by being long-term projects, and therefore a transactional approach was deemed to be inappropriate to suit the context of this study. RM, however, focusses on long-term linkages, and the creation of added values for the customer. Therefore, the application of RM in long-term private-public relationships is deemed crucial, and has been largely ignored.

Moreover, most M&A and R&D literature has also focussed on private business settings, and most transfer and UIR literature that has studied OCD has been centered on the analysis of patent and licensing, or financial gains as outcome measures of UIRs success. The examination of OCD – although highlighted as relevant for UIR – has been mainly under-researched in the literature of RM. Researchers and practitioners now advocate a relationship approach for UIRs (Mora-Valentín *et al.*, 2004; Plewa and Quester, 2007). Hence, the approach taken in this study is based on the analysis of UIRs from a RM approach. This study therefore contributes to further understanding RM strategies in new settings beyond inter-firm relationships.

### *2.2 Organizational cross-cultural differences in private-public UIRs*

Although there are many conceptualizations (cf. Kroebar and Kluckhohn, 1985) and general models of cultural differences (Hofstede *et al.*, 1990; Hofstede, 1991; Kanungo, 2006), organizational culture can be generally understood as the pattern of shared values and beliefs that help individuals understand organizational functioning and thus provides them with norms for behavior in their organizations (Deshpandé and Webster, 1989; Wilson, 2001; Kanungo, 2006).

Following Deshpandé and Webster (1993) there was a clear connection between corporate culture and innovation adoption in an industrial setting (Deshpandé and Webster, 1993). Thus, further studies corroborated the link between corporate culture and technology adoption in business-to-business settings (Kitchell, 1995). Nevertheless, sometimes academic research is not appropriately or even successfully transferred to industry, thus preventing the process of knowledge transfer and innovation (Decter *et al.*, 2007). This may be due to the cross-culture disharmony between private and public sector institutions (Barnes *et al.*, 2002). Hence, organizations and institutions have appeared to differ in terms of values, attitudes, practices and expectations (Plewa *et al.*, 2005; Kanungo, 2006), confirming the concept of OCD as relevant for this study.

However, much of the Marketing literature has not focussed too much on the existence of differences in organizational cultures between the partners involved in the same relationship, as well as the potential effect these differences may have on their success or failure. First, most studies on cultural differences between the parties are based on national or geographical relational differences (Avloniti and Filippaios, 2014), and not organizational ones (Decter *et al.*, 2007). Although there is some research on organizational compatibility between the companies forming alliances or mergers (Evans, 2006; Stahl and Voigt, 2004; Bucklin and Sengupta, 1993, Smith and Barclay, 1997; Anderson and Weitz, 1989), and cultural differences in dyadic relationships between buyers and suppliers (Hewett *et al.*, 2002), the differences in organizational culture have hardly been considered within the context of RM, with very few notable exceptions from a dyadic perspective carried out in Australia (Plewa *et al.*, 2005; Plewa and Rao, 2007; Plewa, 2009). This gap may stem from the fact that inter-firm research has focussed primarily on relationships within the purely private business sector. In these sectors, some authors such as Reynolds (1986) have considered that cultural or social differences are not significant enough to be considered important factors from the point of view of organizational management. However, in collaborations between public entities and private companies, the need for a detailed examination of such differences is evident. The importance of this fact is that, mainly due to the limited cooperation and the different roles that both institutions have developed in society over time, different organizational cultures of both the private company and the public university environment have gradually evolved (Cyert and Goodman, 1997; Santoro and Chakrabarti, 2002). Therefore, potential conflict arises when both parties approach in relationships involving a close link between the two, as in the case of partnerships to conduct knowledge transfer and innovation processes (Tushman and O'Reilly, 2013).

A comprehensive literature review of the general concepts of organizational culture differences has been carried out in order to identify the key dimensions in which universities differ most from industries. Unfortunately, there are very few studies that have researched UIRs and their cultural differences so far – hence the recent call for further research on the effect of cultural difference on relationship outcomes in these collaborations (Hewett *et al.*, 2002; Sarkar *et al.*, 2001; Plewa, 2009) – and there is practically no proven framework to identify the main dimensions in which these cultures differ (Siegel *et al.*, 2003). Therefore, following previous studies (Plewa *et al.*, 2005; Plewa and Rao, 2007; Plewa, 2009) dimensions for examining differences between university-industry cross-organizational cultures are based on related areas from private business-to-business settings (Deshpandé *et al.*, 1993; Siegel *et al.*, 2003), and previous dyadic research (Plewa and Rao, 2007; Plewa, 2009). We also rely on field research, that is, a prior qualitative exploratory study with fifteen in-depth interviews with experts. We asked for barriers to effective UIRs and a list of possible cultural differences gathered from related literature served as a starting frame (these included: time orientation differences, language and communication pattern differences, differences in motivations and drivers, market orientation differences and corporate flexibility differences). This list was shortened according to the in-depth interview results. Results were aligned with prior UIRs literature and models (Plewa *et al.*, 2005; Plewa and Rao, 2007; Plewa, 2009). Thus, the field research provided the three main factors identified as key variables, which were: time orientation (Barnes *et al.*, 2002; Brimble and Doner, 2007; Decter *et al.*, 2007; Siegel *et al.*, 1999, 2003; Davenport *et al.*, 1999) market orientation (Baaken, 2003; Plewa and Rao, 2007) and flexibility (Brimble and Doner, 2007; Plewa *et al.*, 2005; Plewa, 2009; Siegel *et al.*, 2003) differences. After this preliminary qualitative study, a quantitative research study was carried out.

*2.2.1 Time orientation*. Time orientation can be understood as "the totality of the individuals' views of his psychological future and past existing at a given point in time" (Lewin, 1951, p. 75; Merchant *et al.*, 2014, p. 326). Time perspective influences how firms and consumers act, think and behave. It influences values, behaviors and the propensity to take risks (Merchant *et al.*, 2014). Universities and organizations are reported to differ in their timeframe approaches and their perceptions of time (Barnes *et al.*, 2002; Brimble and Doner, 2007; Siegel *et al.*, 2003). In this respect, three notable aspects must be taken into account. First, timeframes appear to be shorter in the industry than in the university. The launch of a new product on the market at a given point in time is a key factor for business success, and that is why organizations normally work with short-term perspectives in their R&D activities (Santoro, 2000). Universities, however, have a longer temporal timeframe (Cyert and Goodman, 1997) since, in many cases, they are more focussed on the quality and the publication opportunities of their research than by the market needs themselves. Second, it is relevant to emphasize the importance of deadlines. Punctuality or the adherence to deadlines has also been reported as a fundamental facet of time orientation difference (Plewa *et al.*, 2005). Failure of academics to meet the set deadlines may be due to the variety of tasks that faculty members perform simultaneously, as well as the fact that the prioritization of these tasks is partially beyond their control. Third, another aspect to be considered in relation to the temporal orientation difference is the rotation of employees, since this generates the need to finish the projects as soon as possible. In this sense, the high frequency of employee turnover in some multinational companies should be seen as a potential barrier to the continuation and evolution of the university-industry relationship.

*2.2.2 Market orientation*. Market orientation is one of the most highlighted cultural differences described in the literature of university-industry cooperations (Fisher and Klein, 2003). Market orientation could be defined as the application of the marketing concept at an organizational level. Following Jaworski and Kohli (1993), the market orientation of an organization reflects the degree to which the marketing concept is integrated into the business philosophy of a company. The role of market orientation as a means to achieve a sustainable competitive advantage has widely been recognized in the marketing literature (Slater and Narver, 1995; Barroso *et al.*, 2005; Elg, 2008). Thus, companies that adopt a market orientation strategy get better business results (Kirca *et al.*, 2005). Companies that have managed to achieve better business results through market orientation, have primarily based their strategies on the creation of a culture or an organizational environment that focusses on reinforcing a philosophy of customer-oriented business marketing (Harris *et al.*, 2005). However, while companies have always been very market oriented, and therefore, interested in applied research, universities seem to have opted for a more theoretical knowledge, and have been primarily focussed on basic research. It has also been argued that the fact that some public universities may not consider companies as clients can be a symptom of their lack of market orientation.

*2.2.3 Corporate flexibility*. Corporate flexibility can be defined as "the degree to which a business unit is adaptable in administrative relations and the authority is vested in situational expertise. A firm exhibiting low flexibility has rigid administrative relations and strictly adheres to bureaucratic practices" (Bhardwaj and Momaya, 2006, p. 39). An entrepreneurial firm provides innovation by practicing flexibility and responsiveness (Guth and Ginsberg, 1990). Moreover, flexibility in organization structure has been reported to contribute positively toward product success (Saleh and Wang, 1993). Likewise, a flexible structure promotes communication across the functional boundaries (Bhardwaj and Momaya, 2006).

A high level of organizational bureaucracy and corporate inflexibility can be detrimental to any relationship, causing its discontinuation. University environment does not require the same degree of flexibility or adaptability to change that is necessary for business survival in today's competitive environment. Thus, while the incompatibility of structures has been linked to a mismatch between partners in alliances and mergers from the private sector (Jordan, 2004), an even greater disparity seems to exist in relationships characterized by a high cultural difference, as in the case of university-business partnerships (Rampersad *et al.*, 2003).

### *2.3 Integration*

Much of the organizational literature has examined the main reasons why organizations build inter-organizational collaborations. In a comprehensive summary of this literature, Oliver (1990) identified six key generalizable factors that affect the formation of cooperations: necessity, asymmetry, reciprocity, efficiency, stability and legitimacy. Each of these causes, therefore, can be pivotal in the formation of such ties. Also within this literature, Nevin (1995), among other researchers, assumes that the formation of relationships is based primarily on reciprocity. The motivations for such reciprocity emphasize cooperation, collaboration, coordination and integration between the partners as alternative elements to domination or imposition of power, which could make up the control mechanisms or key factors in an asymmetrical relationship. This view is in line with RM postulates mentioned above. RM seeks to develop close interactions with certain customers, suppliers and competitors, to create superior value through efforts of cooperation and collaboration (Sheth and Parvatiyar, 1995). Therefore, while the contractual approach might be used in order to minimize transaction costs and reduce opportunism, which does not necessarily fosters cooperation between the parties, the RM approach is based on an alternative proposal where the maximization of the mutual relational value between the parties is based on trust, balance, cooperation and integration, as well as in the mutual desire that the relationship persists over time (Gosh and John, 1999; San Martin *et al.*, 2000).

Integration can be conceptualized as the symbiotic interrelationship between two or more entities that result in the production of net benefits for both parties which exceed the sum of the net benefits that both sides would produce in a non-symbiotic relationship (Souder and Chakrabarti, 1978). From this optic, many researches have demonstrated both qualitatively and quantitatively the influence that integration has on the success of research projects (Souder and Chakrabarti, 1978; Lamore *et al.*, 2013). Research projects between different functional groups -such as public-private UIRs- can give rise to a large number of conflicts if attention is not paid to the above OCD. In such circumstances, an effective integration between the two relational parties can be considered a vital and necessary element to finally obtain the initial mutual objectives or benefits. Thus, integration is considered to be a key strategic factor for UIRs success.

## 3. Hypotheses development

Previous research has already shown that companies may differ in their organizational cultures in the same sector (Wiewiora *et al.*, 2014). However, it has been noted that organizational cross-cultural differences are strongest when they cross different sectors. Therefore, the evaluation of OCD in relationships between private entities and public academic institutions offers a suitable context for analysis.

### *3.1 Relationship antecedents: organizational culture differences*

Universities and organizations differ markedly in their approach to their timeframes (Decter *et al.*, 2007). Firms are pressurized to make strategic decisions, in this sense, they tend to seek short-term results to meet the competitive needs of the market. Universities, however, act on a longer time-span since they may be more worried about basic research than market needs (Plewa, 2009). In fact, some efforts to develop joint initiatives have resulted in ambitious projects, which main consequence has been a temporary delay in the performance of the proposed research (Brimble and Doner, 2007). Thus, the following hypothesis is proposed:

*H1*. Differences in time orientation negatively influences integration in UIR.

Market orientation has been conceptualized from both behavioral and cultural perspectives (Homburg and Pflesser, 2000). Following Kirca *et al.* (2005), the behavioral perspective focusses on organizational activities that are linked to the generation and dissemination of market intelligence and the responsiveness to it (e.g. Jaworski and Kohli, 1993). The cultural perspective focusses on organizational norms and values that encourage behaviors that are consistent with market orientation (Deshpandé *et al.*, 1993; Narver and Slater, 1990). From both perspectives, the marketing literature has extensively recognized the role of market orientation as a source to achieve a sustainable competitive advantage (Narver and Slater, 1990; Jaworski and Kohli, 1993; Matsuno and Mentzer, 2000). Private sector companies, as highlighted frequently in the marketing literature, are highly driven by market orientation (Deshpandé, 1999; Deshpandé and Farelly, 1998). In this sense, they tend to create a superior value for the customer and meet customer needs (Kirca *et al.*, 2005). It has also been proposed in private business settings, that a firm's strategic choice regarding market orientation may influence the relationship and integration between the parties, and how this relationship may affect organizational success (Lamore *et al.*, 2013). However, universities and private sectors organizations do not seem to convey the same approach to market orientation. While private companies are customer driven, and seek to maximize profits by delighting customer needs, public universities receive most of their funding by the government, and therefore do not seem to be so focussed on creating customer values. Additionally, prior research has identified that universities and organizations adopt different views of the value creation for customers or partners

(Plewa *et al.*, 2005), which is likely to create friction in UIRs setting. Therefore, the following hypothesis is established:

*H2.* Market orientation difference negatively influences integration.

The cross-cultural disparity in corporate flexibility can cause a great discomfort between partners working under the same project (Brimble and Doner, 2007; Siegel *et al.*, 2003).

There are many perspectives that can be taken to define flexibility (Long, 2001), most of them having central elements in common, such as a certain degree of employee freedom or the restriction of rigid control methods and bureaucracy in an organization (Barrett and Weinstein, 1998). Bureaucracy appears to be linked to the control, by lawyers or third parties, of negotiation processes and the relationship in general. In addition, bureaucracy appears to result from a functional organizational structure (Barroso and Martín, 1999), which is prevalent in universities (Plewa and Rao, 2007). The RM literature has emphasized the importance of cross-functional orientation processes rather than functional corporate structures for successful relationships (Gordon, 1998). While functional corporate structures provide relational barriers, restricting the organizational relationships, cross-functional structures promote interaction and relational fluidity.

Technology transfer offices and universities have been reported to differ in terms of flexibility with industrial organizations (Mora-Valentín, 2000). In this sense, universities have been regarded as having a higher level of bureaucratic culture (Siegel *et al.*, 2003). However, so far, with a few exceptions (Plewa and Rao, 2007; Plewa, 2009), there is practically no literature that has empirically studied the effects of corporate flexibility differences between private and public institutions on relationship outcomes. In line with these postulates, the following hypothesis is stated:

*H3.* Corporate flexibility differences negatively influence integration.

### *3.1 Relationship outcomes*

Based on previous studies and in line with the RM perspective proposed in this paper, satisfaction with the relationship and sustainable relationship have been taken as relevant relationship outcomes.

Long-term sustainable relationship can be defined as the intention to renew the relationship with the supplier for a long period of time. In the case of UIRs, it can be understood as a relationship renewal for a second or subsequent research project of collaborations between the university and the industry after the first research project between the two relational parties is over. Knowing a priori a customer's intention to form long-term sustainable linkages is extremely important when determining the long-term business strategy of a firm. This is especially relevant for companies in the service sector, such as universities (Patterson *et al.*, 1997), where on the one hand products are characterized for being intangible and subjectively assessed, and on the other hand, contracts are normally agreed on specific projects timeframes and not with an indefinite continuity (Gray *et al.*, 2001).

Satisfaction is a complex construct and it falls out of the scope of this paper to provide a comprehensive approach. Nevertheless, the following lines provide a conceptualization of this variable to better understand the approach taken in this paper regarding satisfaction with the relationship. Customer satisfaction with a service provider, in this case the university, can be defined as a customer's related fulfillment response regarding a consumption experience with a product or service (Oliver, 1980). According to many Marketing postulates, the relevance of this concept is mainly based on the fact that business profitability is a direct consequence of the achievement of customer's satisfaction (Churchill and Suprenant, 1982). Notwithstanding its significance, there is a lack of general consensus regarding its conceptualization, delimitation and measurement (Giese and Cote, 2000).

In this respect, customer satisfaction has been generally conceptualized as either an emotional or a cognitive response, although most recent research has attributed an emotional response to it (Giese and Cote, 2000). This response has been traditionally based on the disconfirmation paradigm (Oliver, 1980, 2010), as a feeling coming from a comparison of customer's expectations with a product or service and the perceived performance of that product or service (Yi, 1990). Hence, whenever performance exceeds expectations, satisfaction would be increased. At this point, it is also important to clearly distinguish between transaction-specific satisfaction and overall satisfaction, as well as between economic and non-economic satisfaction. Prior to Geyskens *et al.*'s (1999) proposals, and mainly for relationships between channel members, it was generally understood that satisfaction was a positive affective state resulting from the appraisal of all aspects of a firm's working relationship with another firm (Gaski and Nevin, 1985; Frazier *et al.*, 1989). In line with this approach, satisfaction was composed of both economic and non-economic components. Economic satisfaction referred to the economic reward (e.g. price discounts) that was obtained from the relationship with the exchange partner. Non-economic satisfaction referred to the positive affective response to non-economic psychological aspects of any relationship, such as respectfulness, or goodwill (Geyskens *et al.*, 1999). Geyskens and Steenkamp (2000) proposed that these two facets of satisfaction should be separated, since the proportion of economic and non-economic items that had been included in the rating scales proposed to measure satisfaction varied considerably in the different research available, and therefore, it was not possible to make an effective comparison across previous studies.

In this regard, and in line with RM postulates, for the purpose of this research, satisfaction will be considered as a non-economic factor. Regarding the aforementioned distinction between transaction specific and relational – or overall – satisfaction, researchers have traditionally opted for either one of these concepts of satisfaction, although it is worth mentioning that some researchers (e.g. Tse and Wilton, 1988; Szymanski and Henard, 2001) have stated that only overall satisfaction can properly measure this construct. Overall satisfaction has been understood as a global assessment based on the buying experience of multiple encounters, whereas transaction-specific satisfaction is more related with a feeling of satisfaction or dissatisfaction regarding a specific transaction or service (Anderson *et al.*, 1994). Following the objectives presented here, and having into account that university-industry collaborations form normally a part of long-term projects, for the purpose of this research satisfaction with the relationship has been conceptualized as an overall uni-dimensional construct based on non-economic components.

As conceptualized earlier on, integration has been proposed in previous exploratory studies within the context of the UIR as one of the explanatory variables more related with satisfaction (Souder and Chakrabarti, 1978; Mora-Valentín *et al.*, 2004), and long-term sustainable relationship (Plewa and Quester, 2006a, b; Lamore *et al.*, 2013). Equally, it has also been proposed as a key variable in the literature related to strategic alliances (Cyert and Goodman, 1997; Child and Faulkner, 1998; Van de Ven and Walker, 1984; Luo, 2008). The empirical study of this variable in this specific setting has practically been ignored.

Therefore, the estimation of this causal path in this paper is a new contribution to the small existing literature which proposes integration as a key strategic factor for the application of an appropriate collaborative relationship. The following hypotheses are then purposed:

*H4.* Integration positively influences satisfaction.

*H5.* Integration positively influences sustainable relationship.

Overall, Figure 1 presents different hypotheses and our conceptual model, adapted from Plewa *et al.* (2005), Plewa and Rao (2007) and Plewa (2009).

## 4. Empirical study

### *4.1 Operationalization of constructs and measurement scales*

The measures used in this study were derived from existing scales that had proved to have sound psychometric properties in previous studies. These measures were slightly modified to be adapted to the specific context of university-industry links. The final scales were all seven-point Likert-type ones, anchored by completely disagree (1) to completely agree (7). Time orientation differences were measured based on the scale reported by Parkhe's (1991). This scale was adapted to the specific context and was used to determine the extent to which the respondents adhere to timeframes, meet deadlines and conform to punctuality. Corporate flexibility was measured following Kitchell (1995), and was employed to assess the degree to which partners are flexible, adaptable to changes, and welcome ideas. Market orientation was operationalized using private sector measurements (Jaworski and Kohli, 1993; Kholi and Jaworski, 1990; Narver and Slater, 1990) and adapting them to the specific context. It tapped the levels of interaction, dissemination of ideas, coordination and understanding and caring for customer values.

Regarding satisfaction with the relationship, the scale adapted for this study was based on the measure reported by Oliver (1980, 1981) and Westbrook and Oliver (1981). Integration was based on the scale proposed by Dwyer and Oh (1987). This four-item seven-point Likert scale measured the level of respondents' integration with the university research group. Sustainable relationship was weighted on a seven item 0-100 percent Juster scale, and measured the likelihood that the relationship of collaboration would be sustained at the end of the present contract (Seymor and Brennan, 1994). All the items were randomized in the final questionnaire to minimize the impact of order bias.

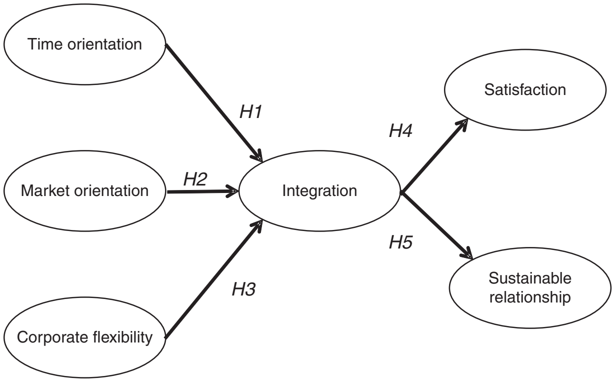



**Figure 1.**
Conceptual model

*4.2 Data collection and sampling*

The target population for this study consisted of national firms operating all over Spain that had recently been, or were at the moment of the study, engaged in research and development projects of collaboration with a major public Spanish university in Madrid. An initial list of companies was provided by the major public university and served as a sampling frame. There was no alternative sampling frame available because there is no public registration database of firms that collaborate with universities in Spain. The complete list containing about 1,000 collaborating agreements was assessed and shortened following certain criteria, namely, the time-span period was limited to collaborations that were current or that had not finished prior to the last two years, since a larger time-span period could introduce bias in the sample; and the purpose of the collaboration was of a research nature. Sponsorships and other forms of collaborations were excluded, since the aim was not the creation of knowledge or innovation. Following these criteria, the final list contained 370 collaboration agreements. To examine whether the final sample was representative of the population under study, – besides confidence interval tests (see Table I) – the selected firm profiles were compared to descriptions of industries that collaborate with universities in research projects provided by previous studies (Barge-Gil *et al.*, 2007). Overall, the profile of the selected companies matched well with the overall UIR in terms of project duration, firm characteristics and firm size.

Subsequently, the study followed a two-step approach based on an exploratory qualitative investigation to determine the main factors that could influence these relationships in terms of cross-cultural differences, as well as to purify the scales in this context, and a quantitative study supported with the use of structural equation model. In the exploratory investigation, a critical validation by a group of 15 experts was conducted in order to review and edit the items, leading to the final questionnaire developed for the self-administered electronic survey, using Le Sphinx – a statistics software for online surveys – to gather the data. Following a pre-test conducted with managers similar in profile to the target respondents, in April 2010 the final questionnaire was e-mailed to 370 ID managers of national firms on the sampling frame operating all over Spain.

To account for the impact of the low response rate normally associated with electronic surveys, respondents were offered a summary of the results to encourage their participation. A letter from the R&D Vice-Chancellor of the university was also included, encouraging cooperation and reiterating that individual responses would be strictly confidential. Surveys were returned directly to the researcher to emphasize the academic control of the information. The response rate for this initial phase was 18 percent. Following Dillman's (2007) TDM procedures, follow-up surveys were sent to

| | |
|---|---|
| Initial sample | 370 R&D collaboration agreements between public universities and private companies, that were current between January 2007-December 2010 |
| Final sample | 183 valid questionnaires |
| Response rate | 49.5% |
| Survey type | Electronic survey (self-administered survey) |
| Error margin | 5.16% for the sample/simple random sampling |
| Confidence interval | 95% confidence interval, two-tailed, ($p = q = 50\%$) |
| Fieldwork | March-May 2010 |

**Table I.** Survey data specification

those respondents who had not returned their surveys within a three-week period, thereby increasing the response rate to 25 percent. Two weeks after the second mailing, a reminder was sent to respondents asking them to complete the questionnaire. After extensive mail and telephone follow-up, an effective response rate of 49 percent was accomplished with a total of 183 completed questionnaires valid for use in this study. It was considered a very satisfactory rate for this type of survey of business people where response rate below 15 percent becomes questionable (Malhotra, 1993, 2004). All 183 questionnaires were analyzed.

In order to avoid non-response bias, possible differences in the means obtained for each one of the factors proposed in this study were analyzed between early and late respondents. To this end, the Levene's-test and the independent samples *t*-test were conducted. Results showed no statistical significant differences in the mean scores. Having considered non-response bias in sample quality, and assuming non-response is not the only source of possible sample bias (Blair and Zinkhan, 2006), coverage bias and selection bias were also checked (Blair and Zinkhan, 2006). Table II shows the survey data specifications. Common method bias was also tested. Common methods variance or bias is variance that arises from the method of measurement rather than by what is being measured (Siemsen *et al.*, 2010) and is regarded as a leading cause of systematic measurement error (Johnson *et al.*, 2011). Common method bias can arise from many sources, such as the type of scale, the general context, response format, social desirability, acquiescence, leniency effects, desirability or halo effects (Podsakoff *et al.*, 2003). Although there are different test that can be applied to detect this bias, following Podsakoff *et al.* (2003) Harman's one factor test is one of the most widely used, and therefore was the one selected for this analysis. Therefore, all items were loaded into an exploratory factor analysis with unrotated factor solutions, showing a single factor explaining less than 50 percent of the total variance (34.3 percent). Thus, it could be concluded that common method bias was not a major problem. All these previous steps suggested that the final sample was adequate for further analysis.

## 5. Results

### *5.1 Data analysis*

Structural equation modeling (SEM) with EQS 5.0 was used as the main technique for data analysis. Numerous multivariate methods and techniques are used in the field of social sciences. However, structural models permit the interplay of variables among different subsets, allowing the estimation of multiple linear relationships between different latent variables by means of a correlation or covariance matrix (Hair *et al.*, 1999). Another advantage of SEM is the ability to incorporate latent constructs and

| | Cronbach's $\alpha$ | Composite reliability | Average variance extracted (AVE) | Highest shared variance |
|---|---|---|---|---|
| Satisfaction | 0.936 | 0.952 | 0.833 | 0.579 |
| Integration | 0.899 | 0.9 | 0.75 | 0.286 |
| Time orientation | 0.898 | 0.906 | 0.763 | 0.304 |
| Market orientation | 0.91 | 0.94 | 0.82 | 0.307 |
| Flexibility | 0.85 | 0.924 | 0.754 | 0.21 |

**Table II.** Reliability and validity scores observable or manifest variables in a single model. Thus, these models integrate a number of different but interdependent multiple regressions equations that can perform as dependent and independent variables at the same time (Byrne, 2005). Furthermore, as opposed to other multivariate techniques where it is assumed that there are no measurement errors in the variables, these models use multiple indicators when measuring a latent construct, allowing to calculate or specify the measurement error in the observable variables. Therefore, SEM was considered to be the most useful method for the study of multiple linear causal inter-relationships, such as those proposed in the theoretical model of this study.

The procedure used to evaluate the reliability, dimensionality and validity of the scales was the following. First, descriptive statistics were analyzed to determine the distribution of the data and consequently select the most appropriate estimation methods. Then, exploratory factor analyses using principal components to check the dimensionality of the constructs were carried out and finally a confirmatory factor analysis to assess the goodness of fit of the measurement model, reliability and validity (see Table II), and the overall model fit were developed. Construct reliability was assessed by the Cronbach's $\alpha$ scores and composite reliability coefficients (Byrne, 2005). The Cronbach's $\alpha$ and composite reliability scores for the different scales were all above 0.7 (see Table AII for factor loadings), which indicates a very satisfactory internal consistency and reliability. Construct validity was calculated by means of the average variance extracted (AVE), with all coefficients over the recommended cut-off value of 0.5, indicating that the final items of each scale contained less than 50 percent error variance and converged on only one construct (Byrne, 2005), confirming convergent validity for all constructs (see also Table AII).

Discriminant validity was also tested in two different ways (see Tables II and III). First, by comparing the square root of the AVE with the correlations among constructs (Dhanaraj *et al.*, 2004; Hair *et al.*, 1999), and second by comparing the AVE with the shared variances between the constructs (Byrne, 2006). Table III shows the correlation coefficients in the off-diagonal elements of the matrix, and the square root of the AVE along the diagonal. Discriminant validity is confirmed when the diagonal elements (AVE) are greater than the off-diagonal elements (correlations). As it can be seen in Table III, all correlations among constructs were below AVE coefficients (Dhanaraj *et al.*, 2004) and also below 0.9 (Luque-Martínez, 2000), demonstrating an adequate discriminant validity. Alternatively, all shared variance coefficients (Table II) were lower than the corresponding AVE scores (Hair *et al.*, 1999), confirming that each construct shared more variance with its own measures than with the other constructs in the model, and therefore assessing a good level of discriminant validity. Finally, since data

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| (1) Time orientation | *0.88* | | | | | |
| (2) Market orientation | −0.085 | *0.90* | | | | |
| (3) Flexibility | 0.551 | −0.554 | *0.863* | | | |
| (4) Integration | −0.535 | −0.081 | −0.516 | *0.866* | | |
| (5) Satisfaction | −0.550 | −0.024 | −0.558 | 0.503 | *0.913* | |
| (6) Sustainable relationship | −0.537 | −0.012 | −0.551 | 0.523 | 0.761 | *0.935* |

**Notes:** The square root of the average variance extracted (AVE) is shown in the main diagonal of the cross-table. The rest of coefficients are the correlations among constructs

**Table III.** Discriminant validity and correlation table was found to be non-normal, (Mardia and Jupp, 2000) with $z$-values over 5.0 (Byrne, 2006), the method of maximum likelihood was not considered to be appropriate. EQS offers the possibility of using a robust version of maximum likelihood for non-normality, as well as the Satorra-Bentler $\chi^2$. Hence, these were the methods of analyses chosen to test the model.

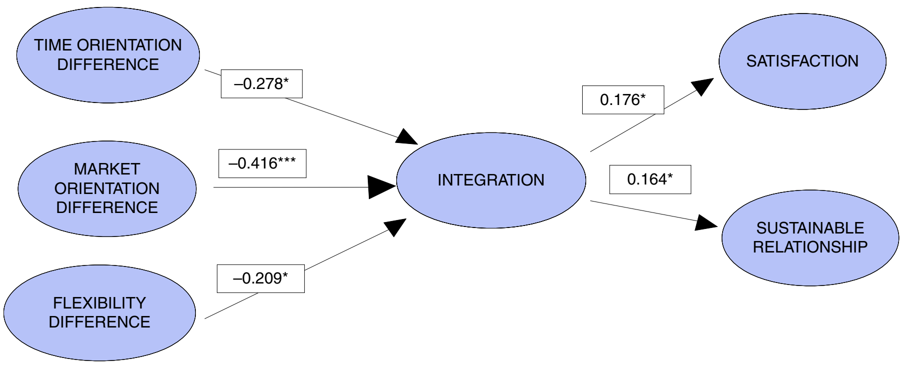
### *5.2 Results*

The conceptual model was tested with EQS v.5.0. As shown in Table III, the robust goodness of fit statistics show very satisfactory values. Goodness of fit indicators, namely, normed fit index, non-normed fit index, comparative fit index and incremental fit index exceed the cut-off values that are considered as acceptable (0.9), confirming that the proposed model fitted the data satisfactorily. Equally, the $\chi^2$ adjusted by the degrees of freedom falls within the recommended range (1-3), showing a good fit (Table IV). Moreover, the root mean-square error of approximation was also used to test parsimony, showing a value of 0.007, quite below the required 0.05. Finally, since the diagnosis cannot be completed without analyzing the standardized residuals matrix (see Table AI), analyses showed that 70 percent of the residues are contained within the range −0.1 and +0.1, and the maximum number of residues outside the range ±0.258 does not exceed 5 percent (Byrne, 2006). On the basis of all these indexes, it can be ascertained that this model has a very good fit to the data and therefore the results can be interpreted.

The results of path analyses with standardized estimates are presented in Figure 2 and Table V. As it can be observed in the table, all paths were found to be significant, which led to the acceptance of all five hypotheses. Quite as expected, time orientation, market orientation and corporate flexibility differences were found to negatively influence integration, therefore accepting *H1*, *H2* and *H3*.

**Table IV.** Goodness of fit statistics

| Robust fit S-B $\chi^2$ | $\chi^2$/df | RMSEA | NFI | NNFI | CFI | IFI | GFI | AGFI |
|---|---|---|---|---|---|---|---|---|
| 2.346.165 df: 214 $p$: 0.0451 | 1.056 | 0.007 | 0.921 | 0.925 | 0.931 | 0.934 | na | na |




**Notes:** $^*p<0.05$; $^{***}p<0.001$

**Figure 2.** Results of hypothesis testing

However, while market orientation difference appeared to have a significant negative impact on integration ($\beta = -0.416$***, $p < 0.001$), time orientation ($\beta = -0.278$*, $p < 0.05$) and corporate flexibility ($\beta = -0.209$*, $p < 0.05$) showed a comparatively weaker effect. Integration was also found to have a positive direct effect on satisfaction with the relationship ($\beta = 0.176$*, $p < 0.05$), confirming *H4*. Likewise, integration was found to be a positive predictor of sustainable relationship ($\beta = 0.164$*, $p < 0.05$), which led to the acceptance of *H5*.

## 6. Conclusions and managerial implications

The main objective of this paper was to examine the impact of OCDs on the relationship of innovation-oriented collaborations between public university research groups and private sector institutions. Thus, the main research questions addressed in this paper were "do organizational cross-cultural differences prevent the evolvement and success of innovation-oriented relationships? What are the main factors in OCD that managers working under this setting would have to take into account to prevent relationship failure?"

Therefore, this study contributes to the existing literature in several ways. First, the concept of OCD has scarcely been examined in private-public UIRs context to date from a RM perspective. Other contexts show a lack of consensus regarding the influence of OCD on different outcomes. Cultural differences have been described to have a negative impact on shareholder gains (Plewa and Rao, 2007; Chatterjee *et al.*, 1992), and satisfaction levels (Froese and Xiao, 2013; Lok and Crawford, 2004), while not influencing financial performance of a merger (Plewa and Rao, 2007; Weber, 1996).

However, our results support the idea that market orientation, time orientation and, to a lesser extent, corporate flexibility differences are key elements that can – if not managed properly – negatively influence the process of integration between partners working in different cross-cultural sectors, and thus have a negative impact on relationship continuation.

First, and in line with previous research (Fisher and Klein, 2003; Barroso *et al.*, 2005; Plewa, 2009; Plewa and Quester, 2006a), this study confirms market orientation difference as one of the most important variables that can prevent the correct flow of communication, information and therefore, knowledge creation and innovation both in the short (satisfaction) and long (sustainable relationship) terms. Market orientation was operationalized as tapping interaction, dissemination of ideas, coordination and understanding and caring for customer values. The application in this setting allows us

| Hypotheses | Hypothesized path | Standardized effects | Critical ratio | Empirical evidence |
|---|---|---|---|---|
| *H1* | Time orientation difference → integration | −0.278* | −1.969 | Yes |
| *H2* | Market orientation difference → integration | −0.416*** | −3.679 | Yes |
| *H3* | Corporate flexibility difference → integration | −0.209* | −2.055 | Yes |
| *H4* | Integration → satisfacción | 0.176* | 2.382 | Yes |
| *H5* | Integration → sustainable relationship | 0.164* | 2.064 | Yes |

**Notes:** *$p < 0.05$; ***$p < 0.001$

**Table V.** Results of hypotheses testing and standardized estimates to hence, market orientation negative effects could be counterbalanced if both parties work at creating more value for their partners. Partners may encourage a better understanding of their respective market needs, and endeavor to meet each other's requirements as the relationship evolves.

Time orientation difference was also found to have a negative impact on the relationship (Decter *et al.*, 2007; Santoro, 2000; Plewa *et al.*, 2005), both through the direct negative effects on integration, and the indirect effects on satisfaction with the relationship and sustainable relationship. In this sense, punctuality and the adherence to timeframes for both parties should be considered critical for the collaborative project's success.

Surprisingly, the impact of corporate flexibility – although still significant – was much weaker than expected. This view supports previous studies where learning and flexibility increased performance in innovation for university-industry cooperations (Harrison *et al.*, 2008). However, the weaker effect found may suggests that managers and university faculty members may find it easier to adapt to flexibility requirements than to time or market orientation differences. Managerial teams are responsible for the level of bureaucracy and flexibility that is expected in these relationships. Agreements can be reached and implemented more easily for corporate flexibility than for market orientation, for instance, since most flexibility requirements are more objectively assessed. Therefore, managers should primarily focus on improving market orientation differences and work toward resolving time orientation differences. The level of bureaucracy and corporate flexibility, although still significant and important, should be regarded as less determinant.

Another contribution is the examination of the predictive effect of integration for relationship success. While prior studies have shown that integration might support short-term relationships, processes and outcomes (Plewa, 2009), it has also been suggested not to be of any direct consequence for long-term planning in industrial channel relationships (Anderson and Weitz, 1989; Simon *et al.*, 2014). Our results, however, further this view. Integration has been shown to significantly affect both short-term satisfaction with the relationship and long-term sustainable relationship. This may be due to the fact that the capability of integration to predict long-term sustainable relationships is highly context specific (Yu *et al.*, 2013). Therefore, more research in different contexts is needed to confirm these findings. Integration was also found to moderate the negative effect between cultural differences and relationship performance. This highlights the importance of integration in this setting as a key element in order to attain successful agreements of collaboration between universities and private organizations, both in the short and the long terms. Integration facilitates the communication and therefore, the process of knowledge transfer and innovation (Lee, 2000).

The issue of what indicators are most appropriate in order to measure the performance of universities-industry cooperation in knowledge transfer activities and innovation creation remains relatively under-investigated (Rossi and Rosli, 2014). UIRs have mainly been studied from a technological point of view, and most outcome measures have concentrated on financial gains, shareholders gains or patents and licenses as outcomes measures of success (Siegel *et al.*, 2003). This narrow range of indicators have limited the ability of universities to accurately represent their knowledge transfer and innovation performance (Rossi and Rosli, 2014). Therefore, the use of MR outcome measures of success in UIRs is another contribution of this paper, which facilitates a further understanding of the knowledge transfer and innovation success processes.

*6.1 Summary of the main managerial implications*

(1) Punctuality and the adherence to timeframes for both parties should be considered critical elements for the collaborative project's success. Therefore, managers should establish the appropriate mechanisms to guarantee deadlines are met. These mechanisms may include the assessment of the level of involvement necessary to meet timeframes and forecast resource allocations accordingly (both time and human capital); elaboration of mutual work-plans; periodic reports to ensure timeframes and tasks are met adequately.

(2) Members of the research team must make an effort to understand the objectives and expectations of the business group, with the aim of trying to create superior value for the company and its customers and vice-versa. This may include regular meetings with management teams to match partner's goals, ensure there are no misunderstandings, and check expectations are achieved according to scheduled.

(3) Managers of the research team should also try to avoid rigid systems of bureaucracy. They should work toward trying to reduce the load of bureaucratic procedures, or look for alternative ways to eliminate unnecessary administrative requirements. This would allow the parties to work with greater efficiency and productivity, as well as save the costs associated with high levels of administrative tasks.

(4) The importance of integration between the parties in this setting as a key element in order to attain successful agreements of collaboration between universities and private organizations is vital. Hence, managers should try to do their best to guarantee that both parties have a positive relationship. Managers should discuss with their teams on a regular and continuous basis to detect and avoid any possible conflict between the parties involved, as well as to ensure that mutual expectations are dealt with, and the level of understanding is adequate. Achieving a proper level of integration would unquestionably favor both parties. Through a close contact and follow up, university research managers can discuss and improve the possible intentions regarding renewal and long-term sustainability of the relationship with future projects. For company managers, given the low rate of employee turnover that characterizes the university workforce, businesses are given the opportunity to develop and sustain successive collaborative projects with the same research team in future agreements. The main advantage is that – once the necessary time and resources needed for a successful integration of both parties have been allocated to the relationship, – the company reduces the costs commonly associated with the creation of new work teams in future projects.

(5) Therefore it is crucial that both managers promote group communication mechanisms that facilitate and promote integration between the relational parties, such as formal events or informal team meetings.

(6) Also, given the structural weaknesses associated with the innovation market (uncertainty, risk, opportunism and indivisibility of service) an appropriate level of integration may allow university researchers foster a climate of trust that enables companies to be more oriented toward the research and innovation process itself, and less toward secrecy and patenting the results derived from the projects.

(7) In general, managers should primarily focus on improving market orientation differences and work toward resolving time orientation differences. The level of bureaucracy and corporate flexibility, although still significant and important, should be regarded as less determinant.

In short, by analyzing effects that OCDs have in these relationships, information generated from this research could help cross-cultural management teams to establish successful knowledge transfer collaborations and contribute to foster the creation of innovations.

Finally, results derived from this study are not limited to public and private sector UIRs, since they may also apply to other cross-cultural private-public organizational settings. These can include, for instance, partnerships between public hospitals and private companies, private foundations or public governmental institutions agreements with private organizations.

## 7. Limitations and future research

The added value of this paper relies on the original data set, high response rates and the idea of studying cross-cultural differences in private-public sector relationships – in this case university-industries relationships – from a relational marketing perspective. However, these results only offer some insight into these private-public collaborations, and future research should verify these findings.

The range of relationship variables and organizational difference factors included should also be broadened and further analyzed. Moreover, supplementary cross-cultural factors in private-public linkages may be included as antecedents, mediators or moderators.

Furthermore, given the recent call for UIRs' study (Santoro and Chakrabarti, 2002; Plewa and Quester, 2007), and the importance that these linkages have for the development of the new knowledge society, more research is unquestionably necessary in this setting.

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## Further reading

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## Appendix

**Table AI.** Standardized residual matrix

```
 ----------------------------------------
 !         !
140-         -
 !    *    !
 !    *    !
 !    *    !
 !    * *    !   RANGO  FREC PORCENT
105-    * *     -
 !    * *    ! 1 -0.5 - --  0 .00%
 !    * *    ! 2 -0.4 - -0.5  0 .00%
 !    * *    ! 3 -0.3 - -0.4  0 .00%
 !    * *    ! 4 -0.2 - -0.3  0 .00%
70-    * *    - 5 -0.1 - -0.2  6 2.17%
 !    * *    ! 6 0.0 - -0.1 115 41.67%
 !    * *    ! 7 0.1 - 0.0 136 49.28%
 !    * *    ! 8 0.2 - 0.1 17 6.16%
 !    * *    ! 9 0.3 - 0.2  2 .72%
35-    * *    - A 0.4 - 0.3  0 .00%
 !    * *    ! B 0.5 - 0.4  0 .00%
 !    * *    ! C  ++ - 0.5  0 .00%
 !    * * *    ! --------------------------------
 !   * * * *    !   TOTAL  276 100.00%
 ----------------------------------------
 1 2 3 4 5 6 7 8 9 A B C
```

**Note:** Each "*" represents seven residuals

| | Factor loadings | $\alpha$ | Composite reliability | AVE |
|---|---|---|---|---|
| *Market orientation (disemination, intelligence generation, and response design)* | | 0.91 | 0.949 | 0.829 |
| We meet with our customers at least once a year to find out what products or services they will need in the future | 0.986 | | | |
| Individuals from the research group interact directly with us to learn how to serve our customers better | 0.940 | | | |
| Data on customer satisfaction is disseminated at all levels in this firm on a regular basis | 0.845 | | | |
| The activities of all staff in this business unit are well coordinated | 0.864 | | | |
| *Time orientation* | | 0.89 | 0.906 | 0.76 |
| Punctuality is important | 0.799 | | | |
| Time is money | 0.893 | | | |
| Deadlines are important | 0.923 | | | |
| *Corporate flexibility* | | 0.85 | 0.924 | 0.754 |
| The research group can be described as flexible and continually adapting to change | 0.789 | | | |
| New ideas are always being tried out here | 0.819 | | | |
| Top managers in the research group can be described as set in their ways (reverse scored) | 0.897 | | | |
| The research group is always moving toward improved ways of doing things | 0.959 | | | |
| *Integration* | | 0.899 | 0.900 | 0.750 |
| Our ideas are welcomed by the research group | 0.876 | | | |
| We welcome ideas from the research group | 0.892 | | | |
| This research group encourages suggestions from us for improving programs and processes related to our relationship | 0.828 | | | |
| *Satisfaction* | | 0.936 | 0.952 | 0.833 |
| Our choice to work with this research group was a wise one | 0.810 | | | |
| We are delighted with this research group's performance in the relationship | 0.918 | | | |
| The relationship with them has been satisfactory | 0.985 | | | |
| We think we did the right thing when we decided to work with this research group | 0.929 | | | |
| *Sustainable relationship* | | | 0.874 | 0.87 |
| Using the following scale, please indicate the likelihood that the relationship with this research group will be renewed at the end of the current contract. Please circle % figure. Zero indicates no chance that the relationship with this research group will be renewed at the end of the current contract, and 100% indicates that this relationship will definitely be renewed at the end of the current contract | 0.935 | | | |
| 0 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% | | | | |

**Table AII.**
Construct reliability, validity and item factor loadings

## About the authors

Pervez Ghauri is a Professor of International Management at King's College London and the Head of the International Business, Marketing and Strategy group. He has taught marketing and international business in Uppsala University, the Norwegian School of Management (where he also served as the Dean of Academic Affairs), and Maastricht University in the Netherlands. Professor Pervez Ghauri is also the founding Editor-in-Chief of *International Business Review* since 1992 and the Editor (Europe) for the *Journal of World Business*, since 2008. He is also the Editor of the *International Business and Management* book series by Elsevier Science. Professor Ghauri has been elected the Vice President for the Academy of International Business (AIB Worldwide) for the years 2008-2010.

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