IS Outsourcing Satisfaction and IS Managers' Job[1]

Abstract

Purpose: The present paper examines IS outsourcing success through the satisfaction achieved therewith. It simultaneously analyzes how IS outsourcing may influence IS managers' job.

Design: The results obtained in a survey on this topic carried out over a twelve-year period are described. The proposal consists in a model that relates the degree of outsourcing with the satisfaction achieved therewith, in which the influence exerted by IS on the systems manager's job acts as a mediating variable.

Findings: The study concludes that the way in which outsourcing affects the IS managers positively influences the satisfaction achieved with this service.

Implications: Outsourcing poses a great challenge for IS managers because they must devote more time to their managerial functions, and they need more knowledge too. These greater requirements or demands will most probably make these executives feel unsatisfied with outsourcing. However, the paper shows that satisfaction increases insofar as, despite all these demands, the working post characteristics improve, and the satisfaction and autonomy of IS managers grows and, most importantly, they believe that their job has a higher added value.

Originality/value: No studies had hitherto related outsourcing success and the implications of outsourcing for IS managers.

Keywords

Information Systems (IS), Information Technologies (IT), outsourcing, satisfaction, success, manager's job

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INTRODUCTION

Firms are outsourcing many of the functions that they used to carry out in-house for reasons of efficiency, effectiveness, or capacity (Nordin, 2006); and functions related to Information Technologies (IT) and Information Systems (IS) appear amongst the first candidates for this outsourcing process.

IS outsourcing has kept growing inexorably during the last few years (Jain & Khurana, 2015), both worldwide (Schwarz, 2014; Qi & Chau, 2015) and in the European Union (Hodosi & Rusu, 2013; Computerworld, 2014). In addition to academics contrasting it, consultancy firms provide us with data about this growth (KPMG, 2014; Deloitte, 2014).

Despite its evident economic importance and the fact that this practice is going to influence the jobs of IS staff in general, and especially that of the IS manager (or CIO, Chief Information Officer), hardly any papers have dealt with the possible impact caused by IS outsourcing on IS managers (Karlsen & Gottschalk, 2006; Feeney & Smith, 2008). The present study seeks to fill this gap, showing the views of those involved about the way in which outsourcing has modified their role inside the firm through the results of a survey.

Furthermore, even though various research works have focused on IS outsourcing success factors, this topic still needs to be further researched —judging from the controversy suggested by the results obtained. Although some isolated study has discussed the influence of outsourcing on Managers' working satisfaction (Kennedy, Holt, Ward & Rehg, 2002), the IS managers' job has not usually been associated with the satisfaction or success reached in outsourcing. The relationship between the IS manager's job and IS outsourcing satisfaction will be analyzed taking into account the perspective of the former.

Hence the three objectives of our study:

Objective 1: Analyzing how outsourcing influences the IS manager's job

Objective 2: Analyzing whether this influence has varied over time

Objective 3: Analyzing whether changes in the IS manager's job in turn exert an influence on outsourcing success (the latter being measured by satisfaction)

Prior to all that, a literature review will serve to lay the foundations for results concerning Objectives 1 and 2, as well as to propose the hypotheses underpinning the model that will be subsequently contrasted in order to meet Objective 3. A description of the methodology, along with the most outstanding outcomes and conclusions, will follow. The empirical work shows the results of a survey carried out amongst the IS managers of the largest Spanish firms in 2013. In order to accomplish objective number 2, we will also show the comparison of this survey with two previous ones carried out by the same authors in 2001 and 2006.

LITERATURE REVIEW

The influence exerted by Outsourcing on the IS manager

As said above, not many studies have been devoted to the implications of IS outsourcing for the managers in charge of this area. However, Table 1 constitutes an attempt to compile some of them. INSERT TABLE 1

Based on previous studies, the impact caused by IS outsourcing on IS managers will be subject to analysis in relation to three aspects:

a. The time needed for IS managers to carry out their job

b. The characteristics of those managers' working post

c. The type of knowledge and skills required for them to develop their professional activity

a. The time needed for IS managers to carry out their job

With regard to this first aspect, outsourcing frees IS managers from some of their tasks, insofar as it may change the content of their job, giving more importance to some work factors and reducing the value of others. The study of Corbett (1994) shows that the IS departments which have resorted to outsourcing pay more attention to general management issues as well as to non-technology-based aspects such as negotiation, communication, and business knowledge. It also concludes that IS strategic planning and external relations management have become two very important functions –a similar conclusion being reached by Lee Cooke (2006), who assigns great importance to the role played by external relations after outsourcing. McFarlan and Nolan (1995) point out that the function of a systems manager within an outsourcing relationship must concentrate on information architecture planning, the study of emergent technologies, and the management of external relations. Along the same lines are the hypotheses put forward by Gottschalk and Karlsen (2005) and Karlsen and Gottschalk (2006), who stress the relevance within the outsourcing relationship that corresponds to the roles of: Liaison (communicating with the environment, which implies establishing connections with IS/IT suppliers, customers, buyers, market analysts, and mass media); Monitor (carrying out a follow-up of the environment to identify new ideas, technologies, etc.); Spokesperson (the IS manager gets in touch with the rest of the organization seeking to promote the acceptance of the IS department, and of IS projects); and Entrepreneur (identifying users' needs and combining them with IT opportunities so that the latter can be strategically exploited inside the organization) Sohel and Quader (2017) highlight the need for CIOs to dedicate their time to the creation of a Strategic Partnership, "a collaborative relationship between the vendor and the client, who agree to make a joint effort to achieve mutually beneficial goals."

In short, outsourcing gives IS managers a more prominent role in strategic decision-making, reducing concerns about the everyday operations of their department (Caldwell, 1996; Lacity & Rottman, 2008, 2009).

b. *The characteristics of those managers' working post*

As for the influence exerted by outsourcing on the IS manager's job, an effort will be made to determine whether outsourcing degrades or improves the working post, taking as a reference previous research works (Corbett, 1994) according to which outsourcing generally improves the characteristics of IS managers' job, except with regard to security in their working post (Palvia, 1995) —since this practice represents a fundamental change in the way chosen by a firm to manage its IS. Outsourcing equally implies a chance to enlarge and redirect the IS manager's role towards a more strategic orientation (Clark, Zmud & McCray, 1995). However, no consensus has been reached so far in the papers that have treated this aspect; thus, some highlight that IS managers may to some extent see outsourcing as a threat due to the fact that the latter does not leave enough responsibilities inside the enterprise for them to complete their work (Leinfuss, 1991). Instead, other authors (Apte *et al.*, 1997, Gefen, Ragowsky, Licker & Stern, 2011) have concluded the opposite; outsourcing changes the role of CIOs from IT leaders to business leaders. Outsourcing thus improves their job and, contrary to the belief according to which it is the Top Management that initiates the outsourcing decision, in fact systems managers are the ones who play the most relevant role as initiators and managers of this decision (Thorogood, Yentton, Vlasic & Spiller, 2004).

c. *The type of knowledge and skills required for them to develop their professional activity*

Finally, our attention will focus on whether the knowledge and skills required for IS managers to do their job are influenced by outsourcing. The knowledge owned by IS managers becomes essential for outsourcing decisions (Blaskovich & Mintchik, 2011). IS managers refer to an increased importance of the knowledge that they have when outsourcing their IS, especially when it comes to general management or non-technology-based knowledge (Corbett, 1994; Lee Cooke, 2006; Scott, 2007). Useem and Harder (2000) highlight four main skills needed by executives who battle with outsourcing contracts: *Thinking Strategically*, i.e. this manager must reflect on the way in which outsourcing can help the company to achieve competitive advantages; *Creating Agreements*, referring to the capacity to establish relationships and reach agreements between outsourcing customers and suppliers; *Managing Alliances* or Partnerships, running the outsourcing relationship in such a way that both customer and supplier can benefit therefrom; and *Managing Change*, focusing particularly on overcoming employees' resistance to outsourcing

Ho, Ang and Straub (2003) maintain the importance of recruitment knowledge by IS managers because, without that knowledge, these executives might be overwhelmed by outsourcing, and the perception that providers have a poor performance could additionally prevail. Similar conclusions were drawn by

Martinsons and Cheung (2001), who stated that the knowledge needed to monitor work, to deal with outsourcing suppliers, and to act as a coordinator between users and suppliers, largely differs from the knowledge required for IS development and implementation. Pratap (2014) additionally states that the managers responsible for outsourcing decisions, amongst whom are CIOs, need to develop a type of knowledge that this author calls "outsourcing capability" and which results from a combination of capabilities: protecting the customer firm against the risks associated with outsourcing while simultaneously making easier the coordination between external and internal knowledge databases, of customer and suppliers. Finally, the study authored by Lacity, Khan and Willcoks (2009) in which a review is made of IT literature lists the capabilities that the customers and suppliers involved in an outsourcing relationship must have. Those typical of a customer are the ones which should be owned by an IS manager who faces outsourcing, namely: IS technical/methodological capability; IS human resource management capability, Supplier management capability, Contract negotiation capability, IS change management capability, and Transition management capability.

Outsourcing success factors: The degree of Outsourcing

Many factors have been said to determine IS outsourcing success, including, amongst others: factors linked to the customer firm's external relationships such as communication and customer-supplier collaboration (Han, Lee & Seo, 2008), relationship with suppliers, and knowledge transfer between supplier and customer (Koh, Ang & Straub, 2004). Other factors are markedly internal, for instance, the support given by the customer firm's Top Management (Väyrynen & Kinnula, 2012), the correct definition of needs by the customer (Gottschalk & Solli-Sæther, 2005) or the supervision by customers over suppliers' work (Kim & Young-Soo, 2003). It is also worth highlighting factors associated with the way to approach outsourcing, amongst which stand out the type of contract (Burdon & Bhalla, 2005) or the degree of outsourcing (Grover, Cheon & Teng, 1996).

The degree of outsourcing appears as one of its success factors in the present paper. As pointed out by Loh and Venkatraman (1992), outsourcing cannot simply constitute a dichotomous decision; instead, it has to be permanently assessed through the degree of outsourcing. This degree represents the percentage of functions specific to the IS service which are being outsourced. Total insourcing allows the organization to own the IS infrastructure, and it is responsible for delivering services to users. The organization has the employees in charge of providing IS services within its payroll and its staff, and there is little involvement of external parties in IS service delivery. Selective outsourcing makes it possible for external suppliers to complement internal IS skills. Even though the organization has practically total control over IS services, it may subcontract some activity or other to an external supplier for specific IS activities (Gulla & Gupta, 2011). With total outsourcing, the customer organization has a low volume of IS asset ownership and the seller has an agreement to deliver certain service levels to customers. The customer organization receives an IS service without worrying about the practical

aspects linked to the creation of that service. Lacity, Willcocks and Feeny (1996) establish that total outsourcing takes place if the customer spends over 80% of its IT budget on IS outsourcing.

Some authors have suggested selective outsourcing as a better option than total insourcing or than total outsourcing in IS outsourcing decisions (Lacity, Willcocks & Feeny, 1996; Lee, Miranda & Kim, 2004; Shi, 2010; Väyrynen & Kinnula, 2012) and one that positively correlates with outsourcing success.

Without going as far as to recommend total outsourcing, authors such as Grover, Cheon and Teng (1996) state that the degree of outsourcing has a positive correlation with the success achieved. Nevertheless, prior to formulating the first hypothesis, we should ask ourselves the following question: how can we measure outsourcing success?

Satisfaction as a measure of success

It is quite difficult to define and measure success in IS outsourcing (Kim & Young-Soo, 2003), to such an extent that a survey carried out by the consultancy firm KPMG (2007) revealed that 72% of customers of these services do not have or do not share any criteria to assess the success or failure of their outsourcing contracts with their suppliers. Nevertheless, various authors have suggested measuring the degree of outsourcing success as a sum of two factors: Benefits Perceived with outsourcing and General Satisfaction reached therewith (Grover, Cheon & Teng, 1996; Kim & Young-Soo, 2003; Saunders, Gebelt & Hu, 1997; Lee & Kim, 1999; Rustagi, 2004; Han, Lee & Seo, 2008).

As for satisfaction, it constitutes a good measure of IS outsourcing success for two reasons (Seddon, Cullen & Willcocks, 2007): firstly, because it entails including and tacitly calibrating the costs and benefits implicit in outsourcing; and secondly, because satisfaction is always a valid measure unlike what happens with other more specific ones which do not prove suitable in all cases. By way of example, it is common to adduce as reasons for outsourcing to control costs, to obtain economies of scale, or to gain access to cutting-edge technology. However, these may not be the aims sought by some firm in particular with outsourcing. Every firm wishes to be satisfied with this service anyway.

For these reasons, although a number of authors have argued that outsourcing success is measured by the benefits perceived and by the satisfaction of its users, others believe that satisfaction in itself constitutes a good measure of success (Tesch, Miller, Jiang & Klein, 2005; Yoon & Im, 2005, Song & Wong, 2009). Following this second strand, this paper proposes that the degree of satisfaction with outsourcing represents a final and global measure of the success achieved with outsourcing. Therefore, Hypothesis 1, which remained to be formulated at the end of the previous section, can read as follows:

H1: The higher the degree of outsourcing the more satisfaction obtained with outsourcing (Figure 1).

INSERT FIGURE 1

Insofar as it was assumed in the preceding section that outsourcing probably has an influence on IS managers, more precisely on whether the latter need more or less time to carry out their job, and that it can determine the characteristics of the aforementioned working post, as well as the type of knowledge and skills needed to develop this professional activity, it is our understanding that all this will have a mediating effect on the level of success obtained with outsourcing. That is the reason leading us to modify Hypothesis 1 in the following sub-hypotheses collected in Figure 2. Since this study has an exploratory nature, it is not our concern in these hypotheses to know the (positive or negative) sign of such relationships.

INSERT FIGURE 2

METHODOLOGY

Population and sample

The directory *Las 5.000 Mayores Empresas* [The largest 5,000 companies] of the magazine *Actualidad Económica* [Economic Current News] was used to determine the study population, collating it with Duns and Bradstreet's database *50.000 Principales empresas Españolas* [The main 50,000 Spanish companies]. 45 companies were discarded amongst the 5,000 companies with the highest turnover from the first database because their address and telephone number coincided with those of other firms, which suggested that they were subsidiaries of the former.

The remaining 4,955 companies received a questionnaire in two formats, first electronic and then in paper; follow-up calls were made as well. The electronic questionnaire was hosted on the web page of the research group to which the authors belong. An e-mail message with a link to such questionnaire was sent to interviewees, subsequently making a telephone follow-up of the firms that had not answered. Since some firms expressed during those calls their wish to complete the survey questionnaire in paper, a decision was made to utilize both modalities.

The survey addressee was the IS manager of the selected firms company. IS managers had also acted as respondents in other studies about IS outsourcing like the one written by Shi (2010). The information obtained was subsequently elaborated upon using the SPSS and Smart PLS statistical software programs.

INSERT TABLE 2

Table 2 shows the study technical specifications. A review was made of the information available both about the last survey completed in 2012-13 and about the two previous ones, which date back to 2001 and 2006. Even though most of the analyses in this paper focus on the examination of the results obtained in the last survey, the two preceding ones give us the information necessary to meet the second of our three objectives set in the introduction. Focusing our attention on the last survey carried out, Table 2

shows that 398 valid responses compiled between October 2012 and February 2013 were obtained, which means that the survey results show the responses provided by 8% of the population examined. This ratio resembles those found in other studies which also deal with IS outsourcing (Bahli & Rivard, 2005; Ma, Pearson & Tadisina, 2005; Shi, Kunnathur & Ragu-Nathan, 2005). It would be worth considering the difficulty involved in obtaining responses from executives, particularly IS managers, due to the fact the technological advances, along with the considerable investments that firms are currently making in technologies, have made them become the target of numerous studies (Poppo & Zenger, 1998).

The profile of firms that answered this survey is representative of the overall population in terms of size (measured by turnover) and activity sector. A difference of means test was used to verify it seeking to determine if the firms that answered the survey questionnaire were larger or smaller than those that did not do so. In the case of turnover, Student's T took the value of 1.086 with a 0.278 significance, thus showing the absence of significant differences of means. Instead, Mann-Whitney's non-parametric U test (due to the existence of heteroskedasticity according to Levene's test, with F equal to 58.445 and a 0.000 significance) was used for the number of employees, and it was checked how the firms which answered the survey questionnaire had a higher number of employees than those which did not do so. With regard to the activity sector, the chi-square statistic served to verify that no significant differences existed between firms according to whether they answered or not (Chi-square is 0.694 with a 0.707 significance level).

Measurement of variables

The variable measurement carried out was based on a review of previous questionnaires and revolves about IS outsourcing, like the ones analyzed in Table 1 and in the literature review section. More specifically, the influence exerted by IS Outsourcing on the time needed for these executives to perform their tasks was assessed by means of a scale developed by the authors and based on Corbet (1994) (see ANNEX, question a).

The influence exerted by Outsourcing on the IS manager's working post and How outsourcing has affected the Knowledge and Skills of the IS manager were assessed using two scales equally prepared by the authors taking Corbet (1994) as a reference (see ANNEX, questions b and c).

The Satisfaction obtained with outsourcing was measured with a single item from the paper by González, Gascó and Llopis (2010b), which in turn was based on the studies carried out by Grover, Cheon and Teng (1994), Gupta and Gupta (1992), and Saunders, Gebelt and Hu (1997). The last four variables (questions a, b, c and d in the ANNEX) used a 1-to-7 Likert scale and the last three variables (questions b, c and d in the ANNEX) were assessed using a reflective scale, since indicators constitute a reflection or expression of the variable that they represent.

The Degree of Outsourcing was measured using a scale proposed by González, Gascó and Llopis (2008) with interviewees being asked to determine the approximate percentage in which an extensive series of IS-related activities are outsourced on a 1-to-5 Likert scale –1 meaning below 20% and 5, above 80%. The 1-to-7 Likert scale, the most commonly preferred one in the context of social sciences, is better than the 1-to-5 scale because measuring sensibility increases and one can have more guarantees that a continuous variable –instead of a categorical one– is being used; hence our decision to utilize it in the survey. Nevertheless, the variable 'degree of outsourcing' was measured with a 1-to-5 scale due to the fact that interviewees find it hard to convert outsourcing percentages into scores. This variable and the first one (the influence exerted by IS Outsourcing on the time) were measured with formative scales (questions a and e in the ANNEX) because the items shaped by each variable jointly affect them; or expressed differently, indicators are causes or determinants of variables. All the measurements can be seen in more detail in the ANNEX.

RESULTS

Descriptive analysis: Objectives 1 and 2

The objectives 1 and 2 of this paper will be accomplished through the descriptive analysis of the results referring to how IS outsourcing influences on these three main questions:

a.   The time needed for IS managers to carry out their job

b.   The characteristics of those managers' working post

c.   The type of knowledge and skills required for them to develop their professional activity.

The results of the survey related to questions B, C and D of the Annex will be used to this target. This information will be present in two ways: tables and figures which represent the result to each question in the last survey (2013) will help us to cover the objective 1, and the comparison between the last survey and the result of each questions in 2001 and 2006 surveys will cover objective 2.

Table 3 and Figure 3 show the influence of Outsourcing on the time that IS managers dedicate to their different responsibilities. Figure 3 focuses on the means of Table 3, and it is obtained as a result of valuing scores 1 to 3 as Decrease, 4 as No change, and 5 to 7 as Increase. Since the mean and the mode, as well as the median, oscillate around 4, it can be said that, on the whole, outsourcing has not largely influenced the time that these executives allocate to carry out their job or that the influence is slightly positive (i.e. some more time or dedication in general seems to be required). This result may sound strange, as would seem more logical that outsourcing would result in a redistribution of time, that is to say more time dedicated to some activities and less to others. However, according to respondents, even the activities where outsourcing is less influent, require some more time. Furthermore, all values are very similar, there is only a 0.4 difference between the values of the highest and the lowest mean. Nevertheless, moving the focus towards the difference between the various responsibilities, it can be

highlighted that those requiring the most time are Strategic Planning and Information Architecture Planning —as opposed to People Management, which requires the least time. This may come as a consequence of the fact that outsourcing actually allows customer firm managers or demands from them that they focus more strongly on strategic issues after certain tasks have been outsourced. A little less time is necessary for People Management precisely because fewer internal tasks exist. This result is in keeping with that of Lacity, Khan and Willcoks (2009), according to whom the topic of IS human resource management capabilities usually receives much more attention in studies focusing on suppliers than in those which stress the role of outsourcing clients.

INSERT TABLE 3

INSERT FIGURE 3

Figure 4 shows the relationships between these same variables in the previous surveys of 2001 and 2006 (in this case, the values of all items are situated between 1 and 3, instead of between 1 and 7, to make the comparison easier). No great differences become visible between interviewees' answers in 2001, 2006, and 2013. It can graphically be observed that more importance was assigned to External Relations Management, rather than to Strategic Planning, in 2006. As for the last two interviews, they reveal that the three activities in which more time is invested have gradually increased their importance (both in Systems Development as well as in Information Architecture Planning and in IS Strategic Planning).

INSERT FIGURE 4

Table 4 and Figure 5 reflect the extent to which Outsourcing has impacted on job characteristics. Figure 5 focuses on the Means of Table 4, and it assesses values between 1 and 3 as Negative, 4 as Neutral, and values between 5 and 7 as Positive. It can clearly be seen that the influence of outsourcing is positive, since all values exceed 4 (the mean), and the means and modes of items are 4 or even 5. IS can be said to enrich all the characteristics of IS managers' working post, which is in tune with the findings of previous studies (Chakrabarty & Whitten, 2011). Above all, it becomes obvious that outsourcing positively contributes to Added Value of the job, to the Satisfaction at it, and to Autonomy. The study undertaken by Gefen, Ragowski, Licker and Stern (2011) also concludes that outsourcing allows the CIO to improve the Added Value that he provides to the firm. The value which has benefited the least from the impact of outsourcing is Prestige which, despite having a mean above the average Likert scale values, is the one with the lowest score.

INSERT TABLE 4

INSERT FIGURE 5

Figure 6 helps us to compare the values of the 2013 survey with those of the two previous ones (carried out in 2001 and 2006). The same as in the previous question, it was checked that no significant differences have appeared between these values in recent years. Satisfaction and added value were still

much more highly valued as the two items most positively affected by outsourcing in the 2006 survey than in the most recent one performed in 2013. It is observed that the value with the lowest score (Prestige) has been slightly declining.

INSERT FIGURE 6

The focus of our attention will now be placed on analyzing the influence exerted by outsourcing on IS managers' knowledge and skills by means of Table 5 and Figure 7.

INSERT TABLE 5

INSERT FIGURE 7

The same as in Figures 3 and 5 above, Figure 7 focuses on the means of Table 5, and it reflects those items scored between 1 and 3 as Less Important, the value 4 as Equal, and values 5-7 are More Important. It becomes clearly visible that all sorts of IS manager knowledge and skills acquire more importance after being outsourced, which was already underlined by Pratap (2014) when he claimed that outsourcing decisions had to develop a type of knowledge that he labeled as "outsourcing capability." Above all, it is necessary to have a capacity for Negotiation, and for Information and Communication Technologies. Note that the IS manager usually acts as an intermediary between the customer and the provider firm, which is why it becomes essential for these executives not only to know how to negotiate contracts and to be knowledgeable about IT matters so that they can see what really happens in outsourcing and how it is performed in practice, but also to have good communication skills (Sohel & Quader, 2017). Both in this variable and in the previous one (referring to the influence that outsourcing has on working post characteristics), all the values of the variable are situated on average above 4 but not reaching 5; in other words, not a great dispersion exists between the values of the different items —something that also becomes visible in Figure 7.

Figure 8 provides us with a comparative view regarding this question between the 2001, 2006, and 2013 surveys. It deserves to be highlighted that the last two surveys maintain the same top three of most valued knowledge types (Negotiation Techniques; Information Technologies; and Communication Capacity), though in a different order of importance and with a different intensity.

INSERT FIGURE 8

Statistical analysis of the model proposed in Objective 3

The hypotheses of the model proposed were contrasted through a Structural Equation Model (SEM), with the PLS (partial least squares) technique. This technique is suitable when a single step is taken to analyze the measurement model, which relates a latent variable to its observed items or variables; and the structural model, which relates latent constructs or variables to one another. Moreover, PLS has the advantage that it does not require uniformity in measurement scales (Sosik, Kahai & Piovoso, 2009) and

can combine reflective and formative measurements without any identification problems whatsoever (Chin, 2010). The software SmartPLS 2.0 was utilized to examine the structural equation model in this paper.

The next section will deal with the validity not only of the reflective and formative measurements but also of the structural model itself.

Validity of reflective measurements

INSERT TABLE 6

The examination of individual item reliability, construct reliability, or internal consistency, convergent validity, and discriminant validity, is carried out in order to analyze the reflective measurements with the PLS technique (Fornell & Larcker, 1981; Tenenhaus *et al*., 2005).

Individual Item Reliability. The factor loadings of indicators are analyzed with the aim of assessing individual item reliability, it being necessary to retain those values with indicators above 0.707. AVE (Average Variance Extracted) must be examined in the event that there should be values between 0.4 and 0.707; when AVE exceeds 0.5, it is understood that the constructs are valid and that they consequently have correct indicators. Therefore, even though three items at an individual are situated below the accepted 0.707 level, they are not excessively low, and AVE additionally exceeds 0.5 in all cases. Hence why it is understood that the constructs are valid and have correct indicators (Table 6).

Construct Reliability, or internal consistency, serves to determine how rigorously indicators express the same latent variable. Cronbach's alpha and composite reliability are analyzed for that purpose. Both values exceed at all times the 0.7 barrier established by Nunnally (1978), which leads us to conclude that the constructs are reliable (Table 6).

Convergent Validity (Table 6) proves that a set of indicators represents a single construct, for which the AVE value must exceed 0.5, as it does in our case for all constructs (Fornell & Larcker, 1981).

INSERT TABLE 7

Discriminant Validity (Table 7) shows the extent to which a given construct is different from other constructs. Gefen and Straub (2005) argue that it can be measured using two methods. The first one takes as a reference the correlation between constructs and their corresponding indicators. In our case, it becomes evident that the correlation between each construct and its indicators is higher than the one existing with the indicators of the other constructs. That is why reflective constructs have discriminant validity. A second method consists in calculating the square root of the Average Variance Extracted (AVE), which must be higher than the correlations between each construct and the remaining reflective constructs. This is clearly visible at the bottom part of Table 7, where the AVE's square root appears highlighted in bold along the diagonal, whereas the other values are in keeping with the correlation between latent constructs or variables.

Validity of Formative Measurements

The traditional assessment of reliability and validity cannot be applied to formative measurements (Bagozzi, 1994). Unlike what happens with reflective indicators, excessive multicollinearity may destabilize the model and become a problem in formative indicators, since it proves harder to separate the impacts caused by each indicator on each latent construct or variable. For this reason, some authors recommend utilizing the Variance Inflation Factor (VIF) to ensure that there is no multicollinearity (Diamantopoulos, Reynolds & Simintiras, 2006). No multicollinearity exists with VIFs above 3.3 (Petter, Straub & Rai, 2007).

As for the 'Degree of Outsourcing' construct, it initially counted on 11 indicators; removing one of them with a VIF higher than 3.3 makes it possible to eliminate multicollinearity. Likewise, indicators referring to time were initially 7, and it was necessary for us to remove one of them with a VIF above 3.3 in order to eliminate multicollinearity.

A number of authors point out that the factor loading as well as the significance of each indicator have to be analyzed in formative constructs, suggesting that it is necessary to retain all those indicators with factor loadings equal to or above 0.5, and to eliminate non-significant ones in those below 0.5 (Hair, Hult, Ringle & Sarstedt, 2014). Other authors such as Roberts and Thatcher (2009) claim that, even when an indicator contributes to a small extent to explained variance, it must be retained because eliminating it means no longer taking into account a part of its informative load; in other words, because it contributes to content validity. That is why no other indicator has been eliminated.

INSERT TABLE 8

Analysis of the structural model

The *Bootstrapping* technique (5,000 resamples-replacements) is used to calculate both the model coefficients (β) and the T statistic that measures the significance of both coefficients. Explained variance is calculated for significant coefficients. Four of the six coefficients proved to be significant, and four of the hypotheses proposed are consequently approved. The influence exerted by the degree of outsourcing over time (H1a) has a low significance level, though ($p<0.2$); hence why the conclusions about this specific hypothesis must be taken with caution.

INSERT TABLE 9

The value of R^2 as well as the Q^2 of Stone Geisser's test —which was found with the procedure known as 'Blindfolding'— is calculated for each independent variable. R^2 values are low but, since all of them are higher than or equal to 0.1, it is possible to state following the criteria developed by Falk and Miller

(1992) that the model has a predictive capacity. Furthermore, since Q2s exceed zero, it is confirmed that the model proposed has predictive relevance (Stone, 1974; Geisser, 1974).

Figure 9 represents the model proposed, additionally comparing it with the same model simplified after removing the mediating effect of Time, Post, and Knowledge. It becomes evident that the complete model has a better predictive power than the simplified one and, therefore, managers' satisfaction with outsourcing increases as the latter also positively influences their job —and more precisely its characteristics.

INSERT FIGURE 9

Considering the hypotheses proposed, it can be seen that the degree of outsourcing directly and significantly correlates with the increased time that IS managers must use in order to carry out their job, this correlation also being direct and significant with the characteristics of their working post, and with the greater knowledge that is demanded from such managers. Notwithstanding the above, only the improvement of job characteristics has a direct link with general outsourcing satisfaction; the correlation between time and knowledge with that satisfaction is not significant, though.

DISCUSSION AND CONCLUSIONS

The present paper has reflected that IS outsourcing only has a slight —though positive— influence on the time needed by managers in charge of this area to develop their professional activity. Far from freeing them from any tasks, IS outsourcing demands more dedication from them, above all to more strategic tasks such as IS Strategic Planning or Information Architecture Planning. Our opinion in this respect coincides with what is said by Gefen, Ragowsky, Licker y Stern (2011), according to whom IS managers have had to stop being focused on technology to start acting as a bridge between the organization's strategic needs and technology or, to put it in another way, they have become Business Integrators. It has been observed all through our surveys elaborated over a 12-year period that the most strategic activities have been progressively growing in importance and requiring more time. However, as we have detected in the survey, no activity requires less time with outsourcing. Perhaps IS managers want to add value to their position in the organization with this result, as they could be put on doubt due to outsourcing.

Furthermore, outsourcing helps IS managers to have some characteristics of their job improved, essentially its Added Value, Satisfaction, and Autonomy. These characteristics of the working post occupied by the aforementioned executives had also been the most highly benefited by outsourcing in the two preceding surveys. Even though some previous works, such as that of Kennedy, Holt, Ward and Rehg (2002), show a negative relationship between outsourcing and satisfaction at the job, that study was carried out within the framework of civil engineering technician outsourcing.

Outsourcing implies that IS managers have to improve in all types of knowledge and skills, as it was already detected in previous studies (Lee Cooke, 2006; Scott, 2007), above all in those related to Negotiation Techniques, Information Technologies, and Communication Capacity. These three types of knowledge were also the most highly valued in our two preceding surveys carried out in 2006 and 2001.

The main contribution made with this study lies in the fact that it focuses on the IS manager and on how the latter is affected by outsourcing, reaching the conclusion that, rather than degrading Information Services and CIO, outsourcing is actually enabling CIOs to achieve the position that they deserve amongst the firm's managers, it means new threats and opportunities for them, but also gives them more importance as IT-based solution integrators (Gefen, Ragowsky, Licker & Stern, 2011). Also, our proposal is a model which relates the degree of outsourcing to the satisfaction achieved therewith, and it became clear to us that the relationship between both variables is positive, which confirms the results obtained in previous works (González, Gascó & Llopis, 2015). The novelty of this paper lies in the fact that no previous studies can be found where the influence exerted by outsourcing on the IS manager's job as a mediator has been related to the satisfaction achieved with outsourcing. Our results confirm that using the way in which outsourcing influences the working posts of managers as a mediating variable increases the degree of satisfaction reached, and that happens because it improves the characteristics of their job, especially added value, satisfaction, and autonomy. However, no verification was obtained about whether the modification of the time, or of the knowledge, that an IS manager needs due to outsourcing has a positive influence on the total satisfaction achieved therewith.

The limitations faced in this research work include that it measures success qualitatively —rather than qualitatively— since it does so through customer satisfaction. In our view, there is a need to explore this or other outsourcing success models, with the possibility to compare variables of an economic and quantitative nature such as business performance that can complement the present study. It should be added in our defense that a large proportion of the works dedicated to analyzing outsourcing success have so far been confined to the assessment of perceived success (Koh, Ang y Straub, 2004).

Another limitation has to do with the fact that the extent to which outsourcing influences IS managers is measured subjectively, through their own perception, which explains the tendency to centrality shown by variables. It would be very interesting to obtain more objective measures that future research works can use. To which must be added that the moment in which the outsourcing process finds itself might largely modify the answers; the answer given by firms having outsourced 10 years ago will most probably differ from those provided by firms which have outsourced only recently. That is why the variable referred to "the stage of outsourcing" should be considered as a control variable worthy of examination in future research papers.

We do not know if the IS Managers answering this survey took part in the outsourcing decisions and, in this sense, outsourcing gave them a more prominent role in strategic decision making - so this could be

the reason why they could feel satisfied - or if they were left behind after large part of their existing portfolio was outsourced. However, the role of IS managers on outsourcing decision is very important to understand if outsourcing is a success or not, and this fact should be analyzed in further research.

The results suggest that outsourcing poses a great challenge for IS managers because they must devote more time to their managerial functions, and they need more knowledge too. In principle, these greater requirements or demands will most probably make these executives feel unsatisfied with outsourcing. However, our model has shown that satisfaction increases insofar as, despite all these demands, the working post characteristics improve, and the satisfaction and autonomy of IS managers grows and, most importantly, they believe that their job has a higher added value. This conclusion is consistent with the study carried out by Chakrabarty and Whitten (2011), who stated that achieving success in outsourcing or improving its outcomes will only be possible if the CIO plays an important role in decision-making as far as IT outsourcing is concerned.

Finally, it can be concluded that IT outsourcing is a people-centered business. Some service customers and suppliers are wrong to think that this business revolves around the outsourced processes, the technologies, or that it is nothing but a business transaction (Bairi & Murali Manohar, 2011; Sohel & Quader, 2017). In this regard, our paper provides evidence that IS managers are affected by outsourcing but also that, far from having a negative effect, this is actually positive for the satisfaction that the actual users feel with the service received.

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ANNEX. Description of the items utilized

a. Influence exerted by Outsourcing on the IS manager's time
Value from 1 to 7 if outsourcing has meant a considerable reduction of the time needed to carry out certain activities (1) or a considerable increase of that time (7).
1. Systems Development and Project Management (Running the implementation of new IS or applications)
2. External Relations Management (Running relationships to achieve mutual benefits with third parties)
3. Staff Management (IS Staff Management)
4. Internal Relations Management (Running IS relations with end users and with the Top Management)
5. Operational Management (Running the everyday operations of the existing IS)
6. Information Architecture Planning (Defining the technological infrastructure, standards, and products)
7. Information Systems Strategic Planning (Development of short/long term plans to integrate technology into the firm)

b. Influence exerted by Outsourcing on the IS Manager's Working Post
Value from 1 to 7 if IS outsourcing has affected your job very negatively (1) or very positively (7).
1. Autonomy (possibility to make decisions and implement them with minimum opposition)
2. Authority (financial, human and/or of capital controlled)
3. Demand (the time, energy, and the pressures associated with what is expected from the post)
4. Prestige (prominence and influence associated with the job)
5. Satisfaction (enjoyment at the working post, sense of compliance)
6. Added Value (degree to which the job contributes to the firm's success)

c. Influence exerted by Outsourcing on the IS manager's knowledge and skills
Value from 1 to 7 if the following skills have less (1) or more importance (7) in your working post.
1. Communication Capacity
2. People Management
3. Financing
4. Firm Management
5. Project Management Techniques
6. Negotiation Techniques
7. Information Technologies

d. Satisfaction
Value from 1 to 7, (1) meaning that it has not been achieved at all, and (7) that it has been totally achieved.
1. Being satisfied with outsourcing in general

e. Degree of Outsourcing

Value from 1 to 5 the approximate percentage of the following activities which is outsourced, 1 being "non-existent or scarce, below 20%" and 5 "very high, above 80%".

1. Applications analysis
2. Support to end users
3. Staff training
4. Systems installation
5. Hardware maintenance
6. Software maintenance
7. Systems operation
8. Programming
9. Computer security
10. Networks service
11. E-business solutions

Table 1: Works about the Influence exerted by Outsourcing on IS managers

Study	Methodology	Contribution
Leinfuss (1991)	No explicit methodology	Outsourcing generates career development opportunities for IS managers, whose job will change from being people managers to becoming contract-signing managers. They will equally assume more general management responsibilities. However, while middle-level IS managers can see how their career is positively influenced by outsourcing, higher-level CIOs may find that the effects are negative for them, because the introduction of outsourcing may mean that there will not be enough responsibilities left in the IS department to complete the CIO's work.
Corbett (1994)	Survey amongst 100 IS managers	Outsourcing impacts on how IS managers use their working time; after the introduction of outsourcing, more time is devoted to integrating technology into the enterprise's strategic plans and to external relations. Outsourcing also requires more knowledge, especially the one related to general management. Although outsourcing can bring back some instability to this working post, it may simultaneously enhance the value of the IS manager's work.
Clark, Zmud and McCray (1995)	Interviews to CIOs and other IS managers	On the positive side, outsourcing can raise the profile of IS managers, extending and redirecting their role inside the organization towards a more strategic and business-oriented approach. On the negative side, a need exists to coordinate the links with IS suppliers and control their execution, i.e. the responsibility for information services is replaced by the responsibility for the results offered by the supplier.
McFarlan and Nolan (1995)	No explicit methodology	CIOs must retain a very active, important role after the introduction of outsourcing; they must focus on the management of the outsourcing contract, handling it in such a way that it can adapt to potential changes. They must plan the enterprise's information architecture and keep up-to-date with the emergent technologies, being aware of what is available on the market and of how it evolves too. They must develop an internal atmosphere of ongoing learning to ensure that both the IS staff and users are open to change.
Apte *et al.* (1997)	Survey with CIOs in three different countries comparing their outsourcing practices	Contrary to the common assumption that Top Managers (CEOs) are the ones who handle IS outsourcing decisions, it is CIOs that usually play a very significant role as initiators and managers of these decisions.
Useem and Harder (2000)	Interview with 25 Top (non-IS) managers	Lateral leadership represents a way of managing IT outsourcing contracts based on four concepts, namely: Strategic Thinking (thinking strategically, i.e. determining how outsourcing can help the enterprise's strategy); Deal-Making (Signing agreements, that is, creating a network of relationships between suppliers and internal operations so that the necessary services required can be delivered inside the organization); Partnership Governance (managing relationships between customer and supplier, creating in both of them the desire not only to fulfil the contract obligations but also to enhance the quality of services and improve their

		shared financial profits); and Managing Change (focusing especially on employees' misgivings about outsourcing)
Martinsons and Cheung (2001)	Survey amongst 80 IS professionals (not occupying managerial posts)	Outsourcing can reduce the need for analysts and programmers, who see their jobs threatened. Additionally, many specialists believe that outsourcing can reduce their promotion expectations. The knowledge needed to monitor work and deal with outsourcing suppliers largely differs from that required to develop and implement an IS.
Ho, Ang and Straub, (2003)	Survey amongst 146 IT managers	The lack of recruitment knowledge among IS managers can cause problems, above all an excessive workload for those managers and an impression that suppliers provide very poor results.
Gottschalk and Karlsen (2005)	Two surveys: one amongst 80 enterprises with no specified addressee, and the other amongst 84 IT project managers	Outsourcing enhances the importance of the following roles: Liaison, that is, communicating with the business environment, establishing links with IT suppliers, customers, buyers, market analysts, and mass media; Monitor, i.e. keeping an eye on the environment in order to detect new ideas, new technologies; Spokesman, in this role, IS managers extend their contacts outside their jurisdiction and get in touch with the rest of the organization for the purpose of promoting IS acceptance at all levels; and Entrepreneur, making sure that technology-related opportunities are understood, planned, implemented and strategically exploited inside the organization
Shi, Kunnathur and Ragu-Nathan (2005)	Survey amongst 205 IS managers	IS managers must develop 4 competences when it comes to handling an outsourcing contract: Contract Facilitation, i.e. developing the means required to coordinate and synchronize the services received by various suppliers and mediate in conflicts between users and suppliers; Contract Monitoring, that is, protecting the enterprise's contractual position, ensuring that contracts are enforced; Informed Buying; as informed buyers, IS managers must be able to analyze the possible external services and choose the right suppliers and services; and Vendor Development, in this respect, IS managers must identify the potential of suppliers in order to identify prospective long-term customer-supplier win-win relationships
Ranganathan and Balaji (2007)	Case studies in 18 firms, with in-depth interviews to CIOs, IS Managers, Project Managers…	This paper focuses on the capabilities that a firm must have to achieve success in Offshore Outsourcing; these capabilities can be summarized in 4 categories: (1) Systemic thinking on Offshore Sourcing: capability to strategize and offshore readiness. (2) Global IS Vendor Management: Vendor selection, contract facilitation and relationship governance. (3) Global IS Resource Management: human resource management, knowledge management and distributed work management. (4) IS Change Management: managing user-related change and managing IS organizational change.
Lacity and Rottman (2009)	Semi-structured interviews with 232 workers in various	This work focuses on Offshore Outsourcing and its influence on outsourcing project managers. This practice may entail changes in *organizational support*, in *knowledge transfer*, in

	posts, coming from 68 organizations	*standardization processes,* in the way to *manage work,* and in the way to *manage people.*
Gefen, Ragowsky, Licker and Stern (2011)	Round table with IS Managers	Instead of degrading the IS manager, outsourcing actually allows these executives to finally occupy the place that they deserve at the managerial table, providing a real business value, and not only IT services; and, above all, other managers accept this change in the IS manager's importance.
Jain, Poston and Simon (2011)	Study about a case in which 12 employees of a customer firm and 3 of its corresponding Offshore Outsourcing service supplier were interviewed	This work focuses on Offshore Outsourcing and its influence on outsourcing project managers. It also suggests a variety of strategies to cope with the challenge posed by relationships with distributed interorganizational teams where it is necessary to collaborate with multiple suppliers.
Sohel and Quader (2017)	A case study at the British Standard Institute	The mantra for the CIO is now to achieve more with less. Outsourcing offers an excellent framework to accomplish every IT objective. Outsourcing will give access to skilled resources on demand, thus enabling CIOs to focus their existing team on more important matters, such as interacting with business teams, customers and vendors to understand their needs better. This additionally provides an excellent opportunity to build relationships between them.

Table 2: Study Technical Specifications

	Year 2001	Year 2006	Year 2012-13
Scope	Spain	Spain	Spain
Population	4,416 largest Spanish firms	4,107 largest Spanish firms	4,955 largest Spanish firms
Sample size	357 valid answers (8.08%)	329 valid answers (8.02%)	398 valid answers (8.03%)
Sampling error	5%	5%	4.7%
Survey date	June-October, 2001	September-December, 2006	October-February, 2012-3

Table 3: Influence exerted by Outsourcing on the time needed by IS Managers
A significant decrease   1   2   3   4   5   6   7   A significant increase

	Mean	Median	Mode
IS Strategic Planning	4.27	4	4
Information Architecture Planning	4.23	4	5
Systems Development and Project Management	4.17	4	4
Operations Management	4.10	4	4
External Relations Management	4.04	4	4
Internal Relations Management	4.01	4	4
Staff management	3.87	4	4

Table 4: Influence exerted by Outsourcing on the IS Manager's job

Very Negative   1   2   3   4   5   6   7   Very Positive

	Mean	Median	Mode
Added Value	4.98	5	5
Satisfaction	4.74	5	5
Autonomy	4.59	5	5
Demand	4.48	4	5
Authority	4.44	4	4
Prestige	4.16	4	4

Table 5: Influence exerted by Outsourcing on the IS Manager's knowledge and skills

Less important   1   2   3   4   5   6   7   More Important

	Mean	Median	Mode
Negotiation Techniques	4.98	5	5
Information Technologies	4.90	5	5
Communication Skills	4.77	5	5
Project Management Techniques	4.71	5	5
People Management	4.46	5	4
Business Management	4.32	4	4
Financing	4.20	4	4

Table 6: Factor Loadings, Reliability, and Convergent Validity

	Factor Loadings	Cronbach's α	Composite Reliability	AVE
POST		0.8591	0.8915	0.5792
Post1	0.8243			
Post2	0.8185			
Post3	0.7579			
Post4	0.7597			
Post5	0.7345			
Post6	0.6593			
KNOWLEDGE		0.8652	0.8963	0.5546
Know1	0.7635			
Know2	0.7719			
Know3	0.7855			
Know4	0.7896			
Know5	0.7954			
Know6	0.6926			
Know7	0.5921			
SATISFAC		1	1	1
Satis	1.0000			

Table 7: Discriminant Validity: Correlations and AVE's square root

	POST	KNOWLEDGE	SATISFAC
Post1	*0.8243*	0.4202	0.3013
Post2	*0.8186*	0.5054	0.3615
Post3	*0.7578*	0.4179	0.2572
Post4	*0.7599*	0.5606	0.3067
Post5	*0.7343*	0.3986	0.2048
Post6	*0.6590*	0.4990	0.2059
Know1	0.4574	*0.7632*	0.1361
Know2	0.4983	*0.7720*	0.3054
Know3	0.4954	*0.7855*	0.2227
Know4	0.4622	*0.7897*	0.2132
Know5	0.4736	*0.7953*	0.1627
Know6	0.3646	*0.6923*	0.0234
Know7	0.4302	*0.5924*	0.2798
Satis	0.3743	0.2669	*1.0000*
Latent Variable Correlation			
	POST	KNOWLEDGE	SATISFAC
POST	*0.7610*		
KNOWLEDGE	0.6150	*0.7447*	
SATISFAC	0.3743	0.2667	*1*

Table 8: Factor loadings, factor weights, and T statistic

	VIF	Loads	Weights	T
Degree1	2.364	0.5485	0.0766	0.2823
Degree2	1.920	0.5105	0.2140	0.9357
Degree3	2.045	0.2859	-0.0884	0.3599
Degree4	2.744	0.8571	0.5476	1.8341***
Degree6	2.711	0.7059	0.2688	0.8647
Degree7	2.271	0.6101	-0.0310	0.1219
Degree8	2.497	0.4635	-0.1601	0.5794
Degree9	2.612	0.7301	0.3250	1.2361*
Degree10	2.919	0.6904	0.0303	0.1101
Degree11	1.490	0.3961	0.1256	0.4603
Time1	1.877	0.8170	0.5750	1.2733*
Time2	1.918	0.5724	0.0891	0.2185
Time3	2.034	0.3518	-0.1492	0.3380
Time4	2.406	0.1456	-0.3946	0.8986
Time5	2.083	0.4304	-0.0261	0.0519
Time6	1.803	0.7911	0.7590	1.4158**

*$p<0.3$; **$p<0.2$; ***$p<0.1$

Table 9: Structural Model Assessment

	B	T (bootstrap)	Variance Explained	R^2	Q^2	Hypothesis Acceptance
TIME				0.100	0.0153	
POST				0.176	0.0869	
KNOWLEDGE				0.151	0.0792	
SATISFAC				0.142	0.0965	
H1:DEGREE→TIME	0.3132	1.1379*	9.8094			X
H2:DEGREE→POST	0.4199	3.5536***	17.6316			X
H3:DEGREE→KNOW	0.3882	3.4953***	15.0699			X
H4: TIME→SATISFAC	0.0154	0.0947				
H5: POST→SATISFAC	0.3348	2.1526**	12.5315			X
H6: KNOW→SATISFAC	0.0569	0.3276				

*$p<0.2$; **$p<0.025$; ***$p<0.0005$

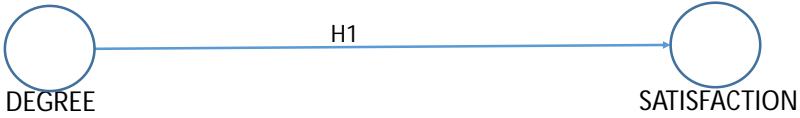**Figure 1: Initial (simplified) Model**
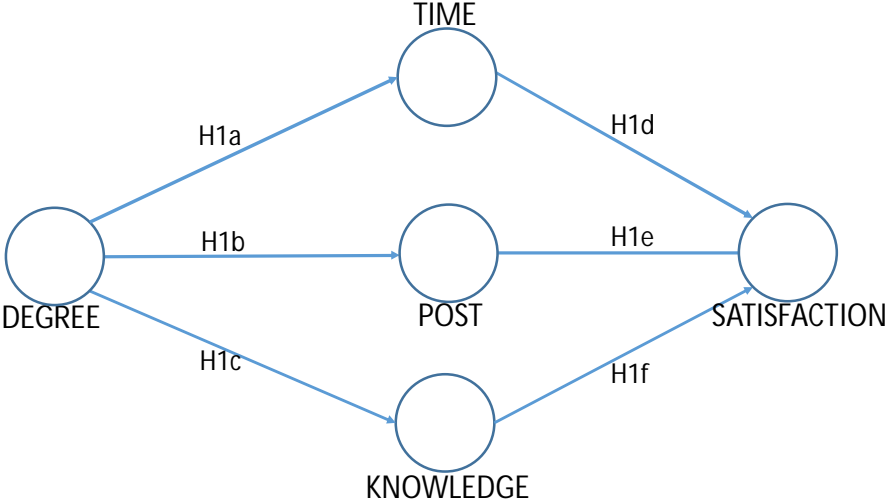

Figure 2: Final (mediated) Model

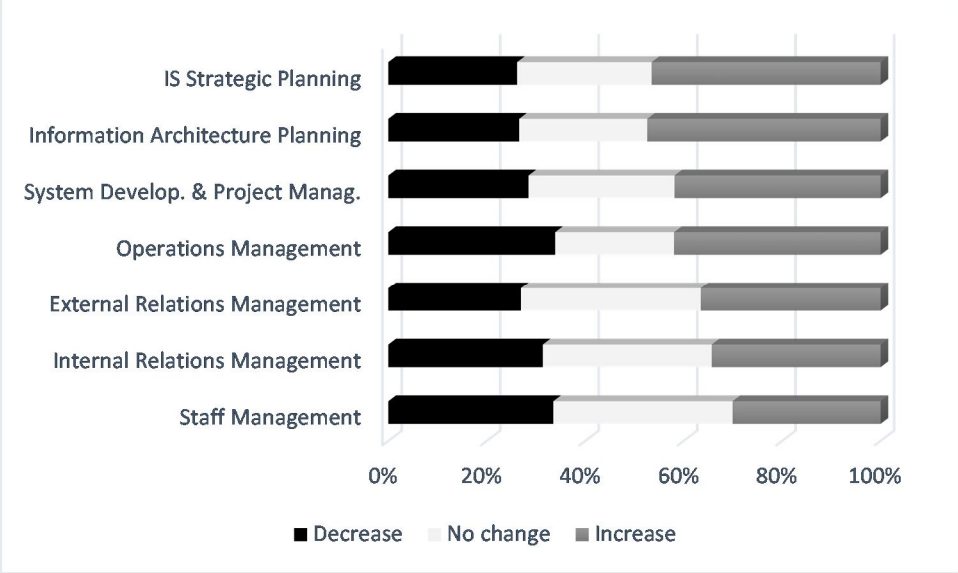**Figure 3: Influence exerted by Outsourcing on the time dedicated to IS activities**

Figure 4: Influence exerted by Outsourcing on the time dedicated to IS activities (longitudinal)
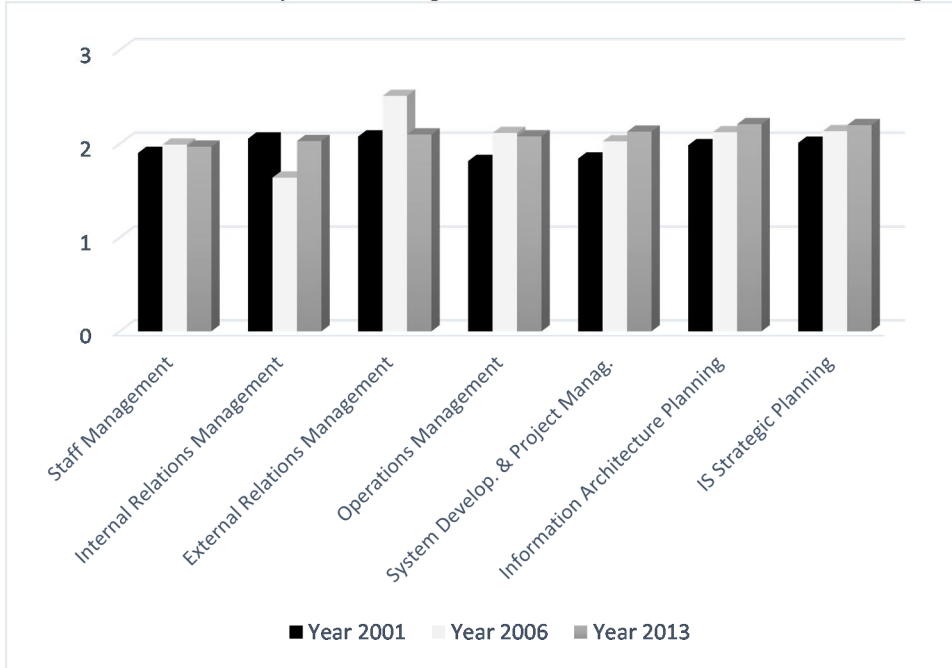

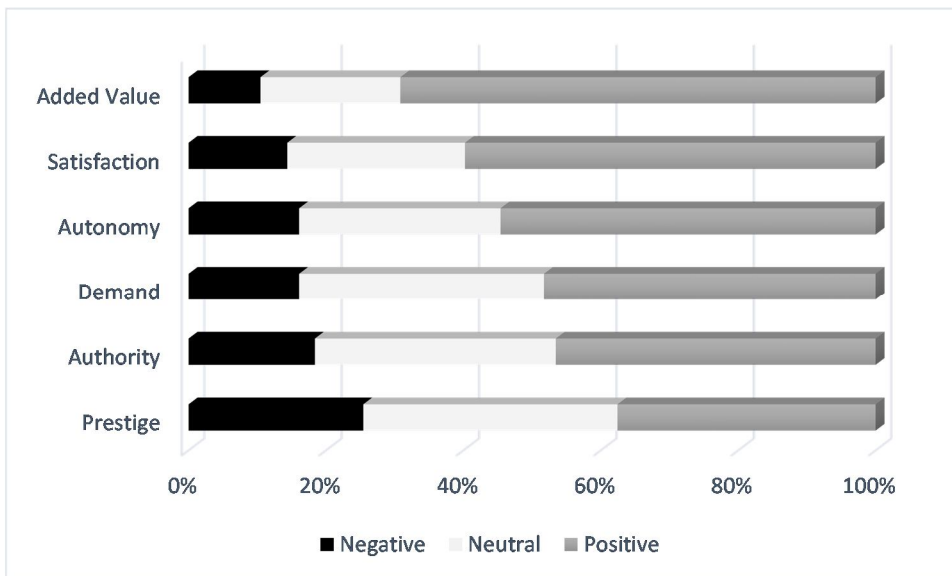**Figure 5: Influence exerted by Outsourcing on the characteristics of the Post**

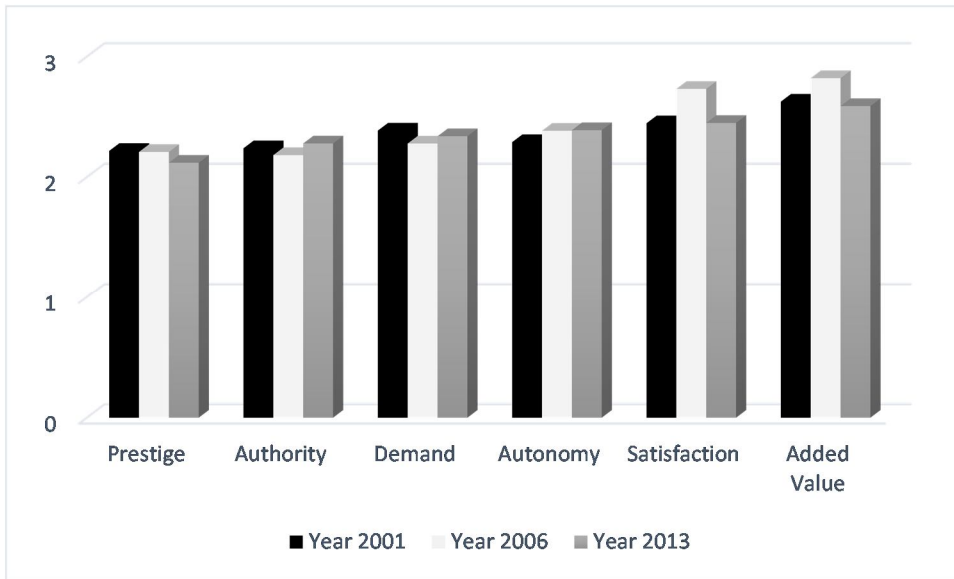**Figure 6: Influence exerted by Outsourcing on the characteristics of the Post (longitudinal)**

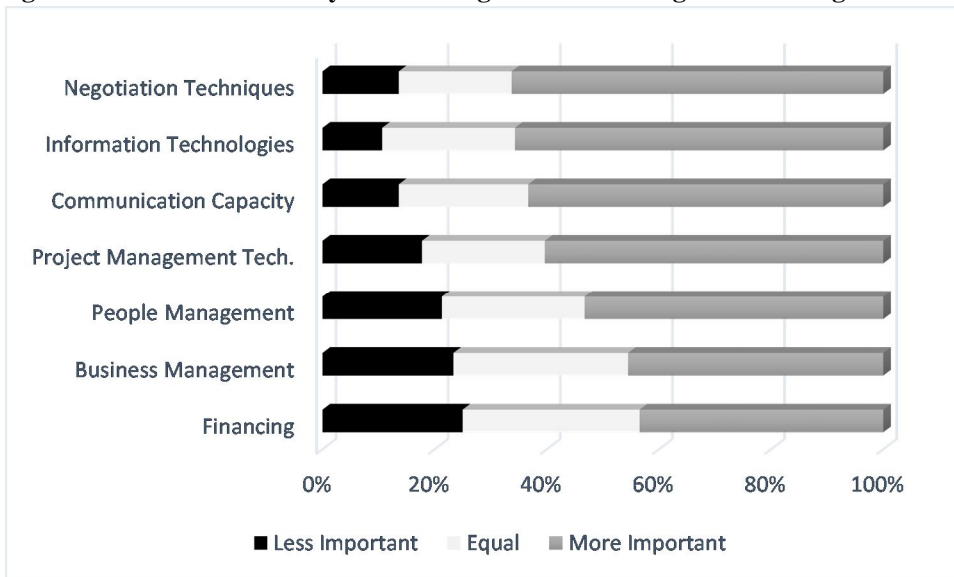**Figure 7: Influence exerted by Outsourcing on the IS Manager's knowledge and skills**

Figure 8: Influence exerted by Outsourcing on the IS Manager's knowledge and skills (longitudinal)
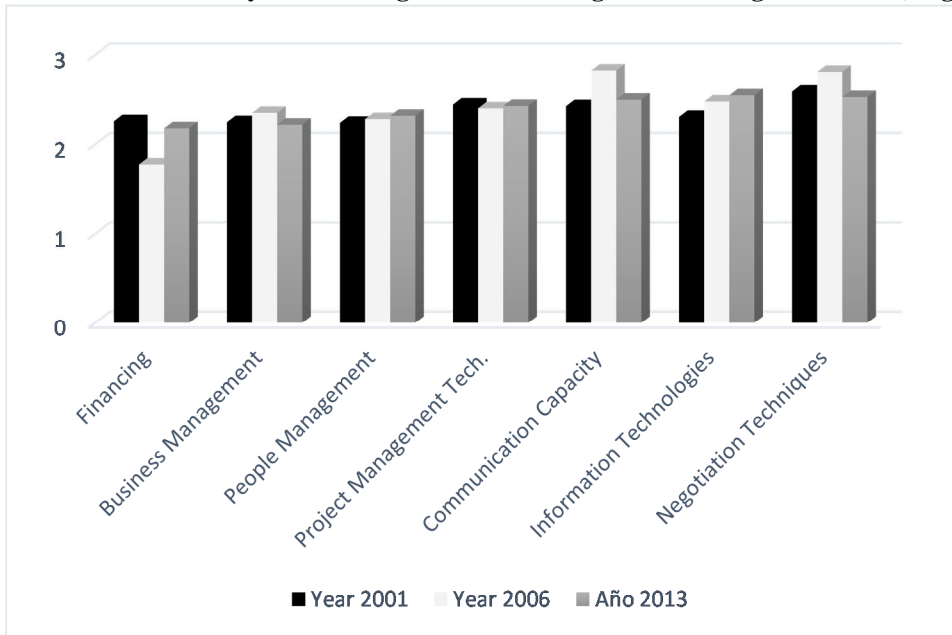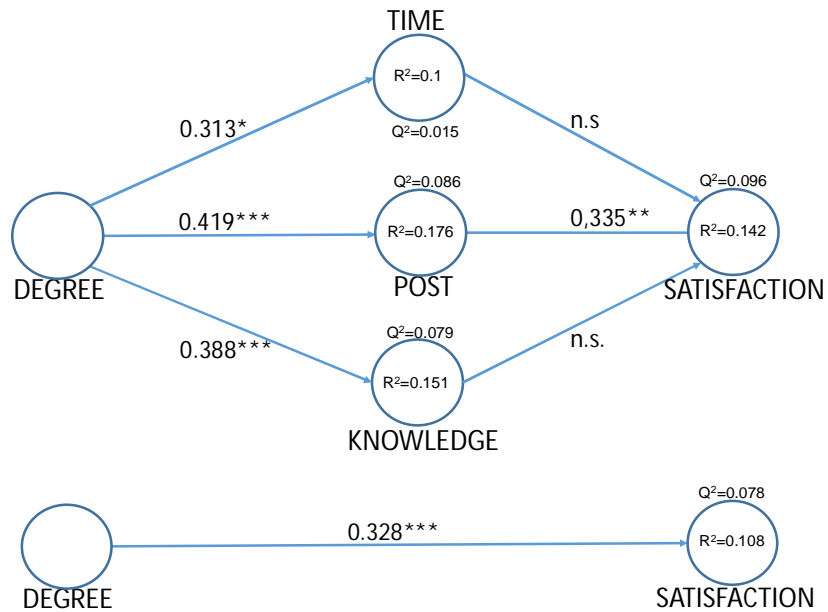

Figure 9: Mediated Model versus Simplified Model

Note: *p<0.2, **p<0.025, ***p<0.0005.