

## **Information systems contracts and relationships: A Spanish perspective**

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### **Abstract**

Despite the proliferation of academic research on information systems outsourcing, not many studies analyze the characteristics of outsourcing contracts. This research aims to provide an in-depth description of information systems outsourcing. An additional objective is to examine how these characteristics evolve over time. Finally, this study reports on the usefulness of measuring such characteristics over time to assess the maturity level of the information systems outsourcing. This study gathers the data from the responses of the information systems managers of the largest Spanish firms to a questionnaire. This longitudinal study covers 12 years of research and compares authors' previous research results with the results of this study.

**Keywords:** Information systems (IS); information technologies (IT); outsourcing; survey, IT providers

## **1. Introduction**

Although extensive academic research exists on information systems/information technologies (IS/IT) outsourcing, few studies focus on the characteristics of outsourcing contracts. Researchers very often address outsourcing as a set of homogeneous services and do not analyze the outsourcing of specific activities. This study offers a comprehensive description of IT outsourcing through the responses to a survey of the IS managers of the most important Spanish firms. This research also draws on Cullen et al.'s theoretical scheme (2005) about the essence of outsourcing contracts (i.e., outsourcing configuration). The method section delves into techniques and empirical work, along with the most important outcomes of this research. This research offers a longitudinal comparison of the results of this study and the previous research.

## **2. IS outsourcing configuration**

Outsourcing configuration refers to a high-level, comprehensive description of a set of structural decisions that firms adopt while organizing outsourcing agreements. That configuration includes a thorough analysis of outsourcing agreements. According to Cullen et al. (2005), the attributes that define an outsourcing relationship are: (1) Relationship scope, which includes the contract's financial scale or magnitude; (2) number of providers; (3) price structure; (4) contract duration; (5) resource ownership; (6) commercial relationship between client and provider.

(1) The relationship scope and the financial scale deal with the description of the outsourced services (e.g. development, programming, maintenance, etc.), with whom the addressees of such services are (i.e., the whole firm, one or several divisions, one or several departments, etc.), with the geographical scope of contracts (whether

providers are national or foreign), and with the financial magnitude or degree of outsourcing; that is, whether total or selective outsourcing applies.

Thus, making a very careful selection of the IS functions firms want to outsource is very important. A function must be: not excessively complex or strategically critical for the business, well understood and under control before the outsourcing, and available in the competitive market at an equally competitive price (Fisher et al., 2008). Furthermore, firms are more prone to outsource IT functions if the latter have little specificity, if measuring them is not too problematic, and if transactions do not occur very often (Ali & Green, 2012; Thouin et al., 2009).

In addition, a growing tendency to look for providers in foreign countries exists (Peslak, 2012). Although a certain pressure exists in several western countries such as the United States, the United Kingdom, or France to slow down this movement towards offshore outsourcing, some studies (Khan & Lacity, 2012) reveal that firms, in fact, plan to continue with their offshore policy.

Regarding outsourcing degree, total insourcing allows the firm to own the IS infrastructure and to assume the responsibility for delivering services to users. The firm has employees who are in charge of providing IS services, with little involvement of external parties.

Selective outsourcing allows external providers to complement IS internal capabilities. Even though the firm has an almost total control over IS services, the firm can subcontract an external provider for specific IS activities (Gulla & Gupta, 2012).

Total outsourcing means that the client firm has a low IS asset ownership rate and the seller has an agreement to deliver certain service levels to clients. The client firm receives an IS service without having to worry about the practical aspects of the

creation of that service. Lacity et al. (1996) claim that total outsourcing takes place if the client spends over 80% of its computing budget on IS outsourcing.

Previous studies suggest IS selective outsourcing as a better option than total insourcing or total outsourcing (Lacity et al., 1996; Lee et al., 2004; Shi, 2010; Väyrynen & Kinnula, 2012).

(2) Number of providers. Having only one provider is excessively risky, because that provider's negotiation power increases, which keeps the client with no capacity to react in case of bad service. Having multiple providers depending on their knowledge and skills is interesting (Leem & Lee, 2004), but the firm would also need to consider the coordination costs resulting from having to deal with all the providers (Currie & Willcocks, 1998). Selective outsourcing with several IT providers turns out to be suitable when the outsourced activities are not interdependent (Kishore et al., 2003).

(3) Price structure can be either fixed or dependent on the services the firm receives, or based on costs. Because many online sourcing markets for the development of online software services often fix prices, the client already knows the price of outsourcing (Gefen & Carmel, 2013). Nevertheless, these fixed prices somehow go against the philosophy of outsourcing because outsourcing is a tool for transforming fixed costs into variable ones. Contracts that depend on performance or on the service units that the firm receives (e.g., number of payrolls that the provider processes) guarantee flexibility, because the outsourcing party only pays for what the firm receives (Gellings, 2007). The third option consists in making the price depend on the costs that the provider has to assume to deliver the services to the client. However, this option may lead the provider to adopt an opportunistic position by disproportionately inflating costs (Lacity & Willcocks, 1995).

(4) Contract duration. Previous research highlights that short contracts are most common in successful outsourcing solutions (Gellings, 2007). Numerous authors, additionally, state that short contracts allow more flexibility to the client, who can look for another provider if the service is not satisfactory (Currie, 1998; Earl, 1996). In any case, the controversy between short-term or long-term contracts still exists. For example, authors such as Kepler and Jones (1998) argue that long-term contracts permit a mutual agreement between the parties as well as reciprocal learning.

(5) Resource ownership. The complexity of the outsourcing decision requires the correct definition of the owner the resources resulting from the outsourcing (i.e., hardware, software, and even working hours) (Dibbern et al., 2004). This complexity also requires specifying where the provider will implement their services (i.e., at the provider's or at the client's facilities). Providers very often move their own workers to the client firms, thus creating work and trust ties between the staff of both firms, which means that the client and the provider must focus on the complementariness of their resources so that both firms create synergies (Wang et al., 2008).

(6) Commercial relationship between client and provider. That relationship can vary greatly because service providers may have different degrees of responsibility and ownership over their clients' IT. Such relationships can range from total independence with the possibility of sharing some business or ownership initiatives (as in the event that the client should own a part of the provider's capital), to a very strong dependence (e.g. when the provider is an affiliate or subsidiary company of the client). These relationships very often depend on the level of outsourcing (Kishore et al., 2003).

### **3. Method**

This study uses the directory Las 5.000 Mayores Empresas [The 5,000 Largest Firms] of the magazine *Actualidad Económica*—later collated with Duns & Bradstreet’s database Las 50.000 Principales Empresas Españolas [The 50,000 most important Spanish firms]—to determine the study population. The study left out 45 firms that shared address and telephone number with others, which suggested that those firms were affiliates or subsidiaries. The remaining 4955 firms received a questionnaire in two formats, first electronic and then in paper. The valid responses amounted to 398 (8.03%).

This study, which is a part of a wider research on different aspects of IS outsourcing, uses 12 out of the 28 survey questions available. 3 of these questions define the firms’ characteristics, the firms’ IS departments, and the firms’ managers; the remaining 9 questions deal with IS outsourcing configuration (i.e., characteristics of outsourcing contracts and relationships).

For the 9 questions about outsourcing configuration, this study draws on Cullen et al.’s study (2005). Because these 9 questions measure different characteristics of the same concept, the study analyzes the questions joint Cronbach’s alpha, which is 0.79, thus confirming the reliability of this scale. The survey addressees were the firms’ Chief Information Officer (CIO).

Table 1 shows the study’s technical specifications. This study analyzes the evolution of the interviewees’ answers over time through three different surveys. Table 1 reflects the information both from the most recent survey and from the two previous ones. However, whether the firms that answered the questionnaire and the preceding ones are the same is impossible to ascertain. Previous longitudinal studies (e.g., Casadesús & Karapetrovic, 2005) also focus on the same population. The profile of

firms answering is representative of the total population in terms of size (i.e., firms with the highest turnover) and activity sector.

Table 1 here.

## 4. Results

### 4.1. Relationship scope

Table 2 here.

Only 54 firms (13.6%) do not outsource, whereas 344 (86.4%) do outsource nationally or internationally. The Chi-square statistic shows that the variables indicating outsourcing levels are independent. This independence owes to the firms' ability to outsource internationally regardless of their level of national outsourcing and vice versa. However, according to the 2006 survey, firms do not outsource internationally without outsourcing nationally. The 2001 survey only asked whether firms outsource, without specifying if the outsourcing was national or international.

Table 3 here.

Table 3 shows the evolution of outsourcing over time: the percentage of firms that outsource grows because firms outsource nationally less than before, but many more firms outsource internationally. Furthermore, in 2006, 16.4% of firms did not outsource either nationally or internationally; in the last survey that figure decreases to a 13.6%.

Figure 1 offers the outsourcing percentages for the different IS activities. The figure represents the percentages by stretches from 1 to 5; where 1 means that the outsourcing level is below 20%; 2 means that the level is between 20 and 40%; 3 between 40 and 60%; 4 between 60 and 80%; and 5 represents that the outsourcing level is above 80%.

Figure 1 here.

Figure 1 shows that the mean outsourcing percentage for the different activities is below 50% except for hardware maintenance. These results support previous surveys' findings: firms continue to perform what Lacity et al. (1996) call selective outsourcing.

The activities appearing most frequently in outsourcing by order of importance according to this 2013 survey are: hardware maintenance, software maintenance, programming, and system installation. These 4 activities coincide with those in the two preceding surveys.

In addition, Figure 1 shows an increase from previous surveys in the outsourcing levels for all activities, save for hardware maintenance, which is in line with Table 3 data. The largest Spanish firms outsource mainly at firm level. Firms do not outsource to the same extent at a division level; and outsourcing at a department level is even less common. In this case, these results follow the trend of the 2006 survey. This study uses the Chi-square to calculate the statistical dependence between the year in which the survey takes place and the type of addressee. The results show that these elements are non-dependent, which means that no significant difference exists between the different surveys' results (Chi-square equals 1.80; significance equals 0.407).

#### 4.2. *Number of providers*

Firms continue to look for several providers in most of the activities that they outsource. However, Figure 2 shows that the tendency to look for several providers is stronger in the past surveys than in the 2013 survey for most of the computer activities.

Figure 2 here.

#### 4. *Price structure*



Figure 3 reflects the price structure preference in contracts on a 1-to-5 Likert scale. 1 would represent the least frequent price structure, and 5 the most frequent one. The contracts where the price stems from service cost occupy the last position in the ranking, which makes clear that firms prefer fixed-price contracts and service-unit-dependent contracts.

Figure 3 here.

Price-structure results are similar to the 2006 survey results, with the exception of differences between these three fixing prices methods is not so significant as in previous years.

#### 4.4. *Contract duration*

Figure 4 here.

Figure 4 shows the percentages of variation in contract duration over the different surveys. The results are consistent throughout the surveys: most firms prefer contracts of up to one year, contracts between 1 and 5 years are second in place, and, in third place, open-ended contracts (because duration depends on each project) are in third place. The longest contracts, those lasting between 5 and 10 years, and those with duration above 10 years are in the last places. However, the results of the last survey show a small difference in firm preferences: although firms still prefer short-term contracts, firms are not as reluctant to long-lasting contracts as in the past.

A non-parametric test reveals that the means are different in every variable, every year. Thus, this study cannot statistically assure that the means/variables follow the same pattern and, in fact, this statistical difference confirms the change of behavior in the contract duration variables.

#### 4.5. *Resource ownership*

Figure 5 here.

This study asks the interviewees to assess the outsourced activities on a scale of 1 to 7 with regard to whether their firms implement the outsourced activities with their own resources (i.e., hardware and software) or using those of service providers, and whether such outsourced activities take place in their own facilities or in those of providers. Firms clearly prefer using their own resources, as 2013 and 2006 surveys show.

#### 4.6. *Commercial relationship*

Figure 6 here.

No significant variation exists in the firms' preference for a type of commercial relationship from 2006 to 2013. The firms acting as providers and clients of the outsourced services are still separate entities. Although some firms have joint initiatives, the cases in which a client owns a part of the provider's capital or that provider is a subsidiary or affiliate of the client firm are much less frequent. Student's t-distribution confirms the absence of significant means differences between variables' data for 2006 and 2013. These results, in turn, confirm their similar behavior over these two periods (Student's T values for separate organizations, joint initiatives, capital owner and subsidiary or affiliate are 0.97, -0.37, -1.39 and -1.46, with the corresponding significance levels: 0.33, 0.71, 0.16, 0.14).

### **5. Conclusions**

A widespread growth of outsourcing has taken place in recent years. The results of this study indicate that this period is a booming period for computer departments of

the largest Spanish firms. However, that rise is not exclusive for IT service providers in the national market (which is no longer static but in a slight downward trend): The offshore outsourcing of IT services also benefits from this rise (Peslak, 2012).

The most important Spanish firms continue to perform selective outsourcing, thus following previous studies' recommendations (Lacity et al., 1996). Firms only outsource some of the activities performed in their IS services. Furthermore, the most commonly outsourced activities are the least specific and most standard ones. These activities require less service addressee's direct attention, and many providers are available. Furthermore, these activities are not excessively complex or strategically critical (Ali & Green, 2009; Fisher et al., 2008; Thouin et al., 2009).

From the longitudinal point of view, the results show that the activities that firms outsource the most are the same in 2013 than in previous years. In addition, even though the outsourcing levels for the different activities are generally below 50%, those levels increase over time, which suggests that a stable tendency to outsource exists among Spanish firms. Furthermore, firms tend to outsource mostly at firm level.

Although firms look for more than one provider for outsourced activities, as they also did in the previous years, having multiple providers is less common nowadays. A tendency to maintain fixed prices exists, though firms also prefer contracts dependent on service units received. Contracts where the price stems from service cost are the last option for firms. Regarding contract duration, firms prefer short-term contracts (Currie, 1998; Earl, 1996; Gellings, 2007). This same preference shows in the findings of previous years. However, firms are no longer so reluctant to longer-lasting contracts, and the difference between short-term or longer-term contracts preference is not as wide. Regarding resources ownership, the largest Spanish firms still prefer to own both

the hardware and the software, and are in favor of implementing the services in their own premises, which once again follows the trends from the preceding surveys.

With regard to the commercial relationship between the participant firms, the IS service clients and their providers, these entities usually behave as separate organizations that act in accordance with specific outsourcing contracts. The cases in which the client owns part of the provider firm's capital or the provider is a subsidiary or affiliate of the client are much less common. This trend shows a behavior that is statistically similar to 2006 survey findings.

This study concludes that continuity in the outsourcing tendencies exists over time, as the previous surveys support. This study also concludes that a higher maturity of IS outsourcing exists, and that this maturity draws on: (1) A greater number of firms that carry out outsourcing, which is especially due to the growth of offshore outsourcing— an infrequent trend in the preceding surveys. (2) A higher degree of outsourcing for practically every IS service activity. (3) A less noticeable tendency to have many providers, which could be due to the strengthening of relationships with the latter. (4) A lower disproportion in the ways of fixing prices, which increasingly become service units and cost-based. This lower disproportion could reflect greater trust in the providers and in the services. (5) Higher use of, and less distrust toward longer-lasting contracts.

This study contributes to the literature by incorporating a longitudinal analysis, whereas most of the existing research on outsourcing focus on a specific point in time. The longitudinal vision can provide a fresher perspective (Dibbern et al., 2004). In addition, most longitudinal works on IS outsourcing are case studies (Brege at al., 2010; De Looff, 1995; Fisher et al., 2008; Kishore et al., 2003; Willcocks et al., 1999), and

this study is a survey-based research, which in turn replicates two previous surveys, and allows for more generalizable outcomes.

This study also has some limitations: although this is the third survey on the same topic, some data are only available in the 2013 and 2006 surveys, but not in the 2001 survey. Thus, further research should measure the development of these characteristics over time in other countries, regions, or in specific firms to assess the maturity level at IS outsourcing, and to help to carry out a more in-depth reflection on the characteristics of IS outsourcing contracts, which have become an inescapable reality in today's business management.

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Table 1. Studies' technical specifications

	2001	2006	2013
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 2012- February 2013

Table 2. National and global outsourcing, 2013

		Global outsourcing			Chi-square	Sign.
		No	Yes	Total		
National out.	No	54 (68.4%)	25 (31.6%)	79 (100%)	0.399	0.528
	Yes	206 (64.6%)	113 (35.4%)	319 (100%)		
	Total	260 (65.3%)	138 (34.7%)	398 (100%)		

Table 3. Outsourcing level (longitudinal)

		2001		2006		2013	
		N	%	N	%	N	%
National outsourcing	No	51	14.3	54	16.4	79	19.8
	Yes	306	85.7	275	83.6	319	80.2
Global outsourcing	No	-	-	275	83.6	260	65.3
	Yes	-	-	54	16.4	138	34.7

Figure 1. Outsourced activities (longitudinal)

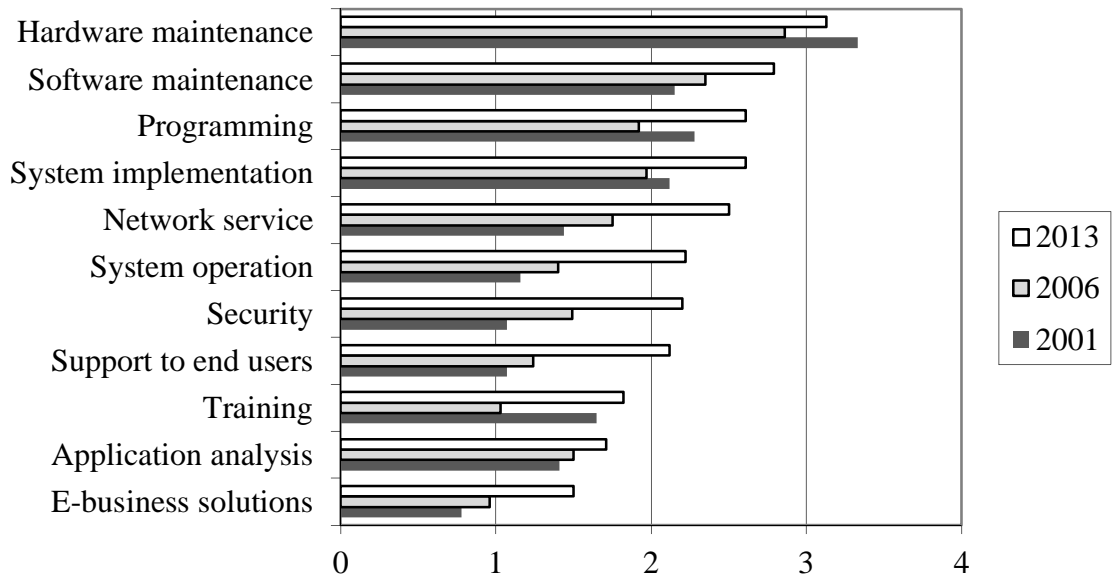


Figure 2. Several providers (longitudinal)

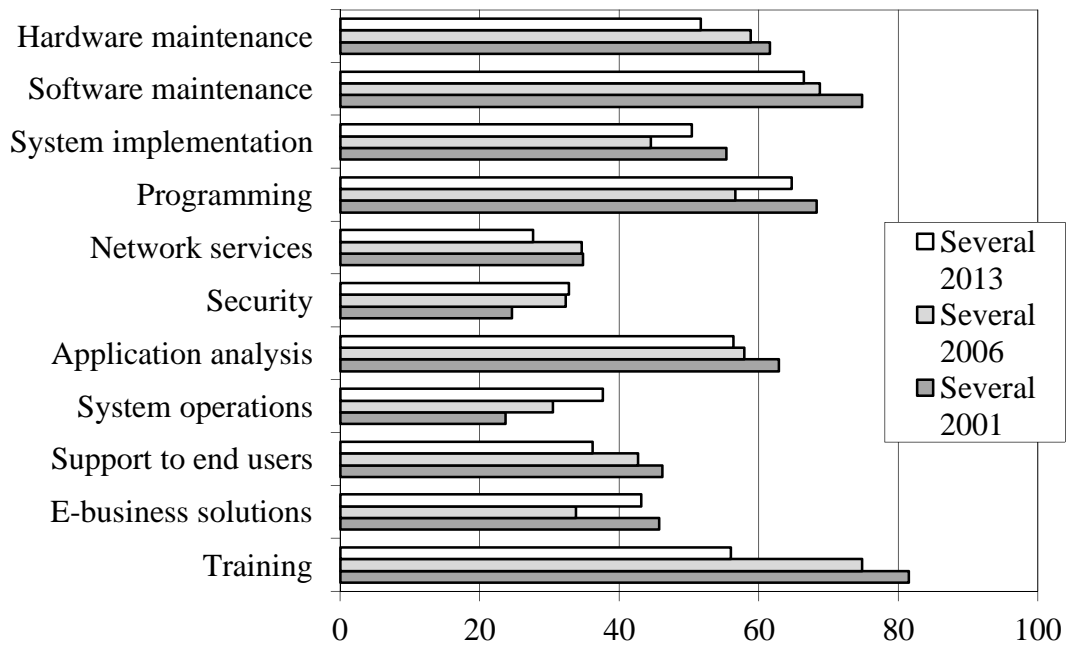


Figure 3. Price structure (longitudinal)

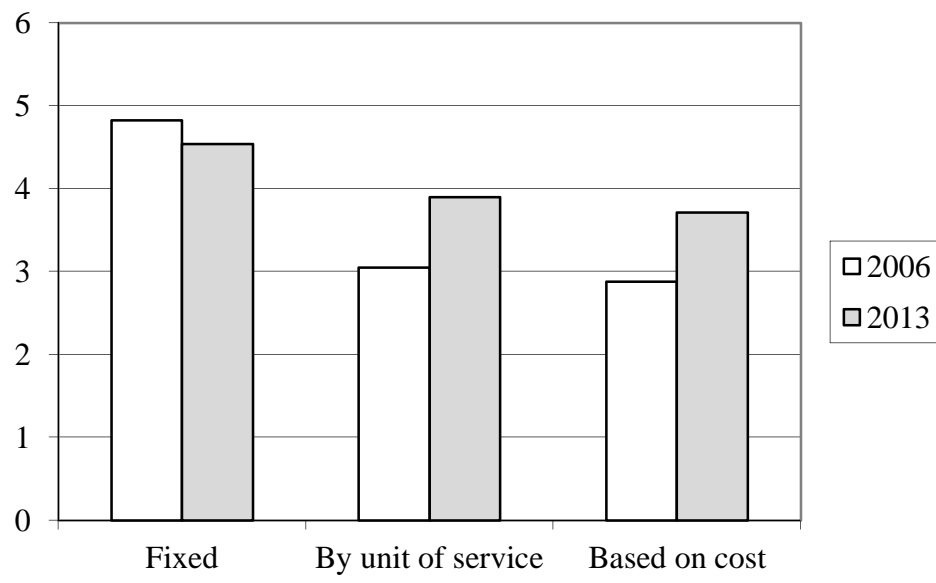


Figure 4. Outsourcing contract duration percentages (longitudinal)

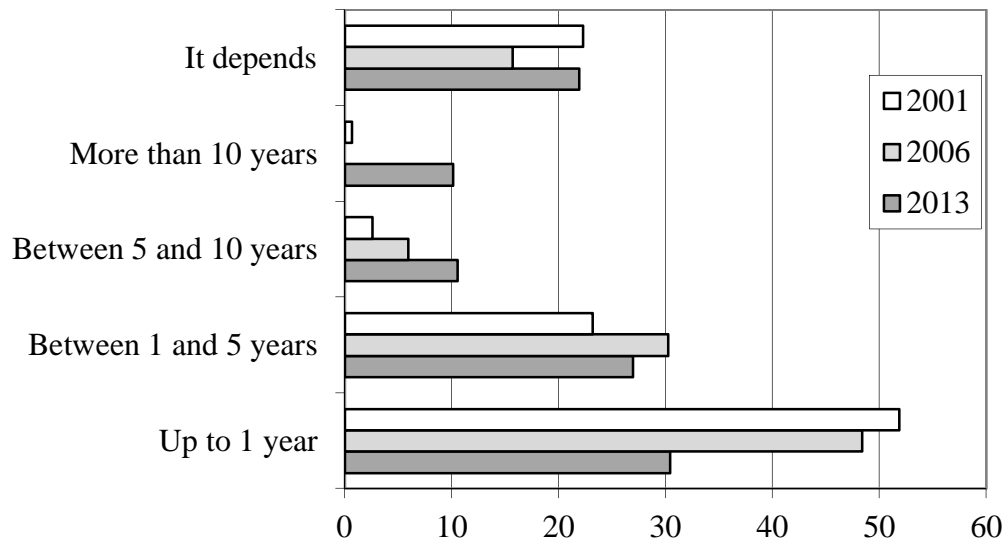




Figure 5. Resource ownership (longitudinal)

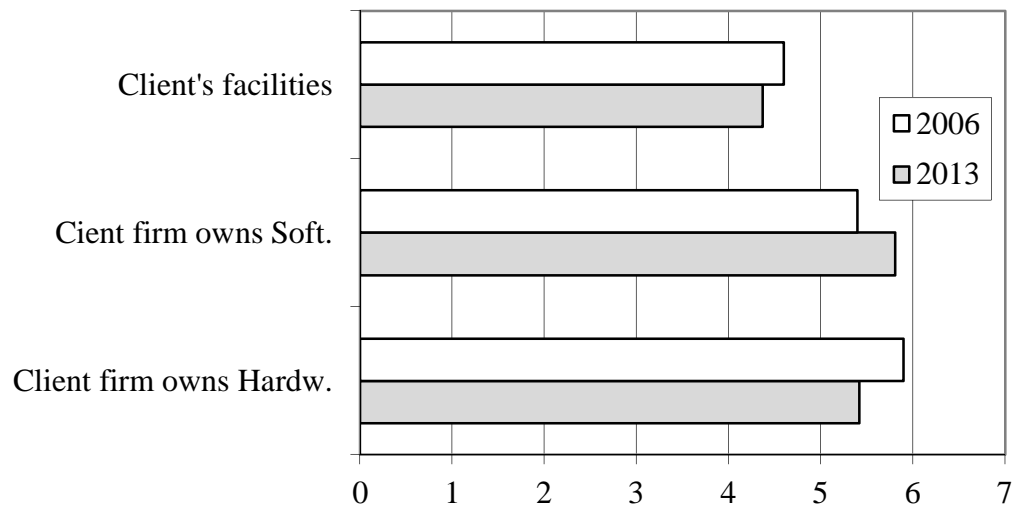


Figure 6. Commercial relationship (longitudinal)

