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The critical success factors (CSFs) for Enterprise Software contract negotiations

An empirical analysis

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Abstract

Purpose – As the wrong Enterprise Software (ES) acquisition can lead an organization with chronically exceeded budgets and settling for minimum returns, so can an unfavorable contractual agreement. Often the acquiring organizations become vulnerable to risks and mistakes as the software contracts are habitually written using legal terminologies and mainly to the advantage of the vendor. To avoid costly ES contracting mistakes, the purpose of this paper is to empirically identify the critical success factors (CSFs) of contracting in the context of ES acquisition.

Design/methodology/approach – A questionnaire survey was conducted to gather the data for this study. Statistical analysis conducted for this study include descriptive statistics, factor analysis with reliability and validity tests and nonparametric test.

Findings – The five key factors are: contractual assurance, forward compatibility and licensing; right to use, own and use of own, confidentiality and payment; software acceptance; license assignment; and vendor obligation for intellectual property. The research and managerial implications of these factors are given in discussion.

Research limitations/implications – As with most empirical studies, the subjectivity of the opinion of respondents from only two industries presents some limitations to generalization. Another limitation is the respondent has been asked for the degree of criticality for each of the contracting issue given in the questionnaire. There could be critical issues other than the listed ones which are more specific to the organization.

Practical implications – The results can be used by managers to improve their understanding on the critical contractual issues in ES acquisition negotiations.

Originality/value – The significant value of this study identifies the CSFs for ES contract negotiations while acquiring the software.

Keywords Critical success factors, Negotiation, Contract, Enterprise systems acquisition

Paper type Research paper

1. Introduction

Enterprise systems is a packaged software integrating the business processes and enterprise's data from organizational functions including accounting, finance, production, sales, distribution and other necessary functions into a single integrated system with a common database to provide information to people in time (Ragowsky and Somers, 2002; Gordon-Brown and Whittaker, 2002; Markus and Tanis, 2000; Baray *et al.*, 2008). As the wrong Enterprise Software (ES) acquisition can lead an organization with chronically

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exceeded budgets and settling for minimum returns, so can an unfavorable contractual agreement (Verville *et al.*, 2011). Often the companies are fed-up with contractual gaps that can result in unnecessary financial expenditure in ES contracting as the licensing fee continues to increase with soaring maintenance costs, lack of flexibility and misalignment with business goals (Rosenberg, 2010). In ES acquisition (which is already a major expenditure activity), it is not just a software purchase; it is a contract that includes licensing, maintenance and other fees which will exceed the cost of the software in four to five years (Burns, 2011). As software license agreement can include clauses, terms and language that force companies to pay far too much in case of ES acquisition.

As the contract fulfillment is a major deployment process involved in information resource (such as ES) acquisition process framework (Heckman and Sawyer, 1996), the organizations face many challenges in terms of high levels of uncertainty and risk. A wrong contract makes an organization so vulnerable to additional fees or restrictions on usage rights that the buyer does not anticipate (Disbrow, 2005). When a contract is signed without stating exactly what the customer expects from the ES software, there will be considerable increase in cost, stress, time and effort (Richard, 2011). In many cases, the elements of ES contracts on the integration, assurances, responsibilities, disclaimers and warranty limitations clauses operate to the benefit of the vendors; and since their terminology is vague, customers often ignore or do not pay adequate attention to the language that define the scope of the software offering (Verville and Taskin, 2010). For instance, Atkins (2005) gives the key contractual issues to be considered by the buyer for the conduct of software acceptance testing procedure which is an important legal clause in any software acquisition contract.

A large proportion of software acquisition projects are fatally flawed from the very beginning because not adequate time and attention have gone into pre-contract preparation and negotiation (Warchus, 1999). The most common cause of a breakdown in contract negotiations is the lack of clarity in defining the deal. The buyer takes pre-contract but primarily monetary risks including cost overruns, implementation risks (over-complex) and technological risks (Benaroch *et al.*, 2006). Among these risks, cost overrun is the single biggest risk in software acquisition as it constitutes time, money and missed opportunities (Jones, 2011). These risks are increased by choosing an inappropriate ES vendor (Snir and Hitt, 2004) and can be mitigated through appropriate planning, monitoring and control (Keil *et al.*, 2003). However, due to unpredictable internal and external changes the initial system required by the user evolves to a significant degree. As a result, many contract relationships become unsuccessful or ineffective because of complexities met when interpreting terms and conditions of the contract, confusion surrounding the usage of terminology, performance expectations and service content in view of the changes. Therefore, negotiating the ES contracts can be challenging and could be a very tricky process for the buyer-organization. The buyers have to be protected from undue risks arising in the course of their businesses by flagging that risk beforehand so they can make informed decisions during contract negotiations (Sinclair, 2012). As ES contract is one of the most important agreements that defines the rights, responsibilities, liabilities and expectations of both the buyer and vendor, more planning is needed before negotiating prices and payment, licensing and maintenance fees, warranty and liability, dispute resolution mechanism, termination, intellectual property (IP) matters, information security and other key terms and clauses that will protect the buyer's interests in the contract.

Though the major source of revenue for software vendors comes from licensing their code (Hillman *et al.*, 2010), often the ES vendors limit their offering to that given in

the vendor's user manuals, and other supporting documents. On the other hand, the complexity of the software and business applications impedes the customers to define and predict the functionalities they want from the software. Besides more uncertainties and complexities are created in the contracting process when mergers and acquisitions take place within the ES industry. For instance, merger of PeopleSoft and J.D. Edwards and later on the acquisition of PeopleSoft by Oracle are prime examples. The merger of software companies tends to increase the price (especially for maintenance and licensing) due to supply and demand. In general the big vendors aim for one-size-fits-all and are not very flexible on changes in contract terms (especially on the software license) and are very reluctant to modify their software before installation (Friedman, 2011). Therefore, the acquiring organization has to approach the ES contractual negotiations with extreme care to turn the negotiations process into a way to achieve its business objectives. This is done by devoting more time for planning and preparing the contract by predicting the uncertainties in the business and legal requirements with the associated risks in order to negotiate contractual protections. If the contract negotiation fails, eventually the ES acquisition with the vendor will fail. Verville (2000) reports a case study in which an impasse was reached on issues of cost and code ownership which caused the negotiation to fail.

As the written contract is the major outcome of hard negotiations and is the only definitive means of defining the relationship between the vendor and the buyer, a tight contract is the key to success while a loosely worded one is often lead to disaster. So if things go wrong in ES contracting then there is no second chance to put the contract right later. Successful contracting negotiations take place when the purchasing organization undertakes a rigorous assessment of the business needs and requirements; understands the vendor's strengths and liabilities; and anticipates the predictable (such as change in market demands) and unpredictable (such as mergers and acquisitions) changes (Disbrow, 2005). Effective management of ES acquisition should not be difficult when the contract incorporates the necessary mechanisms into it. The acquisition team with representatives from business and legal should establish and monitor the terms and conditions of the contract by using their authority, responsibility and resources (Jones, 2011). Consideration must be taken to ensure that ES contracts incorporate legal, economic, managerial, change and technological issues.

One surprising omission in the contractual relationships between ES buyer and vendor is the critical success factors (CSFs) to be considered in negotiating ES contracts by the acquiring organization. This research aims to empirically identify the CSFs for minimizing the contractual gaps in order to reduce the unnecessary financial expenditure and to protect the buyer from undue monetary risks arising from uncertainties in the business and legal requirements. The CSFs should be capable of controlling the chronically exceeded budgets comprised of increasing licensing fee and soaring maintenance cost; and should enable to clearly define the contractual relationships in terms of rights, responsibilities, liabilities and expectation of both ES buyer and vendor.

Accordingly, we analyzed data on the perceived CSFs by CIOs, IT managers, purchasing managers, legal professionals and users. The participants of this study have been randomly chosen within the manufacturing and service industries. The remainder of the paper is organized as follows. The Section 2 critically reviews the relevant literature; the Section 3 explains the research methodology followed for this study; the Section 4 deals with the data analysis and results; the fifth one discusses the managerial implications of the identified CSFs of ES contracting; and the Section 6 gives the conclusion, limitations and guidelines for further research.

2. Literature review

Enterprise systems contracts

A contract is an agreement which specifies the terms and conditions of a transaction between two or more parties (Richmond *et al.*, 1992). A transaction will occur only if the parties perceive gains from trade which is in their best interest to do so. The contract can be "an integral part of an organization's strategy, including its risk management strategy, by circumscribing relationships among interdependent parties seeking to create projects jointly around a multiplicity of diverse purposes" (Gilbert, 1992). The contract can be viewed as a dynamic obligation which results from agreements among the parties for mutually adjusting their legal binding in terms of commitments, responsibilities and making consensual changes for fulfilling the ES contract in uncertain conditions (Smith, 1991; Salbu, 1997). Therefore, ES contract is an agreement between the acquiring organization and the ES vendor specifying the terms and conditions of ES acquisition. Within this context, the contractual agreement determines how their baseline activities should be altered by give and take policies to achieve relational gains by forging a binding agreement in terms of the rights and conditions of both parties (Salbu, 1997). As the profit motives of ES vendor and the buyer-organization are not shared, the buyer cannot anticipate the vendor to behave in the best interests of the buyer when a conflicting situation arises (Lacity and Hirschheim, 1993). In this case, the written contract is more important for defining the rights, liabilities and expectations which directs the behavior of both parties (Lee, 1996). There are actually three separate contracts the buyer could sign with the vendor in the context of ES acquisition: software license contract, software maintenance contract and implementation services contracting (www.softresources.com). Software license contract is the agreement on the owner's right to prevent any third party from copying the software without prior permission or appropriate payment; software maintenance contract is the agreement on modification of software for correcting errors or omissions for improving its performance; software implementation services contracting in the agreement on the implementation steps, tasks and procedures.

Contract types

In general, the contract theory distinguishes between two types of contracts: comprehensive (complete) contracts and incomplete contracts. A comprehensive (complete) contract addresses every possible contingency by specifying the actions and payoffs for each party (Gifford, 1999; Holmstrom and Tirole, 1989; Williamson, 1975). Incomplete contracts are more realistic as they contain clauses about unanticipated contingencies (Tirole, 1999). Since it is difficult to specify every contingency upfront, complete contracts are rare in IT (Richmond *et al.*, 1992). In complex situations like ES acquisition, as it is difficult to anticipate every action and payoff and thereby include every contingency in ES contract, often the incomplete contract type is followed (Verville and Taskin, 2010). This incompleteness provides opportunities for renegotiation including early termination of the contract when an unforeseen contingency arises. Hence incomplete contract sets the framework for the evolving relationship between the buyer and the ES vendor. In the complete type, there is a sub-type called "relatively complete" where there are no clauses dealing with unexpected contingencies (Bolton and Dewatripomt, 2005; Tirole, 1999).

In the incomplete type, there is a sub-type called "relational contract". When transactions require repeated interaction over time, the acquisition is governed by the relational contract. Relational contracts "are those which the trading parties feel deserve periodic attention for the purpose of supervision, monitoring, consultation, and renegotiation" (Gifford, 1999, p. 470). This type of contract is intentionally incomplete

as it provides flexibility to incorporate future contingencies instead of having them in the initial contract. The relational contracting framework makes all parties concerned agree on goals and objectives, agree on the criteria to be applied in deciding what to do from a range of actions when unforeseen contingencies arise, who has what power to act and agree on dispute resolution mechanisms to be used in case of any disagreement (Milgrom and Roberts, 1992). The complexity of the ES acquisition's contractual environment forces for relational contract and opens the way for establishing a long-term relationship between the buying organization and the vendor.

Contract fulfillment- conflict or compromise

The contract fulfillment in ES acquisition is the process of managing, coordinating and complying contract-related activities including expediting of orders, software acceptance, software installation, contract administration and management of post installation services including warranty and maintenance (SIM, 1995b, c). In ES contracting, the buyer and the vendor establish long-term relationships by communicating between the two firms and negotiation is the mode to resolve any prevailing conflict (Ward and Webster, 1991). In this process, each party would like to assume some form of control within the relationship. The two possible scenarios could be conflict or compromise/concession (Verville and Taskin, 2010). The compromising situation is basically a give and take scenario. For instance, in contract negotiations, the buyer may ask for the right to establish the software acceptance procedure; upon the acceptance of this condition in the contract, in return, the vendor might ask for the retention of the ownership of the source code or to place it in escrow. This creates a give-and-take scenario for each issue under negotiation, and this facilitates the parties to have negotiability rights and thereby reduces the risks (Salbu, 1997).

The conflicting situation in negotiation arises as the vendor and buyer negotiate with different goals. The vendor's goals are to maximize profits and minimize risks and responsibilities; the buyer's goals are to minimize cost and maximize contractual assurances and performances (Verville, 2000). This could create conflicting situations. Richard (2011) gives a sample of conflicting situations: when the buyers do not know and not able to define the functionalities they want from the software, when the software functions in its own way and not meeting the needs of the buyer's business, when the software is not flexible enough for adopting the business changes, when the buyer gets confused about the complexity of the software and business applications, and when the vendors do not understand the buyer's business and its processes. As negotiation is the basic mode of getting what you want from others (Fisher *et al.*, 1991), for conflict management different negotiating tactics, strategies and approaches may be required (Kock and Verville, 2006).

Contracts can be viewed as mechanisms for flexible coordination and control in order to minimize and resolve any disputes or conflicts when they arise during the contract fulfillment (Salbu, 1997). When conflict or any legal dispute arises among the buyer and the vendor, contracts operate as means of control so that the parties involved have to fulfill their contractual obligations with the minimum of fuss (Verville and Taskin, 2010). In addition to control, for strengthening relationships among the buyer and vendor, contracts can serve as a mechanism for flexible coordination. In the context of ES acquisition, (relational) contractual relationships facilitate to create a cooperative environment by minimizing conflicts/disputes and maximize the benefits for all parties.

Contract negotiations

The negotiating process starts with establishing initial contact between the buyer and the vendor (Auer, 1993). Verville (2000) gives two types of the negotiation processes: business (informal) and legal (formal). The business negotiation process is to work out all the terms and conditions that are critical to the business side of the project including product support to user training and pricing (for software, licensing, support, etc.) to terms and conditions, implementation, scheduling, performance, etc.; and the legal type focusses more on the legal aspects of the project such as ownership of code, code changes, contingencies for software support, upgrades, acquisition or sell a division, vendor bankruptcy, escrow agreements, maintenance costs; clauses for non-performance of the software, assurances for forward compatibility of the software; the right to reassign the software license within the corporate entity, etc. An effective negotiation takes place when the negotiator thoroughly knows the technical and business requirements as well as the strengths and weaknesses of the vendor. So every time the negotiation takes place, some kind of business relationship is being built between the buyer and vendor-of-choice to deal with the issues and to exploit opportunities at the right level. At the same time, the contract negotiation may breakdown when there is a failure to define the end of the deals clearly.

Contractual elements

In the negotiation process the following factors should be considered: costs, warranties, negotiated responsibilities, vendor assurances, delivery, implementation issues, maintenance costs, financing, terms and conditions, indemnities and warranties, licensing restrictions, buyer rights, responsibilities, etc. (Verville, 2000). The Appendix 1 shows a list of contractual elements that must be considered in negotiating software agreements/contracts (SIM, 1995a).

Contractual issues

Contractual issues are important to the establishment of the relationship between the buyer-organization and the vendor of an ES. These issues provide the directives and the completeness of the contract. The Appendix 2 shows a list of contractual issues that must be considered in negotiating software agreements/contracts (Verville, 2000; SIM study on software contracting practices, 1995a). The question that requires answering, however, is out of the contractual elements (Appendix 1) and contractual issues (Appendix 2), what are the CSFs that must be considered in negotiating for ES acquisition so as to establish an effective relationship between the vendor and the buying organization. These factors may become the focal point of ES acquisition contracting (Verville *et al.*, 2005). For example, since most ES solutions are "one size fits all", the right to customize/tailor the ES package to better fit the buyer-organization's overall objectives and needs could be a CSF to be considered in ES contract negotiation (Harris, 2000). Similarly another CSF could be the ability for the buyer to port the technology to desired platform supported by the vendor (Verville and Taskin, 2010). In the global competitive environment, certain industries (such as manufacturing) may perceive the portability of the technology as a CSF. The ability to port the technology would enable more flexibility for manufacturing organizations to relocate their manufacturing facilities either domestically or overseas by retaining the existing/known technological environment. As ES software is licensed with warranties and guarantees, certain organizations would like to pay more attention for these factors in negotiating the contract. Of course, the criticality of success factor varies

as one factor might be so important for certain organizations/ industries but less important for others.

3. Methodology

A questionnaire survey was administered for collecting the data for this study. The survey instrument was developed based on a previous studies of Verville (2000), Verville and Halingten (2002), Verville *et al.* (2005), a study conducted by the Society of Information Management (SIM, 1995b, c) on of software contracting, and a comprehensive literature on IT contracts as well as contract law. A pilot test has been conducted to identify potential problems regarding the questions before it was finalized. The instrument has been further tested and validated by researchers (Kock and Verville, 2006; Verville *et al.*, 2011). The primary question is to find the importance of the contractual elements (Appendix 1) and contractual issues (Appendix 2) in the purchase of Enterprise Systems (i.e. ERP, CRM, SCM, KM, etc.). The survey was sent to companies mainly doing business in manufacturing and service industries. The questionnaires were sent to executives who had been involved in contract negotiations, by mail and asked to state their perception regarding the importance of their enterprise systems software contract issues. The companies that the data were collected were chosen among North American companies. Companies' contact information was gathered from online databases such as Lexis Nexis, and Hoovers. A total of 1,500 questionnaires were sent to randomly selected respondents from the list generated from these databases. In order to enhance the response rate, pre-addresses and pre-stamped envelopes were attached with the questionnaire. The response rate was about 17 percent and total returned was 277. The questionnaire used a Likert-type seven-point scale where "1" for "Not Very Important" and "7" for "Very Important". The questionnaire included 43 questions comprised of 36 multiple choice, one open-ended question related to contract issues and six demographic questions.

In this study, we used SPSS 16 statistical package to analyze the data and used descriptive statistics, factor analysis and nonparametric test. Descriptive statistics were used to provide information regarding means, standard deviations, frequencies and percentages about the sample. Factor analysis was used for defining the underlying structure among variables consistent with theory (Hair *et al.*, 2006). In this analysis, highly interrelated variables are determined and called as factors. Nonparametric test was used to show the differences between groups by means.

Among the respondents, 24.9 percent were CIOs and 16.2 percent were from IT Management. This makes 41.1 percent of all respondents were from IT field. The other chunk of respondents was from other category than IT, purchasing, legal or user. While 132 of respondents, corresponding to 47.7 percent of all, were doing business in manufacturing industry, 139 of respondents, 50.2 percent of all, were doing business in service industry. The data also show that majority of the respondents were from midsize companies where number of employees were 1,000-4,999 with 35.7 percent of all respondents. This was followed by smaller companies where number of employees was less than 100, with 13.4 percent, and between 500 and 999 employees, with 13.0 percent. Almost half of the respondent companies, 48.4 percent, were using only ERP and 11.9 percent of the respondents were using more than one ES. Therefore, we can say that more than half of the respondents were using ERP software. The use of other software was 24.9 percent. Oracle (Oracle, PeopleSoft, J.D. Edwards together) was the most popular vendor among the branded ES in the questionnaire with 25.3 percent. Majority of the respondents were using other ES vendors with 41.2 percent. Only 9.4

percent of respondents were using more than one vendor. The sample size and related categorization are given in Table I.

4. Data analysis and results

Before conducting factor analysis, the data were tested by multiple methods including normality and homogeneity tests. The results showed that the data were not normal. The tests for normality including log, square root and rank cases were done despite their inadequacy to improve the normality. For testing the sampling adequacy, KMO measures were applied. The higher the value of KMO (closer to 1), the higher the chances that factor analysis is the useful analysis for the data. In addition to that, another method in order to confirm that is to check the Bartlett test. The significant result for Bartlett test indicates that factor analysis is appropriate for data analysis. The test results of Bartlett test was significant for this data set and the results for KMO measure is 0.849, indicating that factor analysis can be conducted with current data. So, unweighted least square method with varimax rotation was carried out as this test robust for the violation of normality (Long, 1983).

Factor1 and factor2 were measured by seven items, while factor3, factor4 and factor5 were measured by two items each. The explanations of the loaded variables for each factor are given in Appendix 3. The factors with loadings more than 0.5 were chosen as significant ones (Hair *et al.*, 2006, p. 128).

	Category	Frequency	%
Job title	CIO	69	24.9
	IT Management	45	16.2
	Purchasing	35	12.6
	Legal	5	1.8
	User	59	21.3
	Other	64	23.1
Industry	Unknown	6	2.2
	Manufacturing	132	47.7
	Service	139	50.2
No. of Employees	50,000 plus	14	5.1
	20,000-49,999	15	5.4
	10,000-19,999	14	5.1
	5,000-9,999	28	10.1
	1,000-4,999	99	35.7
	500-999	36	13.0
	100-499	34	12.3
	Less than 100	37	13.4
Type of Enterprise Software	ERP	134	48.4
	CRM	27	9.7
	SCM	14	5.1
	Other	69	24.9
	More than one	33	11.9
Enterprise Software Vendor	SAP	52	18.8
	Baan	15	5.4
	Other	114	41.2
	More than one	26	9.4
	Oracle (PeopleSoft, JD Edwards, Oracle)	70	25.3

Table I. Sample distribution

Table II shows the factors and their loadings. Table II also provides information regarding Cronbach's α that is being the most widely used measure of reliability. The Cronbach's α coefficient is ideally recommended to be higher than 0.7; nonetheless values above 0.6 are also acceptable (Hair *et al.*, 2006, p. 137). As it is shown in Table II, all factor loadings are higher than 0.5, ranging between 0.512 and 0.828, and all α values are above 0.6, ranging between 0.628 and 0.853. The total variance explained for this study is also 0.488. Communalities showing the variance explained for each factor and each variable also are not very small (between 0.315 and 0.741).

Inter-factor correlations were used for testing the discriminant validity. In this analysis, values closer to 1.0 indicate that items are measuring the same construct. Analysis on Table III shows that inter-factor correlations are quite low. The results in Table III also reveal that correlation among each factor is significant at 0.01 level except factor2 and factor4.

The original plan for the data analysis was to conduct analysis of variance (ANOVA) test for the data. Since the initial tests for normality indicated that assumptions for normality were not met, a nonparametric test that is comparable to ANOVA was used to test the data. Nonparametric test, Kruskal-Wallis and Median tests are robust for the violation of normality (Hollander and Wolfe, 1999).

Results in Table IV indicate that there is significant difference between the different titles regarding factor2, factor3 and factor4. The explanation for the abbreviations used is given in Appendix 4. However, same significance does not exist for factor1 and factor5. The results show that CIOs, shown as T1, are among the ones that perceive factor2 as least important compared to other managerial levels represented in this

Factor name	Variable	Variable load	SE	*t*-value	Cronbach's α
Factor1: contractual assurance, forward compatibility, and licensing	V12	0.521	0.06539	30.861**	0.853
	V18	0.524	0.06674	29.371**	
	V19	0.514	0.07126	27.308**	
	V23	0.638	0.06673	29.270**	
	V24	0.742	0.06160	34.639**	
	V25	0.739	0.06706	29.395**	
	V26	0.620	0.07349	25.200**	
Factor2: right to use, and own, and use of own, confidentiality, and payment	V02	0.516	0.10297	10.413**	0.773
	V09	0.518	0.10382	12.692**	
	V14	0.514	0.09280	12.683**	
	V17	0.525	0.09247	13.664**	
	V22	0.512	0.09239	12.191**	
	V27	0.681	0.10425	8.969**	
	V33	0.695	0.09189	10.412**	
Factor3: acceptance (define and establish)	V07	0.688	0.07532	22.094**	0.823
	V08	0.827	0.07427	23.768**	
Factor4: license assignment	V01	0.828	0.07571	27.465**	0.628
	V04	0.506	0.07954	25.600**	
Factor5: vendor obligation for intellectual property (infringe and indemnify)	V30	0.789	0.06660	29.164**	0.719
	V31	0.550	0.06023	35.365**	

Table II.
Factor loadings and *t*-values

Note: **Correlation is significant at the 0.01 level (two-tailed)

study. Lawyers and other legal departments, shown as T4, perceive factor2 as more important. In terms of factor3, legal departments and lawyers perceive it as least important while factor3 is very important for purchasing managers. Regarding factor4, CIOs and legal departments are on the opposite side in terms of the perception of importance. While CIO finds factor4 as very important, legal departments are the ones who find it least important among the organization.

Results in Table V indicate that there is significant difference between the industry types regarding factor1 and factor4. However, there is no significant difference between the groups regarding industry types for factor2, factor3 and factor5. The results show that while participants from manufacturing industry find factor4 very important regarding contract issues, the ones from service industry find factor1 least important. The respondents for the survey that are not from neither service nor manufacturing industry find factor1 as very important while they find factor4 as least important compared to other industries.

Results in Table VI indicate that there is significant difference between groups of company size regarding factor2 and factor4. The results do not indicate any significant differences among groups of company size regarding factor1, factor3 and factor5. Relatively big companies having the employees between 20,000 and 49,999 perceive

Variable	1	2	3	4	5
1	1				
2	0.405**	1			
3	0.455**	0.202**	1		
4	0.390**	0.116	0.309**	1	
5	0.455**	0.277**	0.332**	0.203**	1

Notes: *,**Correlation is significant at the 0.05, 0.01 levels, respectively (two-tailed)

Table III. Correlation between variables

Independent variable	Dependent variable	Mean rank T1	T2	T3	T4	T5	T6	χ^2	*p*-value
Title	Factor1	142.62	128.60	134.26	96.60	140.87	146.59	3.044	0.693
	Factor2	89.22	126.40	139.61	182.00	170.23	169.05	47.277	*0.000*
	Factor3	157.67	137.53	158.19	109.20	119.11	130.08	11.189	*0.048*
	Factor4	166.46	141.12	151.27	64.20	120.20	124.37	19.760	*0.001*
	Factor5	138.86	152.62	118.11	150.00	132.68	145.97	4.828	0.437

Table IV. Nonparametric test grouping with title

Independent variable	Dependent variable	Mean rank I0	I1	I2	χ^2	*p*-value
Industry	Factor1	175.42	151.06	125.97	7.944	*0.019*
	Factor2	75.08	136.02	144.59	4.688	0.096
	Factor3	174.58	143.48	133.21	2.387	0.303
	Factor4	98.17	154.31	126.22	10.482	*0.005*
	Factor5	140.33	139.08	138.87	.002	0.999

Table V. Nonparametric test grouping with industry

factor2 least important while small companies having less than 100 employees find it the most important. However, these small companies do not give the same importance to factor4 while the companies having 10,000-20,000 employees find it very important.

Based on the results shown in Table VII, there is significant difference between groups of ES type regarding factor2, factor3 and factor4. Results indicate no significant findings regarding factor1 and factor5. Organizations using more than one type of ES find factor2 as least important while users of software other than ERP, CRM and SCM find factor2 as most important in an organization. Organizations using more than one type of ES perceive that factor3, and factor4 are very important while SCM users think that these factors are least important.

There is significant difference between the groups of vendors regarding factor1, factor2 and factor4. Table VIII also shows that there is no significant difference between groups of vendors regarding factor3, and factor5. Argument based on factor1 is perceived as very important by SAP users while the Oracle users agreed least about this issue. The perception regarding the importance of factor2 was opposite for Oracle users and CRM users, who found factor2 as very important. Oracle users also did not

Table VI. Nonparametric test grouping with company size

Independent variable	Dependent variable	Mean rank S1	S2	S3	S4	S5	S6	S7	S8	χ^2	*p*-value
Company size	Factor1	149.89	145.50	147.46	152.52	147.49	115.90	134.56	122.65	7.096	0.419
	Factor2	123.00	83.97	102.57	108.68	131.99	166.85	163.57	173.16	29.645	*0.000*
	Factor3	129.43	173.83	114.89	161.02	139.80	128.74	127.41	139.45	7.944	0.338
	Factor4	151.93	175.13	199.29	161.59	136.27	130.32	125.60	107.62	21.910	*0.003*
	Factor5	104.29	163.63	176.32	148.34	147.71	118.04	125.50	130.46	13.030	0.071

Table VII. Nonparametric test grouping with enterprise software type

Independent variable	Dependent variable	Mean rank ST1	ST2	ST3	ST4	ST5	χ^2	*p*-value
Software type	Factor1	140.21	118.85	121.71	140.50	154.77	3.711	0.446
	Factor2	129.85	156.22	158.46	169.83	89.33	26.782	*0.000*
	Factor3	143.61	116.85	116.43	127.85	171.30	10.604	*0.031*
	Factor4	143.99	120.35	87.79	122.68	189.83	25.207	*0.000*
	Factor5	132.29	137.39	116.71	148.49	157.18	4.909	0.297

Table VIII. Nonparametric test grouping with vendor

Independent variable	Dependent variable	Mean rank V1	V2	V3	V4	V5	χ^2	*p*-value
Vendor	Factor1	166.59	144.30	136.73	154.40	115.35	13.450	*0.009*
	Factor2	157.75	158.97	146.07	118.13	117.03	11.724	*0.020*
	Factor3	152.76	150.30	137.41	137.23	129.60	2.932	0.569
	Factor4	147.45	147.13	128.81	187.38	129.61	13.763	*0.008*
	Factor5	143.77	160.97	145.72	142.63	118.46	7.066	0.132

perceive factor2 important as the users of other vendors, while organizations having more than one vendor perceived factor4 as very important.

Discussion

To reduce the contractual gaps in terms of unnecessary financial expenditure and to protect the buyer from undue monetary risks, this research aims to empirically identify the CSFs from the list of contractual elements and contractual issues given in Appendices 1 and 2. Based on the perceptions of the survey participants, the following five CSFs were identified as shown in Table II: contractual assurance, forward compatibility, and licensing; right to use, and own and use of own, confidentiality and payment; software acceptance (define and establish); license assignment; and vendor obligation for IP (infringe and indemnity). In general, focussing more on these CSFs in negotiating ES contracting prevent the unfavorable contractual agreement between the buyer and vendor. In particular, these CSFs enable the buyer for controlling the ES licensing fee and maintenance budget; clearly define effective buyer-vendor contractual relationships in terms of rights, responsibilities, liabilities and expectations. As shown in Tables IV-VIII, the degree of importance of these CSFs varies across the participants because of the variations in their jobs, organizations, industries and acquisition of different ES. The discussion on the managerial implications of these CSFs is given in this section.

Contractual assurance, forward compatibility and licensing

The primary research question is how to address the unfavorable contractual agreement comprised of increase in licensing fee and soaring maintenance cost. The related questions are: how to handle "lack of flexibility" as often the contract is misaligned with business goals and how to protect the buyer's interest from uncertainties in the business and legal requirements. These questions are answered by the CSF "contractual assurance, forward compatibility, and licensing" indicating a high value for Cronbach's α, as shown in Table II. The items loaded on this factor are given in Appendix 3. These items emphasize the need for contractual assurances regarding forward compatibility of the ES with changes in operating systems, hardware and other software from the same vendor; the need for license that permit unlimited use of the software and license for using any third-party software application; and the right to port the software to any platform supported by the vendor at no or minimum cost. This is convincing as the success in ES contracting depends on how rigorously the buyers assess their business/technological needs, anticipate changes in the business and understand the vendor's strengths and liabilities (Disbrow, 2005). Based on the need assessment, the contract negotiation team defines the functionalities they want from the software and clearly define the specific criteria regarding the business processes to be supported by the software (Richard, 2011). As warranty in the license agreement is mostly given for functioning of the software as the documentation states, it may not meet the specific needs of the business. This gives room for negotiation so that the software could support specific needs of the business and adapting to the technological changes in operating systems, hardware and the vendor-initiated changes in the software. In other words, the ES software licensing contract requires flexibility to make sure that the licenses can adapt to changes in a fast moving technical environment.

Some changes are predictable (e.g. change in the number of users of ES software) and some are unpredictable (such as mergers and acquisitions for buyer/vendor organizations). Nonetheless, the contract needs to address the changes in business, technological and legal needs. Building a check-list for changes avoids any possible

omissions from contract negotiations. The negotiating team needs to anticipate internal/external changes, foresees the future developments and issues (e.g. mergers and acquisitions) that could affect the software usage requirements and terms of use. As unpredictable changes happen without warning, licenses that permit unlimited use would make the organization to pay minimum or no additional fee and enable the right to transfer licenses. The frustration comes when the software needs more expensive modifications or enhancements due to the omission of certain conditions or facts (Senter, 1984). So, carefully constructed clauses provide value in the unpredictable situations. For the contractual assurances to be followed from the vendor side, clear and measurable deliverables are to be defined in the contract. At the same time, there is a need for a separate clause in the contract to address the situations where the vendor is unable to abide by the contract or worse become bankrupt or goes out of business.

Right to use, and own and use of own, confidentiality and payment

For effective contractual relationships, this research focusses on the critical contractual issues in defining the rights (to use/ own), responsibilities, liabilities and expectations of both the buyer and vendor. Besides, the contract needs to safeguard the buyer's interest and protect from undue monetary risk. These concerns are addressed by the CSF "Right to Use, and Own and Use of Own, Confidentiality and Payment" indicating significant statistical values as shown in Table II. The contractual issues items loaded on this factor are given in Appendix 3. These issues emphasize the buyer's right to use the software for the benefits of other entities or a business unit which has been sold; right to own the source code; right to use own form instead of licensor's form; right to give permission to exempt individual employees from signing confidential contract documents; and right to avoid partial payments for vendors based on check points. This finding is consistent with Jones' (2011) argument in favor of acquiring essential rights along with the software to meet the business, technological and legal needs. Accordingly, the essential rights are to be included in the contract by introducing special contract clauses such as "rights to use," and "rights to own". The buyer-organization needs to have the right to own or have a license to modify any customizations or enhancements at its own discretion. This is important as the customization such as addressing the changes in business requirements and business processes are generally costly and time consuming (Harris, 2000). Furthermore, the rights to own any improved versions or new releases of the software from the vendor should be made available to the buyer at a price no more than the contract price.

Typically in a software license agreement, the vendor has an interest in restricting the rights granted but grants certain usage rights to the buyer by retaining the ownership of the source code. However, the buyer expects broad rights and few restrictions; and anticipates the right to own the source code. So, the contract has to clearly define when the software will become the exclusive property of the buyer so that the buyer will be protected from any future dispute (Senter, 1984). Having said this, the code ownership is a critical issue as the buyer may need it to create interfaces. At the same time, negotiating ownership rights should be fair to both parties. For instance, in case of object code delivery, the source code should be in escrow. The ES licensing provides negotiating opportunities with the vendor and many rights can be negotiated into or out of the contract. Here, the ES acquisition team should not purchase more licenses than they need or additional (unwanted) software functionalities that can drive up the licensing fee.

Regarding the payments to software licenses, though the vendor's preference might be full or a major percentage of payment in advance, the buyer has the right to make

partial payments based on check points (specific events or milestones) such as installation, preliminary testing, final testing, etc. For protecting the buyer's interest, preferably most of the payment should not be paid until the software has been shown to meet the acceptance criteria (Nelms, 1995). For modifications or enhancements, payments should always be tied to acceptance testing. The contract agreement must address software licensing fee for current situations as well as future transactions in terms of additional users, usage rights for the benefit of various business units and entities. For software licensing contracts the buyer-organization should use its own form in place of the licensor's form so that the buyer will get the required levels of licensing and prices.

Software acceptance (define and establish)

Often, the contractual gaps occur due to non-acceptable performance of the software in view of changes in business. This concern is addressed by the CSF "Software acceptance (define and establish)" indicating significant statistical values for its perceived criticality as shown in Table II. The two critical contractual rights loaded on "software acceptance" are given in Appendix 3. The critical rights are: right to define software acceptance as occurring only upon buyer's written notice; and right to establish acceptance procedure. Software acceptance is an important stage in ES contractual process. In the commercial perspective, the payment is made only after the acceptance of the software; in the legal perspective it triggers the application of warranties and potential remedies to the software buyer (Atkins, 2005). Though the vendor has an interest in acceptance occurring as soon as possible (Warchus, 1999), the buyer has the right to define software acceptance in order to reduce the risk in acquisition and in compliance with contract requirements (Jones, 2011). So the acceptance occurs only upon the buyer's written notice.

Establishing the acceptance testing for ES may be a lengthy procedure in which several modules (components) are to be tested in a variety of circumstances with appropriate test data to ensure the software meets the users' requirements (Atkins, 2003). In general, software acceptance tests/ procedures examine whether the software meets the users' requirements, assess the software's functionality in handling data, investigate its resilience in handling incorrect input, test its performance and check its quality attributes such as usability and documentation (Newton, 2007; Office of Government Commerce web site: www.ocg.gov.uk). Nonetheless, the right to define and establish acceptance procedure should be at the discretion of the buyer. This procedure has to address all the contingencies including the ways of addressing any failure to pass the prescribed acceptance tests. The circumstances under which the vendor has to rectify any defects in the software, the allowable time to carry out the corrective work and the possible criteria for retesting the software should be clearly given in the contract (Atkins, 2005).

Though it is not reasonable to expect the software to be completely error-free, the contract clauses should address the number and gravity of the errors. However, the acceptance (criteria) is generally difficult to enforce under law in the event of any dispute (Sinclair, 2012). To protect the buyer's interest and to avoid unnecessary disputes over the system's performance, the contract needs to have detailed and thorough acceptance test clauses for addressing the ways in which the tests are to be carried out, what constitutes acceptance, acceptance testing criteria, ways of handling failure/ repeated failure/rejection of the software. As Morgan *et al.* (2001) argues, upon acceptance of software testing, the buyer pays the fee fully or partially and thereby enter a warranty

period in which the software bugs are corrected at free of charge as the responsibility for rectifying or keeps trying to rectify the defects rests with the vendor.

License Assignment

Increase in licensing fee and software maintenance costs are the major outcomes of unfavorable contractual agreement. The CSF "License Assignment" effectively handles the licensing issue in the ES contracting. This CSF is critical as the results in Table II indicate this factor statistically significant. The two contracting issue loaded on "License Assignment" are given in Appendix 3. The critical rights are: right to assign the software license to a new corporate entity resulting from a merger, consolidation, acquisition or divestiture; and right to reassign software licenses within the corporate entity. The criticality of understanding the buyer's rights under licensing assignment is also emphasized by Rosenberg (2010) as it is a multi-dimensional challenge dealing with different product versions, product releases, minimum and maximum user requirements, license types, rule changes and much more. In license assignment, a good contract spells out how pricing is done, number of users at one time, the user definitions (whether it includes only employees or/and retirees or seasonal workers) (Roberts, 2010). However, changes in businesses within the corporate entity as well as changes to the user population may result the buyer-organization into over-licensing or under-licensing leads to excessive cost and risk. So it is important to have assignment clauses in ES contract to deal with the rights of each party in case of merger, consolidation, acquisition or divestiture or decide to transfer the agreement to another vendor. For instance, in case of acquisition, the buyer has to ensure the right to transfer/(re)assign licenses to the acquired companies in order to avoid the payment of full license fee for every new acquisition. To protect the buyer from undue risks in case the vendor is acquired or went out of business, the licensing clause needs to specify how the software code should be available to the buyer (Roberts, 2010). In general, the agreement on assigning or not assigning software licenses should be transferred by either party, in whole or in part, without prior written permission agreeable to both parties.

The primary reasons for contractual gaps in license assignment that can result in excessive financial expenditure are lack of knowledge, lack of information and lack of big picture (Rosenberg, 2010). Lack of knowledge refers to the familiarity and non-compliance with vendors' ever-changing licensing rules; lack of information on licensing may result in non-essential purchase and assignment of extra licenses which leads to significant overspending; and lack of big picture may change the deployment of applications and platforms (software and hardware) affects the licensing in a big way as often not planned effectively. To develop the big picture, the software license requirement and assignment should be based on the current and future business needs (short-term and long-term needs) at the corporate level resulting from a merger, consolidation, acquisition or divestiture. Gaining clarity over the current and future needs enable the buyer to negotiate additional license assignments.

Often the vendors are flexible with purchase price of the software but less so with licensing fees. Therefore the buyers need to devote more time to planning for software licensing assignment especially during the periods of uncertainty as it would be harder to negotiate contractual protections. The key negotiation points for ES software licensing include the rights to use/access, use/access restrictions, source code availability for customization, rights to modify, right to copy and distribute, the business problem the software is intended to solve, adequacy of the existing licenses in case of expansion, operating systems and versions supported and accurate definition of software to be

licensed. Though the vendors prefer to limit and restrict usage and access rights, the buyer-organization should carefully consider the acceptable license rights both for usage and access.

Vendor obligation for IP (infringe and indemnity)

To reduce the contractual gaps, the ES contracting negotiation needs to protect the buyer from any undue risks. The vendor plays a key role in safeguarding the buyer from the risk issues pertaining to IP rights. The CSF "vendor obligation for intellectual property" effectively addresses this risk. The results in Table II show this factor statistically significant and the two loaded items on this factor are given in Appendix 3. The vendor invests significant sums of money in the development of IP for software, documentation and markets it in order to generate revenue. When the vendor lacks appropriate capabilities, often contracts fail putting the buyer into risk (Artunian, 2006). So, in ES contracting, the buyer must have sufficient rights to use, maintain and replicate the software; and the vendor has to ensure that the IP rights for the software are well protected (Jones, 2011). In general, for protecting the secrecy of the software and its associated trade secrets, the vendor goes for obtaining patents, trademarks, copy rights or any other pertaining to IP rights. The ownership of (IP) creation, usage and any infringement of usage is an important issue in ES contracting. The buyer takes ownership of IP and may permit other allied business entities to use the IP thereby save time and money. For protecting the buyer, there should be a clause to address the ownership of IP rights (such as copyright, patents, etc.) for the software programs, manuals, written documents and other information assets. As the IP can be protected by IP rights, the buyer insists that IP produced by the vendor should also belong to the buyer (Hillman *et al.*, 2010). For instance, ownership of source code to the buyer is useful for any future modifications so that if problem arises in the buyer-vendor relationship, the buyer can quickly gain control over the assets without paralyzing its operations. This is to safeguard the buyer's interest in case of any breakdown in the relationship.

Here the IP is treated as an asset which can be sold, bought, licensed, assigned or reassigned and the IP laws enable the possessors to protect their property from unauthorized uses, copies or applications. Copyright is a legal term protecting the IP from reproducing and copying. For instance, in case of ES, once the code is written to a medium, the copyright is obtained to avoid any legal infringement. An IP licensing gives the right to use the IP for copying, modifying and for doing similar things. The IP rights can be transferred by assigning it to limited or unlimited duration. In case of ES, usually unlimited rights are assigned. The buyer needs protection from the vendor for any infringe on the rights of any third party for all losses, damages or liabilities arising from the infringement or alleged infringement of such patents, trademarks, trade secret, copy rights or any other right pertaining to IP rights. As the vendors tend to be savvy negotiators, only the buyer-organization needs to set the ground rules.

Therefore clauses are to be present in the contract to protect the buyer from any consequences such as breach of copyright for the vendor-supplied software and ownership of IP rights for source code modifications should be with the buyer (Nelms, 1995). In absence of these clauses in the contract, and if the buyer is licensed only to use and not to modify or get anyone else to do so then the difficulties arise for customizing the software. The contract should indicate the restrictions (if any) in the software modification (change to the source code) or enhancement (creation of new code). The vendor has to indemnify the buyer-organization exercising rights of use granted by the

contract agreement against all damages, losses or liabilities arising from the infringement of IP. In general, the business familiarity gained by repeated contracting with the same vendor mitigate the risks in contracting as the vendor capabilities are revealed in frequent interactions (Gefen *et al.*, 2008); also it diminishes any private information about buyer and the vendor (Bolton and Dewatripomt, 2005). Furthermore, business familiarity improves the vendor's tacit knowledge about the acquiring organization's business processes and environment (Ethiraj *et al.*, 2005). To avoid any risks in providing technical services to the buyer-organization, user inputs should be incorporated into the contract or expressed to be part of the overall contract (Warchus, 1999).

Varying perception of importance for the factors

The results of nonparametric tests grouping with title, industry, company size, ES type and vendor are given in Tables IV-VIII, respectively. These results show that the participants perceived the CSFs with varying degree of importance. The difference in perception of importance occurs due to the variation in participants' job title, company size, industry, ES type and vendor. In each grouping, there are factors which show significant and "no significant" difference in perceptions; some factors are most important for a group and the same factors are least important for different group of participants. For example, the factor4 (License Assignment) was perceived to be very important by CIO participants while the same factor was perceived as least important by legal departments. Typically CIOs are more concerned with strategic business issues such as merger, consolidation, acquisition or divestiture. So, it is obvious they perceive factor4 to be very important. On the other hand, the legal department perceived factor2 (right to use, and own, and use of own, confidentiality and payment). So, the legal department perceives more importance to protect the buyer legally from undue risks in using and owning ES. Similarly, as the needs for manufacturing and service industries are different, the degrees of perception of importance for the factors are different. Another interesting finding is the degree of perception of importance varies by the type of ES. The current issues or problems faced with the acquired ES drive the participants to evaluate the current system and assign the importance accordingly. For instance, SAP user-participants perceive factor1 (contractual assurance, forward compatibility and licensing) to be more important. This is justified as enhancements, new releases and updated versions happen frequently with this ES.

Conclusion, limitations and areas for further research

The ES contracting has been one of the challenges for IS practitioners while acquiring the software. Empirically identifying the CSFs in ES contract negotiation is important to minimize contractual gaps and to prevent unfavorable contractual agreement between the buyer and the vendor. The presence of contractual gaps increases the licensing fee and maintenance cost; and the unfavorable contractual agreement results into misalignment of the software with the business goals. Though the previous research identified a list of contractual elements and issues, focussing on all of them leads into ineffective negotiations. Identifying the critical ones from the given list provides guidelines for the negotiating team for effectively handling the negotiation and thereby reduces the contractual gaps. To minimize the potential adverse impact in the ES contracting and to build impending protections, this research empirically identified the CSFs by obtaining data from CIOs, IT managers, purchasing managers, legal professionals and users on perceived importance of contractual issues. The factor

analysis and nonparametric tests were applied for data analysis. The five CSFs are: contractual assurances, forward compatibility and licensing; right to use, and own and use of own, confidentiality and payment; software acceptance; license assignment; and vendor obligation for IP (infringe and indemnify). These factors were perceived with wvarying perception of importance. This leads to say that the perceived degree of importance of a CSF depends on various factors. This variation was inferred from the results of nonparametric tests grouping with title, industry, company size, ES type and vendor.

Everything is negotiable until the parties sign the contract. Beyond focussing on the CSFs, the negotiating team can accept compromises for the less critical ones. The software contract terms including the rights, roles and responsibilities should be clearly understood in the contract fulfillment ensuring the buyer buys exactly what is supposed to be purchased. For instance, though the vendor might offer a deal for acquiring extra licenses upfront, the buyer has to make sure those extra licenses are useful. Even though, we made a concerted effort to include a range of individuals who participated in the ES contracting negotiations, their opinion on the criticality of success factors is highly subjective. Furthermore, the respondents were from two major industries: service and manufacturing. The study data were collected within North America. As with most empirical studies, the subjectivity of the opinion of respondents from only two industries presents some limitations to generalization. A statistically random sample of the respondents from all industries would have increased the generalizability of the results. Another limitation is the respondent has been asked for the degree of criticality for each of the contracting issue given in the questionnaire. There could be critical issues other than the listed ones which are more specific to the organization. These hidden issues could be explored by an empirical study. Despite these limitations, however, our study makes a noteworthy contribution to ES contracting.

There are still many things on ES contracting which have not been explored. For example, what are the effective negotiating tactics, strategies that could be followed in ES contract negotiations? As the vendors (or vendor's sales representatives) are usually proficient in negotiations compare to the buyer side, this research is worthwhile for the successful negotiations. A case study methodology could be followed for this purpose. Another research avenue would be to investigate how the size of the vendor makes a difference in ES contract negotiations as the ES market consists of small and big vendors. Historically the smaller companies tend to provide less expensive software, more flexible in customizing the software prior to installation, and are more willing to negotiate contract terms compare to bigger vendors (Friedman, 2011). However, the big vendors can offer larger percentage discounts on the initial cost of the license for software compare to the small vendors. So the empirical data could be collected for small and big vendors in order to identify contractual issues and CSFs. As the small- and medium (SME) sized organizations deal mostly with small vendors, this research is useful for the SMEs.

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Appendix 1

Contract elements (SIM, 1995a, – current practices in software contracting practices; Verville, 2000):

- The right to assign the software license to a new corporate entity resulting from a merger, consolidation, acquisition, or divestiture.
- The right to use the software for the benefit of a business unit formerly within your corporate organization which has been sold.

- The right to assign the software license to or allow the software to be used by an outside entity if you outsource your data processing operations.
- The right to make and own derivative works (i.e. code changes, translations, adaptations) based upon the software.
- The right to port the software to any platform supported by the vendor at no or minimum charge.
- Licenses that permit unlimited use within your corporate organization (i.e. "enterprise-wide" licenses)
- In situations other than enterprise-wide licenses, the right to transfer the software to other equipment and operating systems at no cost.
- In situations other than enterprise-wide licenses, the right to use the software for the benefit of other entities (e.g. parent, subsidiary, division) within your corporate organization at no cost.
- In situations other than enterprise-wide licenses, the right to transfer the software license to an existing entity (parent, subsidiary, division) within your corporate organization at no cost.
- Limited liability for breach of your obligations under the software license agreement.
- Prohibition against devices in the software that control your compliance with the software license.
- The right to customize the duration of the software acceptance period.
- The right to define software acceptance as occurring only upon your written notice.
- Specific remedies for vendor's non-performance.
- Incentives to licensors to reward their performance in providing services.
- A remedy for consequential damages that you suffer.
- Use of your own form in place of the licenser's form for licensing contracts.
- Contractually defined difference(s) between: enhancements, releases, versions etc., that you receive by subscribing to software support; and those the vendor insists are a new product requiring a new license.
- Vendor's responsibility to meet the cost of procuring alternative third-party support if the vendor fails to provide adequate and timely service.
- A cap on future maintenance prices.
- Permission to exempt individual employees/contractors from signing documents that acknowledge confidentiality of software or to bind them to terms of the license.
- Avoidance of partial payments to vendors based on check points.
- Contractual assurances regarding forward compatibility of the software with changes in operating systems.
- Contractual assurances regarding forward compatibility of the software with changes in hardware.
- Contractual assurances regarding forward compatibility of the software with changes in other software from the same vendor.

Appendix 2

Contractual issues (Verville, 2000; SIM (1999a) study on software contracting practices):

- Software license assignment to a new corporate entity.
- Software usage by a business unit formerly within the corporate organization which has been sold.
- Development and ownership of derivative works (i.e. code changes, translations, adaptations) of the software.
- Software license re-assignment within the corporate entity.
- Code ownership.
- Maintenance costs.
- Other costs.
- Support.
- Upgrades.
- Escrow agreements.
- Non-performance clauses.
- Assurances (i.e. forward compatibility of the software).
- What occurs in the case of bankruptcy or other similar situations.
- Intellectual and industrial property:
  - License for any third party software application used under this contract: the vendor guarantees that the organization may use such software application without infringing upon any third party intellectual property rights.
  - The vendor warrants that the services provided to the organization shall not infringe upon any patent, trademark, trade secret, copyright or any other right relating to intellectual property rights in force, recorded or recognized.
  - The vendor accepts to indemnify the organization for all losses, damages or all liabilities arising from the infringement or alleged infringement of such patents, trademarks, trade secrets, copyrights or any other pertaining to intellectual property rights.
- Warranty, long-term support and liability.
- Insurance: the vendor agrees to acquire and keep in force at its expense insurance such as programmers errors and omissions insurance, comprehensive general liability insurance and workers compensation insurance, and to provide evidence of insurance.
- Termination for convenience.
- Termination for cause.
- Acceptance of service.
- Acceptance procedure.
- Clauses subsisting beyond termination.
- Subcontractors.
- Arbitration.

Appendix 3

Factors	Variables loaded
Factor1: contractual assurance, forward compatibility and licensing	F1_1: The right to port the software to any platform supported by the vendor at no or minimum charge F1_2: Licenses that permit unlimited use within your corporate organization F1_3: License for any third-party software application used under this contract; the vendor guarantees that the organization may use such software application without infringing upon any third- party intellectual property rights F1_4: Contractually defined differences between: enhancements, releases, versions, etc., that you receive by subscribing to software support, and those the vendor insists are a new product requiring a new license F1_5: Contractual assurances regarding forward compatibility of the software with changes in operating systems F1_6: Contractual assurances regarding forward compatibility of the software with changes in hardware F1_7: Contractual assurances regarding forward compatibility of the software with changes in other software from the vendor
Factor2: right to use, and own, and use of own, confidentiality and payment	F2_1: The right to use the software for the benefits of a business unit formerly within your corporate organization which has been sold F2_2: The right to own the source code (source code ownership) F2_3: In situations other than enterprise-wide licenses, the right to use the software for the benefit of other entities F2_4: Use of your own form in place of the licensor's form for licensing contracts F2_5: Incentives to licensors to reward their performance in providing services F2_6: Permission to exempt individual employees/ contracts from signing documents that acknowledge confidentiality of software or to bind them to terms of the license F2_7: Avoidance of partial payments for vendors based on check points
Factor3: software acceptance (define and establish)	F3_1: The right to define software acceptance as occurring only upon your written notice F3_2: The right to establish acceptance procedure
Factor4: license assignment	F4_1: The right to assign the software license to a new corporate entity resulting from a merger, consolidation, acquisition or divestiture F4_2: The right to reassign software licenses within the corporate entity
Factor5: vendor obligation for intellectual property (Infringe and indemnify)	F5_1: The vendor accepts to indemnify the organization for all losses, damages or liabilities arising from the infringement or alleged infringement of such patents, trademarks, trade secret, copy rights or any other right pertaining to intellectual property rights F5_2: The vendor warrants that the services provided to the organization shall not infringe upon any patent, trade mark, trade secret, copy rights or any other right relating to intellectual property: rights in force, recorded or recognized

Table AIII. Explanation of the variables loaded on each factor

Appendix 4

	Category	Abbreviation
Job title	CIO	T1
	IT Management	T2
	Purchasing	T3
	Legal	T4
	User	T5
	Other	T6
Industry	Unknown	I0
	Manufacturing	I1
	Service	I2
No. of employees	50,000 plus	S1
	20,000-49,999	S2
	10,000-19,999	S3
	5,000-9,999	S4
	1,000-4,999	S5
	500-999	S6
	100-499	S7
	Less than 100	S8
Type of Enterprise Software	ERP	ST1
	CRM	ST2
	SCM	ST3
	Other	ST4
	More than one	ST5
Enterprise software vendor	SAP	V1
	Baan	V2
	Other	V3
	More than one	V4
	Oracle (PeopleSoft, JD Edwards, Oracle)	V5

Table AIV.
Explanation for the abbreviations

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