# The Main Critical Success Factors of Contractual and Relational Governances in Outsourcing Relationships

Victor Diogho Heuer de Carvalho<sup>1</sup>, Thiago Poleto<sup>1</sup>, Ana Paula Cabral Seixas Costa<sup>1</sup>

<sup>1</sup> Universidade Federal de Pernambuco, Av. Prof. Moraes Rego, 1235, Cidade Universitária, Recife, Pernambuco, 50670-901, Brazil victorheuer@gmail.com, {thiagopoleto, apcabral}@hotmail.com

**Abstract.** The relationship between organizations involved in Information and Communication Technology Outsourcing is a key factor for the success of the provision of services. When all parties involved work together, they achieve a high level of cooperation and create a partnership marked by mutual trust and intensive exchange of experiences and knowledge sharing. This work aims to present the results of a survey conducted in one of the greatest information and communication technology poles of Brazil. Several concepts related to contractual and relational governances in outsourcing were identified and allocated within two sets of constructs. Finally, Spearman's correlation tests were performed to check the strength of the correlations within each set.

**Keywords:** Information and Communication Technology. Outsourcing. Contractual Governance. Relational Governance.

### 1 Introduction

Many times, organizations opt to transfer the execution of certain activities to other companies receiving benefits ranging from the cost reduction to the focus on internal efforts in order to obtain better results in their core business. This transfer is designated as outsourcing, where there is an intense exchange of experiences and knowledge sharing among the parties involved: the outsourcer and the service provider [1].

It is clear that outsourcing can be considered a strategic action that organizations adopt to become competitive and maintain their competitiveness in a market that increasingly requires integration as well as represents a major opportunity for economic advancement and inclusion in the global economy [2, 3].

Throughout the outsourcing process, the parties must be concerned regarding the contractual and relational governances. Based on these two governances, the outsourcing process leads to the formation of a relationship between the parties that is initially dictated by contractual aspects. After a few cycles of interactions, mutual trust begins to be established, enabling an exchange of experiences that ensures an increase in innovation and productivity rates in organizations [4, 5].

In this context, this article presents the first results of a survey conducted in a great Brazilian information and communication technology (ICT) pole. It also conceptually defines sets of constructs of contractual and relational governances, which acts in favor

3

<sup>©</sup> Springer International Publishing Switzerland 2016

Á. Rocha et al. (eds.), *New Advances in Information Systems and Technologies*, Advances in Intelligent Systems and Computing 444,

DOI 10.1007/978-3-319-31232-3\_1

of strengthening the relationship between the outsourcer and provider of ICT services. The study of correlations within the sets of constructs helped to determine the main contractual aspects and critical success factors respectively linked to contractual and relational governances along outsourcing processes.

The rest of this article is organized as follows: Section 2 defines the research methodology; Section 3 presents and conceptualizes the constructs of contractual and relational governances used in research; Section 4 discusses the results; and, finally, Section 5 presents the conclusions of this work and some perspectives for future works.

### 2 Methodology

An extensive bibliographical research on the key concepts related to ICT outsourcing and contractual and relational governances was necessary. With the subsequent reading of the articles found, those with closer alignment to the thematic explored here were chosen. These articles supported the foundations about contractual and relational governance and their respective sets of constructs. Section 3 explores, along with Tables 1, 2 and 3, these constructs and lists the chosen works that are best aligned with them.

For the survey, two questionnaires were used: one specifically for outsourcers and the other for provider companies. Both questionnaires had questions with scales of importance using five points, adopting 1 (one) for "insignificant" and 5 (five) for "very important." Respondents calibrated intermediate values.

These companies are entirely located in the metropolitan region of Recife, Brazil, where one of the most important ICT poles of this country is situated. Therefore, two distinct populations were utilized for defining the samples, of which 34 responses were obtained from the outsourcers and 16 from the providers in the time defined for the data collection. It is noteworthy that the application of the questionnaire with the outsourcers occurred in 2012, and it occurred with the providers in 2014. The questionnaire that was applied in 2014, although based on that applied in 2012, took into consideration the need for readjustment of some constructs to the reality of provider companies.

The nonparametric Spearman's correlation test was applied with the support of the R language to verify the strength of the correlations within each of the two sets of constructs, thus identifying the interrelated factors that cause a greater impact on a contractual perspective represented by contractual aspects and on a relational perspective represented by the critical success factors. It is worth mentioning that the tests were only done within the individual point of view of the outsourcer and provider and were not being performed between them in this work.

### 3 Constructs of contractual and relational governances

Both forms of governance are relevant to the outsourcing process, considering that the contractual governance dictates the initial moments when a legal support is necessary to guide the relationship between the parties always seeking to comply with contractual determinations concerning the details, type, duration and contract size [6–8]. With the

consolidation of this conduct, relational governance drives the relationship. Although this governance still considers the contractual aspects, it is more focused on social norms, exchange of experiences, knowledge sharing, trust and cooperation [6, 9].

The contractual governance can be conceptualized as a management tool that allows the implementation of a formal contract guiding the production process – where the development of services or products is included – such that both parties establish a relationship guided initially by the contractual definitions [10]. In turn, the relational governance can be understood as that based on the relationship between the parties involved in a transaction, thus improving and strengthening the relationship through the compliance with social norms [11].

The bibliographical research sought to define which constructs could be employed, and they are described along the tables of the subsections that follow. As mentioned in the methodology section, after reading the articles found, those with closer relation to the constructs were chosen to compose the foundations of the present work.

### **3.1 Contractual Aspects**

Contractual aspects (CA) are all the constructs related to the composition and execution of outsourcing contracts [4]. Table 1 below determines which CA was identified and applied and also indicates which works are related to them.

Contractual Aspect	Description	Related works
CA1 – Service Level	Related to the description of the services,	[4, 6, 12]
Agreement	goals and objectives, and defining the roles	
	and responsibilities between the parties of an	
	outsourcing contract.	
CA2 – Detailed Contract	The definition of the detailed and complete	[4, 6, 13]
	contract as a legal document.	
CA3 – Incorporate	The ability of all parties to adapt themselves	[4, 6, 12, 14, 15]
Procedures to Flexibility	to possible changes in the course of the	
	outsourcing relationship.	
CA4 – Definition of	Determining punishments for all parties if	[4, 6, 16, 17]
penalties for low	they do not comply with contractual	
performance and	determinations for the service delivery.	
information violations		
CA5 – Duration of	Determining how long the contract will last	[4, 6, 16, 18]
Contract	and setting deadlines for its beginning and	
	end.	
CA6-Costs	Determining the costs involved for the	[4, 6, 15, 19, 20]
	service development and delivery.	

Table 1. Contractual aspects identified and used for both cases of Outsourcers and Providers.

#### **3.2 Critical Success Factors**

The Critical Success Factors (CSF) are all the approaches, activities and practices that should be considered to ensure effective management and maintenance between the parties involved in a relationship in favor of the success of a project [21]. We highlight that the CSF set, initially adopted for the outsourcers, was smaller than the one adopted for the providers, and this is justified by the restructuring of the questionnaire applied to the perspective of providers. To distinguish each specific set, the following acronyms were adopted: O.CSF for the case of outsourcers and P.CSF for the case of providers. Table 2 presents the CSF adopted for the outsourcers' point of view.

Table 2. Critical Success Factors identified and used in the research for the case of outsourcers.

Critical Success Factor	Description	Related works
O.CSF1 – Selection of the	Aims to evaluate the ITC provider's skills	[22–24]
Correct Provider	in order to ensure effectiveness in the activities that will be performed.	
O.CSF2 – Alignment of	Refers to analyzing the strategic alignment	[25]
outsourcers' and providers' objectives	between outsourcers and providers.	
O.CSF3 – Clear vision of outsourcer's objectives	Refers to understanding outsourcers' objectives for the services provided.	[26–30]
O.CSF4 – Clear and well-	The accomplishment of a set of	Derived from
structured outsourcing contract	contractual aspects defined previously.	CA set.
O.CSF5 – Outsourcer-	Characterized by the adequacy and	[31–33]
provider relationship	cooperation between outsourcer and provider.	

Table 3 below presents the CSF adopted for the providers' point of view.

Table 3. Critical Success Factors identified and used in the research for the case of providers.

Critical Success Factor	Description	Related works
P.CSF1 – Commitment by	Commitment by managers of outsourcer	[4, 6, 17, 34]
managers of outsourcer	company to warrant that contractual	
company	determinations will be accomplished.	
P.CSF2 – Well-structured	Development of planning with a complete	[4, 17, 35, 36]
planning for services to be	and detailed description of the services that	
provided	will be provided, with participation of both	
	outsourcer and provider.	
P.CSF3 – Flexibility of staff	Capacity of the staff to adapt to any kind of	[4, 6, 37, 38]
to develop activities related	activity related to the services that the	
to services	provider will develop.	
P.CSF4 – Adaptability to	Capacity of the providers' staff to adapt to	[34, 38]
possible changes of the	changes on the activities definition for the	
services	development of the services.	
P.CSF5 – Providers' staff	Level of training/education of the	[4, 39, 40]
training	providers' staff related to the services that	
	will be provided.	
P.CSF6 – Documentation of	Register of all elements and procedures	[4, 41, 42]
all activities performed and	performed to obtain the service, composing	
services provided	a set of operational reports and increasing	
(Organizational Memory)	Organizational Memory.	

P.CSF7 – Customer	Use of CRM strategies by provider	[4, 17, 43, 44] and
Relationship Management	companies to create a portfolio of clients,	related to
(CRM)	keeping them closer and ensuring their	O.CSF5 in Table
(end)	loyalty.	2.
P.CSF8 – Use of the	Use of CRM Information Systems,	Derived from
information system for	supporting P.CSF7 strategies.	P.CSF7
Customer Relationship		
Management		
P.CSF9 - Evaluation of	It is necessary to evaluate the customers'	Derived from
Customer Satisfaction	satisfaction to maintain the relationship	P.CSF7
eusternet suitsjuetterit	with them.	110017
P.CSF10 – Supplier	Use of SRM strategies by outsourcers to	Derived from
Relationship Management	create a portfolio of suppliers/providers.	P.CSF7
(SRM)	keeping them closer.	
PCSF11 - Use of the	Use of SRM Information Systems	Derived from
information system for	supporting P CSF10 strategies	P CSF7
Supplier Relationship	supporting i teor to sumegree	110017
Management		
PCSF12 - Provide	The accomplishment of a set of contractual	Derived from CA
adequate services and	aspects defined previously (Similar to	set and O.CSF4
structured contract	O(CSF4 in Table 2)	in Table 2
PCSF13 – Advertising	Strategies related to the advertising by both	[45]
Strategies	companies in order to build their image in	[13]
Sirviegies	the market	
P CSF14 – Maintaining the	After constructing their image both	[46]
companies' image in the	companies must keep it using maintenance	
warkat	strategies	
PCSE15 - Sharing	Creation of an inter-organizational	[4 6 16 34 39]
knowladge and experiences	environment conducive to knowledge and	[4, 0, 10, 54, 57]
knowledge und experiences	environment conductive to knowledge and	
P CSF16 – Internal	Creation of inter-organizational	[4 6 17 44]
communication between the	communication channels to ensure	[1, 0, 17, 11]
narties involved	information knowledge and experience	
Parties involved	sharing.	
P.CSF17 – Conducting self-	Self-assessment in order to obtain measures	
assessment of performance	about companies' own performance and	[47]
in service deliverv	knowledge acquisition in service delivery.	

In Table 3, the conceptual relations between P.CSF7 and P.CSF5 8, 9, 10 and 11 may be seen. In addition, there is a conceptual relation between P.CSF12 and all the CA; however, these relations will not be tested once the focus here is the tests inside each set of constructs and not between them. The next section will proceed with the correlation test results and discussions.

# **4 Results and Discussion**

For the application of Spearman's correlation test on the set of data collected through the survey applied on Recife's ICT pole, a significance level of  $\alpha = 0.05$  was defined. For the discussion, only strong (*rho* coefficient between 0.6 and 0.8) or very strong (*rho* 



coefficient between 0.8 and 1) correlations between the constructs of each set will be considered. Figure 1 below presents the correlograms for the case of outsourcers.

**Fig. 1.** Correlograms with Spearman's test results. Color scale indicates the strengths of the correlations in the outsourcers' point of view: left, the CA pairs; right, the O.CSF pairs.

From the results shown in the correlograms of CA and CSF in the outsourcers' case, it is clear that all values for the coefficients are positive. This indicates that for a specific increase in a construct of the compared pair, the other construct will have a proportional increase. We may infer that all constructs inside each set work together so that the contractual and relational governances fulfill their goals in ICT outsourcing processes, according to the outsourcers' opinions captured by the questionnaires.

Remarkably, the pairs CA1-CA2 and CA2-CA5 are the only ones that have strong correlations. For CA2 – *Detailed Contract*, the CA1 – *Service Level Agreement* is a fundamental element that also allows the definition of other elements such as contract duration, costs, penalties etc. Therefore, it is notable that CA5 – *Duration of Contract* has a strong correlation with CA2 once the duration is well-defined in a detailed contract.

By the correlogram of O.CSF, three pairs are highlighted as having strong correlations: O.CSF2-O.CSF3, O.CSF1-O.CSF2 and O.CSF3-O.CSF4. The O.CSF2 – *Alignment of outsourcers' and providers' objectives* and the O.CSF3 – *Clear vision of outsourcer's objectives* address the issue of understanding the outsourcer's objective by providers, which is critical to the strategic alignment between them, thus ensuring the success of the outsourcing process and even the relationship and, consequently, the knowledge sharing.

The relation between O.CSF1 - Selection of the Correct Provider and O.CSF2 refers to the fact that the providing company, when properly chosen, has the ability to understand its contractor and meet the goals established by it, thus aligning the outsourcing process with the expectations of both parties.

Finishing the point of view of the outsourcers, we have O.CSF3 and O.CSF4 – *Clear* and well-structured outsourcing contract. These two factors define a relation that refers

to the fact that the provider must clearly understand the outsourcer's objectives that are explicit in the contract in order to answer any questions that might cause problems in the execution of defined activities.

Figure 2 below presents the correlograms for the case of providers.



**Fig. 2.** Correlograms with Spearman's test results. Color scale indicates the strengths of the correlations in the providers' point of view: left, the CA pairs; right, the P.CSF pairs.

The same remark made earlier about the positive correlations is valid for the point of view of providers. In this case, the correlogram of CA presents six strong correlations: CA1-CA2, CA1-CA6, CA2-CA3, CA2-CA6, CA3-CA4 and CA3-CA6. The same considerations about the pairs CA1-CA2 made for the case of outsourcers are valid for the providers.

The strong relationship of CA1 – *Service Level Agreement* with CA6 – *Costs* is justified by the fact that the agreement containing the details of the services provides the basis for the detailing of service costs, thus culminating in the total cost of outsourcing. The understanding of the relationship between CA2 – *Detailed Contract* and CA3 – *Incorporate Procedures to Flexibility* and CA6 – *Costs* is direct and does not deserve much explanation, apart from the fact that the detailed contract should incorporate these two topics. Lastly, we have the relation between CA3 and CA6 that refers to the fact that bequeathing greater flexibility in the provision of services may result in some additional costs at first but can ensure that human resources have fewer difficulties in performing their roles in the future, which could generate cost savings later in this context.

Regarding P.CSF, two pairs were prominently figured to obtain coefficients above 0.9, which indicates very strong correlations: P.CSF3-P.CSF6 and P.CSF3-P.CSF14. We have the relation between P.CSF3 – *Flexibility of staff to develop activities related to services* and P.CSF6 – *Documentation of all activities performed and services provided (Organizational Memory)*, which seems to be quite logical since flexibility is

made possible by a good understanding of what will be developed by the work teams. This is quite favored by an organizational memory containing descriptions of elements related to this work and showing how to resolve possible problems. The same P.CSF3 also has a very strong relationship with P.CSF14 – *Maintaining the companies' image in the market*, which can be explained by the need that both parties (but principally the providers) have in maintaining their good image to attract versatile professionals to work in them, thus ensuring the existence of flexible teams.

## **5** Conclusions

We consider that this work has two groups of important results. The first was the definition of the constructs' sets of CA and CFS supported by the literature. The second refers to the results of the application of correlation tests on the judgements of importance of the outsourcers and service providers based on data collected with the survey applied on Recife's ICT pole. It is very important to clarify this because the first group of results enabled the second, thus allowing visualization of the correlations within the CA and CSF sets and corroborating the logical links that were theoretically supposed.

Both results highlight the idea that, with the increase of maturity in the relationship, the contractual aspects cease to be the only concern between the two parties. If at first there was concern focused solely on the provision of ICT services established in the contract, with the maturing of the outsourcer-provider relationship, gains can arise beyond the service execution through the exchange of experiences and knowledge sharing between the parties.

Various relationships, especially among CSF pairs and from the perspective of providers, obtained coefficients that show strong correlations, especially some related to knowledge management, organizational memory, communication channels between the parties and the conducting of self-assessments. This emphasizes the idea that a mature relationship between the parties also brings the need for improved management models.

For future work, we propose to carry out tests between sets of constructs, thus adding a new set with risk factors for the outsourcing relationship. Two other interesting proposals to extend the results obtained with the research are: 1) the creation of an internal ranking for each set of constructs worked, providing a view of which constructs are more important in the outsourcing of ICT services and 2) test the strength of correlations by crossing the outsourcers and providers point of views.

### References

- Silvius, G. a J., Turkiewicz, J., Keratsinov, A., Spoor, H.: The relationship between it outsourcing and business and it alignment: An explorative study. Comput. Sci. Inf. Syst. 10, 973–998 (2013).
- Fink, L.: Information technology outsourcing through a configurational lens. J. Strateg. Inf. Syst. 19, 124–141 (2010).

- Kang, M., Wu, X., Hong, P., Park, Y.: Aligning organizational control practices with competitive outsourcing performance. J. Bus. Res. 65, 1195–1201 (2012).
- 4. Power, M., Desouza, K., Bonifazi, C.: The outsourcing handbook. Koogan Page, London and Philadelphia (2006).
- Freytag, P. V., Clarke, A.H., Evald, M.R.: Reconsidering outsourcing solutions. Eur. Manag. J. 30, 99–110 (2012).
- Lacity, M.C., Khan, S.A., Willcocks, L.P.: A review of the IT outsourcing literature: Insights for practice. J. Strateg. Inf. Syst. 18, 130–146 (2009).
- Xu, L.X.L., Sun, Y.S.Y.: Research on economic models with contract management mechanism in grid. Inf. Sci. Eng. (ICISE), 2010 2nd Int. Conf. (2010).
- K\"ahler, L.: Contract-Management Duties As a New Regulatory Device. Law Contemp. Probl. 76, 89–103 (2013).
- Lumineau, F., Henderson, J.E.: The influence of relational experience and contractual governance on the negotiation strategy in buyer-supplier disputes. J. Oper. Manag. 30, 382–395 (2012).
- Rai, A., Keil, M., Hornyak, R., Wüllenweber, K.: Hybrid Relational-Contractual Governance for Business Process Outsourcing. J. Manag. Inf. Syst. 29, 213–256 (2012).
- 11. Poppo, L., Zenger, T.: Do formal contracts and relational governance function as substitutes or complements? Strateg. Manag. J. 23, 707–725 (2002).
- 12. Willcocks, L., Lacity, M., Fitzgerald, G.: Information technology outsourcing in Europe and the USA: Assessment issues. Int. J. Inf. Manage. 15, 333–351 (1995).
- 13. Furlotti, M.: There is more to contracts than incompleteness: A review and assessment of empirical research on inter-firm contract design. J. Manag. Gov. 11, 61–99 (2007).
- 14. Boulaksil, Y., Grunow, M., Fransoo, J.C.: Capacity flexibility allocation in an outsourced supply chain with reservation. Int. J. Prod. Econ. 129, 111–118 (2011).
- Beimborn, D., Joachim, N., Weitzel, T.: Do service-oriented IT architectures facilitate business process outsourcing? Zeitschrift f
  ür Betriebswirtschaft. 82, 77–108 (2012).
- Lee, J.N., Miranda, S.M., Kim, Y.M.: IT outsourcing strategies: Universalistic, contingency, and configurational explanations of success. Inf. Syst. Res. 15, 110–131 (2004).
- Goo, J., Huang, C.D.: Facilitating relational governance through service level agreements in IT outsourcing: An application of the commitment-trust theory. Decis. Support Syst. 46, 216–232 (2008).
- Goo, J., Kishore, R., Nam, K., Rao, H.R., Song, Y.: An investigation of factors that influence the duration of IT outsourcing relationships. Decis. Support Syst. 42, 2107– 2125 (2007).
- Dias Ferreira, A.M., Barbin Laurindo, F.J.: Outsourcing decision-making aspects considered by IT departments in Brazilian companies. Int. J. Prod. Econ. 122, 305–311 (2009).
- Gottschalk, P., Solli-Sæther, H.: Maturity model for IT outsourcing relationships. Ind. Manag. Data Syst. 106, 200–212 (2006).
- 21. Kumaraswamy, M.M., Ling, F.Y., Rahman, M.M., Phng, S.T.: Constructing Relationally Integrated Teams. J. Constr. Eng. Manag. 131, 1076–1086 (2005).
- 22. Chen, Y.-H., Wang, T.-C., Wu, C.-Y.: Strategic decisions using the fuzzy PROMETHEE for IS outsourcing. Expert Syst. Appl. 38, 13216–13222 (2011).
- Aloini, D., Dulmin, R., Mininno, V.: a Hybrid Fuzzy-Promethee Method for Logistics Service Selection: Design of a Decision Support Tool. Int. J. Uncertainty, Fuzziness Knowledge-Based Syst. 18, 345–369 (2010).
- 24. Chen, Y.-H., Chao, R.-J.: Supplier selection using consistent fuzzy preference relations. Expert Syst. Appl. 39, 3233–3240 (2012).

#### V.D.H. de Carvalho et al.

- 25. Zhang, C., Xue, L., Dhaliwal, J.: Alignments between the depth and breadth of interorganizational systems deployment and their impact on firm performance. Inf. Manag. 1–27 (2015).
- Prasad, A., Heales, J., Green, P.: A capabilities-based approach to obtaining a deeper understanding of information technology governance effectiveness: Evidence from IT steering committees. Int. J. Account. Inf. Syst. 11, 214–232 (2010).
- 27. Ko, D., Fink, D.: Information technology governance: an evaluation of the theorypractice gap. Corp. Gov. 10, 662–674 (2010).
- McKenzie, J., van Winkelen, C., Grewal, S.: Developing organisational decisionmaking capability: a knowledge manager's guide. (2011).
- Ferguson, C., Green, P., Vaswani, R., Wu, G.: Determinants of Effective Information Technology Governance. Int. J. Audit. 17, 75–99 (2013).
- Turksel Kaya Bensguir, Tekneci, A.: An Evaluiation of the outsourcing IS/ICT activities in Turkish Ministerial Computer Departments. Public Adm. Dev. 28, 94–104 (2008).
- 31. Kern, T., Willcocks, L.: Exploring information technology outsourcing relationships: theory and practice. J. Strateg. Inf. Syst. 9, 321–350 (2000).
- Janssen, L.A., Luciano, E.M., Gregianin Testa, M.: The influence of organizational culture on IT Governance: Perception of a group of IT managers from Latin American companies. Proc. Annu. Hawaii Int. Conf. Syst. Sci. 4485–4494 (2013).
- Jyoti, J., Arora, H.: Impact of Client-Vendor Relationship on Firm's Financial Performance: A Study of Outsourcing Firms. Glob. Bus. Rev. 14, 691–709 (2013).
- 34. Chou, S.W., Techatassanasoontorn, a. a., Hung, I.H.: Understanding Commitment in Business Process Outsourcing Relatonships. Inf. Manag. (2014).
- Gadatsch, A.: IT Controlling–Concepts and Transformation into Practice. Bus. Inf. Syst. Eng. 51, 295–305 (2009).
- Gorla, N., Somers, T.M.: The impact of IT outsourcing on information systems success. Inf. Manag. 51, 320–335 (2014).
- Urbach, N., Würz, T.: How to Steer the IT Outsourcing Provider. Bus. Inf. Syst. Eng. 4, 247–259 (2012).
- Patil, S., Patil, Y.S.: A Review on Outsourcing with a Special Reference to Telecom Operations. Procedia - Soc. Behav. Sci. 133, 400–416 (2014).
- Luo, Y., Zheng, Q., Jayaraman, V.: Managing Business Process Outsourcing. Organ. Dyn. 39, 205–217 (2010).
- Vasil'ev, R.B., Kalyanov, G.N., Levochkina, G. a.: Directions of strategic IT consulting. Autom. Remote Control. 71, 1718–1726 (2010).
- 41. Polo, M., Piattini, M., Ruiz, F.: Integrating outsourcing in the maintenance process. Inf. Technol. Manag. 247–269 (2002).
- 42. Aydin, M.N., Bakker, M.E.: Analyzing IT maintenance outsourcing decision from a knowledge management perspective. Inf. Syst. Front. 10, 293–305 (2008).
- Oza, N. V., Hall, T., Rainer, A., Grey, S.: Trust in software outsourcing relationships: An empirical investigation of Indian software companies. Inf. Softw. Technol. 48, 345– 354 (2006).
- 44. Liu, Q., Ma, H., Chen, E., Xiong, H.: A Survey Of Context-Aware Mobile Recommendations. Int. J. Inf. Technol. Decis. Mak. 12, 139–172 (2013).
- He, X., Prasad, A., Sethi, S.P., Gutierrez, G.J.: A survey of Stackelberg differential game models in supply and marketing channels. J. Syst. Sci. Syst. Eng. 16, 385–413 (2007).
- Kasulis, J.J., Morgan, F.W., Griffith, D.E., Kenderdine, J.M.: Managing Trade Promotions in the Context of Market Power. J. Acad. Mark. Sci. 27, 320–332 (1999).
- 47. Komporozos-Athanasiou, A.: Information Technology Outsourcing in the Service Economy: client maturity and knowledge/power asymmetries. In: Barrett, M., Davidson, E., Middleton, C., and DeGross, J.I. (eds.) Information Technology in the Service Economy: Challenges and Possibilities for the 21st Century. pp. 301–310. Springer US, Toronto, ON (2008).

12