



## OUTSOURCING STRATEGIES AND NEGOTIATION POWER IN SECURITY SECTOR

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### ABSTRACT

**Purpose:** *This research studies how the security-related outsourcing strategies and negotiation power of the public sector and the military and the relevant logistics service providers influence for indirect logistics costs.*

**Design/methodology/approach:** *A tentative model was devised from theoretical literature comparing how logistics strategy and negotiating power impact for total logistics costs through improved service quality and/or unit-cost reductions. The model was tested using survey data from 149 respondents from the Finnish Defence Forces, and the public sector and industrial firms in Finland via structural equation modelling analysis.*

**Findings:** *Contrary to the approach of classic assumption, where negotiating power correlates with strategy, the findings indicate that negotiating power and strategy do not correlate. However, together they affect direct costs and perceived service quality, which consequently decreases the indirect logistics costs.*

**Research limitations/implications:** *By understanding different impacts of strategy and negotiation power on direct logistics cost and perceived service quality, buyer of the logistics services may increase the service performance of their supply chain. The data is collected from one country, which may cause bias. Further studies would be required to test this research proposal in other countries.*

**Practical implications:** *To obtain improve service performance of the supply chain, buyers of logistics services could learn from the public sector and the military on how to use negotiating power and strategy to obtain better service in addition to short-term cost reductions, as both of them explains reduced costs in the long run.*

**Originality/value:** *This study is important to practitioners as well as academics since there is little quantitative research available regarding importance of logistics strategy and its impact to negotiation power and service performance of the supply chain.*

**Keywords:** Logistics strategy, negotiating power, service performance, structural equation modelling, supply chain management, military logistics  
Classifications: a. Research paper

## INTRODUCTION

According to Mentzer et al. (2001), supply chain management (SCM) can be seen as “the systemic, strategic coordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole”. Because SCM tends to work best under circumstances where buyers have more leverage than suppliers (Cox, 2004a), and because the military is often a powerful logistics service buyer, we assume that its procurement activity would provide an interesting context for studying the influence of strategy and negotiation power for logistics costs. However, it is important to remember that there are usually several other factors influencing logistics costs, such as confidence and supply chain agility, which are not considered in this study.

Willcocks et al. (1999) argue that in the military, only non-core activities or its in-house core activities involving a partnership to mitigate the risks of outsourcing can be considered suitable functions for outsourcing. In the military context, there is no room for opportunistic behaviour especially among logistics service providers because failure of a supply chain to provide for forces operating in enemy territory can lead to enormous losses (Song et al., 2000; Juntunen et al., 2012). In Finland, the majority of the military is made up of reservists and thus having also adequate domestic transportation services is always important for the Finnish Defence Forces (Juntunen et al., 2011a). Further, in Finland, the military cooperate with the security-related functions of the public sector as much as possible in their daily routines and hence the both, military and public sector, have to use service providers they can trust during crisis situations. Further, military buy logistics services with a large and thus also LSPs (logistics service providers) are eager to have the military forces as their customer (Juntunen et al., 2011b).

The purpose of this research is to study how the effective strategies and negotiation power of the public sector and the military and the relevant logistics service providers influence for indirect logistics costs via service quality and direct logistics costs. To retort for this question, a tentative model is devised from theoretical literature and the model was tested using survey data from 149 respondents from the Finnish Defence Forces, and the public sector and industrial firms in Finland via structural equation modelling analysis.

We found that contrary to the approach of classic assumption, where strategy explains negotiating power, the findings indicate that strategy and negotiating power do not have statistically significant relationship. However, together they affect direct costs and perceived service quality, which consequently decreases the indirect logistics costs. Hence, to obtain improve service performance of the supply chain, buyers of logistics services could learn

from the public sector and the military on how to use negotiating power and strategy to obtain better service in addition to short-term cost reductions, as both of them explains reduced costs in the long run.

The paper first presents a theoretical background with tentative model based on previous research in logistics, service and relationship management. The following sections explain research methods and present the empirical data with the empirical analysis. Finally there will be discussion and conclusions which include also limitations and suggestions for further research.

## **THEORETICAL BACKGROUND**

### **The concepts employed and their interconnections**

According to Langley and Holcomb (1992), the value created through logistics has been viewed as one of cost efficiency versus competitive service levels. Another important aspect is the use of strategic alliances and long-term partnerships to secure both goods and services (e.g. Gentry, 1996) and all of these considerations is important when it comes to military logistics. Cost efficiency and service level need to endure within industry standards while simultaneously securing an adequate logistics capacity during unexpected crises (Juntunen et al., 2012). Hence, there is a strong agent-principal problem; how to make sure that LSPs are willing to provide first class services during crises situations? Further, according to Adam Smith (1776), incentives for agents are the dominant factor for efficiency. Because several contracts are vague or silent on a number of key issues and can give a room to opportunistic behaviour (Tirole, 1999), the contractual dilemma is a possible problem where the divergent interest between agent and principal will predictably lead to individually opportunistic behaviour and joint losses (Williamson 1971). Thus, security sector need to evaluate carefully what they can outsource, and especially, what kind of outsourcing strategy they have. In addition, it is a critical task for managers to understand and mitigate abnormal behaviours across the supply chain and agency theory serves this need by providing them with a useful tool to respond to transaction cost dilemmas through contractual and non-contractual remedies (Fayezi et al., 2012).

The classic economics standpoint is that in the long run there is a trade-off between service quality and costs (Juntunen et al., 2010), however, there are also studies which found that this trade-off may exist between direct cost and service quality but not between service quality and indirect or total costs (e.g. Juntunen et al., 2012). Unfortunately, because the relevant literature shows important discrepancies regarding the activities that should be included in the definition of logistics costs and there is no agreement on a exact definition of logistics costs, (Gonzales et al., 2007; Juntunen and Juntunen, 2010; Juntunen et al., 2012), this trade-off is challenging to study. Solakivi et al. (2009) divide logistics costs into direct and indirect costs where direct logistics costs include transportation and the cost of warehousing, whereas the sharing of indirect costs is much more difficult to determine because these are often in-house costs that may possibly be combined with various different functions. However, expenses related to physical operations are often quite clearly specifiable (Solakivi et al., 2009). In this research, we follow Juntunen et al. (2012) definitions where the term “direct logistics costs” includes transportation and warehousing costs, and “indirect logistics costs” includes

personnel costs and total logistics costs. In addition, because logistics costs do not have a specific universally-accepted definition even in the relevant literature, in this research respondents have given their answers based on their personal view of logistics costs in their line of business (e.g. Juntunen and Juntunen, 2010).

It is widely accepted decades ago that structure of the organization follows strategy (e.g. Chandler, 1962; Jones & Hill, 1988), and structure is the design of the organization through which the enterprise is administered. This can be extended for supply chain, and for example tight competition of suppliers weakens strategic networks and hence increases transaction costs (Jarillo, 1988). In addition, the industry structure view proposes that supernormal returns are mostly a function of a firm's membership in an industry with favorable structural characteristics (Porter, 1980; Dyer and Singh, 1998) and superior performance is a product of the correct "fit" between strategy and structure (Jones and Hill, 1988). Further, it is reasonable to assume, that management skills explains quality of strategy, and for example Grunert and Norden (2012) argue that management skills and character is positively related to bargaining power in SME loan bargaining. Hence we assume here that in addition to costs and performance of the supply chain, strategy influence also for bargaining power.

According to Juntunen et al. (2011a), a mathematical form of the Nash's (1951) negotiating model can be applied to logistics costs and the resulting profit sharing will reflect the relevant negotiating power. Because negotiating power consequences from factors such as market situation and relationship-specific assets among other things, negotiating power can be expected to influence direct logistics costs and of course also observed service quality.

### **Research model and hypotheses**

According to Juntunen et al. (2011a; 2011b), the military does have considerable power as a buyer, but its negotiators must sustain a long-term perspective on outsourcing as the logistics services used must be capable of extreme efficiency even during a crisis. Further, military is very important customer for Finnish LSPs (logistics service providers) and thus also LSPs are willing to build up a strong strategic partnership with the military (Juntunen et al., 2011b). Therefore, we assume that the military, security sector and Finnish LSPs are willing to build up strategies that support cooperation and use their negotiation power to strengthen long-term partnership. In addition, because we study in this research deep partnerships, we assume that strategies of different actors support each other and hence respondents can actually evaluate their own strategy and it should affect also for their evaluation concerning military force's negotiation power. Hence our first hypothesis (*H1*) is that *existing strategy explains negotiation power*. Further, as strategy may influence also transaction costs and performance of the supply chain (e.g. Jarillo, 1988), our second hypothesis is that *existing strategy explains direct costs (H2)* and our third hypothesis is that *existing strategy explains experienced service level (H3)*. The research model is developed based on Juntunen's (2010) outsourcing strategy model. It is expected that strategy may influence either direct costs or service quality.

Based on Nash (1951), negotiation power should influence for logistics costs and based on Juntunen et al. (2012) negotiation power should affect for service quality, we assume that *negotiation power explains direct costs (H4)* and *negotiation power explains observed*

service quality (H5). Finally, following Juntunen et al. (2012), we assume that *direct costs influence to indirect costs (H6)* and the *level of service influence to indirect costs (H7)*.

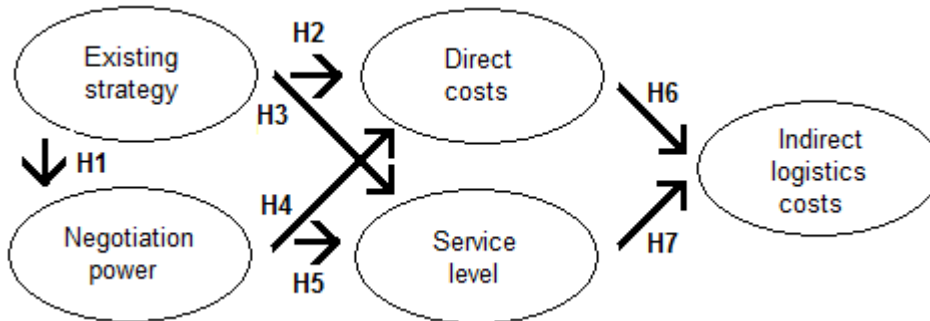


Figure 1: Research model

The concepts in the model can be seen as factors (or latent variables) that are not directly observable but can be concluded from other measurable variables. The operational measures were presented in a questionnaire as attitudinal statements based on a 7-point Likert scale. The anchors for questions related to service level were “weak” and “excellent” and all the other questions were anchored by “strongly disagree” and “strongly agree”. The descriptions and the operational measures of the concepts are presented in Table 1.

Table 1: Latent variables and their operational measures

Latent variable	Explanation and operational measures in the questionnaire	Label
Service level	Refers to service levels experienced/produced <ul style="list-style-type: none"> <li>Recent experience of logistics service related to adhering to schedules</li> <li>Recent experience of logistics service related to offering sufficient capacity</li> <li>Recent experience of logistics service related to service-mindedness of personnel</li> </ul>	SERVICE schedule capacity service
Indirect costs	Refers to how outsourcing has decreased/is assumed to decrease the public sectors’ and military’s indirect logistics costs <ul style="list-style-type: none"> <li>Outsourcing has reduced total logistics costs</li> <li>Outsourcing has reduced logistics personnel costs</li> </ul>	INDICOST costlog costper

Latent variable	Explanation and operational measures in the questionnaire	Label
Direct costs	Refers to costs from physical logistics such as transportation and warehousing <ul style="list-style-type: none"> <li>• Outsourcing has reduced warehousing costs</li> <li>• Outsourcing has reduced transportation costs</li> </ul>	DICOST costware costtran
Existing strategy	Refers to the usage of the strategy in the respondents organisations <ul style="list-style-type: none"> <li>• We have made a logistics strategy in my organization</li> <li>• Logistics strategy is informed in our organization and it has been take on use.</li> <li>• Our logistics strategy is clear in led by top management</li> </ul>	STRAON ologstra stratuse clearstr
Negotiating power	Refers to negotiating power with customers <ul style="list-style-type: none"> <li>• Tight competition means customers can dictate the fees for transport</li> <li>• Transport entrepreneurs are “slaves” to the customers</li> <li>• LSPs’ expertise and impact do not affect their results, because customers take all the extra profits from the LSP branch</li> </ul>	POWER price slave takeprof

## METHODOLOGY AND ANALYSIS

### Data description and estimation method

The data was collected in the spring of 2009 from the military, the security-related public sector and private industrial companies using web-based software. The sample size was 827 and we received 149 responses (18.01 %), which is quite acceptable considering recent developments in response rates (Larson, 2005). A non-response bias was studied by comparing different response waves (e.g. Armstrong and Overton, 1977) and in this study only 11.55 per cent of the responses in the entire questionnaire were not parallel in different waves. Hence, non-response bias seems not to be a problem in this study.

Responses originate from three groups. There were 45 respondents from the military, 33 respondents from the public sector and 71 from private enterprises. The respondents’ organisations and companies from the public and private sectors represented were security related, and the non-military respondents from the private sector were requested to relate their

answers solely to their business relations with the military. Private sector companies are a vital part of the security sector in Finland, because there the military relies heavily on reservists. Respondents from the public sector included police and fire service personnel and health-care providers, whose organisations each have a duty to guarantee public safety and so to preserve functionality in crisis situations. Respondents included customer-relationship managers, service-production managers, brigade commanders, supply centre managers, rescue managers and materials managers (please see Appendix 1 for descriptive statistics relating to the groups). Even though minor differences among the responses, we continued on the structural equation models path because heterogeneous data should not be a problem if the structural equation model provides an acceptable fit (e.g. Juntunen et al., 2012).

The estimation was made using Lisrel software (Jöreskog et al., 2000; Jöreskog et al., 1993a). The normality of the variables was examined using Prelis 2 software (Jöreskog et al., 1993b) and the factor loading estimates, regression estimates between factors and estimates of the error terms were calculated using the ML (maximum likelihood) method based on a covariance matrix.

**Data analysis**

The research model was tested using the operational measures described above. Unexpectedly, despite the strength of the theoretical background to the research model, empirical analyses did not support the model as suggested (please see figure 2).

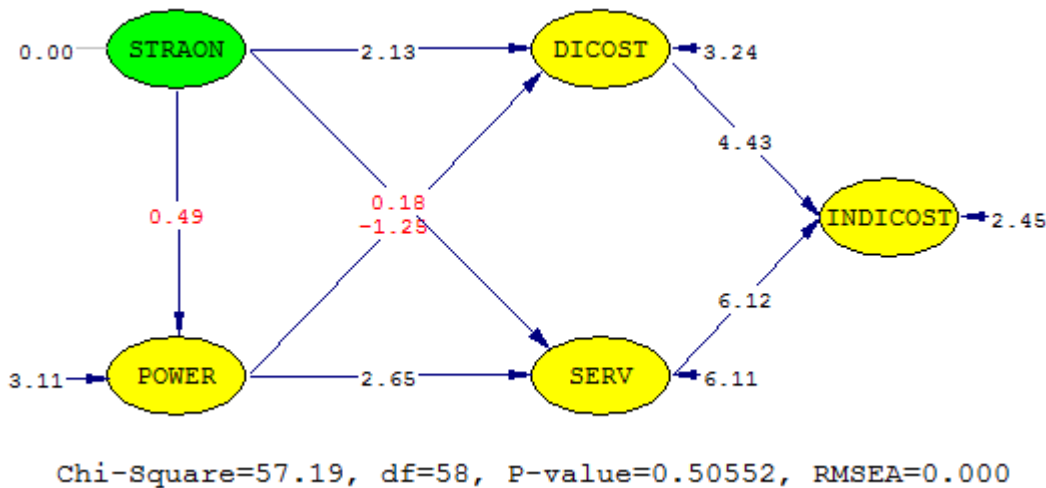


Figure 2: T-values in structural model

As seen in the figure 2, some relationships in the structural model are statistically insignificant level (t-values below 1.96 with red font – t-value 1.96 stands for 5 per cent probability). However, when removing statistically insignificant relationships, very interesting model was found. The new model is shown in Figure 3.

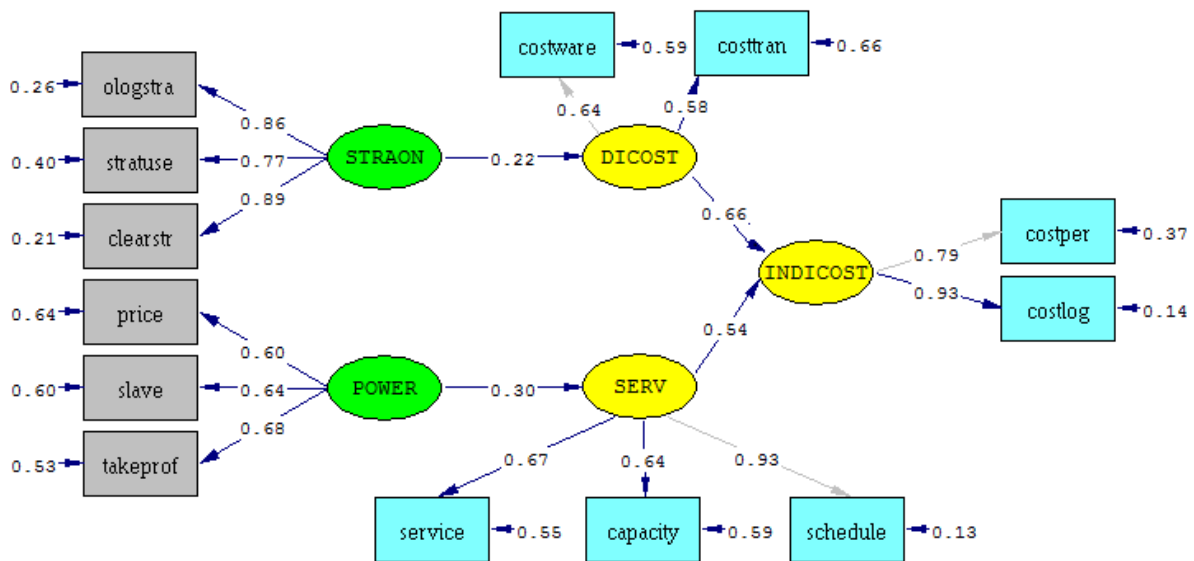


Figure 3. Empirical model

The empirical model provides a good statistical fit (see Table 2), and therefore recommendations based on the model will be clarified in the discussion below.

Table 2: Fit indices of empirical model

Test	Value	P-value
Chi-square (degrees of freedom)	57.86 (60)	0.554
RMSEA	0.046	
NFI	0.93	
CFI	1.00	
GFI	0.94	
SRMR	0.056	

Furthermore, all relationships in the model are statistically significant. The Chi-square test shows a very good fit of the model to the data, with the minimum acceptable p-value normally being 0.05. According to Browne and Cudeck (1993), an RMSEA value below 0.05 indicates a close fit of the model. Jaccard and Wan (1996) argue that the model's CFI, NFI and GFI value should be above 0.90. Thus, based on the all test values, the model can be



considered acceptable. Also, each latent variable has been examined individually (see Table 3).

Table 3: Construct reliabilities, average variance extracted and Cronbach's alphas.

Latent variable	CR	AVE	ALPHA
DICOST	0.545	0.427	0.562
STRAON	0.880	0.680	0.880
INDICOST	0.853	0.598	0.822
POWER	0.676	0.552	0.599
SERVICE	0.798	0.633	0.802

As direct logistics costs factor have only two measures, it remain unidentified without a complete structure and it is impossible to perform factor analyses of individual latent variables. This also weakens the usability of traditional test values such as construct reliabilities (CR), average variance extracted (AVE) and Cronbach's alpha (ALPHA), therefore, the results should be evaluated primarily on the basis of the fit indexes of the full model and on the theoretical background of the measures (e.g. Juntunen, 2010; Juntunen et al., 2010; Juntunen et al., 2011a; Juntunen et al., 2011b; Juntunen et al., 2012). For the most part, the CR, AVE and ALPHA values also support the good statistical fit of the model. To conclude the analyses, in accordance with our empirical evidence, we reject hypothesis one, three and four but find support for hypothesis two, five, six and seven.

## DISCUSSION AND CONCLUSIONS

The purpose of this research was to study how the effective strategies and negotiation power of the public sector and the military and the relevant logistics service providers influence for indirect logistics costs via service quality and direct logistics costs. More precise, we had seven hypotheses and we rejected hypotheses one (H1 - existing strategy explains negotiation power), three (H3 - existing strategy explains experienced service level) and four (H4 - negotiation power explains direct costs). We accepted hypotheses two (H2 - existing strategy explains direct costs), five (H5 - negotiation power explains observed service quality), six (H6 - direct costs influence to indirect costs) and seven (H7 - the level of service influence to indirect costs).

Interestingly we found that contrary to the approach of classic assumption, where strategy explains negotiating power, the findings indicate that strategy and negotiating power do not have statistically significant relationship. Thus, we suggest that strategy is a long-term

concept and changes to company's positioning in the markets at the long-run while negotiation power is dependent situation at the moment of negotiation, and hence there is no direct relationship between those concepts but they need something, like current market situation, between them. Further, we found that existing strategy explains reducing direct cost but it does not explain perceived service quality. We propose that strategy influence whether buyers use expensive or cheap LSPs, but those who use cheap ones do not differentiate between poor and good quality because their strategy is to use cheapest LSP and thus they have never faced good service quality. Negotiation power does not influence for direct costs as markets defines prices and even the strongest buyers cannot bargain below market prices, however, buyers with strong bargaining power face good service as LSPs are willing to secure their relationships.

Together strategy and negotiation power affect direct costs and perceived service quality, which consequently decreases the indirect logistics costs. The most important theoretical contribution of this paper is that even it seems that Nash's (1951) famous negotiation model does not work under competitive markets with the direct market prices; it works in the long run through service quality and indirect costs. In managerial perspective, buyers of logistics services could learn from the military on how to use negotiating power and strategy to obtain the both, better service and short-term cost reductions, as together those explain reduced costs in the long run. In practice, buyers should keep a few strategic partners without bidding games but instead follow market prices and also reward the best LSPs based on good service level. This kind of deep partnership may prevent LSPs' opportunistic behaviour and hence also reduce problems described in agent theory.

At the spring of 2009 (the timing of the survey), global economic slowdown was underway, which may have affected the choices respondents made. Further research would be needed to validate the results in the wider business sector. Further, the term "logistics costs" is often problematic in survey studies, thus more research would still be necessary in future to validate instruments for enhanced measurement of logistics costs in surveys. In addition, the context of logistics has not been widely studied from a corporate-branding perspective, and there are multiple additional dimensions, such as trust and relationships, which were not taken into account in the present study. All these new concepts might offer several new avenues for logistics services research.

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Appendix 1. Descriptive statistics.

Group	ologstra	stratuse	clearstr	costware	costtran	costper	costlog	schedule	capacity	service	price	slave	takeprof
Defence Mean	3,17	3,64	3,20	4.21	3.95	3.26	3.79	3.00	2.64	2.46	4.45	4.40	4.49
Std. Deviation	2,369	1,979	1,939	1.510	1.559	1.589	1.562	1.026	1.038	1.022	1.484	1.446	1.355
Public Mean	4,86	4,04	4,624	3.04	3.09	2.96	2.96	3.04	2.71	2.79	4.56	4.36	4.56
Std. Deviation	2,0484	1,7774	1,821	1.397	1.535	1.296	.878	1.042	1.160	.977	1.417	1.254	1.446
Private Mean	3,04	3,31	3,19	3.42	2.75	2.47	2.39	2.27	2.28	2.33	4.12	4.36	5.07
Std. Deviation	2,054	1,917	2,009	1.689	1.385	1.255	1.193	.898	.966	.975	1.745	1.823	1.589
Total Mean	3,45	3,56	3,48	3.59	3.16	2.80	2.91	2.63	2.47	2.45	4.30	4.37	4.80
Std. Deviation	2,259	1,918	2,021	1.634	1.546	1.405	1.400	1.028	1.036	.997	1.613	1.611	1.511
ANOVA	0.001	0.247	0.003	0.11	0.000	0.017	0.000	0.000	0.105	0.148	0.391	0.992	0.104
ANOVA Military/Private	0.378	0.754	0.991	0.018	0.000	0.006	0.000	0.000	0.077	0.507	0.312	0.911	0.056