Applying a Virtual Organisation on IKEA’s Transport Organisation

A Research into the Possibilities of virtually organising the Relationships between Shipper and Carrier

May 2008
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Thesis Information Page

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Key words: virtual organisation, virtual corporation, virtual web, transport services, transport procurement, carrier preferences, co-operation between shipper and carrier, competitiveness among carriers
Preface

This thesis is the final work of my study Technology, Policy and Management at the Delft University of Technology. Topic of the thesis is the virtual organising of relations in a transport context. This research was performed at IKEA Distribution Services N.V., IKEA’s Haarlem-based distribution office for the UK, Germany, Belgium and the Netherlands.

When I started this final thesis assignment I was looking for a company where my research could be done. I was exchanging thoughts with some people about my interest in Virtual Organisation, when one of them suggested I should contact IKEA. Since IKEA is not very familiar amongst students from Delft as a place to do a final thesis project, it had never before crossed my mind to apply. All the nicer was the surprise when I found IKEA to be a very open, flat organisation where people are genuinely interested in new ideas.

This fact, combined with the fact that IKEA is growing at high pace and is therefore faced with all kinds of challenges, makes it a very interesting environment for a final thesis project. I have enjoyed the pleasure of visiting the relevant departments within the IKEA organisation located in Sweden, Germany, Belgium and the UK and got to meet quite a few representatives of what is maybe the most important entity in this report: the transport service provider. All of this made me enjoy doing the final thesis work at IKEA very much.

Many people helped me during my research. I would like to express my sincere appreciation to the people from various organisations that agreed to an interview and of course all transport service providers that have participated in this research in such great numbers. Without them it would not have been possible to do this project.

I would like to thank in particular my thesis committee: Prof. Dr. Bert van Wee, Ir. Marcel Ludema and Dr. Ruben van Wendel de Joode from Delft University of Technology and Wally van Heukelom from IKEA Distribution Services N.V. for their support and valuable time they have given me.

I also want to express my gratitude towards all the co-workers in the Transport department and at IKEA Distribution Services who have helped me to understand the transport industry and the way in which IKEA operates.

Furthermore I would like to thank Hans Van den Ancker for the valuable advice he gave me during the writing of this report. And last but not least, I would like to thank my parents, grandparents and partner who have always been a great support during my studies.

Finally, I honestly hope that the content of this thesis will be beneficial to the organisation of IKEA and I hope anyone reading this thesis will enjoy it as much as I enjoyed writing it.

Rotterdam, 2008
Stefan du Perron
Executive Summary

1. Structure of thesis
To appreciate how to read the report, it is useful to look at the structure of chapters. The following editorial practice has been followed, which is modular and shown in a flow diagram. The presented graphic is a visualisation in chronological order of the different chapters in this report. Five parts can be distinguished. The first part gives introductory remarks and consists of the problem statement together with an analysis of IKEA’s Transport Corporation. The second part provides substantive chapters devoted to specific topics in Virtual Organisation (VO), Supply Chains, and Procurement of Transport Services with the help of study of literature. Setup, result and interpretation of questionnaire sent to carriers are covered in the third part, while the fourth part addresses the conclusion and recommendations and ends with a reflection on the process of this study. Finally, the last part contains relevant notes, documentation, reading list, and appendices with statistics and minutes of interviews.

2. Acknowledgements
The writer acknowledges with gratitude the sincere cooperation and assistance of all those who have given their views, which have been invaluable to the deliberations made during the course of writing this thesis.

3. Subject of Thesis
This thesis discusses the possibilities of implementing a Virtual Organisation on IKEA’s transport organisation. IKEA is one of the biggest shippers on the European market. Changing circumstances in the marketplace have led to the need for a different, more flexible and adaptable way of organising and managing the supply chain, which is referred to in literature as the Virtual Organisation. Virtual Organisation (VO) of relations in the supply chain seems a promising concept for IKEA to improve the balancing act between low prices and good service. Therefore the goal of this research is to find out if the Virtual Organisation is something IKEA should strive for.

The big, fast-growing IKEA Company with an extensive and complex distribution network owns and controls a large part of its own supply chain. The Transport Department and the Transport Organisation within IKEA (with a high level of transport knowledge in-house) play an important part in the concept of IKEA. They are subject to a diversity of internal and external demands, which causes the Transport Department to have to balance transport capacity, price and service in order to get the best solutions. In its ‘business tool’ IKEA formulates the need for competitiveness and co-operation, which are also characteristics of the VO, depending on the given situation. The current relationship model with the carriers, however, puts too much focus on competitiveness and not enough on co-operation.

The VO is a collection of virtual organised relations that together (enabled by the “switching-principle”, vide next paragraph) form a competitive and at the same time co-operative environment through Virtual Web (VW) and Virtual Corporation (VC). When placed next to the organisation of transport for IKEA, there is a clear relevance of the VO model for the purchasing of transport services.

Three important prerequisites for Virtual Organisation could be formulated:
- The organisation that initiates the Virtual Organisation needs to be able to create or purchase the tools that will support the dynamic assignment - "the controlling mechanism" - of the Virtual Organisation.
- There must be a network of complementary business relations available presently or in future.
- There must be a certain level of trust in the network of business relations that enables the exchange of sensitive information.

"Switching" is the process of assignment and reassignment (vide paragraph 3.4). Switching makes the reconfiguration of networks of organisations possible and therefore lies at the heart of the Virtual Organisation. The switching principle is applied by companies that do have an interest in being in a controlling position of certain sensitive activities which are complementary to the company's core-business. The advancement in speed of computer networks makes it possible for management to use switching in a systematic way. As such ICT is a key enabler of Virtual Organisations. Further it is noteworthy to mention that the "switching-principle" can be used when better satisfiers appear on the market to fulfil the needs existing in the VO. It can also be used when partners currently in the VO fail to live up to their responsibilities. As such it creates a competitive environment which stimulates the performance of the carriers that are part of the Virtual Corporation.

The Virtual Organisation is strongly embedded in a logistics environment. Looking at logistics management in history, it can be seen that the traditional approach has evolved into supply management, which evolved into supply chain management. Supply Chain Management as an integrated tool of planning methods and concepts demands a high intensity level of co-operation in order to make production as lean as possible (vide paragraph 4.4.3). The Virtual Organisation is the natural successor of Supply Chain Management, combining the characteristics of leanness with the characteristics of agility. Were co-operations in Supply Chain Management are usually for the long-term, Virtual Organisations also co-operate on a short term.

The "switching-principle" is manifested in transport by the applied procurement tool. There are different types of transport procurement with different bidding options for the carriers, which each have their advantages and disadvantages. As different types of transport procurement we can identify the Traditional procurement, Automated procurement and Optimisation based procurement. Within these different procurement types the following different bidding options can be applied: on-specification bidding, conditional bidding, alternate bidding, combinatorial bidding and optimisation based multi attribute bidding. The type of transport procurement and, more specifically, the bidding option can add a lot of complexity to the relation between shipper and carrier and thereby change it (vide paragraph 5.2). When designing the desired procurement event the design parameters that have to be considered are: single sourcing versus split lanes, single versus multiple rounds, real-time rate visibility, comprehensible data, bidding functionality and open or closed participation (vide paragraph 5.3.2).

As the carriers, as important market players, play a big part in the procurement event it should be interesting for them to participate in it. Other research on this topic has shown that carriers believe e-procurement events that were developed in co-operation between shipper and carrier to be most successful. Therefore the opinion of the carriers is also highly valued in this research. The questionnaire that was developed to assess this opinion focuses on the carriers’ preferences regarding e-procurement events, the carriers’ preferences regarding co-operation and establishes a profile of the carrier regarding size and network extend (vide chapter 6).

The results from the questionnaire (vide chapter 7) show that carriers can be divided into National, International and Pan-European carriers depending on size and network extend.
Advantages of e-procurement for the carrier are the possibilities it offers to acquire new customers, for network optimization, and to increasing the turnover. The disadvantages are the additional pressure on prices, the lack of personal contact, and the difficulty to distinguish oneself from the competition. Criteria for procurement event selection are usually the reputation of the shipper, the fit of the offered volumes in the network, and the service requirements requested. Entering in a co-operative relationship with IKEA brings added value to the carrier. However, long term security is a prerequisite for partnership for the carrier. In the day-to-day business the fit between the carrier’s network and IKEA’s network is one of the most important factors for success, also during the start up of new business. Regarding the allocation of business to carriers, most carriers are accepting and ‘living’ according to the principle of “you win some, you lose some”.

From the interpretation of the results (vide chapter 8) of the received answers on the dispatched questionnaire to the carriers some learning can be drawn that would be of value to IKEA. The interpretations were made based on interesting similarities and dissimilarities in the answers of the carriers on the subjects: size of tender, bidding functionality, bidding rounds, and prerequisites for partnership. One of the findings is that most carriers seem to prefer e-procurement events on a country-to-country level. Even the largest European road carriers today steer their business from a country-to-country perspective. The progressing unification of Europe this will one day change this and thereby offer potential for optimisation. The consequence is that the interdependencies in the network will become more important and that demands for agreements which facilitate this dependency between shipper and carrier. In any case, the carriers are of the opinion that real co-operation lays in further development, which is stimulated by improved visibility in the offered routes and volumes, but also by co-operative approach where the focus is not on price-optimisation on individual routes and volumes, but on optimisation of the whole business by creating smart packages of routes and volumes. The e-procurement tool will help to make better judgements about which packages to create.

The combination of theoretical knowledge gathered from literature research on Virtual Organisations and on Transport Purchasing with the practical knowledge of the Transport Market Survey (in the form of the dispatched questionnaire with many received answers and last but not least several interviews with important shippers and carriers) shows possibilities for a Virtual Organisation as it could be applied on IKEA’s transport organisation. It could be constructed around the three main parts that together constitute the Virtual Organisation: the Virtual Web (VW), the Virtual Corporation (VC) and the “Switching” tool.

Creating the VW is a Business Developer’s (a transport purchaser at IKEA) task and concerns the identification of potential back-up carriers and involving them in all aspects of the commercial and operational setup of IKEA’s transport processes to cover the ‘weak spots’ in the carrier base and to stimulate the need for good performance of the current carriers.

The VC should be given shape by means of a reviewed Transport Agreement package that enables closer co-operation between IKEA and selected carriers for future partnership. Selection needs to be done mainly on the strategy of the carrier and its corporate culture and of course the potential offered by its geographical coverage. A good match with IKEA here indicates good chances on a successful partnership. The partnership relation should be under responsibility of a strategic purchase function in order to protect the mutual interest in long-term development that is supported by development plans.

The e-procurement event that should function as the “Switching” tool should be a closed participation event with multiple bid rounds, but without real time rate visibility. The
choice between single sourcing and splitting of the volume is one that IKEA should make looking at the specific situation. It will be self-evident that an important consideration should be given on the comprehensibility of data that are covered in the e-procurement event. Already today IKEA applies an e-procurement tool that is constructed according to these recommendations, but it could make better use out of the available functionality to support the purchasing strategy.

As a result of the study of this thesis the following chapter of this executive summary establishes an extract of conclusions and recommendations which should be considered by IKEA.

4. Conclusions and Recommendations
For easy reference, an extract of conclusions and recommendations has been summarised in this executive summary in tabular form. Please be advised that in chapter 10 more comprehensive conclusions and recommendations are presented.

Table 1: Extract of conclusions

<table>
<thead>
<tr>
<th>No.</th>
<th>Conclusion</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There is a need to stimulate a co-operative but at the same time competitive environment among the network of carriers that performs services for IKEA.</td>
<td>The most important conclusion was already formulated by IKEA itself when it created its 'business tool'. This co-operative and at the same time competitive environment is needed to safeguard both competitive prices and good quality of service.</td>
</tr>
<tr>
<td>2.</td>
<td>The requirements to create a VO are: a dynamic assignment tool, a network of complementary relations and trust.</td>
<td>An e-procurement tool is in fact a dynamic assignment tool or &quot;switching tool&quot;. A Virtual Web is a network of complementary relations that provides redundancy and back up solutions. Trust is generated by development and commitment.</td>
</tr>
<tr>
<td>3.</td>
<td>The risks for IKEA of starting a VO are limited.</td>
<td>The risks of starting a VO are limited for IKEA due to the Virtual Web, strategic partnerships and the acceptance of the switching principle.</td>
</tr>
<tr>
<td>4.</td>
<td>Carriers will accept the switching principle.</td>
<td>Carriers are used to the &quot;you win some, you loose some&quot;-principle, but they need good feedback. Relationship management and trust are very important.</td>
</tr>
<tr>
<td>5.</td>
<td>IKEA has a high level of transport knowledge in-house.</td>
<td>IKEA is one of the largest buyers of transport services on the European market and as such will profit of stepping in the VO.</td>
</tr>
<tr>
<td>6.</td>
<td>The IKEA “Transport Tender Tool” matches carrier preferences, but is not used to full potential.</td>
<td>The transport tenders and “Transport Tender Tool” IKEA uses today do not essentially differ from the ‘ideal’ e-procurement event and e–procurement tool according to the preferences of the carriers, although IKEA could make better use out of the scenario building functionality.</td>
</tr>
<tr>
<td>7.</td>
<td>The e-procurement tool is supporting but not replacing good business development.</td>
<td>The e-procurement tool is part of the VO, which is based among other things on trust. The transport business is a business which is highly dependable on human contact and good relations.</td>
</tr>
<tr>
<td>8.</td>
<td>In the big world of IKEA many aspects need further investigation before the application of a VO on IKEA’s Transport Organisation can be successful.</td>
<td>Items to consider for further investigation are among other things: the scope of responsibility and the mandate of the strategic purchaser, review the Transport Agreement package, improvement of performance data, investigation into the supply chain. These items will be addressed in the below recommendations.</td>
</tr>
</tbody>
</table>

Table 2: Extract of recommendations

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The general recommendation of this report is that IKEA should strive for implementation of the VO on its transport organisation.</td>
<td>The VO strengthens IKEA’s ability to create a co-operative, but at the same time competitive environment with the objective of reducing costs and increasing quality of service. The VO is therefore a promising tool to control the cost development and secure business on the long term. Also there is low risk due to redundancy and back-up</td>
</tr>
</tbody>
</table>
### Applying a Virtual Organisation on IKEA’s Transport Organisation

<table>
<thead>
<tr>
<th></th>
<th>Solution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>The VO should be implemented by and from the standing organisation</td>
<td>To get involvement and commitment of IKEA’s organisation the available knowledge within IKEA should be utilised to give shape to the VO. To create and operate the VO knowledge is needed, not only of transport, but certainly also of the organisation of IKEA itself.</td>
</tr>
<tr>
<td>3.</td>
<td>A taskforce should be established by IKEA to run a pilot project to setup the VO.</td>
<td>The pilot project group should investigate some open issues before starting up the Virtual Organisation. For an establishment of budget, task and time schedule and setup of the taskforce for implementation vide the paragraph 4.4.</td>
</tr>
<tr>
<td>4.</td>
<td>Implement a Virtual Web.</td>
<td>Part of the implementation of the VO should be the creation of a Virtual Web (VW) that will provide IKEA with a network of back-up solutions.</td>
</tr>
<tr>
<td>5.</td>
<td>Define the scope of responsibility and the mandate of the strategic purchaser</td>
<td>The strategic purchasers should develop the business between IKEA and the strategic carrier. The strategic purchasers should act independent of the transport areas and look at the bigger picture of what is the optimal match between the carrier and IKEA. The mandate of the strategic purchasers when it comes to nominating (their own) carriers on routes and volumes should be established in a brainstorm discussion on the level of IKEA Transport Global.</td>
</tr>
<tr>
<td>6.</td>
<td>Differentiate between carriers.</td>
<td>IKEA should create carrier profiles to be able to differentiate carriers based on certain characteristics such as; organisational setup, networks extent, business model, or turnover (with IKEA). The next step is to define and select which are strategic carriers for IKEA.</td>
</tr>
<tr>
<td>7.</td>
<td>Review the Transport Agreement package.</td>
<td>To create different contractual agreements to match different transport setups and different privileges for different carriers.</td>
</tr>
<tr>
<td>8.</td>
<td>Write strategic business development plans.</td>
<td>The VO should be built on trust and therefore it is of the utmost importance that both IKEA and the carrier have a common understanding of the direction in which the development will take place. It is recommended to secure this by means of strategic business development plans that give a strategic guideline to the mutual ambitions.</td>
</tr>
<tr>
<td>9.</td>
<td>Improve the usage of the e-procurement tool.</td>
<td>The IKEA Tender Tool is already constructed in line with the preferences of the carriers. It is recommended though, to make better use out of the scenario building functionality by aligning it with strategic business development plans. In the beginning IKEA should not strive for network optimisation by means of the combinatorial bidding functionality. From interviews given by carriers it appeared that at the moment the carriers are not ready for this, because they do not deploy their fleet on a pan-European level yet.</td>
</tr>
<tr>
<td>10.</td>
<td>Improve quality and accessibility of performance data</td>
<td>To earn the trust of the carrier it is important to treat all carriers equal. Improved quality and accessibility of performance data is required. There should be one uniform way of measuring and registering in the reporting of the carriers’ performance at all business units which should be followed with the same discipline. The performance data must be easily accessible on carrier level for all activities the carrier deploys for IKEA all over Europe.</td>
</tr>
<tr>
<td>11.</td>
<td>Investigate supply chain orientation.</td>
<td>IKEA’s Transport Dept. should be more ‘linked in’ with the rest of the supply chain to know better what the long-term strategies of the Trading (purchasing of the products) and Retail organisation within IKEA are.</td>
</tr>
<tr>
<td>12.</td>
<td>Improve supply chain visibility.</td>
<td>IKEA needs to be able to better assess the value of the service rendered by the carriers in order to take the right strategic decisions in the purchasing process. Therefore it is recommendable to investigate in the value of service by means of an investigation into the cost-structure of processes on the interfaces between transport and sender and receiver. For the moment this surpasses the scope of this study and was therefore also left out of scope for the pilot project.</td>
</tr>
</tbody>
</table>
5. Taskforce and guestimated Budget Costs, Time & Task Schedule

5.1 Task force including guestimated budget costs

For the implementation of the Virtual Organisation as described in this thesis a taskforce should be formed to setup the strategic purchasing organisation and to start investigating deeper into the ‘open issues’ mentioned in the recommendations. This project group is responsible for the initial start up phase which should span approximately 4 months to perform the following tasks (vide schedule below).

The setup of the taskforce consists of:
- Project Manager: 10,000 EUR/month (IKEA-internal), intermittently 50% of full-time equivalent (FTE)
- Assistant Project Manager: 8,000 EUR/month (100% of FTE)
- Expert 1: 6,000 EUR/month (100% of FTE)
- Expert 2: 5,000 EUR/month (50% of FTE)
- Backup staff: 9,000 EUR/month (25% of FTE)

Total guestimated budget costs for the start up phase amount approximately: EUR 90,000 (excluded contingencies)

5.2 Implementation Tasks

Table 3: Task schedule implementation

<table>
<thead>
<tr>
<th>No</th>
<th>Task description*</th>
<th>Responsible **</th>
<th>Duration ***</th>
<th>Costs in EUR ****</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identify critical routes for which backup carriers should be nominated.</td>
<td>PG</td>
<td>1 month</td>
<td>6,900</td>
</tr>
<tr>
<td>2.</td>
<td>Request special classification in CNS that indicates that a carrier is nominated as backup carrier.</td>
<td>IT support</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>3.</td>
<td>Identify and introduce potential back up carriers for critical routes.</td>
<td>LP</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>4.</td>
<td>Educate new carriers on IKEA’s standard operational procedures.</td>
<td>LP</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Create the Virtual Corporation

5. Create strategic transport purchasing function.

6. Recruit 4 or 5 strategic purchasers from the own organisation.

7. Define the mandate for the strategic and the local purchasers.

8. Create carrier profiles.

9. Select carriers for strategic partnership and have development talks.

10. Write carrier development plans to compliment IKEA’s growth.


Quality and accessibility of performance data

12. Investigate the ways of time registration at all business units (stores, DC’s and supplier) and create uniformity.

Supply chain orientation

13. Investigate into the volume development of the supply chain by getting involved in the trading and retail strategies. Share the gained knowledge on strategic purchaser level.

When in operation (not included in pilot project)


Total (rounded off) 90,000

PG = Project Group (Taskforce), TG = Transport Global (backup staff), SP = Strategic Purchaser (Experts), LP = Local Purchaser (Experts), N/A = Not Applicable (not in budget)

* The tasks described should be implemented by the standing organisation.
** IKEA is in the ‘driving seat’ of the implementation of these tasks and therefore marked as responsible.
*** For certain tasks, however, input and support of the carriers is a necessity.
**** The duration of the tasks is indicated in number of man-months involved. The start point needs to be defined, but preferably as soon as possible (vide also time schedule).
Applying a Virtual Organisation on IKEA’s Transport Organisation

**** For purposes of transparency the shown guestimated budget costs are derived by multiplying assessed man-months involvement with monthly salary, exclusive VAT. Further 20% of contingencies should be taken into account due to limited insight in the costs structure of the organisation and possible extension of Scope of Work during task description (for instance survey/study related travel costs).

5.3 Time Schedule

Table 4: Time schedule implementation

<table>
<thead>
<tr>
<th>Steps Descri</th>
<th>Description</th>
<th>Time schedule</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick-off meeting</td>
<td>Start pilot project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create the VW</td>
<td>Identify critical routes for which backup carriers should be nominated</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Request special classification (in CNS) that indicates that a carrier is</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>nominated as a backup carrier</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identify &amp; introduce backup carriers for critical routes (handled by LP’s)</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Educate new carriers on TSOP’s of IKEA (handled by LP’s)</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td>Create the VC</td>
<td>Create strategic transport purchasing function</td>
<td></td>
<td>2 months</td>
</tr>
<tr>
<td></td>
<td>Recruit 4 or 5 strategic purchasers from the own organisation</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Define the mandate for the strategic and local purchasers</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Create carrier profiles</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Select carriers for strategic partnership and have development talks</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Write strategic development plans.</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Review Transport Agreement package</td>
<td></td>
<td>2 months</td>
</tr>
<tr>
<td>Performance data</td>
<td>Investigate the ways of time registration at all business units (at stores, DC’s and supplier) and create uniformity</td>
<td></td>
<td>3 months</td>
</tr>
<tr>
<td>Supply chain orientation</td>
<td>Investigate into the development of the supply chain by getting involved in the trading and retail strategies. Investigate IKEA’s growth planning. Share the gained knowledge on strategic purchaser level.</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td>Happy</td>
<td>End pilot project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project in full swing</td>
<td>When in operation: Improve the usage of the e-procurement tool</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Follow-up Note

As writer of this report the author would like to express the willingness to further elucidate the findings of the conclusions and recommendations and/or to take part in the suggested taskforce with objective to implement the Virtual Organisation on IKEA’s Transport Organisation if so desired by IKEA.
Table of Contents

Thesis Information Page.................................................................................................................. v
Preface .............................................................................................................................................. vii
Executive Summary ......................................................................................................................... ix
Table of Contents .............................................................................................................................. 1

1 Problem Statement and Research Questions ................................................................................. 5
  1.1 Introduction............................................................................................................................... 5
  1.2 Problem Description................................................................................................................ 6
  1.3 Research Objectives .............................................................................................................. 7
  1.4 Research performed at IKEA ................................................................................................. 7
  1.5 Research Questions .............................................................................................................. 8
  1.6 Research Methods ................................................................................................................ 8
  1.7 Research Approach ............................................................................................................. 9
  1.8 Thesis structure ..................................................................................................................... 9

2 IKEA’s Transport Organisation ..................................................................................................... 13
  2.1 Describing the IKEA Organisation ......................................................................................... 13
  2.2 The IKEA Supply Chain ....................................................................................................... 16
  2.3 Distribution .......................................................................................................................... 17
  2.4 Transport .............................................................................................................................. 19
  2.5 Demands on Transport ....................................................................................................... 23
  2.6 Strategy of IKEA’s Transport Organisation ......................................................................... 25
  2.7 Summary .............................................................................................................................. 27

3 The Virtual Organisation ............................................................................................................ 29
  3.1 Introduction ........................................................................................................................... 29
  3.2 Views on the Concept of the Virtual Organisation with Examples ..................................... 30
  3.3 Conceptual Model of the Virtual Organisation .................................................................... 32
  3.4 The “Switching-Principle” .................................................................................................... 36
  3.5 Summary .............................................................................................................................. 38

4 Trends in Supply Chains ............................................................................................................ 39
  4.1 Introduction ............................................................................................................................ 39
  4.2 Developments affecting Shippers ........................................................................................ 39
  4.3 Developments affecting Carriers ....................................................................................... 42
  4.4 A historic Perspective on Logistics Management .................................................................. 44
# Table of Contents

4.5  **Summary** ................................................................................................................. 48

5  **Procurement of Transport Services** ........................................................................ 49
   5.1  **Introduction** ............................................................................................................. 49
   5.2  **Transport Procurement Types** ................................................................................ 50
   5.3  **Designing a Transport Procurement Event** ........................................................... 55
   5.4  **Summary** ................................................................................................................. 57

6  **Design of Questionnaire on Carrier Preferences** ...................................................... 59
   6.1  **Introduction** ............................................................................................................. 59
   6.2  **Setup of Questionnaire** .......................................................................................... 60
   6.3  **Specific Observations of Questionnaire** ................................................................. 62

7  **Questionnaire Results** ............................................................................................... 65
   7.1  **Carrier Profiles** ........................................................................................................ 65
   7.2  **Carriers’ Experience with E-procurement** ............................................................. 67
   7.3  **Carriers’ Perception of Advantages and Disadvantages of E-procurement** ......... 69
   7.4  **Carriers’ Preferences regarding E-procurement Event Design** .............................. 71
   7.5  **Carriers’ Preferences regarding Co-operation** ....................................................... 74
   7.6  **Summary of observations** ........................................................................................ 79

8  **Interpretation of Questionnaire’s Results for IKEA** ................................................. 81
   8.1  **Introduction** ............................................................................................................. 81
   8.2  **Similarities, dissimilarities and consequences for IKEA** ........................................ 81
   8.3  **Observations** .......................................................................................................... 85

9  **Implications of Questionnaire Results and VO-theory for IKEA** ............................. 87
   9.1  **Introduction** ............................................................................................................. 87
   9.2  **Create the Virtual Web** ............................................................................................ 87
   9.3  **Create the Virtual Corporation** ................................................................................ 88
   9.4  **Design the E-procurement Event** ............................................................................ 89
   9.5  **Summary** ................................................................................................................. 90

10 **Conclusions and Recommendations** ...................................................................... 91
   10.1 **Introduction** ............................................................................................................. 91
   10.2 **Answering the main Research Question with sub Questions** ............................. 92
   10.3 **Conclusions** .......................................................................................................... 95
   10.4 **Recommendations (Scope of work)** ...................................................................... 97
   10.5 **Implementation of the Virtual Organisation** ......................................................... 99

11 **Reflection** ................................................................................................................ 103

**List of Figures** ............................................................................................................... 105
Applying a Virtual Organisation on IKEA’s Transport Organisation

List of Tables ........................................................................................................................ 106
List of Abbreviations ............................................................................................................. 106
Literature .............................................................................................................................. 107
IKEA Documents .................................................................................................................... 109
Recommended Websites ....................................................................................................... 109

Appendices .......................................................................................................................... 110
Appendix A: Questionnaire For Transport Carriers ............................................................... 111
Appendix B: Statistic Background of Questionnaire ............................................................... 121
B.1 Response Rate ................................................................................................................. 121
B.2 Chi-square test results ..................................................................................................... 122
Appendix C: Carrier Profiles ............................................................................................... 123
Appendix D: Interview with Ewals Cargo Care ..................................................................... 125
Appendix E: Interview Holland International Distribution Council (HIDC) ......................... 127
Appendix F: Interview with an International food producer .................................................. 129
Appendix G: Interview with a Chilled convenience food producer ....................................... 132
Appendix H: Interview Van Dieren Maritime (VDM) ............................................................. 134
Appendix I: Interview VOS Logistics (VOSL) ....................................................................... 136
Appendix J: Interview DHL .................................................................................................... 138
1 Problem Statement and Research Questions

“Welcome every problem as an opportunity. Each moment is the great challenge, the best thing that ever happened to you. The more difficult the problem, the greater the challenge in working it out.”

- Grace Speare
(American author)

This is a study into inter firm relationships in the context of a transport and distribution environment. This first chapter describes the set-up of the research and of this report.

1.1 Introduction

An article in Computable Computer Magazine (vide blue box) triggered my interest in the subject of this final thesis report. Hewlett-Packard after its merge with Compaq reorganised and restructured its business processes. Today HP Compaq can take up a replacement supplier into its supply chain within two hours time. Some years ago that would have taken up to five weeks. This added flexibility has more than one benefit. For one thing it makes HP Compaq less vulnerable of hick-ups in the chain, because back-up solutions are available and in place almost instantly. But also it allows HP Compaq to be agile and adapt to changing market circumstances. In a world where new changes replace previous changes faster and faster, it is a strong competitive edge to be able to sense and respond to the customer rapidly. Sensing what the customer’s demand is, sometimes before the customer knows it himself, and than respond quickly by effectively re-steering the whole supply chain. The question remains: “How did they do it?” How is it possible that HP Compaq was able to reduce the time to insert a replacement supplier into their supply chain from five weeks to less than two hours? (based on the “switching principle”; vide examples of HP and IKEA in this chapter and for further elaboration of this principle reference is made to chapter 3)

The answer is in starting up a different type of relationship with the supplier. What are the consequences for the design of the supply chain and the relations between partners that make this possible? These intriguing questions became the motivation for me to do this research. However, I placed it in a different context. Not HP Compaq’s production chain, but IKEA’s transport organisation forms the context for this research. IKEA operates a supply chain to bring her products from the suppliers to the end customer. Transport is an important link in this chain. For me it was very interesting to find out if the same principle HP Compaq uses, could also be applied for IKEA. IKEA was not used as a case-study in this respect. The full scope of this research was projected on IKEA’s transport organisation
and the relationships it maintains with the transport service providers. The conclusions of the research reflect back on IKEA.

In the last decade, Supply Chain Management dominated the logistics organisation. Optimising supply chains by integrated logistical concepts has improved efficiency for a lot of companies. Changing circumstances in the marketplace have led to the need for a different, more flexible and adaptable way of organising and managing the supply chain. The concepts that were applied throughout the years changed the relationships between the partners in the chain. The new concept, illustrated by the example of HP Compaq, is referred to in literature as the Virtual Organisation. The Virtual Organisation uses the same principles as Supply Chain Management (SCM) does. The main difference between SCM and Virtual Organisation is the fact that the first describes an elongated string or chain of companies that successively add value to the product, and the second is a network of independent companies that is changeable. As soon as market conditions demand a different type of knowledge or skill, reconfiguration of the network will make it available. This improves the chain’s flexibility and reliability and probably its cost effectiveness.

The supply chain and supply chain management are concerned with the manufacturing chain of a product, starting with the supplier of raw material, to the manufacturer, to the wholesaler, to the retailer and finally to the end customer. The array of different concepts that applied to this from the past until today have relevance to the type of relationships between the different parties in the chain. Throughout the years the type of relationship changed along with changes in the circumstances of the business environment. The relationship evolved from a strictly commercial relationship to a co-operative relationship for the long term and further into a co-operative relationship for the short term. This evolution is not reserved for the manufacturing part of the chain only. One can and should also apply these principles on the relationships with the service providers of the different services required to bring the product to the end customer. This may include services such as marketing, design, logistics and definitely also transport and distribution, because there is a direct link between changes in the supply chain and the need for new transport and distributive solutions.

1.2 Problem Description

IKEA is one of the biggest shippers on the European market. The enormous volumes IKEA ships make it a very interesting prospect for transport companies. This gives the company a strong negotiation position towards the transport carrier to get the transport service against lowest possible costs. On the other hand, however, there is also an important dependency on transport to be taken into consideration. Because transport plays such an important role in the company’s supply chain IKEA is depending heavily on the transport companies to secure the availability of the goods in the stores. IKEA has to continuously balance both requirements (of low costs and of high quality of service) and maintain a good relationship with the carrier at the same time. Engaging in ‘virtual organised’ relations means to engage in a different type of relationship with the carrier, and therefore also in a different way of purchasing transport services. It is not yet very well known to IKEA what that will mean for future business.

1.3 Research Objectives

This study focuses on the relationship between shipper and carrier. Nooteboom (1999) said: “In managing relations it is important to take into account the effects of one’s actions on the position of the partner, his reactions and their effects on one’s own position. These actions will affect the value that partners assign to the relationship”.

The goal of this research is to find out whether or not virtual organised transport relations is something that IKEA should strive for (with hindsight to the organisation’s main objective of high availability against lowest possible costs). Therefore this research was set up to provide a better insight and understanding of the desires of the carrier considering the virtual organisation of relations and what impact that would have on the transport organisation of IKEA.

1.4 Research performed at IKEA

This research was set up at IKEA for a couple of reasons. First of all, IKEA as a whole is one of the biggest shippers in Europe and offers therefore, with her large number of transport service providers and challenging business demands, a very challenging environment to do such a research.

Secondly, the Trading organisation of IKEA, which is part of IKEA Purchasing department (vide figure 2-1) which purchases the products, displays signs of a Virtual Organisation. According to Ahonen, Bechheim, Goux and Scholer, who have studied this part of IKEA, IKEA Trading organisation is a good example of a successful Virtual Organisation. IKEA Trading works together with its product suppliers to realise the objective of manufacturing furniture at prices so low that the majority of the people can afford them. IKEA designs all its furniture in-house, but does not own the manufacturing facilities with some exceptions. The network of subcontracted manufacturers numbers 1300 suppliers among which IKEA fosters loyalty and trust in order to keep sharing the same core values. IKEA uses the “switching principle” between these manufacturers in order to keep the price of its products affordable for nearly everybody. The “switching principle” is Mowshowitz’s (1999) definition of the Virtual Organisation. This will be discussed more elaborately in chapter 3. For now it suffices to know that a buyer can use the “switching principle” to exchange suppliers. IKEA uses the “switching principle” for instance when deciding to do the business with another wood provider, in order to better meet the customer’s taste or in order to save costs.

I believe that when relationships in the supply chain develop into virtual relations, the relationships with the supporting service providers should also develop into virtual relations. It is this and also the expectation that IKEA is a suitable organisation, from a cultural perspective, that makes IKEA an interesting environment for this research.

Finally, IKEA is one of the biggest shippers of consumer goods within Europe. Because of the low-priced articles, the focus on costs is very high. Distribution costs, where transport is part of, make up a relatively big part of the total costs per product. The Virtual Organisation model might look promising as a costs controlling concept also for IKEA’s Transport department, because of a shared corporate culture and analogue relationships with external parties.

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5 Ahonen, Bechheim, Goux, Scholer, 2000, Virtual Organisations: Concept and Connection to Relationship Marketing
It goes without saying that the concept of virtual organisations is not exclusively applicable on IKEA. It could also apply on similar large organisations that are maybe capable to exercise the above mentioned “switching principle” (vide chapter 3).

1.5 Research Questions

From the research objective it is a logical step to the research question. By formulating the main research question (vide below blue earmarked box), it became clear that due to the complexity of the vast array of research subjects, the need was felt to formulate also sub questions, broken down in generic and specific subjects. This division has resulted in the fact that theory, tendencies and practice have been investigated, which contributed to a richer and more valuable outcome for IKEA.

Main question:

| How can the concept of virtual organised relationships be implemented by IKEA in the organisation of its transport relations? |

The following sub questions will help answering the main question.

Generic sub questions:

1. What are virtual organised relationships?
2. How is “virtual organising of relationships” embedded in the theory of traditional organisational structures?
3. How can “virtual organised relationships” be reflected in the shipper-carrier relationships?

Specific sub questions for IKEA:

1. How is IKEA organising the fulfilment of its present need for transportation?
2. What are IKEA’s criteria and demands on relationships with carriers in respect to purchasing and operating transport capacity?
3. What are IKEA’s carriers’ criteria and demands on their relationships with IKEA in respect to purchasing and operating transport capacity?
4. What are the consequences of virtual organised relationships between shipper and carrier for IKEA’s transport business?

1.6 Research Methods

The research method applied to get answers to the research questions is based on the questionnaire. A questionnaire was sent to all current IKEA carriers as well as some non-IKEA carriers. It consisted of 15 questions, with multiple sub questions. The questions were divided in three main parts, addressing three areas. The first part serves to create a company profile. The second part asks the carriers for their preferences concerning the procurement of transport services, because the procurement process is an important factor in the switching principle. The third part questions the carriers about their preference related to shipper-carrier co-operation.

In order to set up the questionnaire with relevant questions the following activities were undertaken: A study of literature was performed on the subjects of virtual organisations, co-operation and transport purchasing. As a pre investigation in the concept of e-tendering and to gain knowledge of the issues that are present in the field of
transportation, interviews were held with an independent expert in the field of logistics, with two shippers and with two carriers. Furthermore, a thorough analysis of IKEA’s transport organisation was made. Moreover, during my internship in IKEA, exchange of views with IKEA’s transport purchasers have given input to this report. After the questionnaire was issued, another three interviews were done with carriers in order to validate the results of the questionnaire. The findings of the thesis have been formulated in conclusions and recommendations in chapter 9.

1.7 Research Approach

This research has been structured along the following steps:

1. Initial research goal and problem statement.
2. Literature study for theoretical background and study of IKEA’s transport processes to improve the research goal and problem statement.
3. The conceptual model is derived from literature on Virtual Organisations.
4. Pre-investigative interviews.
5. Development of a questionnaire to measure preferences, based on theory and the practical situation of IKEA’s transport processes.
6. Sending out the questionnaire to participating transport service providers and gathering the results.
7. Analysis of the questionnaire outcomes.
8. Interviews for validation of results.
9. Relating the conceptual model to the outcome of the analysis and drawing up conclusions.
10. Recommendations for IKEA’s Transport department on possible future setup of the virtual organisation.

Figure 1-1: Research approach

1.8 Thesis structure

The chapters in this report can be divided into three main parts, followed by final conclusions and recommendations.

The first part of this report is of an analytical nature. It describes the environment in which this research took place. For IKEA co-workers this part should not contain any surprises. For readers that know IKEA only from a shopping experience, this chapter creates an insight into the organisation from top to bottom, zooming in on the distribution and transport related processes.

The second part has a theoretical approach. It consists of chapters 3, 4 and 5. It addresses the theoretical concept of the Virtual Organisation itself and its characteristics (chapter 3). The trends and changing relationships in the supply chain over the last decades, which have led up to the concept of the Virtual Organisation are discussed (chapter 4). Relations in transport start with the procurement of a service from the carrier.
by the shipper. E-procurement events can be the starting point for co-operation between shipper and carrier, while maintaining a competitive and agile environment. In this way e-procurement events lead to virtual organised relationships. This second part is concluded by the theory on procurement of transport services (chapter 5). This chapter gives in-depth knowledge about the different possible setups of e-procurement events for transport services and can be read separately. It is of interest for anyone who wants to know more about the theoretical backgrounds that have established the design of the questionnaire.

In the third part of the report the gained knowledge of the first two parts was combined to give input for the design of the questionnaire. In 'Design of Questionnaire on carrier preferences' (chapter 6) the setup of the questionnaire is described. It explains the idea behind the questionnaire, general subjects of the questions and the composition of the population of participants. The results of the questionnaire (chapter 7) are what make this research unique. The questionnaire was sent out to carriers to measure their preferences towards a set of issues regarding purchasing of transport services, partnership and co-operation. The results were translated back to IKEA and the business model of its transport organisation (chapter 8), followed by a further analysis of the implications of the results (chapter 9). In my opinion this 3rd part of the report is interesting for anyone working in the transport industry, be it as a shipper or as a carrier. As well as anyone interested in inter-firm relationships. In part 4 the conclusions and recommendations of this research are presented (chapter 10). In chapter 11 a reflection on the research process was added.

Figure 1-2 gives a visual representation of the structure of the chapters of this report that also functions as a logical flow diagram. For easy guidance and reference the yellow coloured box indicates the subject at hand in a specific chapter of the thesis, while the blue colour shows the covered issues. This figure will return at the beginning of every new chapter to show the reader how this chapter fits into the report.

Part 1.
Chapter 1 Introduction
Chapter 2 IKEA’s Transport Organisation

Part 2.
Chapter 3 The Virtual Organisation
Chapter 4 Trends in Supply Chains
Chapter 5 Procurement of Transport Services

Part 3.
Chapter 6 Design of Questionnaire on Carrier Preferences
Chapter 7 Questionnaire Results
Chapter 8 Interpretation of Questionnaire Results for IKEA
Chapter 9 Consequences for IKEA of Questionnaire Results and VO-theory

Part 4.
Chapter 10 Conclusions and Recommendations
Chapter 11 Reflection

Part 5.
Lists, Literature & Appendices

Figure 1-2: Structure of report
It is noteworthy to mention that all chapters end with a summary and that for record sake and easy references a separate literature list is added before the appendices, which covers all the authors referred to in the relevant chapters. Additionally, lists for figures, tables and abbreviations can be found after chapter 11.
2 IKEA’s Transport Organisation

“Most things in life remain to be done.”

Ingvar Kamprad
(Founder of IKEA)

This research was executed at IKEA’s office for Distribution Services Western-Central Europe (DS West/Central) in Haarlem, the Netherlands. This chapter will give an outline of the structure of the IKEA Company, its concept, vision, business idea, priorities and tasks and responsibilities. The current size and pace at which the company is growing are illustrative of the also growing scope of the transport business within IKEA. The position of the Distribution Services (DS) department and the important role that distribution and transport play in the concept will become apparent. Finally, IKEA’s demands on transport will be discussed in order to better understand the requirements any (future) relationship with transport service providers will have to satisfy. This chapter is based on a number of different IKEA internal documents which can be found on the company’s intranet, among which: “SC Transportation Strategy FY2006 – FY2010”, “Transport Global Strategy FY 05-08”, “IKEA Transport Requirements”, “IKEA Transport Standard Operational Procedures”.

2.1 Describing the IKEA Organisation

2.1.1 Vision and Strategy

IKEA is a worldwide operating home furnishing company that was founded in 1943 and has shown a tremendous growth ever since. All employees in every department do their everyday job in a shared corporate culture that is represented by IKEA’s vision and functions as a backbone for all developments within the IKEA organisation.

The IKEA vision:

“To create a better life for the many people”

The IKEA vision is translated into every activity the company endeavours in. This resulted in the following mission or in IKEA terms, the business idea.

The IKEA business idea:

“We shall offer a wide range of well-designed, functional home furnishing products at prices so low that as many people as possible will be able to afford them”

IKEA focuses on four priorities to complete the range of home furnishing products. They are: Living with children, Living in small places, Organise your living/smart storage and last but not least, Low prices. The above results into four tasks the IKEA Group has set for the stores:

1. To act as highly efficient and staffed sales mechanism.
IKEA’s Transport Organisation

2. To show home furnishing solutions full of inspiring home furnishing ideas.
3. To serve as a well-qualified home furnishing specialist.
4. To provide a day out for the whole family.

IKEA’s strategy to realise the vision is to appoint standards like production-oriented design, close co-operation with suppliers, cost-efficient and rational stores, efficient distribution systems and leaving certain tasks (collecting, transporting and assembling) to the responsibility of the customer. By handing over these tasks to the customer and the fact that IKEA’s product packages are as flat and as small as possible save a lot of additional costs and keep the price as low as possible. In fact, IKEA manages to reduce the prices for the same products every year instead of raising them gradually, like other companies do.

2.1.2 Facts and Figures
Let’s start by giving some facts and figures to get a better understanding of the company and its scope. In 2007, 522 million customers visited the IKEA stores and the IKEA Group had a total turnover of approximately 20 billion Euros. Today IKEA employs about 118,000 people worldwide. More facts and figures are presented in paragraph 2.1.5.

2.1.3 Production oriented Design
IKEA offers a product range of approximately 11,000 products. IKEA is production oriented, which means design takes place in close co-operation with suppliers in order to find smart solutions for cheap and efficient production. There is a focus on both the needs and desires of the customer and the ideas for products and potentials for savings. This must result into new solutions no one has thought of before, using materials in a different way or finding a new way of using an old idea.

2.1.4 Future Strategy
IKEA has set itself ambitious goals for the coming years. In the “10 jobs for 10 years” plan, 10 challenges are described that will contribute to the threefold goal set for 2010.

1. **Being market leader in the area of home furnishing.**
   The objective is to grow 10% each year until 2010. Strong expansion will take place in the USA, and the current position in China, Japan, Australia and Russia will be improved. The goal is to increase the sales turnover to approximately € 22 billion.

2. **Strengthening the competitive position.**
   IKEA is aiming to strengthen the competitive position by continuously lowering the prices. In 2010 sales prices will have dropped 20% as opposed to the current prices. New competitive purchase strategies and more efficient distribution methods must be developed to cut the cost share of the products.

3. **Securing the profitability for the long-term.**
   Profitability is not a goal in itself but a way to realise the vision. However, profitability on the short term comes secondary to the investments in the IKEA concept. This will always continue to secure profitability on the longer term.

Among the ten challenges that were formulated to reach the three goals mentioned above, there are two important notifications for transport and distribution within IKEA. The first is to increase the logistical efficiency throughout the whole supply chain. The aim is to guarantee a good and stable service level against reduced logistic costs. The second is to be agile, flexible and quick. To reach the vision IKEA must grow into a real large player, but at the same time it must remain to be a small company with short distances to suppliers (of products and services) and customers.
2.1.5 IKEA’s organisational Structure

This is how IKEA is organised (vide picture 3, source: www.corporate.ikea.com):

**Range** - IKEA of Sweden develops the range which comprises of some 9,500 products. The product range changes especially when the new catalogue comes out, but also continuously throughout the year products are phased in and out of the range.

**Supply** - The IKEA Group has: 45 trading service offices in 31 countries, 1,350 suppliers in 50 countries, 31 distribution centres and 11 customer distribution centres in 16 countries.

Supply consists of Purchasing, Distribution and the Swedwood group. This research was performed with the Transport department of Distribution Services West/Central, part of Distribution. Distribution Services (and therefore Transport as well) performs services for both the IKEA Group and the franchisees outside of the IKEA Group.

The Swedwood Group - the Industry group that consists of production facilities (the Swedwood factories) that IKEA keeps under its own administration - has: 36 factories and sawmills in nine countries.

**Retail** - The IKEA Group has 231 stores in 24 countries, and is the largest franchisee of the IKEA concept, which is owned by Inter IKEA Systems B.V. In addition there are 29 IKEA stores owned and run by franchisees outside the IKEA Group, in 14 countries. Every year IKEA opens approximately 20 stores in different places around the globe.

**IKEA Services B.V. and IKEA Services AB** - Work within the Group is supported by 9 staff units in Holland (IKEA Services B.V.) and Sweden (IKEA Services AB).

![Organisational set-up](Source: www.corporate.ikea.com)

**Inter IKEA Systems B.V.** (not in the picture)- The IKEA concept and brand are owned by Inter IKEA Systems B.V., making it available to franchisees within, as well as outside, the IKEA Group. Inter IKEA Systems B.V. develops and improves the IKEA concept.
continuously. The franchise stores and the IKEA Group pay a fee for using the concept to Inter IKEA Systems B.V.
The founder of IKEA, Ingvar Kamprad, has been keen to create an ownership structure and organisation that stands for long-term independency and security. The IKEA Group is owned by a foundation - Stichting INGKA Foundation - which is registered in the Netherlands. The foundation owns INGKA Holding B.V., the parent company for all IKEA Group companies. The IKEA Group consists of a number of companies – from the industrial group Swedwood to the retail companies that own the stores in each country.

2.2 The IKEA Supply Chain

In order to understand the role of transport it is necessary to understand the context in which it operates. Therefore IKEA’s supply chain which forms this context will be explained in this paragraph. The three main pillars that form the supply chain are Purchasing, Distribution and Retail (vide picture 4). These three main pillars work in close cooperation to deliver the product from the supplier to the customer and are described below. IKEA’s supply chain objective is:

“The IKEA ‘range offer’ to be available at all times in all stores and to all customers, with the lowest total IKEA supply costs at the point of sale”.

![Figure 2-2: The three pillars of IKEA's Supply Chain](#)

2.2.1 Purchasing - Trading Organisation

The Trading offices are responsible for purchasing products from the suppliers. Once a product is designed by IoS (IKEA of Sweden), Trading will find the best supplier to manufacture the product. What is the best supplier is amongst other things dependent on price, required capacity, quality standards and social and environmental issues. IKEA sources one product from multiple suppliers to avoid stock outs due to production problems. In most cases a supplier produces more than one product. The suppliers deliver their products to distribution centres and stores allocated by means of supply matrices. By reallocating the production volumes to different suppliers, the matrices change. This can happen for many reasons, such as production problems at a supplier or the possibility of cheaper production at an alternative supplier. The supplier matrices change frequently and are a source for continuous dynamics in the distribution network. Trading makes forecasts of the next year’s sales figures in order for Distribution to be able to anticipate the expected goods flow. The producing countries for IKEA are typically the Eastern-European countries, with Poland as most important one. Production in Europe is generally moving Eastbound to keep production costs low and in the Far East China is an increasingly important production country for IKEA. However, parts of the Western Europe viz. Sweden and Germany still are important production areas.

2.2.2 Distribution

In general Distribution is responsible for bringing the goods from the point of production to the point of sale in the most cost efficient way. The goods, purchased by Trading, must be picked up at the supplier to be delivered to the internal customer; Retail. Distribution is responsible for storing the right stock levels in the distribution centres of the respective
sales markets and for the delivery of the goods to and from distribution centres or directly to the stores by setting up and executing the proper distribution methods. Distribution consists of Distribution Centres, a Transport department, a ‘Goods flow’ department, a Quality & Deviations department, and some additional supporting departments. The chosen distribution setups are for an important part steered from the regional Supply Team for Europe which is centralised in Switzerland.

2.2.3 Retail
The retail organisation is responsible for selling the goods to the customer. The stores are the main interface to the end customer. The products are presented by itself and in living simulating set-ups. The stores are supported by the Service Office that supports the implementation of the commercial strategy on regional level and to support the stores in their logistical needs. Special sales activities are developed to keep the consumer coming to the store. These sales activities and seasonal changes result in fluctuations in transported volume, and are therefore an important driver for the need for flexibility in the transport network. Furthermore the retail department has an important influence on transport, because it determines the service levels and special requirements IKEA expects from the carriers. The biggest retail markets in Europe are Germany and the UK.

2.3 Distribution
The regional Supply Team mentioned in paragraph 2.2.2 consists of ‘Supply Development Receivers’. The ‘Supply Development Receivers’ and the ‘Goods flow’ department are responsible for establishing the goods flow pattern and the applied order & distribution methods. Both set important criteria to which the required transport solution has to comply. For a better understanding of the demands on transport it is therefore important to understand the driving factors behind these demands.

2.3.1 Goods Flow
The goods flow pattern is determined by factors such as; product characteristics, turnover quantity and Distribution Centre (DC) function. Possible flows that result from the goods flow pattern are;

- Supplier to store delivery (SUP-STO)
- Transit delivery (Transit-STO)
- Supplier to distribution centre delivery (SUP-DC)
- Distribution centre to store delivery (DC-STO)

The SUP-STO delivery is the cheapest way of distribution for IKEA. SUP-STO consists of full-loads and part-loads and if possible co-loads. Transit delivery moves through the DC, but has to be shipped out again within 24 hours, without any additional handling involved. Supplier-DC delivery is for the larger part done by truck, but rail or combinations of truck and rail are also possible. DC-STO delivery is done by truck (in some exceptional cases the store is also connected to rail). An important point to notice here is that the goods flow steering has a very considerable influence on the transported volumes on route level.

2.3.2 Order & Distribution
The different order & distribution methods will be explained in more detail to the reader to create a better awareness of the complexity of IKEA’s distribution network. IKEA applies six different order & distribution combinations. IKEA’s need for transport is generated by the goods flow from suppliers to stores (via DC). A number of different order & distribution methods are applied to maintain these flows and prevent the stores
or DC’s from running out of stock. Running out of stock means “Selling No” to the customer and that is unacceptable to IKEA. Availability of the products to the customers is the most important requirement.

The order & distribution methods range from less sophisticated to more sophisticated forms. The more sophisticated the order & distribution method is, the less costs are made in IKEA’s supply chain and the less pressure is put on the distribution centres. Suppliers are stimulated and supported to upgrade their order & distribution method step by step according to the staircase model (figure 2-3).

**Figure 2-3: Supplier staircase model**

The division between Direct Deliveries (DD) and Distribution Centre deliveries (DC) is the most important “given” for the transport department, because the flows are physically different. Within DD and DC, the service criticalities differ between the different methods (vide paragraph 2.4.3.1). The variety of order & distribution methods and the physical delivery patterns that it generates construct a complex network of goods flows.

Starting with the most unsophisticated form of ordering, fixed orders are executed manually. This takes relatively much time, but is necessary in cases of unexpected high sales or extra sales activities. Some products run standard on fixed ordering. Call-off is an automated order method. Every four weeks an order is placed at the supplier, who will then make one delivery to the warehouse. Order Point Distribution Centre or OPDC is a replenishment system for the distribution centre. When stock reaches a certain minimum level an order is generated and a delivery will be made. Compared to call-off, OPDC has more frequent ordering with shorter lead time and lower security stock is necessary. With Vendor Managed Inventory (VMI) the responsibility for replenishment lays with the supplier. Deliveries are made to the distribution centre or directly to the store. They are frequent and have short lead times. Quick-response deliveries are direct deliveries from supplier to store. No (security) stock is kept at the distribution centre and the store is responsible for the order point. Transit deliveries are the same as quick response deliveries, but have a transit point in the DC, where freight is transferred from one truck to another. Here also no (security) stock is kept in the DC.

It is noteworthy to mention that, with increasing sophisticated order & distribution methods the transportation volume is spread out more over time and as such reduces the volume. This shortens lead-times and decreases security stocks, but also makes it increasingly difficult to create cost efficient transport solutions, because intermodal solutions, for instance, are often not an option anymore.

All links between suppliers, distribution centres and stores are connected by routes. The route is defined by its start and end point. A route has several other attributes such as a volume forecast, distance, contracted carrier and transport costs information. To illustrate the complexity of the network once more, IKEA has over 40,000 predefined routes in its Cargo Network Services system (CNS) of which currently over 15,000 are in use.
2.4 Transport

The Transport department takes care of the planning, purchasing and operating of transport services to physically bring the goods from the supplier or distribution centre to the customer. The availability of the goods in the store is the number one priority. Transport is the enabler of that objective. This paragraph will give an introduction into the transport vocabulary of IKEA to create a better appreciation of the general context of this report. The way in which IKEA organises its transport processes (plan, purchase, operate and controlling) will be explained as well as the demands that IKEA puts on the carriers that fulfil the transport service. Completed by some words about the strategy of the transport organisation this paragraph will give the reader an idea about the type of relations IKEA endeavours in with its carriers.

2.4.1 Scope of Transport Organisation

IKEA makes use of all transport modes. The road network used by IKEA, roughly extents from the UK into Russia, and from north of Sweden down to Turkey. Also in North America and Asia Pacific, IKEA goods are transport over the road. Road transport is in most cases the most cost efficient and flexible solution. But IKEA also makes use of rail transport, short-sea solutions and inter-modal transport solutions. From the Asia Pacific region into Europe and the US, and from Europe into the US, IKEA ships a lot of freight by means of deep sea solutions. This flow (especially from Asia Pacific) is increasing rapidly, because of the industrial growth of China. To accommodate that flow on the receiving end IKEA operates barge solutions to get containers from ports to inland terminals, for instance the port of Antwerp or Rotterdam to an inland terminal in the vicinity of the DC in Winterslag (Belgium). Last but not least a very small amount of air transport for special cases. In general transport is getting more complex, because of the increasing distances that have to be overcome and the sometimes difficult circumstances in remote areas, and of course the ever growing volumes.

The focus in this research is predominantly on road transport within Europe, but a number of road carriers also perform inter-modal services for IKEA and these relationships are also taken into account in this research. The figures in table 5 represent the scope of road transport worldwide for IKEA in 2003. The major part of this demand is located in Europe. There are large differences between the volumes (and related costs) that the carriers service. 20% of IKEA’s largest land carriers in Europe share 70% of IKEA’s transport business in Europe. These theoretical figures may not mean so much to the uninformed reader, but people who have experience in the field of transport and logistics will recognise these as large numbers. The amount of volume and the number of shipments IKEA generates on its own is comparable with what middle large carriers move annually for their entire clientele. The total road transport spent amounted to 200 Million Euro in 2003, which equalled about 1.5% of the total turnover. Relative to the company’s turnover, the transport costs may not be that large, but in absolute sense still represents a large amount of money. In the 5 years that have passed since 2003 the figures in table 5 have more or less doubled.

<table>
<thead>
<tr>
<th>Table 5: Road transport scope, figures of 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Carriers</td>
</tr>
<tr>
<td>Number of Routes/Lanes</td>
</tr>
<tr>
<td>Volume per year (nm³)</td>
</tr>
<tr>
<td>Number of transports</td>
</tr>
<tr>
<td>Transport spend (Euro)</td>
</tr>
</tbody>
</table>

(Source: IKEA Factory to Store (A-D) Transport E-Sourcing Event Project Plan, 2004)
IKEA purchases transportation services to secure land transport capacity in Europe from about two hundred different carriers. On road transport these are predominantly Full Truck Load (FTL) services. Also Less than full Truck Load (LTL) services are purchased for inter DC traffic and for suppliers with small volumes to DC or Store. Within the framework of demands set by IKEA, the carrier is free to organise the transport as suits him best. Some carriers are combining road transport with rail, short-sea or barge transport to offer inter-modal transport solutions.

### 2.4.2 IKEA’s Transport Processes

Organising transport in order to supply the goods to the stores, takes place along three main steps. The transport processes are constructed around plan, purchase and operate functions (vide figure 6). The controlling function monitors the whole process. All these functions are performed in-house by IKEA. The transport department therefore needs to have an extensive knowledge of the world of transport to secure the right carrier against the right price and quality.

**Plan**

The forecasts from Trading are translated in needed transport capacity. The forecast predicts a capacity need for the coming year. The planning function analyses the forecast on route and volume level, establishing the transport flows. The flow pattern depends on the planning of the goods flow and the applied order and distribution methods that were discussed in paragraph 2.3. Analysing routes, volumes and flows results in a planned capacity which must be purchased.

**Purchase**

By purchasing transport services IKEA secures enough transport capacity to facilitate the goods flow. IKEA does not own any transport equipment itself, therefore all transport services are out-sourced to carriers. Most of the utilised transport capacity (about 98%) is purchased by IKEA and some (about 2%) is purchased and organised by certain suppliers themselves. The purchasing of transport services requires a good knowledge of the transport market. The purchase department needs to make sure it establishes the right transport solution for a given situation and that the correct (market) price is paid. The trade-off is between securing of capacity, paying the right price and getting the right quality of service. The outcome depends amongst other things on the specific market situation which can differ a lot from country to country. The purchasing department has an interest in creating a certain right level of competitiveness between the carriers on the one hand, but also tries to make use of the benefits of having a co-operative relationship with the carriers on the other hand.

![Figure 2-4: Plan, Purchase and Operate, monitored by controller(s)](image-url)
Operate
The secured capacity will be booked for transport and becomes utilised capacity. The ‘operate’-process of transport is concerned with the establishing the desired service levels and the implementation of routines and working methods. It also is responsible for the follow-up and improvement of the carrier’s performance. In the daily operations of transport services many things can go wrong. Pick-up and drop-offs that are not on time for instance and damaged goods or equipment should be prevented as much as possible. The knowledge and the experience with IKEA’s operation of the carrier are very important in this respect.

2.4.3 Purchasing Transport Services

Behind the goal of securing transport capacity at the best price, there is a strategy. IKEA uses its “business tool” to determine the right strategy for purchasing transport services given the specific market situation and service criticality. Securing the planned capacity takes effect in buying transport capacity with carriers by means of tenders. Tenders must be well prepared in order to buy the right transport solution for a given need. IKEA’s business tool is designed to select the desired transport solution based on the service criticality of the goods flow and IKEA’s position in the market. By ascertaining IKEA’s position on the transport market (in general or for specific country-to-country relations), the risk factor is established.

The purpose of the business tool is to analyse the market in terms of risk- and service factors to make it possible to work with different business set-ups for different needs. The objective is to make the analysis easy and unified for all flow analysis. The analysis will result in a classification in terms of a flow category based on the risk and service criticality of the specific flow. The category will be connected to a possible strategy. The solution handed by the business tool gives directives that should start the thinking process to choose the right strategy. The right strategy should take into consideration the factors mentioned in table 6.

Table 6: Strategic factors in securing transport services

<table>
<thead>
<tr>
<th>Strategic factor</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term of the contract</td>
<td>Short-term, mid-term or long-term</td>
</tr>
<tr>
<td>The purpose of the contract</td>
<td>Secure low, stable prices or secure capacity or service</td>
</tr>
<tr>
<td>Cost price model</td>
<td>Cost Driver based pricing or Market based pricing</td>
</tr>
<tr>
<td>Pick-up &amp; delivery flexibility</td>
<td>Flexibility, same day pick-up &amp; delivery, high reliability</td>
</tr>
<tr>
<td>Risk management</td>
<td>Back-up alternatives, partnership focus</td>
</tr>
<tr>
<td>Co-operation strategy</td>
<td>Link routes to other routes important to the carrier</td>
</tr>
</tbody>
</table>

The “business tool” takes into account the risk factor and the service criticality. The resulting strategies are represented in figure 2-5. Each of the quadrants represents a different strategy for purchasing transport services.

2.4.3.1 Service criticality
The service criticality is depending on the type of flow. The type of flow ranges from pallets to transit flow and from low criticality (value 5) to high criticality (value 90). Different flow types were awarded different values for criticality (vide table 7, next page).
IKEA’s Transport Organisation

Table 7: Service criticality

<table>
<thead>
<tr>
<th>5</th>
<th>10</th>
<th>20</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>75</th>
<th>80</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pallets</td>
<td>Returns</td>
<td>Inbound DC Call-off/ fixed order</td>
<td>Inbound DC OPDC/VMI</td>
<td>Inbound CDC</td>
<td>Outbound to CDC</td>
<td>Direct to Store / LSC</td>
<td>Outbound to Store/ LSC</td>
<td>Transit</td>
</tr>
</tbody>
</table>

Long-term agreements (except for new markets) to secure low and stable prices, Cost driver based Pick-up and delivery flexibility Risk management/back-up alternatives Link routes to other routes important to the carrier, Stable lead-time

Long-term agreement (except new markets) to secure capacity Cost driver based Delivery and pick-up the same day Risk management/back-up alternatives Link routes to other routes important to the carrier, Stable lead-time

Long-term agreements (except new markets) to secure capacity Cost driver based Delivery and pick-up the same day Risk management/back-up alternatives Link routes to other routes important to the carrier, Stable lead-time

Low
- UFN agreements (short notice period in order to secure lowest price/flexibility for us) Market based pricing Offer them Pick-up and delivery flexibility
- UFN agreements (medium notice period in order to minimise service risk) Market based pricing Delivery and pick-up at the same day Risk management/back-up alternatives, Stable lead-time
- UFN agreements (long notice period in order to minimise service risk) Market based pricing High reliability & precision Risk management/back-up alternatives Stable lead-time

Med
- UFN agreements (short notice period, frequent market scanning) Market based pricing Go for lowest price (e.g. Net-auctions) Offer them Pick-up and delivery flexibility
- UFN agreements (medium notice period, frequent market scanning) Market based pricing Go for lowest price (e.g. Net-auctions) Delivery and pick-up the same day Risk management/back-up alternatives, Stable lead-time
- UFN agreements (long notice period) Secure capacity (in order to secure the service) Market based pricing High reliability & precision Stable lead-time

High
- Long-term agreements (except new markets) to secure low and stable prices, Cost driver based
- Delivery and pick-up flexibility
- Secure capacity (in order to secure the service) Market based pricing
- High reliability & precision
- Stable lead-time

Figure 2-5: IKEA’s “Business Tool”

Higher demands on the carrier, depending on higher criticality of the flow, give IKEA less carrier options to choose from on the market. In a market where IKEA’s position relevant to the carrier is not strong, changing a carrier has a high impact on the risk for IKEA. IKEA’s position relevant to the carriers depends on the following factors:

- The market balance, positive or negative
- Percentage of the total market flow IKEA owns
- Knowledge of the market/carriers/capacity etc
- IKEA’s experience on the market
- Economical/Political stability
- Volume development
- Weekly/Monthly fluctuations
- Available carriers fulfilling IKEA’s demands
- Available market capacity

2.4.3.2 The risk factor

The risk factor is calculated based on four independent factors. These are described below. In order to assess the risks the following questions must be answered.

- The market balance

Is the market in balance? Is there either a negative balance situation i.e. market imbalance in the same direction as the IKEA flow or a positive balance situation i.e.
market imbalance in opposite direction as the IKEA flow? What is the IKEA flow on the route in percentage of the total market flow?

- The market maturity
  What is IKEA’s knowledge of the market/carriers in terms of capacity, transport network, financial situation, and equipment standard etcetera? For how long has IKEA been purchasing transport in this market? What is the economical / political stability in a relevant area?

- IKEA volume development/capacity need
  How will the volumes develop three years from now? Does the volume fluctuate on a daily basis? Does the volume fluctuate on a monthly basis?

- The market competition
  What is the number of carriers fulfilling IKEA’s minimum demands on the route? What is the available market capacity on a relevant area level in relation to IKEA’s need?

2.5 Demands on Transport

The objective of IKEA’s transport organisation is to fulfil goods availability in the store by providing the means to move goods in a cost efficient, visible and environmentally adapted way. The transport department is concerned with planning, securing and operating the needed transport capacity under the condition that this objective is met. This paragraph will briefly describe which demands are put on IKEA’s transport organisation by the internal customer and which demands IKEA’s transport organisation puts on the transport service providers.

The following paragraph which was obtained from IKEA’s 10 Jobs for 10 years directive illustrates some of the demands on transport and distribution:

“To develop a logistical efficiency in the whole pipeline. Dealing with our rapidly increasing volumes in an efficient way is one of the biggest challenges ahead of us. Capacity problems in our stores and warehouses, new demands from our customers, environmental concerns, a changing supplier structure – all these place new demands on us and our suppliers and require new and improved working methods within our logistics. Our goal is to reach a high and stable service level at all times in all stores, with reduced relative logistical costs. Our logistical activities shall always have a strong contribution to achieving our sales and purchase ambitions.”

This paraphrase is a concise description of the challenges IKEA faces in the future. It becomes apparent that accurateness and quality of service, satisfying an increasing need for capacity, and environmental consciousness are criteria the transport organisation has to satisfy that become ever more important. Furthermore, a changing supplier structure, stimulated by the ambition to strengthen the range offer regarding choice, vitality, function and quality (remember the description of IKEA as a Virtual Organisation in paragraph 1.4) asks for flexibility in the distribution setup. And finally, lead-time optimisation (Supply development’s aim is to reduce the lead-time, vide paragraph 2.3) puts a big demand on the transport organisation.

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7 10 Jobs in 10 years, A direction for IKEA 2001-2010
8 10 Jobs in 10 years, A direction for IKEA 2001-2010
The requirements the IKEA concept puts on transport are translated to the transport service providers by means of the Olympic model. The Olympic model constitutes a set of criteria to “measure-up” carriers. When a carrier passes the basic qualifications of the five criteria mentioned in figure 2-6 (equipment, quality, service, environment and social) it has successfully taken the “high jump” (= pre-conditions and minimum demands). The carrier can than participate and bid on IKEA’s business in “competition” (= price minimising). What follows is the price negotiation to secure desired quality (operational procedures and service requirements have to be met) at lowest possible costs, in an attempt to hit the “bull’s-eye” (= operational optimisation).

Selecting carriers is still based for an important part on human interaction. There needs to be a certain feeling of trust before IKEA decides to get in business with a certain carrier. Selected carriers should in principle be able to grow together with IKEA and take on more volumes in the future.

As mentioned before, the objective of the transport department is to fulfil the transport demands from the internal retail customer by providing the means to move goods in a cost efficient, visible and environmentally adapted way. These criteria generate a set of demands the carriers must comply with:

**Equipment and quality - IKEA Transport Standard Operational Procedures (TSOP)**

The TSOP document stipulates routines and procedures concerning transport operations. The main topics that are discussed are: transport bookings, equipment, loading and unloading routines and a non conformity advice (in case of deviations from the procedures). Important issues are that the carrier has to meet the agreed (un)loading window and that they have to calculate in a free (un)loading time of 3 hours.

**Social and Environment, Ikea WAY (IWAY)**

The IWAY (Ikea WAY) document is IKEA’s approach towards a corporate social and environmental code of conduct. It states the social and environmental demands IKEA expects its carriers to comply with. IWAY is based on international social conventions and uses a staircase model to improve the world wide carriers’ environmental friendliness step by step. Currently, European carriers have to comply with step 3 of the staircase model, implying amongst others that no “Euro 0” classified engines can be used and that a minimum of 70% of the fleet should be “Euro 2” classified engines, 65% of the drivers

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9 IKEA Transport Standard Operational Procedures
10 The IKEA WAY of Distributing Home Furnishing Products (IWAY), IKEA Services AB, 2005
should have been trained in fuel-efficient driving, and the carrier should set targets on emissions figures.

**Service - IKEA Transport Requirements**
These are the requirements the carrier has to comply with. The performance of the carrier will be measured on a supplier, Customer Distribution Centre (CDC), Distribution Centre or store level on a weekly basis. The results are communicated back to the carrier in case of performance flaws. Furthermore the Transport Requirements document states conditions for re-negotiations, the calculation of freight rates, loading and securing of goods and the way goods flow forecasts will be communicated. Per country specific information is given by means of the Country Specific Document.

In the Transport Agreement (TA) IKEA and the carrier agree upon the transport service the carrier will carry out and on the conditions (as mentioned in the previously discussed documents) that will apply. IKEA’s transport services requirements can be viewed as rather demanding. The volumes that move through the warehouses and stores are large to such a degree that in order to make things run smoothly, it is extremely important that loading and unloading takes place according to schedule, with often very narrow timeslots. The carriers will have to comply with the window of arrival, which can be down to the minute. Frustrating the in-house logistics would increase costs dramatically and also increase the opportunity for error. The quality of service is established by Key Performance Indicators (KPI) mentioned in *IKEA’s Transport Requirements* – It states the minimum service level requirements the carrier has to commit to (vide table 8).

<table>
<thead>
<tr>
<th><strong>Table 8: Service Level Requirements. (Source: IKEA Transport Requirements)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pick-up at supplier</strong></td>
</tr>
<tr>
<td><strong>Pick-up at DC, CDC, and/or stores</strong></td>
</tr>
<tr>
<td><strong>Delivery to DC, CDC, stores and/or other receivers designated by IKEA.</strong></td>
</tr>
<tr>
<td><strong>Equipment (loading unit type)</strong></td>
</tr>
</tbody>
</table>

### 2.6 Strategy of IKEA’s Transport Organisation

Since the establishment of the Transport Global function in 2003 the goal of IKEA’s global transport organisation has been to become a world class transport organisation and one of the most cost- and resource efficient transport-buyers in the world. A starting point to reach these objectives was to become a more integrated part of the supply chain (with Retail and Trading) to be involved in an earlier stage in discussions that affect the distribution and/or transport solution. This was achieved by first becoming one transport organisation business unit as a separate entity with common working routines and operational procedures throughout IKEA. Further, a co-operation protocol with Trading and a service protocol with Retail were established to create a platform for deeper cooperation and further development. Finally, it is Transport Global’s ambition to have co-workers that are amongst the very best on the market.

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11 IKEA Transport Requirements
12 IKEA Transport Global Strategy FY05-08
In order to structure such a multi-disciplinary organisation active on global as well as on a regional level, a matrix organisation is in force at IKEA (vide figure 2-7). The Business Developer reports in a matrix structure towards his manager in the specific Transport region and to the Purchase manager in Transport Global. Within the purchase organisation a level of competition is fostered between BD’s in order to secure best buy. In case a Virtual Organisation should be introduced to IKEA’s Transport organisation, this should be covered in the “Purchase”-column of the matrix-structure as illustrated the figure on the left, because this function is leading in the sense that it decides upon the business partners and owns the contracts to those business partners. IKEA’s Business Developer (BD) -the transport purchaser- is owner of the relationship with the carrier. A BD is responsible for a portfolio of carriers with certain nomination shares. In the way in which today’s business is steered, the BD’s main interest is in developing his portfolio of carriers as much as possible. From a competitiveness point of view, this is a good setup. The carriers can compete with each other (via the Competitive Bidding Concept) to gain more business. Regarding the purchasing of transport services, the following headlines were derived from the Transport Global Strategy FY05-08.

**Best buy**
IKEA tenders packages of routes in geographical areas (a country or number of countries). Carriers are nominated based on best buy. This means that IKEA opts for best price, product delivered. This is the lowest possible price where there is still enough trust in the service level of the specific carrier.

**Competitive Bidding Concept (CBC)**
The CBC allows carriers to attack routes or packages of routes currently serviced by a competitor. The current carrier is protected to a certain level, because only if the difference in price exceeds a certain level the attacker can acquire the desired routes.

**Contracts Until Further Notice (UFN)**
IKEA applies one standard form of contracts with the carriers, which is a contract until further notice. This type of contract is silently prolonged until one of both parties wants to end the agreement. Than a notice period of 4 months applies. IKEA uses this kind of short term contract to have optimal flexibility. In a time where there is more supply than demand on the transport market this is possible. In the future these circumstances may change.

**Rationalisation**
Given the general growth ambition of IKEA in sales and turnover discussed earlier in this chapter, the transport volume and the transport costs will grow accordingly. However, at the same time IKEA tries to reduce the number of carriers. Currently more than one hundred carriers are contracted to perform the business. This means already an important reduction took place coming from over two hundred carriers in 2004. Rationalising this “carrier base” further down to approximately seventy-five carriers is the objective. An important motivator for rationalisation is costs reduction; decreasing costs for administration, negotiations, travelling, etc. Next to this, the carriers with enough potential will remain and can be developed. This implicates that carriers will have to grow with IKEA to be able to handle the business. Transport Global’s strategy for financial years 05-08 discusses the ambition of IKEA to develop the co-operation with the carriers into dynamic partnership relation, which takes a global approach and utilises the big and increasing volumes in long-term perspective to secure price stability. This approach is derived from Trading, where dynamic partnerships are developed and
maintained with big suppliers. This long term approach gives the suppliers confidence to invest. IKEA can benefit from the suppliers’ production competence for example for product development. Competition is used to drive further efficiency and streamlining.

Risk management
Risk management is part of the purchase process. As such it was already described in paragraph 2.4. Risk management is necessary to prevent that IKEA becomes too dependent on a certain carrier in a certain situation. For instance, a retail market can never be supplied by a single carrier. If something happens that makes it impossible for the carrier to perform or IKEA gets into a conflict with the carrier, the store deliveries come into jeopardy. Although contracting multiple carriers on one retail market is not always an optimal solution from a rationalisation perspective, from the perspective of risk minimisation it is the preferred option.

Transport Tender Tool
To strengthen and support the purchase process and secure the best buy, IKEA invested in the development of a “transport tender tool”. The “transport tender tool” is an internet based procurement tool. The goal of the transport tender tool is to create a better business and commercial foundation: enabling control, conditional and expressive bidding, scenario building for what-if analysis and efficient evaluation and follow up/reports of the negotiations and awarding and finally, efficient support and administration to speed up the tender process. These are important benefits for IKEA’s transport organisation. Literature mentions two additional objectives of organising an e-procurement event. Most important are the transaction costs savings and the prospect for competition on the lanes. The added competition will function as a benchmark or a safeguard that IKEA will pay market prices. The “transport tender tool” is under continuous development in order to suite optimally to IKEA’s needs.

The transport strategy is anchored into the supply chain strategy to support the further development of the product range.

2.7 Summary

This chapter described the IKEA Company, gradually shifting the focus from an overall company perspective towards a distribution and transport perspective. The organisation of transport processes formed the core subject of this chapter. The following conclusions can be drawn:

• IKEA’s distribution network is extensive and complex

The size of IKEA’s transport need is so big, that the purchasing and operation of this transport need can almost be characterised as a core-competence. In the business of palletised full truck loads, IKEA is (volume wise) one of the biggest shippers in Europe. It can be concluded that in the future, the transported volumes will get even bigger than they are today. IKEA’s distribution network is not only extensive, with the big numbers of stores, DC’s, suppliers, different order and distribution methods, lead-time demands and service demands, it is also rather complex. To build up potential or scope in the right place, at the right time and in the right amount IKEA and its suppliers will gather in ever changing supply chain configurations to address new customers or product-market combinations. Transport is the glue that has to pull it all together.

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15 Leading in supplying 2010 - SC Transportation Strategy FY2006 – FY2010, IKEA
• Transport knowledge in-house
Organising transport in house requires a lot of knowledge of the European transport market to secure the best price and quality. It is acknowledged in the industry that IKEA has extensive internal knowledge of the transport market and is able to use its large volumes to obtain low freight rates. This (combined with the company’s general corporate culture) is a strong motivator to keep things under own administration. The actual physical transport service is purchased (no trucks are owned by IKEA), but the IKEA remains the orchestrator of its own transport and distribution network. This is contrary to many other companies that outsource the organisation of their transport need to specialised logistical service providers.

• High demands on IKEA’s transport organisation
Supply chain know-how and expertise in logistics and distribution are a source of considerable competitive edge for many companies. IKEA is scrutinising transport costs (as part of the distribution costs) in pursuit of efficiency and competitiveness. The importance of low costs for IKEA is very big, because of the low value, large volume characteristic of the transported goods. It was already mentioned that IKEA’s distribution network is large and complex. Increasing distances, because of the eastbound migration of production locations, lead-time demands and the required flexibility, make securing good transport solutions very difficult.

• High demands on carriers
IKEA is known in the market as a shipper that pays low rates. At the same time IKEA demands consistent high quality of service. IKEA is in the position that they can offer the carrier the large volumes that will fill up 80% of their capacity for low rates. The 20% of volume that will make their profit the carriers will have to acquire elsewhere. However, IKEA is not helped if carriers are forced into bankruptcy. Transport prices should therefore go down, because of transport cost reductions. Both by decreasing, if possible, the cost structure of the carrier, as well as decreasing the operational costs (inflicted by waiting hours, damages and so on). The focus within IKEA is on low freight rates, but there is also a lot to be gained in decreasing operational costs. These reductions can be found by engaging in a more co-operative relationship with the carrier and by optimising the match between the shipper’s and the carrier’s networks.

• The current relationship model with the carrier is limited. No real partnership.
The demands on transport services vary greatly depending on the different set-ups, geographical regions and applied order & distribution methods. Having experience with the transport set-up and operational procedures of IKEA is very important for good performance. The relationship with the carrier therefore depends very much on the circumstances and the consequential shift in the power balance in the relationship. Sometimes there is great need for good quality of service and co-operation is more important than the need for a competitive solution, sometimes it is the other way around. But in all cases both factors play a very important role when it comes to purchasing the right transport solution.

Both angles are reflected in the “business tool”, however, it is not yet translated in the relationship with the carrier. It seems that the focus in the relationship is too much on the competitiveness and not on partnership. In a buyers market this functions well for a shipper. However, the approach lacks an overall planning of what is in IKEA’s and the carrier’s best interest. Especially when market circumstances change from buyers market to sellers market, the need for co-operation and partnership increases, which makes that a different relationship is required between shipper and carrier than in the past.

In this chapter some key aspects of the VO have already been under attention, but what is it that actually defines a Virtual Organisation? The next chapter will give more insight in the definition and characteristics of the Virtual Organisation.
3 The Virtual Organisation

“What’s important is the fact that there has been a shift from ‘vertical thinking’ towards ‘virtual thinking’. In ‘vertical thinking’ companies put undue emphasis on owning, managing and controlling every activity. ‘Virtual thinking’ is about creating a flexible web of supply relationships and focussing exclusively on what one does best.”

- Byrne, 1993
(Executive Editor Business Week)

In the previous chapter the reader could become familiar with IKEA’s complex transport organisation. It became apparent that a different type of relationship between shipper and carrier is needed. The strong development of IKEA, discussed in chapter 2, gives rise to important challenges for the (near) future. The strong growth of the company and the corresponding growth in transport volumes put strong demands on the transport department to fulfil the objective of availability of goods in the stores at the lowest costs ‘landed sales place’. The general believe is that the goals of better service against lower costs that not only IKEA, but most shippers have set for the future, are only achievable by means of closer co-operation between shipper and carrier. This chapter discusses the theory on Virtual Organisations (derived from various scientific publications), which supports the idea that the Virtual Organisation is an inter-organisational framework that unifies the somewhat ‘contradictory’ objectives of co-operation on one hand, and stimulating a competitive environment on the other hand, by virtually organising relations. As such, the VO is a special kind of business alliance between companies which has similarities to joint-venture structures.

3.1 Introduction

The objective of this chapter is to make the reader understand the characteristics of the concept and how it could work for the organisation of transport services, particularly for IKEA. In the previous chapter the need for modern companies to be agile and quick to adapt to changing circumstances was already described. This chapter will elucidate how the Virtual Organisation concept is designed to deliver the desired flexibility.

What makes the VO so special? What makes it so different from other inter-organisational setups? A quotation from Byrne summarises what this chapter, or rather this report, is about. A shift from vertical thinking towards virtual thinking:

“The need for flexibility, adaptability and agility are drivers towards a co-operative organisational form that has the ability to (re)configure quickly. An organisational form that is able to build up potential or scope in the right place at the right time and in the right amount. Companies will gather in ever changing supply chain configurations to address new customers or product/market combinations. Partners can be co-operators at one time and be competitors the next. VO configurations will be continuously re-evaluated according to changing circumstances in order to be able to quickly respond to

new market opportunities and to stay ahead of competition. Partners will come and go depending on their added value to the success of the supply chain in processes such as the design, the production, the delivery and the sales of the product.”

Byrne’s view on Virtual Organisations is one of an ever changing organisation that can build up scope or potential where and when an occasion arises. This interpretation gives meaning to the term ‘virtual’ by defining it as ‘potentially present’. This is one of the four main interpretations of the concept that can be found in academic literature. The following paragraph will elaborate on this subject.

### 3.2 Views on the Concept of the Virtual Organisation with Examples

Literature is not unambiguous in defining the VO. The term is often associated with inter-organisational co-operation, renewed organisation and meta-management techniques and the use of information and communication technology. What is generally agreed upon is that the Virtual Organisation crosses the boundaries of the traditional company in order to co-operate in a network environment. It is noteworthy to mention that the Virtual Organisation cannot be categorised as a new organisation model in the tradition of: the bureaucratic organisation, the ad-hoc organisation, the professional organisation, etc.

The classic trinity of ownership, supervision and identity that applies on traditional organisations does not apply on Virtual Organisations. Paragraph 3.3 will explain this better by describing the conceptual model of the VO. First we will look at several definitions of the Virtual Organisation.

Today’s literature displays four different opinions on what a Virtual Organisation is. These categories correspond to four general interpretations of the word “virtual”:

1. The first one comes from “virtual” as being unreal, but seemingly real (van Aken, 1998). The virtual organisation appears as a complete organisation with one single identity towards external actors, while in fact it is consisting of an integrated network of separate organisations.
2. The second interpretation of virtual is immaterial: “replace a real function by an ICT supported function” (Van Aken, 1998). Functions that are normally executed by people are replaced by the application of ICT.
3. A third interpretation of virtual is: “potentially present” (Bultje en Van Wijk, 1998). The Virtual Organisation is only active when an opportunity arises. It can almost instantly build up potential at the right place and time.
4. The fourth and final interpretation is: “existing, but constantly changing” (Bultje en Van Wijk, 1998). The Virtual Organisation exists, but the constellation is temporary and continuously changing.

Byrne incorporates the first three of the above mentioned interpretations in one definition of the Virtual Corporation (vide below definition).

*The Virtual Corporation is a temporary network of independent companies – suppliers, customers, even erstwhile rivals- linked by information technology to share skills, costs, and access to one another’s markets. The companies quickly unite to exploit a specific opportunity and will disperse afterwards. (Byrne, 1993).*

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The above statement attempts to define the Virtual Corporation. However, in the definition of Byrne there is no mentioning of the Virtual Web. The Virtual Web is defined by Goldman (1995) in paragraph 3.3.2. The Virtual Corporation together with the Virtual Web forms the Virtual Organisation as shown in figure 13. Actually, every firm in the web can recognise opportunities of the Virtual Corporation. Once an opportunity is identified, companies will group, based on their specific fields of expertise in order to fulfil the requirements of the given opportunity. The grouping will take place according to process arrangements already made. Once the Virtual Corporation is actually in place the individual companies will start to co-operate. The Virtual Corporation is therefore a network of organisations that can take different shapes depending on the specific (changing) needs.

The authors Jagers, Jansen and Steenbakkers with their definition that was based on discussions in an internet newsgroup on Virtual Organisation, put more emphasis on the first two interpretations of the term virtual:

A Virtual Organisation is a combination of multiple –geographically dispersed– parties (persons and/or organisations) that, by bundling core-competencies and resources, aim to accomplish one unified goal. This Virtual Organisation knows an equal distribution of power among its members and is dependent on ICT for the coordination of tasks. (Jagers, Jansen en Steenbakkers, 1998).

This definition focuses more on the first two interpretations of virtual. The 3rd and 4th interpretation, however, are far more interesting. They describe the Virtual Organisation not as a static entity, but as an adaptable and changing structure. The structure and process perspective of the Virtual Organisation described by Verduijn (2002) which supports this view, will be discussed later on in this chapter. The definition that does right to the last two interpretations of “virtual” is a definition by Mowshowitz.

The definition of Mowshowitz (1999) on Virtual Organisations:

A virtual organisation is a goal-oriented enterprise operating under meta-management. Meta-management characterises the management of a virtually organised task. A virtually organised task is a goal-oriented activity that is implemented by an appropriate assignment or reassignment of concrete satisfiers to the abstract requirements of such a task.

Mowshowitz’s definition of the Virtual Organisation is relatively abstract and for a layman it can be quite difficult to translate the definition into the notion of a real life example. In an attempt to make it more concrete one could say that the definition basically translates into one principle, which is referred to as “switching”. The composition of the Virtual Organisation is dependent on the requirements on that Virtual Organisation. When the requirements change, the resources to fulfil these requirements, the independent companies that build up the VO, will most probably also change. It is therefore an existing but continuously changing organisation.

Mowshowitz describes the VO as a network of companies (satisfiers) that are assigned to fulfil the requirements of a task. In other words: To exploit a market opportunity the best way possible. The notion of meta-management indicates that the VO is managed on

\[ \text{References:} \]
The Virtual Organisation

Existing example of the application of the Switching principle:

The well known shoe manufactory “Nike Inc.” develops and markets running shoes. The production facilities of these running shoes are located in East-Asia in the form of many independent production factories. The required production capacity is distributed amongst these independent factories. They are interchangeable, which gives Nike the possibility to exchange (“switching principle”) production facilities if at some point for instance the reliability in one of the facilities comes in jeopardy, or new developments in technology opt for different considerations.

In conclusion the four interpretations of “virtual” mentioned earlier in this paragraph all have some relevance to the “working definition” of the Virtual Organisation that will be used in this thesis:

The Virtual Organisation is created by a combination of (1) partners that engage in virtually organised relationships and (2) an adequate switching tool. Examples of E-procurement tools such as E-tenders and E-auctions enable quick switching of partners to business.

This “working definition” corresponds to the definition that Mowshowitz (1994) developed regarding the Virtual Organisation. The VO model and the corresponding IKEA transport elements, as depicted in figure 3-2 (on page 36), gives a graphical representation of the above described interpretation. IKEA creates a representation of reality by assembling a network of carriers that share critical information, by means of e-procurement events, about the characteristics of their transport networks. Based on the carriers’ input, IKEA will be enabled to take over part of the business process of the carrier – “to think for the carrier” - and steer the business in a direction that suits both parties. In this specific research for IKEA, the VO is constructed around internet based applications (e-procurement events) that enable quick switching of carriers between Virtual Corporation and Virtual Web, in order to create an adaptable and changing structure.

3.3 Conceptual Model of the Virtual Organisation

To better illustrate the structure and functioning of the Virtual Organisation and of the “switching principle”, this paragraph depicts the conceptual model of Goldman (1995). According to Goldman three separate levels can be identified, The Business Environment (BE), the Virtual Web (VW) and the Virtual Corporation (VC). The VW and the VC together constitute the Virtual Organisation. Note that the Virtual Organisation is therefore a network of organisations held together by virtually organised relations. The model exemplifies the functioning of the Virtual Organisation and the “switching principle”. Figure 3-1, gives a representation of the conceptual model of the Virtual Organisation with the Business Environment.
3.3.1 The Business Environment

The business environment consists of the entire business world. These are small, medium and large companies with expertise in eternal different fields. They apply their expertise to produce products and competing with other companies in their own market. The companies maintain relationships within their particular supply chains with suppliers and customers, etc. By collaborating a company engenders a reputation, which is beneficial to become part of a Virtual Web. Companies can carry out several activities and therefore try to become part of several virtual webs.

3.3.2 The Virtual Web

In the Business Environment companies face challenges and chances. In order to exploit future chances, individual companies can decide to make arrangements for future co-operation possibilities with other companies that have other expertises. This is where the virtual web comes into play. Companies can enter and leave virtual webs opportunistically, and can be part of more than one virtual web, based on their different activities. Companies in the virtual web do not yet co-operate with each other.

The virtual web is an open-ended collection of pre-qualified companies, with a shared organisational culture and one or more opportunity areas of excellence, that agree to form a pool of potential members of a virtual organisation and to co-operate in a virtual corporation when an opportunity arises. (Goldman 1995)

For a better appreciation of the Virtual Web concept, Michael Porter’s article on Clusters and the new economics of competition (1998) offers a nice perspective\(^2\). The so called clusters the article refers to, are geographic concentrations of interconnected companies and institutions in a particular field. They encompass an array of linked industries and other entities important to competition. Clusters are broader defined than Virtual Webs, because clusters also include governmental institutions. The important similarity, however, is that Clusters as well as Virtual Webs are collections of companies or entities that group to fulfil a certain market demand. Both from Clusters as from Virtual Webs companies can format into a co-operative partnership to fulfil a certain opportunity in different

configurations. However, there are two important differences. First, companies in Virtual Webs, contrary to Clusters, can be geographically dispersed. Secondly, there are no non-profit organisations (NPO’s) and/or non-governmental organisations (NGO’s) in Virtual Webs.

3.3.2.1 Dynamic assignment between VC and VW
The dynamic assignment refers to the process of starting up or closing down the VC and its activities, in relation to the VW. The aim of this thesis is to investigate the potential to initiate a VO for IKEA’s Transport Organisation and the “carrier base” of relevant carriers. In this case the dynamic assignment of pre-selected carriers to routes and volumes from the VW to the VC will consists of the transport procurement activities supported by e-procurement tools. The possible implementation of this process will be elaborated in chapter 9.

3.3.2.2 Pre-qualification between VW and BE
In order to become member of a Virtual Web, a party of the Business Environment (BE) must pass pre-qualification criteria. These pre-qualification criteria are entirely dependent on the purpose of the VO and may differ from one VO to another. Examples of pre-qualification criteria are: magnitude of scale, matching business strategies, geographical location of activities, etc.

Pre-qualification criteria used by IKEA are criteria regarding equipment, quality and service level, and minimum social and environmental demands, previously mentioned in the “Olympic” model in paragraph 2.5. When a carrier can meet the minimum requirements on these criteria it is possible to enter into a business relationship with IKEA.

3.3.3 The Virtual organised Relation
The term ‘virtual organised relation’ refers to the relations that build up the Virtual Organisation (vide par 3.3). Virtual organised relations can be characterised by their ability to support the structure and the process of the Virtual Organisation. There is a certain power-balance and synergy related to the virtual organised relation.

3.3.3.1 Structure and Process Perspective
The existing literature on VO’s can be divided into two perspectives23, the structure and the process perspective. In the structure perspective the VO is regarded as a type of co-operation between organisations, companies, groups or individuals. The process perspective describes the VO as an entity that chances its own state or that of it’s environment when a change (external or internal) has reduced it’s efficiency. In the structure perspective the set of virtual organised relations that constitute the VO function as a single organization to reach the common goal. In the process perspective change leads to (continuous) redesign of the VO. Co-operation in Supply Chain Management is intended to be middle-long term. Co-operation in VO’s can also be short-term in nature.

3.3.3.2 Power balance
Franke (1999) distinguishes three organisational types of VO’s24. The VO discussed in this thesis is a typical “VO with a core-partner”. Becker (2001) describes “the core partner” as the leading organisation in the Virtual Web and the Virtual Corporation25. All major activities and communications are co-ordinated by the core partner. The core partner also has a large influence on the objectives of the VW, the selection of opportunities, and

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3.3.3 Synergy
The objective of partnership is to create synergy in order to achieve a win-win situation. Transport and logistics are typically fields where there is potential for synergy. One speaks of synergy when something has more value than the sum of its parts. Examples of synergy are economies of scope (vide paragraph 5.2.3) and economies of scale. In general people refer to synergy as “2+2 = 5”. The total is more than the sum of its parts. Ruijgrok et al. (2002) suggests, however, that it is better to think in terms of: “2+2 = 2.1+2.05”26. This example illustrates that co-operating partners still remain their own status and that the effects of synergy can be distributed unevenly between partners and should not be overestimated. Nonetheless they can still be very attractive.

3.3.4 Prerequisites for Virtual Organisation
Three important prerequisites for Virtual Organisation are:

- The organisation that initiates the Virtual Organisation needs to be able to create or purchase the tools that will support dynamic assignment (the controlling mechanism of the Virtual Organisation).
- There must be a network of complementary business relations available presently or in future.
- There must be a certain level of trust in the network of business relations that enables the exchange of sensitive information.

Also general prerequisites for co-operative partnership apply. In chapter 9 the implementation of the VO and the necessary (organisational) prerequisites will be addressed further.

3.3.5 The VO Concept applied on IKEA Transport
This paragraph demonstrates the application of the concept of virtually organised relationships on IKEA’s transport processes as elucidated in chapter 2. More specifically, on the purchase function of the transport processes, since the network of relations is established by the procurement decisions. The below conceptual model of the Virtual Organisation is positioned next to the IKEA’s corresponding transport elements.

Figure 3-2 illustrates the relevance of the conceptual model of the Virtual Organisation by representing the transport business world into the different layers of the model. The dynamic assignment of carriers from the Virtual Web to the Virtual Corporation takes place during the procurement of transport services by means of E-procurement events. The purchase function secures the planned capacity by establishing transport solutions and contracting carriers. The assignment of routes and volumes to carriers resulting from this function determines the composition of the Virtual Corporation.

Figure 3-2: Virtual Organisation of Transport

Note: In the above shown figure, it is obvious that the ingredients for a Virtual Organisation, stipulated as “corresponding transport elements” are already present for evolving into a Virtual Organisation, in particular for purchasing transportation services, “the assignment of carriers from the pre-selection to routes and volumes” (as per figure 3-2), which corresponds to “dynamic assignment” of the VO. Chapter 5 of this thesis will focus on the potential of the purchasing of transport services to be embedded in a VO.

3.4 The “Switching-Principle”

It was already mentioned that in this study the “switching-principle” is an important part of the definition of the Virtual Organisation. According to Mowshowitz “it captures the distinctive contribution of the new organisational paradigm”. This paragraph aims to clarify the switching principle by reference of Mowshowitz’s article; The Switching Principle in Virtual Organisation (1999)27.

Following Mowshowitz’s definition of a Virtual Organisation, switching is the process of assignment and reassignment. Switching is not a new phenomenon. Freight forwarders and brokers already have a long term expertise in assigning transport services to customer needs. The advancement in speed of computer networks makes it possible for management to use switching in a systematic way. According to Mowshowitz (1999) “The movement of physical goods provides many opportunities for implementing the Virtual Organisation model”.

Switching makes the reconfiguration of networks of organisations possible and therefore lies at the heart of the Virtual Organisation. The essence of the methodology is to separate need from need-fulfilment. Management identifies tasks or activities that put together business operations. These tasks or activities can be fulfilled in a dynamic environment by different satisfiers.

The term “switching” is not similar to the term “outsourcing”. The difference between the two is that, certain companies outsource certain activities, because they do not want to be involved in activities that do not belong to their core-business. The switching principle is

applied by companies that do have an interest in being in a controlling position of certain sensitive activities which are complementary to the company’s core-business.

**The Switching principle**
The virtually organised tasks operate under meta-management, which has five major responsibilities:

1. **Analysing abstract requirements.**
   Meta-management considers which tasks and requirements the business processes of the Virtual Organisation consists of. The tasks and requirements that are up for virtual organisation are dependable of the goal that meta-management strives for with the Virtual Organisation.

2. **Identifying possible satisfiers.**
   Satisfiers to tasks must be selected according to a well defined set of criteria in order to protect quality. Identifying satisfiers does not stop once all tasks are satisfied. It is an ongoing process to keep up-to-date information on new developments in the field of potential satisfiers and on technological developments.

3. **Switching and tracking allocations of satisfiers to requirements.**
   Meta-management is responsible for the coordination mechanism that allocates the satisfiers to the requirements. Meta-management tracks which satisfier is assigned to which tasks for two reasons. Firstly, it should always be possible to hold satisfiers responsible for their part of the agreement. And secondly, meta-management must be informed with the status of tasks and satisfiers.

4. **Maintaining and possibly revising the procedure for allocating satisfiers to requirements.**
   As market conditions may change, corporate strategy may change. Therefore the criteria on which the allocation model is based should be under continuous evaluation. Under different circumstances, different sets of criteria may come into practice.

5. **Reviewing and adjusting the optimality criteria of the allocation procedure.**
   An example perhaps better illustrates the principle. Let’s take a look at the automotive industry. Volkswagen resources parts from a VO that consists of multiple companies, which together manufacture suspension systems. If because of a breakthrough in technology a much better suspension system is developed outside of the VO, Volkswagen might decide to resource its parts from the breakthrough company in the future. In that case Volkswagen switches the supplier into the VO. So, the “Switching-principle” can be used when better satisfiers appear on the market to fulfill the needs. It can also be used when partners that are currently part of the VO fail to live up to their responsibilities. For instance, HP Compaq is a computer manufacturer that virtually organises its processes. If the supplier of hard disk drives for whatever reason cannot deliver, the production will stop and HP Compaq faces a financial mishap. In this case an immediate switch to another supplier will most probably save a lot of money.

**Costs**
Making use of the “switching-principle” one has to make the consideration between opportunity costs and the costs the “switching-principle” generates itself. Opportunity costs, for instance, can run up if a manufacturer cannot deliver because of a malfunctioning supplier. The costs of switching, on the other hand, can also be substantial. As costs of switching one should consider for instance; legal costs, costs for integration of businesses (EDI connection). In case of switching transport service providers, prices (and therefore costs) are depending on network optimisation, which makes it probable that backup carriers will hedge their prices. These costs could also be attributed to the switching costs. In case of switching through tendering, the procurement process also
generates costs. Therefore it should be noted that, making the decision of switching is in itself a generator of extra costs which should not be underestimated.

**Time**
Mowshowitz makes no reference to *time* in his studies. Switching, however, often takes place under time-pressure and in my opinion it is one of the key-features of switching that it enables quick reactions on changing circumstances.

### 3.5 Summary

In this chapter it was attempted to create a picture of the Virtual Organisation based on the wide spectrum of approaches towards the concept in the existing academic literature. It is difficult to present a clear definition since the concept of the Virtual Organisation is still evolving. Virtual organising is not a specific organisational form, but rather an attribute of relations in a Virtual Organisation.\(^{28}\)

This report looked at a number of definitions of the concept in order to find some general tendencies. This resulted in the following “working definition”:

- **Working definition of Virtual Organisation**

  The Virtual Organisation is created by a combination of (1) partners that engage in virtually organised relationships and (2) an adequate switching tool. Examples of e-procurement tools such as e-tenders and e-auctions enable quick switching of partners to business.

ICT support is an essential part of successful setup of the VO. In chapter 5 it will be explained how e-procurement tools work.

- **Transport purchasing is virtually organising relationships**  
There is an evident parallel between the purchase function in the transport processes described in chapter 2 and the VO and its switching principle. E-procurement tools are a method to quickly assign concrete satisfiers to the abstract requirements of a task.

The following chapter will explain more about the external developments that steer companies (like IKEA) towards engaging in new relationships, such as the VO, with their suppliers/service providers.

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4 Trends in Supply Chains

The Virtual Organisation was discussed in detail in the previous chapter. This chapter describes were the concept originates from and what are the forces that drive companies towards the Virtual Organisation. It will explain which developments on shipper and carrier side have led to changes in the relationships between buyers and suppliers throughout the history of supply chains.

4.1 Introduction

This chapter starts of by giving an overview of the most important developments that have affected and are affecting companies that try to bring their product to the end customer. These are the manufacturers and retailers of end products. In the context of transport also called the shipper. Subsequently the developments that have affected and are affecting the companies that provide services for these shippers are discussed. In the context of transport they are called transport service provider or carrier. External developments influence the relationship between shipper and carrier. This chapter will reveal some tendencies.

A parallel can be drawn between the way relationships are evolving in the supply chain, where buyers (manufacturers/retailers) are in relationships with their suppliers of (raw) materials and semi products, and the way relationships are evolving between shippers and their service providers. The historic perspective on logistics management in paragraph 4 paints a picture of how relationships in the supply chain evolved over the last fifty years, pointing towards the concept of the Virtual Organisation. To bring a product from the (raw) material supplier to the end customer a number of links in the chain must produce and work together. Next to this a number of services such as Marketing, R&D and last but not least Transport are just as important. One could say that under the influence of the same developments that have evolved the supply chain also the relationship with the providers of these services is subject to change.

4.2 Developments affecting Shippers

4.2.1 Economic Developments

Richard D’Aveni introduced the term “hyper competition” to explain the increasing pressure that’s confronting companies with ever briefer opportunities to build up competitive advantages (vide paragraph 4.3.2). Changes in market circumstances follow up on each other faster en faster. Companies that want to survive must be able to effectively grab the right opportunities. This means that next to efficiency, quality and strategy, agility is the fourth factor that determines a company’s success.

In many markets the pressure of competition is extremely high. There are three distinct reasons. Firstly, many markets are saturated. New entries from low-wage countries raise

the pressure. Secondly, technical innovations follow each other at a growing pace. Thirdly, the customer becomes ever more unpredictable and hard to satisfy. To stay ahead of competition, companies must perform on the highest level. This makes it impossible to keep every part of the process under control. IBM is a good example of a company that tried very long to keep every bit of production in its own administration, which was a mistake that nearly got them bankrupt. Van Aken, Hop en Post (1997) mention extreme competition as a factor that pushes companies towards co-operation.

4.2.2 Returning to Core-competences

The answer to ever increasing competitive pressure is specialisation. Companies started focusing on a limited number of core-competences. Putting the focus on what one is best at, has led to fast product and process innovations and improvement of executive operations, which made production cheaper, faster and more reliable. Non-core-competences were outsourced. These changing market circumstances have pushed companies towards inter-organisational co-operation. Through outsourcing and purchasing of non-core-competences, stable relationships grew between suppliers and manufacturers. At the same time the importance of knowledge grows. Co-operation is also often used to gain badly needed advantages of scale.

These factors are push-orientated. They push companies towards co-operation, because it leaves them no other choice. There are also some pull-oriented factors for co-operation. These are factors that make it more and more interesting for companies to cooperate. An important pull-factor is low transaction costs. Due to the gained efficiency in industrial markets, transaction costs are low. High transaction costs used to be a reason to keep production under own administration. Low transaction costs and a better customer-orientation from suppliers, makes it no longer necessary to source products only from ‘internal suppliers’. Also ‘external suppliers’ are now capable of delivering high quality goods at low transaction costs.

Another important pull-factor is the revolution that took place in ICT applications. This has made a better facilitation of co-operation processes reality. Franke (1999) identifies ICT as a driving force towards virtual organised relations. In his view, modern ICT, such as the Internet, enables and facilitates the co-operation between geographically dispersed and organisationally separated economic actors. Especially the Internet has become the primary bridge to connect people and companies wherever they are.

4.2.3 Agile manufacturing

More or less parallel to the developments described in the previous two paragraphs, there has been an evolution in product development. Figure 4-1 shows the development in manufacturing practices starting from craft manufacturing to agile manufacturing. During the industrial revolution, craft manufacturing turned into mass production to reach more customers. When competition grew and markets started to saturate, cutting costs became very important. The principles of supply management and supply chain management led to lean and mean manufacturing. But since the 1990’s a lot of certainties became uncertainties. Customers want a wider variety of quality products. Bradley and Nolan (1998) described the necessity of a good understanding of what the customer wants and ways to obtain this type of information. They urge the need to sense and respond to the customers’ desire. Because of the information age and the better informed customer, companies must compete at different fronts such as variety.

quality, cost, flexibility, complexity, responsiveness, delivery and service. Competing on price alone is no longer a viable strategy. Companies that are able to satisfy all of these demands are called “agile” companies.

**Figure 4-1: Shift in Manufacturing Practices. (Source: S. Sharifi, K.S. Pawar, 2001)**

Gunasekaran (2001) says agility is about almost instant delivery of small quantities of goods that meet individual specifications. To become agile a firm must redesign its processes and products to meet the expectations of customers for both customization and responsiveness. A strategy for agile manufacturing should focus on, among others:

- Faster response to highly variable customer demand patterns
- Opportunities for system wide innovation, learning and improvement
- Improved customer and market focus, better understanding of customer needs, and closer customer relationships
- Flexibility to cope with a wide range of batch sizes including one-of-a-kind production, and a wide range of products (volume and product flexibility)
- Integration of suppliers into product development and manufacturing processes
- Short-order capability and the ability to rapidly respond to new opportunity
- Reduced indirect labour and other overhead costs
- More time and opportunities for management to tackle problems
- System integrity and robustness

The majority of the points mentioned above boil down to the ability to grab an opportunity when it arises through flexible and adaptable application of assets. This corresponds to Schönsleben’s view on agility. Agility is defined by Schönsleben (1999) as the ability to build up potential or scope in the right place at the right time and in the right amount. This requires the ability of proactive amassing of knowledge and competency.

The proactive attitude undoubtedly leads to gathering of superfluous knowledge. Therefore the new challenge companies’ face is to find the optimum between being lean and being agile.

When one thinks of sensing and responding towards the customer, one often thinks of quick product innovation and smart marketing concepts, but also logistics and distribution are functions that fulfill an important supporting role to production and retail departments by actually getting the products to the market. For a company to be agile, means to be agile in every value adding activity. Because of the outsourcing trend that took place as a part of the supply chain management principles, companies confined to their core-competences in order to be as lean as possible. Now that the market asks for responsiveness, a different approach is required. Companies need to be agile to be able to compete. Because of the dispersed core-competencies companies can not fulfil this need alone.

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4.3 Developments affecting Carriers

This paragraph will take a closer look at the recent and future developments in the world of logistics that are affecting carriers. From research in literature this paragraph will specify the developments by discussing, trends that change logistics, the role of ICT and some relevant areas for ICT-application, the rise of logistic communities and European logistical networks.

4.3.1 Increased Complexity of the Supply Chain

The developments affecting the shipper discussed in paragraph 4.2, also affect the carrier. Therefore the world of transport has been subject to change in recent years. As a result of the developments carriers were forced to develop their business policies.

The increased complexity of the supply chain puts more complicated demands on transport. Because of the increasingly individualised demands of the end customer, production and distribution gets more and more individualised. The distribution of customised personal computers of the large firm Dell sells through the internet is an example. Transport solutions have to be more and more synchronised with the increasing demands imposed by mass-individualisation. An example hereof is the stronger drive for durable solutions: Business processes are increasingly organised to make as less impact as possible on the environment. This is expressed by increased attention for multimodality and clustering of goods flows. The carrier has to deal with the increasing power of retailers. The consumer demand has shifted the market from a supply driven market to demand driven market, shifting the power from the producers and service providers to the retailers. The consequential increasing competition led to a search for economies of scale and concentration on core-competencies. The ongoing drive for optimisation and improved efficiency leads to consolidation, mergers and acquisitions. Because of increasing globalisation borders fade and companies are thinking globally. Products are produced in the most profitable regions (low wages areas), creating increasing goods flows and lengthening distances between place of production and place of consumption, usually combined with tougher circumstances for transport.

An important development for the carrier in the relation with their customers is the continuous growth of E-commerce applications. The possibilities of doing transactions on the Internet in for instance virtual marketplaces have increased. Virtual marketplaces make the range offer transparent to users and offer the freedom of choice. There are both advantages and disadvantages to these concepts. In many cases, however, the carrier feels they are enforced upon him by the shipper.

4.3.2 Hyper Competition

The strong competition on the market of transport service providers was generated by two important developments. At the bottom of the market too many starters embarked on the market after de deregulation in 1992, resulting in hyper competition between carriers ranging from very small to mid-sized companies. With the liberation of the European transport market many transport organisations from the low-wage countries in Europe started to put the transport market under a lot of pressure. The big established companies were forced to lower their prices.

On the top of the market, the big carriers have been involved in mergers and acquisitions to gain economies of scale and to be able to follow their customers in their global activities. The big carriers followed their customers around the world in search of global spanning. The economies of scale make it often very difficult for the smaller carriers to compete against the big carriers.
4.3.3 Influence on Carrier Development

Previously discussed trends worked as a generator for business development by carriers. They need to differentiate and distinguish themselves from the competition. The following trends\textsuperscript{36} therefore are a reaction on the previously discussed general trends. Carriers were forced to reorganise their business to offer an increasing diversity in logistic services. They are willing and able to take on more and more diverse logistical tasks and responsibilities and offer custom-made distribution solution to their clients.

One can observe an ongoing integration of logistic chains in logistic networks. Carriers and logistical service providers cluster the goods flows from different shippers to achieve efficiencies. Some carriers also offer the combination of different transport modes to their customers. Traditional logistic chains evolve into logistic networks. Consequently there is a growth in 3\textsuperscript{rd} Party Logistic service providers (3PL) and 4\textsuperscript{th} Party Logistic service providers (4PL). Carriers start to concentrate on orchestrating goods flows in stead of physically executing them, because there is more added value in orchestrating of transport. There is also a growth in the number of small carriers. The actual physical execution of transport is being outsourced more and more to small carriers. This improves the flexible application of transport capacity.

Consolidation of parties in logistical service provision is necessary because consolidation of parties creates large players that can meet the increasingly complex demands of shippers on a European or even inter-continental level. The increasing competition between shippers makes it inevitable to speed up the delivery of goods to meet increasingly short lead-times.

Finally, there was also a strong development in logistical management software: the developments in ICT have led to logistical software suits that have so much functionality that most businesses can use them. The need for customised suits is dropping.

4.3.3.1 Innovative ICT-applications in logistics

The developments discussed above stimulated carriers to offer new services to their customers. Innovative ICT-applications are seen as a necessity to meet the increasingly complex demands of shippers. The applications, like the ones described below, serve mainly to improve the transparency in the logistics network by linking the ICT systems of individual partners in the network together.

\begin{itemize}
  \item Advanced Planning and Scheduling in logistics networks
  Advanced Planning and Scheduling (APS) systems offer many opportunities for carriers to co-operate amongst each other and with shippers. It is a network optimising system that supports the collaborative planning between partners in logistics. Collaborative planning of transport and distribution is supposed to increase the efficiency in the network. Co-operation however requires the sharing of (critical) information. It is for many organisations hard to share real-time planning information. Trust plays a very important role in the potential success of APS systems.

  \item Virtual marketplace
  Virtual marketplaces match supply and demand of transport volumes and logistical services. The purpose is to create transparency in the available volumes for the carriers to let them be able to decrease the number of empty mileage, generate better loading combinations, increase the efficiency of the fleet and decrease costs of telecommunications, resulting in extra yield for shipper and carrier. Carriers can also offer their transport capacity to find a match with a shipper. A good example of a logistic virtual marketplace can be found on the internet site www.teleroute.com
\end{itemize}

\textsuperscript{36} Logistiek Netwerkland, NDL, november 2001
4.4 A historic Perspective on Logistics Management

This paragraph will give a historic perspective of the developments of logistics management and the driving forces that have led from Supply Chain Management towards the Virtual Organisation. It will show that the Virtual Organisation has its roots in Supply Chain Management. To get the proper historic perspective on some developments that have led to the concept of the Virtual Organisation, the different concepts that gave shape to logistics organisation in the last fifty years are shown in relation to a timeline. One can see in below figure 4-2 that the different concepts overlap each other in time. The years indicated below are approximate time windows when transitions took place. On the next page figure 4-3 puts the different logistical concepts in comparison.

4.4.1 The traditional Approach

After World War II, there was a heavy demand for all types of goods. It was a strong sellers-market. Customers were happy to get their hands on anything suppliers had available. The oil-crisis in 1973 and the beginning saturation of markets in 1975 led to a reduction in demand and a drop in prices. A turnaround in power resulted in a shift towards a buyers-market. The law of supply and demand dictated the traditional relationship between customer and supplier. High friction-loss led to sourcing and to large multinationals, but in principle, suppliers were chosen based on low-prices. This type of relationship showed low intensity of co-operation and was therefore of a short-term nature. Suppliers could instantly be replaced with others, so the network of suppliers was actually very flexible. Suppliers played of against each other in order to gain the...
customer-manufacturers preference. When suppliers started to cut costs in order to lower their prices, delivery-times were prolonged and reliability and quality dropped. In the early 1980’s supply chains broke down and a new partnership strategy was required.

4.4.2 Supply Management
Supply Management originated in the beginning of the 1980’s. It is based on long-term relationships with a reduced number of suppliers to achieve fast and easy order servicing. The choice for a supplier was based on low costs in consideration of all opportunity costs. Companies started to work more closely with their suppliers in order to improve the quality of products and the reliability of delivery. This required a close co-operation and extensive preparation, so these relationships could only be maintained with a limited number of partners and were usually based on long-term. The co-operation in supply management can best be characterised by co-ordination efforts to level production volumes, stock volumes and delivery times of the supplier with the enterprise resource planning of the manufacturer. In terms of entrepreneurial co-operation, however, the intensity of co-operation was low. That’s why the relationships had to be evaluated continuously.

Due to a strong buyers-market in the early 1990’s and an increasing demand on internal organisational units, companies started outsourcing activities with no core-competency. Because transaction costs decreased, there were ever viewer reasons for keeping all parts of the value adding chain in the company. Again due to the strong buyers-market, the demand rose for short product innovation times. Short time-to-market is linked with unpredictable demand; so short lead-times became an important feature as well. Short time-to-market and short lead-times are only possible through intensive co-operation of all the companies in the value-adding chain. Supply Chain Management was the new organisational format to facilitate this intensive co-operation. An absolute pre-requisite here is the long-term formation of trust between the partners.

4.4.3 Supply Chain Management
Supply Chain Management (SCM) focuses on integrating logistical performance across all operating facets of a business. It is concerned with activities to plan, implement, and control the efficient and effective sourcing, manufacturing and delivery processes for products, services and related information from the point of material origin to the point of ultimate consumption for the purpose of responding to end-customer requirements. SCM is a collection of planning methods and concepts that were developed and evolved since the 1960’s. As an integrated concept SCM came into being in the 1990’s. It involves

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fields such as demand forecasting, purchasing, requirements planning, production planning, manufacturing inventory control, warehousing, materials handling, industrial packaging, finished goods inventory, distribution planning, order processing, transportation, efficient consumer response, customer service and more. In short, supply chain management is an integrated tool that demands a high intensity level of cooperation in order to make production as lean as possible. Companies in a supply chain don’t have a clear hierarchic management structure, but some companies may be more dominant than others.

4.4.4 The Virtual Organisation -Similarities and Differences between SCM and VO-

The natural successor of SCM is the Virtual Organisation (VO). The VO is designed to utilise the advantages of the integrated logistical processes used in SCM to respond quickly to the ever changing customers’ desires. SCM is characterised by a high intensity of co-operation over long periods of time. The VO also knows a high intensity of co-operation. The difference with SCM is that the duration of the co-operation can be long-term, but short-term as well. The VO is a much more flexible organisation than the traditional supply chain, and thus can respond to the ever briefer windows of opportunity in the market for non-repetitive products. Co-operating on a short term with a high intensity requires a different means of organisation. The VO facilitates the need to form relationships quickly as an opportunity arises. Figure 4-3 on the previous page, shows these differences between the Traditional Approach, Supply Management, Supply Chain Management and the Virtual Organisation. The concept of the Virtual Organisation can be applied on many sectors and/or industries. However, Schönsleben’s figure shows that the Virtual Organisation is strongly embedded in a logistics environment.

4.4.4.1 Resilient Supply Chains

The VO shows similarities with another new concept that will be shortly discussed here in order to create a better awareness of the VO and its relation to supply chains. Resilient supply chains38 (vide figure 4-4) are designed to “bounce back” when unforeseen incidents take place, making the supply chain more reliable. As result of a number of the trends discussed previously supply chains are getting weaker. Some say, supply chains nowadays are so lean they become anorexic. Because of the minimal inventory levels, the single sourcing of transport solutions and the increasing length, supply chains are becoming ever more vulnerable to, for instance; extreme weather conditions, industrial disputes, terrorism and general system failure.

![Resilient Supply Chain](image)

**Figure 4-4: Resilient Supply Chain, Based on Christopher and Peck (2003)**

Adding to this the infrastructural constraints caused by increasing congestion, concentration of traffic on main hub air/sea/tele-ports and the over-dependence on key-

Applying a Virtual Organisation on IKEA’s Transport Organisation

corridors makes it clear that some supply chains are at a fragile state. A resilient supply chain is created when Supply Chain Engineering is combined with a Risk Management Culture. Next to this, also here we see the need for collaboration in the supply chain and the need to be or to remain agile. These two components of Agility and Collaboration, depicted in the figure, are in essence what builds up a Virtual Organisation.

4.4.5 ICT as Enabler of the Virtual Organisation

As previously mentioned in paragraph 4.2.2, ICT is a driving force towards virtual organised relations. According to Venkatraman (1994) IT has become a fundamental enabler in creating and maintaining a flexible business network. He introduced a model that breaks IT-enabled business transformation into five levels. Companies pass through levels of IT-enabled transformation.

The five levels are as follows (as explained by Agrawal, Haleem, Sushil):

“Level 1: Localised exploitation (Automation), which is concerned with the exploitation of IT within business functions; Level 2: Internal Integration, a logical extension of the first in the sense that IT capabilities are exploited in all the possible activities within the business process. Two types of integration are critical here: technical integration, and the organisational integration by using common IT platform to integrate the organisation’s business processes to enhance efficiency and effectiveness; Level 3: Business Process Redesign, involving the reconfiguration of the business using IT as a central lever; Level 4: Business Network Redesign concerned with the reconfiguration of the scope and task of the business network involved in the creation and delivery of the products and services; and Level 5: Business Scope Redefinition concerned with the raison d’être of a corporation, pertaining to the possibilities of enlarging the business mission and scope (through related products and services) as well as shifting the business (through substitution of traditional capabilities with IT-enabled skills. The first two levels are evolutionary, requiring relatively incremental changes in the existing organisational processes. In contrast, the other three levels are conceptualised as revolutionary, requiring fundamental changes in the business process (vide figure 4-5). Proceeding to higher levels of business transformation increases the range of potential benefits for a company.

Figure 4-5: Potential of VO in relation to the degree of business transformation
(Source: adapted from Venkatraman, 1994)

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According to Agrawal c.s., the Virtual Corporation (part of the Virtual Organisation, vide chapter 3.3) can be positioned in level 4 of the figure. In my opinion, it should be noted that the VO as such, is not able to proceed along the different levels of the model. Traditional Organisations, once they reach level 4 of the model, could be structured as Virtual Organisations with the support of IT. It became obvious in chapter 3 that the essence of the VO is to redesign business networks as such. It is, however, questionable if level 3 is the necessary predecessor of level 4. The VO as it could be applied to IKEA’s Transport organisation, as was also elaborated in chapter 3, will transform the business relation, but the purchasing process will not necessarily be redesigned as a consequence of the application of ICT, however, it will be managed differently. Actually, the Virtual Organisation is an inter-organisational framework that attempts to enhance efficiency and cost-effectiveness by bringing together the right partners in order to create synergies. This makes the VO significantly different from the traditional organisation (TO).

4.5 Summary

The trends discussed in this chapter are indicative for how businesses will run in the future. This chapter has given a description of how changing circumstances and developments in the market have forced changes in the relationships between partners in a supply chain.

- **Big need for co-operation**
  Because of hyper competition, leanness, outsourcing, the need for agility and flexibility, and the advantages of economics of scale have created the need for co-operation between parties in the supply chain. Low transaction costs and the revolution in ICT-applications have enabled and facilitated co-operation between parties in the supply chain.

- **High competitiveness among carriers**
  The transport market has been under enormous market pressure. The market was, due to overcapacity, purely demand driven. Recent developments have shown some movement towards a more supply driven market, however, shippers remain for the moment to have a very strong position in the market. Carriers have diversified their business and offer additional, value adding services. They have also developed their ICT-capabilities. In a very competitive market it is in the carriers’ interest to develop a co-operative relation with the shipper.

- **The Virtual Organisation is the next step**
  Paragraph 4.4 showed the VO as a natural successor of the more traditional Supply Chain Management relations in supply chains. As was mentioned earlier, the big challenge for companies nowadays, is to operate agile, but to remain lean at the same time. These two objectives contradict and are therefore difficult to reach in one single company. But by concentrating on the core-competences companies can stay lean and by co-operating in Virtual Organisations they can operate in an agile environment. Through its ability to form quickly, the VO is capable of building up potential in the right place at the right time and in the right amount.

Recalling to memory chapter 3, where a link was made between the “switching principle” in the Virtual Organisations and e-procurement as a dynamic assignment mechanism to effectuate the switching principle. The next chapter (5) will describe the electronic procurement (e-procurement) of transport services and the different possible setups of e-procurement events one can think of in this respect.
5 Procurement of Transport Services

“Online tendering is more than just a tool. It is a fantastic opportunity to rethink one’s freight buying strategy.”
François Ferry (Logistics Director Colgate-Palmolive, France)

This chapter explains more about the functioning of transport procurement events. Transport procurement events are also referred to as open or closed marketplaces, (e)-tenders or (e)-auctions. In the vision of TNO (2002), a renowned Dutch research institute, marketplaces are not part of what they define as co-operative partnerships 41, because the dependency in the relations is low and the relation is based on transactions, not real co-operation. On the other hand, (closed) marketplaces can be facilitators for improvement of the operational performance indicators by improving the quality of information and enlarging the freedom for input from the service suppliers. As such, marketplaces can facilitate co-operative partnerships. This chapter will discuss different types of transport procurement (based on a large part on the theory of Caplice and Sheffi 42 that (among other differences) vary in the quality of information and the freedom for input from the service suppliers.

5.1 Introduction

The paragraph covers briefly the transport procurement process by means of the different stages of the transport procurement process. The following paragraphs will present the different ways of procurement including the different tender setup possibilities. For easy reference, the IKEA’s purchase function (vide chapter 2) is depicted once more in figure 5-1.

Figure 5-1: Transport procurement processes

The transportation procurement process can be divided into three stages:

- **Preparation Stage**
  During preparation the shipper decides what is to be bid on, what carriers are to be invited, how to present or package the business to be bid on, and what possibilities there are for different types of shipper-carrier relationships.

- **Execution Stage**
  During the execution the shipper communicates bid information to the carriers and the carriers respond with quotations. Issues that are important are the visibility of bids by others or feedback on bids by the shipper, number of bid rounds, the freedom to retract bids and other standard rules.

- **Analysis and Assignment Stage**
  During bid analysis and assignment, the shipper analyses the carriers’ bids, considers the business needs and assigns the business to a specific carrier.

For the communication of bid and quotation information during the execution phase a shipper can choose different setups. These different setups are here referred to as “Transport Procurement Types”.

### 5.2 Transport Procurement Types

This paragraph discusses the different ways to procure transportation services: Traditional procurement, Automated procurement, and Optimisation based procurement. Compared with the traditional procurement of transportation services the later two have a number of advantages and disadvantages and also some important implications on the relationship between shipper and carrier. The question that needs to be answered is: “How should IKEA procure carrier transportation services?” To clarify the main differences, first the traditional way of procurement will be explained. Then the automated procurement of transport services will be described. Finally the optimisation based procurement of transport services will be discussed.

Divided over the three types of procurement, five types of bidding can be identified. Successively the different types of procurement and the corresponding types of bidding will be explained:

- **Traditional procurement**
  - On specification bidding

- **Automated procurement**
  - Conditional bidding
  - Alternate bidding

- **Optimisation based procurement**
  - Optimisation based multi attribute bidding
  - Combinatorial bidding

To understand the essence of optimisation based procurement one should have some knowledge of transport carrier economics. Therefore some explanation thereof will be given in between the discussion of automated procurement and optimisation based procurement.

#### 5.2.1 Traditional Procurement of Transportation Services

In general large shippers buy transportation services using Requests for Quotation (RfQ’s), leading to contract prices that are typically in effect for one or two years,
depending on market circumstances. The traditional procurement of transport services starts by estimating the freight volume that must be shipped in the coming year. This information is transmitted to the selected carriers as a list of lanes on which they are expected to bid. Carriers quote the prices at which they are willing to haul the loads. Then the shipper evaluates the bids lane by lane, using one or more criteria, to select the winner. In the traditional procurement of transport, shippers typically treat every lane as an individual auction, ignoring interdependencies.

The traditional procurement type has been the way of approaching the business for IKEA for a long time. A tender was set out among a limited number of carriers, which were approached by phone and email. The process of communicating and negotiating was a long process. The tender typically lasted one or two round and the bids were not being made public, but they were used in negotiations.

In the traditional procurement process the decisions made in the preparation stage are made on a macro-level. The purchasing strategy indicates whether a carrier, as a whole, should or should not be used by the shipper. The shipper selects a limited number of carriers that are invited for an RfQ. This is beneficial to the shipper in the respect that it saves the extra effort that is required for checking the carrier’s performance. On the other hand it ignores the unique characteristics of transportation. A carrier might fail the shippers’ criteria in one environment or situation, but can be very good on a specific route and/or set-up in another environment or situation.

5.2.1.1 On specification bidding
In the traditional procurement of transport services carriers are asked to put in bids based on the dictated specifications. The shipper specifies what should and should not be calculated in the bid and all bidding carriers have to respect these rules. The shipper must be very clear in his communication to the carriers in order to receive only bids that are based on the specifications and therefore comparable. To be able to properly calculate a bid, the carrier must have information on: pick-up and drop-off locations and times, lead-time, free unloading time, mode of transport, type of goods, service requirements, (forecasted) volumes, preferred loading unit type and so on. The advantage of on specification bidding is that it is relatively easy and straightforward. The shipper can make comparisons between bids. There are, however, also some important disadvantages.

5.2.1.2 Problems with traditional bidding methods
Caplice and Sheffi identified three major problems connected to using the traditional bidding and award methods:

- Incentive compatibility problem
  The solution will only be as good as the bid rates submitted. Simply asking the carriers for their best price on each lane, is no guarantee that they will actually give them. On the contrary, carriers have an incentive to hedge, or artificially increase their bids based on uncertainty in the information provided to them, level of competition on the offered lanes, and numerous other factors.

- Interdependency problem
  Due to economies of scope (vide paragraph 5.2.3) there are interdependencies in offered lanes. The internal cost structure of a carrier for one lane depends on another lane being

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served or not. This dependency makes it difficult or impossible in complex networks, to obtain an efficient allocation using lane-by-lane bids.

- System constraint problem

Considerations that involve more than one lane cannot be solved by a lane-by-lane bid analysis. For instance, if the shipper restricts the amount of business assigned to one carrier, the analysis has to be made on a higher level.

These problems can be solved by improving the quality of information and diminishing the network imbalance. Automated and optimisation-based procurement will be beneficial in this respect.

### 5.2.2 Automated Procurement of Transport Services

The bid execution stage was revolutionised by the Internet. E-procurement events (online tendering) have dramatically reduced the cost of connectivity between shipper and carrier. Lucking-Reiley (2002) names the advantages of; increased convenience for shipper and carrier, asynchronous bidding, access to a greater number of bidders, and lower participation and transaction costs for both. This has implications for the bid preparation stage in the sense that it affects the number of participating parties and possibly the criteria they are selected on and the way the business is presented to the carriers. These changes in the preparation and execution phases bear consequences for the analysis and assignment process as well. The goal in the end is not just to select the best set of carriers for a tender, but the optimal assignment of the carrier to the lanes in the network.

Two main goals of automated procurement of transport are (1) revenue or utility maximisation for the auctioneer, and (2) allocation efficiency. The main difference between traditional procurement and automated procurement of transport is that the automation of procurement of transport allows for much more, quicker and better directed price information exchange between bidder and auctioneer. In automated procurement of transport the carrier has the opportunity to not only react on what the auctioneer puts in front of him by submitting bids, but to also act by creating new items to bid on. The carrier can add items to bid on by conditional bidding or by alternate bidding. In general the automation of the procurement of transport makes transport pricing more dynamic.

#### 5.2.2.1 Conditional bidding

A conditional bid is an offer by a carrier to serve some portion of traffic (a partial lane, a single lane or a package of lanes) when certain conditions have to be met. Such conditions are, for example; a bid is only valid if a certain minimum amount of volume is awarded, or if payment for empty mileage in tour bids is included, or if the carrier is awarded every single lane out of a set of lanes.

#### 5.2.2.2 Alternate bidding

An alternate bid is an offer by the carrier to serve some portion of traffic under different specifications. It is in fact the contrary of on specification bidding discussed in paragraph 5.2.1.1. An example of an alternate bid is; the carrier offers a price on a certain amount of volume from A to B based on an alternative mode of transport or loading unit type or with a different lead-time. Carriers can use these freedoms to optimise the fit of the volume in their network and schedule.

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5.2.3 Transportation Carrier Economics – Economies of Scope

Caplice and Sheffi (2003) give a clear explanation of the construction of transport costs. The majority of transportation costs can be divided into two activities: (1) line-haul movement and (2) connection to a follow-on load. Line-haul movement costs are mainly variable with distance (fuel, tires, and wages) are well understood and controlled by the carrier. The costs of connection to a follow-on load consist of dead-heading (movement of an empty truck towards a follow-on load) and dwell-time (time the truck has to wait before a follow-on load is identified). The costs of making a connection to a follow-on load are never known with certainty by a carrier, because of the overall spatial and temporal variability of shipper demand.

The uncertainty in connection costs creates interdependencies where the cost of hauling on one lane is affected by the other lanes that a carrier is serving. The most obvious example of this interdependency is the backhaul-lane. The costs of a shipment from A to B will be lower if there is a back-load from B to A. If no back-load is available the costs of the roundtrip in stead of just one way will have to be covered in the price. If the probability of a follow-on load from B to C is big enough this will also be translated in a lower shipment price from A to B. This is an example of economies of scope. The cost to serve on one lane depends not on the volume on that lane (which would be an example of economies of scale) but on whether another lane is served.

The price of a transport service is therefore highly dependent on the fit between the goods flow of the shipper and the network configuration of a certain carrier. A mutation in the goods flow, which may seem profitable to a carrier in general, is not always as attractive in a specific case. An increase in scale of a certain flow can have as a consequence that the executive carrier can no longer give the desired performance. He might have to take away additional capacity elsewhere, which generates extra empty-driven kilometres. These inefficiencies or misfits will be recharged in the price of the transport service.

Economies of scope are present if the total cost of a single carrier to serve a set of lanes is lower than the cost of multiple carriers serving the same lanes. Transport and logistics operations exhibit significant economies of scope, especially on lanes with high levels of reliability and consistent traffic volume (Caplice and Sheffi, 2003). Following the above, there are two important reasons for carriers to have balance in their networks. First of all, follow-on loads allow for better utilisation of their equipment. Secondly, balanced networks allow carriers to maintain their equipment regularly at fixed locations and to get their drivers home frequently and predictably (Sheffi, 2004).

5.2.4 Optimisation-based Procurement for Transportation Services

Due to imperfections in the match (misfits) between the shipper’s and carriers’ networks carriers will hedge their bids to deal with the uncertainty of getting follow-on loads. However, the shipper can control two things at the time of procurement: the total volume of traffic it offers to each carrier, and the placement of the traffic on the network.

The specific economics of the carrier ultimately determine a carrier’s cost structure and therefore its price. By simply assuming economies of scale, as many shippers do, costs will not always be cut. After all, it is very imaginable that a carrier has to make disproportionately extra costs if more volume is allocated to his lane. Optimisation-based procurement identifies opportunities to reduce the carrier’s costs and/or improve quality, which, in turn, can potentially lower the shipper’s costs.
When should a shipper use the optimisation-based procurement strategy? There is a fixed cost involved with conducting an optimisation-based procurement event. These are extra costs involved in providing the extra amount of data required to set up and run an optimisation model. When the aim is to get straight-forward rate information, an optimisation model is not required. A lot depends on the objective of the shipper. When business constraints become more important the value of the optimisation model increases.

According to Caplice and Sheffi (2003) optimisation-based procurement becomes more interesting for a shipper as the complexity of the network increases. “Network Complexity” is a concept which is influenced by the size of the network, the number of carriers involved, and the number of business rules considered.

5.2.4.1 Optimisation-based procurement
In optimisation-based procurement the shipper can additionally to evaluation on lowest costs add a number of side constraints to create an optimisation problem. Business considerations such as the following and also others can be considered in an optimisation-based transport purchase model.

- Assigning a minimum/maximum number of carriers to the lanes in order to find the optimal size of the core carrier base.
- Favouring of incumbents. There are costs attached to bringing a new carrier to service a facility. Therefore shippers often favour working with incumbents. In practice, incumbents are often favoured 3% to 5%.
- Minimum/maximum coverage. A shipper may want to ensure that a carrier wins a certain minimum or maximum amount of freight in a region.
- Restricting carriers. A shipper may want to ensure that a certain percentage of the business is given to new or small but promising carriers.
- Performance factors. The level of service provided by the carrier can be incorporated in the decision by modifying the cost coefficients. Based on this the shipper can make service-price trade-offs.

The objective is to optimise the match between the shippers’ and carriers’ networks by letting both formulate certain conditions under which prices are calculated and finally assignment of freight takes place.

5.2.4.2 Optimisation-based Multi-attribute bidding
A much heard complaint from carriers is that shippers only pay attention to price and that they do not care for quality. In a multi-attribute auction however, bids consist of price and a set of non-price attributes (e.g. quality, lead-time). In a multi-round open auction mechanism, where the auctioneer announces a slightly different scoring rule in each round, bids are collected. The auctioneer can use these bids to learn the bidders cost functions (Beil and Wein, 2003).

To engage the bidders in the auction the auctioneer needs to provide the bidders with information pertaining to how the non-price attributes are valued. Announcing a scoring rule in terms of bid price and various attributes is the predominant approach here. The downside of this method is that what should be a structured sequence of events, has the tendency of becoming very complicated. Moreover it will be hard to convince the carrier of the best intentions of the shipper when the shipper changes the scoring rule to increase the maximum utility or to favour preferred carriers.

5.2.4.3 Combinatorial bidding
Combinatorial bidding is special form of conditional bidding. In combinatorial auctions the shipper asks the bidding carriers to quote prices on groups or packages of specific lanes, in addition to bids on individual lanes. The carriers can form their own packages based on their own economics of scope. The carriers will thus be able to create packages
Applying a Virtual Organisation on IKEA’s Transport Organisation

that minimise the number of empty driven kilometres, allowing them to cut costs and pass part of this costs cut on to the shipper. In a combinatorial bid, a carrier might submit many more packages than when only bids on the individual lanes are submitted. When the carrier is also allowed to specify the volume desired on each lane, the number of submitted packages can be even higher. With large numbers of lanes, potentially this creates information overflow for the carrier as well as for the shipper.

When bidding on packages, each carrier may submit multiple quotations for a single lane, because each lane can be part of many packages. The shipper may receive many more bids than the number of lanes, with overlapping lane quotations, making evaluating these quotations much more difficult than evaluating individual lane quotations. Combinatorial auctions are also referred to as combinatorial bidding, combinatorial procurement and conditional bidding.

5.3 Designing a Transport Procurement Event

The procurement types and bidding concepts are part of the larger framework of a transport procurement event. This paragraph discussed the issues involved in the design and set-up of a transport procurement event.

Tender is a much used term for a transport procurement event. Transport procurement event, however, is a broader term that also covers auctions. The difference between the two is determined by the design of the transport procurement event. Auctions make use of continuous bidding, whereas tenders use one or more isolated bidding rounds. This design parameter and others have important implications for shipper and carrier. The type of relation the shipper has with the carriers is important in choosing the specific design for the tender.

5.3.1 Purpose of Transport Procurement Event

According to Caplice and Sheffi (2003), a transport procurement event can be applied for various reasons. We can identify two categories: screening and realignment. The shipper should state clear goals before the procurement event starts. Possible objectives are to decrease or increase the number of contracted carriers. Other objectives could be to cut transport costs or to maintain or improve quality.

Screening

Shippers run a procurement event for screening when they have used hundreds of carriers in the past and are looking to reduce their carrier base. With large numbers of carriers considered, the performance data are often not available or trustworthy. Thus the focus in the tender is on price and capacity. The objective of a screening auction is to reduce the transportation cost while increasing the control over the carrier base.

Realignment

Procurement events that have the purpose of realignment rearrange the allocation of freight and lanes across the carriers in order to get an optimal fit. Usually the majority of the carriers are incumbents. The use of performance factors and the corresponding performance data is high. The networks of both the shipper and the carrier change over time. The realignment tender intents to optimise the match regularly, therefore these tenders are smaller and held more frequently.

5.3.2 Design Parameters

One-size fits all solutions do not exist for transport procurement events. Certainly large shippers like IKEA must uniquely design their tenders to optimally fit their own
requirements. Caplice and Sheffi (2003) identified three main design dimensions. Other literature and interviews with carriers have suggested three more. When designing a transport procurement event, the shipper must make decisions on:

- **Single sourcing versus split lanes**
  A shipper can assign a single carrier to each lane or region or assign multiple carriers to individual lanes. Single sourcing has the advantage of lane-ownership. The carrier is responsible for 100% of the coverage of the lane, also in case of demand surges. The division of responsibility is clear. On the other hand, split lanes allow the carrier to bid on a certain percentage of the volume of an individual lane. Lanes with especially large amounts of volume can sometimes not be handled by an individual carrier. In other cases it is better to alleviate the burden on a single carrier by dividing the volume over multiple carriers. Giving the carrier the freedom to specify its preferred amount of volume on a lane also leads to network optimization (benefits of the economies of scope).

- **Single versus multiple rounds**
  There is continuing debate on the benefit of having multiple rounds in a tender. From one point of view using multiple rounds causes damaging price wars among carriers. Using one single bid round lets the carrier give his best bid “without playing games”. From another point of view multiple rounds provide the opportunity for the carrier to get an accurate sense of the market. Shippers using multiple rounds typically use the first round to get a broad sense of the market followed by a second round to negotiate prices with the most promising carriers. Some shippers apply multiple rounds to simply increase the pressure on the carriers. According to Sheffi (2004) 80% of the shippers and most of the carriers prefer single round tenders.

- **Real-time rate visibility**
  Real-time rate visibility is the differentiating factor for a transport auctions as opposed to a transport tender. The carriers can follow the price development in the bidding process in real-time, creating an auction-like event. Real-time rate visibility has proven to reduce the initial prices paid by significant margins. The downside is that the transport auction is focussed on price more than on performance factors, potentially causing all kinds of (operational) problems after implementation. Additionally, the auction does not facilitate the more sophisticated bidding concept. Therefore the shipper misses potential for collaborative costs savings with carriers. A way around this problem can be found in offering the carrier the possibility to insert alternate or conditional bids that will form new “threads” for other carriers to bid on. But this in return, brings the risk of information overload.

The tendency is that carriers are not much in favour of real-time rate visibility. They have the feeling that, in the heat of the moment, they are tempted to bid a lower price than they actually wanted. On the other hand there are also carriers that like the direct contact with the development of the market prices.

- **Comprehensible data**
  An important issue in the design of a procurement event is the amount and the complexity of information. The carriers must be able to deal with it or potential benefits will undoubtedly go to waste. On the other hand, the benefits often are in having a complete perspective of the business, which generates a lot of information. The right balance is difficult to find. The shipper should first of all make a decision on how big the procurement event can or should be. The dimensions are determined by the number of lanes to bid on. A large shipper like IKEA should decide between one large Pan-European covering tender and multiple tenders for separate country-to-country relations or in- and outbound traffic. When a shipper wants to arrange a big tender, it is advisable to inform the carrier upfront to give him the opportunity to free the necessary resources. Another
option is to organise the tender in a less busy period, since tenders are organised by most shippers in the same periods.

- **Bidding functionality**
  Bidding functionality is also a tender design parameter. It is very narrowly connected to the previous point of comprehensible data. The different bidding functionalities and their characteristics were already discussed in paragraph 5.2

- **Open or closed participation**
  Finally, as last design parameter, the distinction between open and closed participation should be mentioned. Open participation procurement events are openly accessible for all carriers in the transport market. Closed participation procurement events are limited to a pre-selected group of carriers. In the open events of, for instance, Freight-traders.com so much as 800 to 2000 carriers could participate.

### 5.4 Summary

This chapter discussed transport purchasing from a theoretical point of view. The following conclusions help to put the content of this chapter in the context of the rest of this report.

- **Bidding options**
  This chapter outlined the different bidding options that can be offered to the carrier. There are important differences in the level of complexity involved in the usage of these different models. The bidding options affect the shipper’s business and his business relationship with the carrier. And, with added complexity come increasing amounts of data that need to be evaluated. This means that both the carrier and the shipper should have enough resources available in order to realise the full potential of the chosen set-up. These are two important issues for the shipper to be aware of before making a choice for a certain bidding setup.

- **Procurement event design**
  Many different bidding concepts and procurement event setups are possible with different impact on the business. The carrier in itself makes up for an important building block of a successful procurement event. The process should be interesting enough for the carrier to participate in. Therefore the shipper must put effort in inquiring the carriers’ preferences and informing the carrier about the course of events once a certain setup is chosen. A carrier meeting to demonstrate a procurement tool could prove to be useful. Which combination of bidding concept(s) and procurement event set-up is the best option for IKEA depends largely on the specific market situation.

- **Match between VO concept and transport purchasing**
  The Virtual Organisation is applicable on transport procurement processes. E-tendering or e-auctioning allows a shipper to switch carriers very quickly. On the other hand; the transport purchasing can be made very complex in attempt to accommodate the spatial and temporal variability in shippers’ and carriers’ networks. Sophisticated bidding concepts can create dependencies between shipper and carrier. If shipper and carrier decide on it, the relationship between them is no longer based on transaction costs only. A different relation, with maybe a new set of rules, and co-operation become necessary.

- **Benefit for IKEA**
  Electronic transport procurement has as great benefit for the shipper an enormous increase in calculative power. Multiple scenarios based on different sets of criteria can be
Procurement of Transport Services

investigated, which makes it possible to really rethink the transport buying strategy. The concept of electronic tendering represents enormous potential for IKEA.

In conclusion, one can remark that the transport procurement event’s final set-up depends on a couple of factors, starting with, as probably the most important one, the shipper’s business objectives. Design choices have crucial impact on the business and on the relations in the business.

An important question yet to be answered is; “What are the carriers’ preferences regarding transport procurement events?” and “What kind of relationship should be combined with such a procurement setup?” The following chapter will delve into these issues deeper.
6 Design of Questionnaire on Carrier Preferences

“The important thing is not to stop questioning.”
- Albert Einstein
(Nobel Prize for Physics in 1921. 1879-1955)

The core of this research is a questionnaire for transport carriers. The intention of the questionnaire is to get a better notion of the carrier’s perspective on e-tendering and e-auctioning of transport services. IKEA realises that its choices affect the partners in the business and in order to be successful, IKEA is looking for a solution that is supported by all partners in the relationship. The preferences of the carriers were measured by a questionnaire. How this was done will be explained in this chapter. The results are presented into the next chapter.

6.1 Introduction

In 2002 the Dutch magazine on purchase and logistics48 published an article on carriers’ opinions on e-marketplaces. The main conclusion back then was that the carriers were not enthusiastic about the whole concept of e-market places. The product of an e-marketplace is efficiency. The objective of an e-marketplace is to create a platform where shippers and carriers ‘meet’. The success is depending on to what extent the benefits can be distributed to both parties. Carriers should be able to be more efficient by reducing the number of empty mileage, increasing the fill rate, speeding up the administrative process, and increasing the market access. The respondents did not recognise a lot if these benefits except for the potential reduction of empty mileage. Moreover, the carriers felt threatened by the e-market places because of the additional pressure it puts on the price level, the fact that it makes it more difficult for the carrier to distinguish itself from the competition and finally the feared loss of direct contact to the customer.

To the carrier there is more value in dedicated e-marketplaces; closed marketplaces for a selected group of carriers. The carrier is known to the shipper and can therefore distinguish itself from the competition. Most important, however, it was of the carriers’ opinion that an e-marketplace that is defined in co-operation between shipper and carrier is expected to be the most successful.

This research aims to do just that. The questionnaire in this research aims to establish the carriers’ opinion on the specific preferences concerning e-marketplace or e-procurement event design.

In appendix B one can find information on the response rate and the significance of the answers given by the respondents. Unfortunately, due to the low number of national carriers participating in the questionnaire, it was almost never possible to present statistically significant preferences of the national carriers in the questionnaire results in chapter 7. The presented figures in chapter 7 still show the answers from all carrier types,

including the national carriers, but in the accompanying explanations no statements were made about national carriers’ preferences (except for some exceptional questions where there was a statistically significant preference of national carriers).

### 6.2 Setup of Questionnaire

Following the structure of the questionnaire, first a carrier profile is created to be able to assign the results to carrier characteristics. If certain carrier preferences can be assigned to certain carrier characteristics that would enable IKEA to formulate what a strategic partner should look like. Secondly the carriers’ preferences concerning e-tendering and e-auctioning will be presented. Thirdly the carriers’ preferences concerning co-operation will be presented.

The questionnaire was designed on the basis of theory on e-tendering set-ups, co-operation in supply chains, Virtual Organisations, and on a number of interviews with relevant parties involved inside and outside of IKEA. The theory behind the VO and the co-operation between shipper and carrier (vide chapter 3) together with the theory behind transport procurement (as per chapter 5) were used as input for the setup of the questionnaire, in order to investigate the preferences of the parties involved.

A pilot questionnaire was sent out to a carrier which has a strong relationship with IKEA to find out the robustness of the setup of the questionnaire. After receiving feedback from the respondent fine-tuning was done on specific items. Some of the questions were phrased to general and were formulated more specific on the subject.

The three themes of the questionnaire will be described in more detail here:

#### 1) Carrier Profile

From the answers to the questionnaire a profile is constructed of IKEA’s “carrier base” with the intention to create an overview of the different types of carriers IKEA has as contracted partners. For IKEA the most interesting characteristic of a carrier is the geographical dispersion of its activities. It is therefore the aim to construct a profile of IKEA’s “Carrier base” based on the answers in section 1 of the questionnaire to the questions related to below mentioned subjects, “Size” and “Network extent”:

**Size**

A division in size of turnover is a first, maybe ‘obvious’, characteristic. ‘Small’ carriers may have different preferences than ‘large’ carriers and vice versa. For IKEA it is interesting to know if such differences exist. The size of turnover of the carrier represents a certain economy of scale, which says something about the potential for IKEA and also about the power balance between shipper and carrier (vide par 3.5).

**Network extent**

Turnover is not the only interesting characteristic of a carrier. The geographic extent of the carrier’s network is an important determinant for its value to big shippers like IKEA. Transport networks extent either on national, international or pan-European scale. To understand the carrier’s preferences it helps to know about their logistic set-up. The larger the catchment area of a carrier is, the more the need will be to operate on an inter-modal basis (train/road/water/air). This applies in particular for the International and pan-European carriers.

Based on the combination of these two characteristics a differentiation of carriers was made in “national carriers”, “international carriers” and “pan-European carriers”.

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60
2) E-tendering of Transport Services
This section of the questionnaire starts by measuring the carrier’s viewpoint on the most important potential advantages and disadvantages of e-tendering/e-auctioning. Furthermore the aspects of an E-tender or E-auction on which a carrier bases its decision to participate or not are measured. And subsequently, the carrier’s preferences towards e-tendering and e-auctioning were measured along the following important parameters for tender design (vide paragraph 5.3).

Design parameters:
- Single sourcing versus split lanes
- Single versus multiple rounds
- Real-time rate visibility
- Comprehensible data
- Bidding functionality

One of the design parameters, open or closed participation, was left out of scope in this research. Only closed events are considered. An open participation tender event, where any carrier can participate, would not be an option for IKEA as the company applies certain admission requirements.

3) Co-operation
This section of the questionnaire measures the carriers’ viewpoint on co-operation and partnership. It assesses if the carriers see a potential for co-operation (synergy) and in which field this could take place (purchase, planning, performance, development). It tries to establish whether in the eyes of the carriers the switching principle is an acceptable tool in a co-operation. And which preconditions the carrier sets to wards a co-operation between shipper and carrier.

Below table demonstrates in a concise format the content of the subject of the questionnaire.

<table>
<thead>
<tr>
<th>Questionnaire Subjects</th>
<th>Questions: 1 - 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Company Profile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- questions to create a profile of the carrier</td>
</tr>
<tr>
<td></td>
<td>- questions to assess the carrier’s experience with e-tendering and e-auctioning</td>
</tr>
<tr>
<td>2. E-tendering of transport services</td>
<td>Questions: 6 - 7</td>
</tr>
<tr>
<td></td>
<td>- questions to assess the carrier’s opinion on the advantages and disadvantages of e-tendering and e-auctioning</td>
</tr>
<tr>
<td></td>
<td>- questions to assess the carrier’s preferences concerning the characteristics of e-tenders and e-auctions</td>
</tr>
<tr>
<td>3. Co-operation</td>
<td>Questions: 8 - 14</td>
</tr>
<tr>
<td></td>
<td>- Questions to assess the carrier’s demands and requirements regarding co-operation between shipper and carrier.</td>
</tr>
<tr>
<td>4. Evaluation</td>
<td>Questions: 15</td>
</tr>
</tbody>
</table>

A copy of the questionnaire can be found in appendix A.
6.3 Specific Observations of Questionnaire

Some specific observations of the distributed questionnaire are addressed below and in chapter 7 the results of the questionnaire are presented in detail together with observations. Further interpretation of these observations is given in chapter 8. Final conclusions and recommendations follow in chapter 9.

6.3.1 Respondents

The questionnaire was sent to a group of 144 carriers of the following composition:

Table 10: Approached and responding carriers from different categories

<table>
<thead>
<tr>
<th>Carrier Category</th>
<th>Questionnaire Send Out</th>
<th># of Carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>IKEA European Carriers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>West/Central Carriers</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>East/Central Carriers</td>
<td>35</td>
<td>17</td>
</tr>
<tr>
<td>South-East Carriers</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>South-West Carriers</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>North Carriers</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Non IKEA Carriers</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total number of Carriers:</strong></td>
<td><strong>144</strong></td>
<td><strong>76</strong></td>
</tr>
</tbody>
</table>

The different regions in the table correspond to the different regions in which IKEA has divided Europe. From the approached group of carriers, a number of 75 carriers responded to the questionnaire, which equals an overwhelming response of 52%.

6.3.2 Strategic Behaviour

To many carriers the subject of this tender is rather sensitive. Some of the requested data was regarded by some carriers as company confidential information. When the questionnaire was sent out to the carriers, an appeal was made for their honest opinion on the subject of e-tendering of transport services.

The subject of this study is affecting the carrier to quite some extent. One might even say that it is of vital interest to its business. The shipper is usually the dominant party in the shipper-carrier relationship. Because the pressure on transport prices is very high, it is very important to the carrier to remain in some control of price development in transport. Carrier: “It feels nice that IKEA is asking for an opinion before implementing the procedure.” However, a questionnaire inquiring in the carrier’s preferences concerning e-tendering and e-auctioning is also an opportunity for the carrier to display strategic behaviour. When a carrier sees benefit in exhibiting strategic behaviour, he may decide to give socially desirable answers to get on IKEA’s good side. On the other hand the carrier could decide to portray an undesirable alternative in a worse way than what is realistic.

It also has to be taken into account that many of the carriers that participated in this questionnaire have been in business with IKEA for many years already. They know exactly how IKEA operates and may therefore be inclined to give answers according to what has been their reality over the years. For instance, because IKEA uses UFN contracts it is likely that the respondent’s choice will be UFN contracts as the preferred contract form.

To avoid negative influence of strategic behaviour, the research was based on a large respond group and the results were checked by interviews. The interviews can be found...
at the end of this report in different appendices. In chapter 8 some results of the questionnaire were coupled with results from the interviews.

6.3.3 Carriers’ Impression of Questionnaire

Out of the 76 respondents 30 carriers made use of the opportunity to express their opinion on the questionnaire itself. 14 of them felt the questionnaire was of a high quality, detailed and well structured.

“Questionnaire was well structured and understandable.”

5 carriers felt the questionnaire was difficult, because of a lack of experience with the topic or because they recognised the complexity of the subject.

“The questionnaire is complicated, but this has been occurred by the topic.”

Another mentioned that the questionnaire was a good tool to get a feeling for e-tendering and e-auctioning, but the organisation of transport cannot be handled by tenders alone.

“It is a good entry to get a feeling for e-tenders and e-auctions, but in our opinion the whole transport-business is too complex to create everything with e-actions or e-tenders.”

This is a feeling which lives with many carriers and they are therefore often very happy to be able to express it towards an important shipper like IKEA.

“I think it is a great questionnaire putting on the table the right questions. It is also interesting because of its mutual interest approach (shipper and carrier).”

On the other hand one of the carriers stated that the questionnaire was directed too much from a shipper’s viewpoint.

“Professional but made from the shipper’s eye.”

Another important remark was made by four carriers about some of the answering possibilities.

“Some questions where a bit hard to reply on as choices had to be made and on some of them just stating yes or no does not say it all.”

The complexity of the subject makes it sometimes very difficult to give unambiguous answers. The carriers would have liked to have the opportunity to explain every answer. But sometimes the questionnaire was deliberately constructed in such a way that the respondent was provoked to make a more clear statement.

The following remark, given by a very large carrier, represents the feeling expressed by the majority of the participating carriers:

“We think the questionnaire is important.”

Note: Due to progressive insight in the topics of the questionnaire, some of the questions & answers seem sometimes redundant or overly logical. For reasons of completion, I have decided to include them anyway, as they have been a starting point for this report.
Design of Questionnaire on Carrier Preferences
7 Questionnaire Results

This chapter is a representation of results gathered by means of a questionnaire. The answers to each question are illustrated in graphs and explained accordingly. Per category of questions observations with remarks are given. In chapter 8 specific interpretations of the questionnaire results are given and in chapter 9 their implications on IKEA. Chapter 10 finalises the report with final conclusions, the answers to the research questions. The complete questionnaire can be found in appendix A.

7.1 Carrier Profiles

Paragraph 7.1 gives the reader an introduction into the types of respondents by creating profiles based on characteristics such as; carrier size, network extent, core competencies and knowledge of the IKEA-network.

Carrier Size

The numbers of carriers in figure 7-1 are the absolute numbers of respondents with turnover in a specific range. These turnover figures represent the carrier’s total turnover. It is not the IKEA-share of its turnover. In percentages this means that almost 50% of IKEA’s carriers have a turnover of less than 50 Million Euro. 20% of the carriers have a turnover of 250 Million Euro or more and approximately 30% of IKEA’s carriers is in between of these turnover figures. In the figure it can be seen that IKEA uses a relatively high number of carriers with an annual turnover of less than 25 Million Euro. These are typically Eastern-European and Southern-European carriers, which are not as big as in some Western-European carriers, because these transport markets are not yet consolidated as much as the Western-European transport market. On the other end of the spectrum IKEA uses a relative low number of very large carriers, but the turnover of such carriers can be up to or more than 1 Billion Euro.

Network Extent

In figure 7-2 one can see that most respondents operate on an international or pan-European scale and a limited number is bound to a domestic market. Relating network extent to carrier size illustrates that carriers of various sizes have networks that are limited to a national extent. It depends on the size of their domestic market, how large such carriers can get. There are carriers with turnovers of 250+ Million Euro that carry out only domestic transports, but these are exceptions. The two national carriers with turnover of 250+ Million Euro are (former) state owned postal companies. The international carrier with 250+ Million Euro turnover is a state owned railway company. In general, carriers with such turnovers have pan-European spanning networks.
Core-competencies
The vast majority of the carriers that work for IKEA have Full Truck Load (FTL) transports as their core-competence. A minority has Less than Full Truck Load (LTL) or Groupage as core-competence. Carriers with other core-competencies have stated in most cases a combination of FTL, LTL and Groupage as core-competence (vide figure 7-3). The vast majority of IKEA shipments are FTL, therefore this picture makes sense. Transporting FTL’s is fairly straightforward, driving a full truck from A to B. However, 72% of the FTL carriers claim that they also perform inter-modal services. This requires more organisational skills as well as long-term commitment. Otherwise, carriers can distinguish themselves from the competition by timely delivery, securing the capacity, flexibility, and environmental progressiveness.

Knowledge of Network
The carriers have graded their own level of knowledge of the IKEA network. The blue line in figure 7-4 represents the knowledge of IKEA’s routes in the region of interest. The yellow line represents the knowledge of IKEA’s volumes in the region of interest. The black and the white line represent respectively the knowledge of IKEA’s routes and volumes in the entire IKEA network. It will be self-evident that only a small number of the carriers are of the opinion that they have a good understanding of the total network of IKEA’s goods flows. It should be emphasised that, what was measured here is the carriers’ opinion of their own knowledge. The actual knowledge was not measured. So, most carriers feel they know IKEA’s network in the region of their interest and a significantly smaller number feels they have knowledge of the entire network. The carriers that are of the opinion that they have a good understanding of IKEA’s network and goods flows are the carriers with a pan-European network. It is still plausible that the carrier’s knowledge is actually not as good as they claim, because IKEA’s network is large and complex, the volumes are big and changes are frequent. For IKEA it might be beneficial if carriers also looked outside of their direct region of interest to see what potential is available for development.

7.1.1 Observations on Carrier Profiles
From this first part of the questionnaire the following observations can be made about the composition of IKEA’s carrier base:

- IKEA uses a big carrier base of carriers with many differences. The carriers range from very large to relatively small. Their core-competence and business setup vary. It is therefore quite difficult to make general statements about such a diverse group.
- Taking a closer look at the link between turnover and network extent, it can be learned that in relation to business setup we can divide the pan-European carriers with turnover ranging from 50 Million to 250 Million Euro in two groups. The carriers that have to support their network with own equipment have turnovers of 100 Million Euro or more. The business setup is an important factor in this. Forwarders can span pan-European networks based on less turnover than 100 Million Euro, because they do not have own equipment.
• In general it can be said that based on carrier size, network dimensions and business setup, we can differentiate between:
  o Carriers with a pan-European network and a yearly turnover of 100+ Million Euro
  o Carriers with a national network
  o Carriers with an international network
• The carrier’s knowledge of IKEA’s network is in most cases limited to the region of their interest.

7.2 Carriers’ Experience with E-procurement

Paragraph 7.2 gives the reader some background on the level of experience with e-procurement events of the carriers that participated in the questionnaire.

E-procurement of transport services is a relatively new concept to IKEA. By means of a number of e-procurement events over the last years some experiences have been made. In the world of transport the concepts of e-procurement have made their entrance with products of companies such as “Freight-traders” and “CombineNet”. It was unknown to what extent the IKEA carriers have made experiences with this form of transport procurement. From the questionnaire respondents 80% has knowledge of the concepts and out of that 80%, 84% has actual experience in participating in an e-procurement event, where 16% only studied the concept (vide figure 7-5).

Figure 7-5: Experience with e-procurement

There are big differences between carriers concerning the amount of experience with e-procurement. The turnover carriers generate with e-procurement events varies from zero Euro to 40 Million Euro. A significant part of the carriers, however, is generating turnovers of less than 1 Million Euro through e-procurement events and they do not foresee strong growth in the near future. Carriers, who have today a turnover generated by e-procurement events of 3 Million Euro or more, expect to see serious growth in the next 3 years (vide figure 7-6). The expected turnover in 3 years time can reach up to 100 Million Euro according to one respondent.

Figure 7-6: Yearly turnover of e-tender / e-auction. (Now and expected in 3 yrs time)

The same group foresees that the turnover through e-procurement events will become an increasing part of the total turnover (vide figure 7-7). This indicates that the carriers feel the market will shift to e-marketplaces. This observation is in line with a research of “Inkoop & Logistiek” (a Dutch logistics magazine), which established that carriers felt they had to follow their customers to the e-marketplaces49. Figure 7-8 also shows that some of

IKEA’s carriers have really done this. Out of 47 respondents 26 carriers have participated in more than 10 e-procurement events in a year’s time. The other carriers have only participated in up to 5 e-procurement events. It should, however, be kept in mind that these numbers do not say it all. A carrier that participates in 3 e-tenders with a combined value of 100 M Euro is perhaps more experienced than a carrier that participates in 20 e-tenders with a combined value of 5 M Euro.

The figure also shows that for many carriers the e-tenders and e-auctions are an important part of the business when compared to the total number of tenders participated in.

Figure 7-7: Yearly turnover of e-tender/ e-auction compared to total yearly turnover. (Now and expected in three yrs time)

7.2.1 Observations on Carriers’ Experience with E-procurement

From this part of the questionnaire the following observations can be made about the experience of the respondents with e-procurement events:

- 4 out of 5 IKEA-carriers know the concept of e-tendering. Of the carriers that are not aware of the concept 30% are rail carriers. Almost all road carriers for IKEA have some knowledge of e-procurement. Out of this group 84% has actual experience in participating in an e-tender.
- For the large carriers e-tendering is daily routine. Small carriers sometimes see it as an opportunity for fast growth. Some carriers are aiming in their sales strategy to do up to 80% or sometimes 100% of the business through e-procurement events.
- Some carriers do recognise the benefit of efficiency and construct their whole sales strategy around e-market places. 10 % of the carriers expect to see the turnover generated by e-tendering to grow to between 85 and 100% in next three years, with turnovers up to 100 Million Euro.
Carriers who have reached a certain mass of turnover from e-tenders and e-auctions (judging from this research the critical point lies somewhere around 2 Million to 3 Million Euro) foresee serious growth of their turnover generated by e-tenders and e-auctions, not only in absolute figures, but also in percentage of the total turnover.

### 7.3 Carriers’ Perception of Advantages and Disadvantages of E-procurement

After having discussed the carrier’s experience with e-procurement events in paragraph 7.2, paragraph 7.3 gives insight in the carrier perceived advantages and disadvantages and the criteria for joining an e-procurement event.

#### 7.3.1 Advantages

In paragraph 7.2 we have seen that most carriers, when the critical turnover of 2 or 3 M Euros is reached, expect the turnover from participating in e-procurement events to rise in the years to come. Carriers do not see e-tendering and e-auctioning as a hype that will pass but as something of a structural nature. Still, many carriers keep a sceptic attitude towards the concept. It is therefore interesting to see which advantages and disadvantages carriers recognise in respect of e-tendering. From the questionnaire come the following results on question 6A en 6B:

The three most recognised advantages by carriers are:
1. the opportunity to acquire new customers
2. the opportunity for network optimization
3. the opportunity to increase the turnover

The three least recognised advantages by carriers are:
1. the potential for a closer relationship with the shipper
2. the potential for lowering marketing costs
3. the opportunity for network optimization

It is striking that ‘network optimization’ shows in both lists. A deeper analysis reveals that this is mostly recognised as an opportunity by the pan-European carriers. Other carriers do not recognise the potential for network optimisation. Another interesting finding is that pan-European carriers, as opposed to the other carriers, recognise the advantage of having a better insight in the potential business of the shipper. So, despite of the fact that the pan-European carriers have stated in question 4 that their knowledge of the European wide network of IKEA is generally quite good, still they think that there is an advantage in getting a better transparency of flows and volumes by means of an e-procurement event. The pan-European carriers, like the other carriers, do not recognise the potential advantage of lowering the marketing costs or of having a closer relationship with the shipper.

#### 7.3.2 Disadvantages

The three most recognised disadvantages are the same for all carriers; large or small, pan-European, International or national, it does not matter. In previous research, some five years ago, these same disadvantages were also mentioned, so over the last five years this image of e-procurement has not changed and is not likely to change in the coming years.

The three most recognised disadvantages by carriers are:
1. the e-procurement event puts to much pressure on price
2. the e-procurement event prohibits personal contact between carrier and shipper
3. through the e-tender the carrier cannot distinguish itself from the competition

The three least recognised disadvantages by carriers are:
1. the risk of opportunistic behaviour of the shipper
2. the risk of non-confidentiality
3. the risk of having insufficient knowledge of e-procurement

Also in this research a number of carriers stated separately that an important disadvantage of e-procurement is that the focus is too much on price in stead of quality. When the carriers were asked to weigh the advantages and the disadvantages of e-procurement events the balance for e-tendering is in favour of the advantages, whereas for e-auctioning the disadvantages outweigh the advantages (vide figure 7-9). This is in itself understandable, because the pressure on the prices is less in an e-tender. On the other hand, some carriers like the fact that the e-auction gives a more direct feeling of the market price.

Figure 7-9: Advantages versus disadvantages for e-tenders and e-auctions

### 7.3.3 Criteria for joining an E-procurement Event

Carriers in general participate more and more in e-procurement events. Besides the advantages recognised by carriers mentioned on the previous page, another very important motivation for the carrier to participate is the fact that their customer finds himself on the e-marketplace. The carriers have to make sure the shippers are able to find them and therefore they have to be present on e-marketplaces. Still, there are many e-marketplaces (open or closed) and carriers have to decide which to join in on and which not to join in on. On which criteria do carriers make such a decision?

The carriers have expressed in the questionnaire what they feel as the most important criteria to make the decision whether to join in or not. Factors that determine the e-procurement event’s attractiveness to a carrier are, in following order of importance:

1. the reputation of the shipper
2. the fit of the offered lanes in the network of the carrier
3. the list of service requirements from the shipper
4. the bid functionality of the e-procurement event
5. the reputation of the e-procurement event hosting company

There is one important difference between carriers with pan-European or carriers with national and international networks. Pan-European carriers look first at the fit of the offered lanes in their network. In second comes the reputation of the shipper. For the smaller carriers with a national or international network this is the other way around. To them the reputation of a shipper is most important, than follows the fit of the lanes in the network. For all of the respondents applies that the list of service requirements comes third and of equal (un)importance are the bidding functionality of the tender and the reputation of the e-procurement event hosting company.

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Questionnaire Results

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Question 7A:
“What is the most important aspect of an e-tender or e-auction that determines your decision to join in or not?”
7.3.4 Observations on Carriers’ Perception of Advantages and Disadvantages of E-procurement

From this part of the questionnaire the following observation can be made about the motivation of the respondents to participate in e-procurement events:

- Shipper reputation and the fit of the offered routes and volumes in the own network are the most important criteria for a carrier to participate in an e-procurement event. The pan-European carriers look strictly at the fit of the lanes in their network, where other (smaller) carriers look first at the shipper’s reputation, possibly because they are more focussed on growth-opportunities. This argument is backed up by the fact that smaller carriers recognise the opportunity of acquiring new customers as the most important advantage of e-procurement.

7.4 Carriers’ Preferences regarding E-procurement Event Design

Establishing the preferences and requirements of the carriers towards e-procurement allows IKEA to design an e-procurement event that has the support of the carriers and will therefore lead to better results. This paragraph 7.4 presents the reader with the preferences and requirements of carriers regarding e-procurement events.

**Single Sourcing versus split Lanes**

The advantage of single sourcing for the shipper is that it minimises the administrative and operational burden. In case of large volumes also economies of scale may play a role in the shippers’ favour. From the shippers’ perspective it seems to be obvious to aim at single sourcing strategy. Spreading of risk, on the other side, is also an argument to take into consideration. When splitting the volume, there is always a back up solution in place if one carrier can’t perform. Figure 7-10 shows that pan-European carriers judge single sourcing as the best option. The international carriers however prefer single sourcing and splitting of volume equally well. Carriers that have elaborated on their answer in the questionnaire agree that both approaches have advantages and that it is the shipper’s decision to go for one or the other. The carrier operates in the needs of the customer. The decision depends very much on the lane (critical lane, securing of capacity on difficult routes), and larger volume is not always a byword for lower prices.

*Figure 7-10: Single sourcing versus splitting the volume*

**Single versus Multiple Rounds**

Figure 7-11 shows that some of the international carriers like the continuous bidding principle. These carriers like the accurate sense of the market that the continuous bidding gives them.

*Figure 7-11: How many bidding rounds in e-tender/ e-auction?*
It also gives the carrier more control on getting the business, because they can decide to bid lower than the competition. In general, however, the carrier’s preference is bidding in single or multiple rounds. Bidding in multiple rounds is preferred the most by all types of carriers. Contrary to the findings of Caplice and Sheffi (2003) according to whom the carriers prefer to bid in single rounds, this research shows that multiple rounds have the general preference of the carriers.

**Type of Feedback**

On this subject two different ideas exist amongst the carriers. A little over half of the international carriers would like to know how far away their bid is from the best bid. The pan-European carriers clearly prefer to know their position compared to their competitors in the bidding process (vide figure 7-12).

Figure 7-12: Type of feedback

**Adding Extra Time**

E-auctions finish at a certain pre-defined date and hour. Shippers can decide to prolong the auction when changes occur in the ranking of the top 3 carriers during the final minutes before closure. International and pan-European carriers often dislike this, because they feel it forces them to lower their prices below an unacceptable level. However, in general the pan-European carriers are indifferent as opposed to the adding of extra time.

Figure 7-13: Type of feedback

**Size of Tender**

Question 7G made most carriers choose for a tender on a country-to-country level (figure 7-14). However, it must be noted here that the data showed no statistical significant preference for the country-to-country tender. From pan-European carrier we also might expect a preference for a pan-European tender. However, they too have a need to keep things as simple as possible. Some carriers fear that IKEA is too big to have a pan-European tender and that it will lead to non-comprehensible amounts of information. Multiple carriers suggested combining the advantages of having business opportunities and information comprehensibility by making tenders for larger areas of multiple countries. If a tender would be made on pan-European level, the need for well-structured information would be very high. Still, some carriers feel that a pan-European tender would be once a hard work, but with opportunities to get an access to synergies within a well developed network.

Figure 7-14: Cty-to-cty vs. pan-European level
**Bidding Functionality**

The four bidding functionalities that were discussed in chapter 5 were presented to the carriers in this question. The carriers were asked which bidding functionality(ies) has their preference in an e-tender or e-auction. Figure 7-15 illustrates the carriers’ preferences regarding the bidding functionalities in the “safe” environment of the e-tender. None of the carrier types has a statistically significant preference for either one of the bidding functionalities. When we compare this to the more dynamic environment of the e-auction (vide figure 7-16), it can be noted that the carriers’ preferences seem to shift in favour of on specification bidding.

![Figure 7-15: Bidding functionality in e-tender](image1)

Furthermore it seems that the conditional bidding is the least popular one among the carriers. The international carriers have in general a statistically significant preference for ‘on specification’ bidding. This is probably because in the questionnaire the conditional bidding functionality was presented as a means to acquire a set of lanes under the conditions of a discount. Discounting is naturally not something the carrier likes to do. Presented in a different way, the conditional bidding might have attracted more interest from the carriers.

![Figure 7-16: Bidding functionality in e-auction](image2)

**Creating Packages**

The different types of bidding functionality discussed in the previous paragraph sometimes include creating packages of lanes to bid on. The question is: “Who should create the packages to bid on?” On the one hand it should be the carrier that creates the packages so that they will fit the best into the carrier’s network. On the other hand one can say that it should be the shipper that creates the packages to avoid being stuck with uninteresting lanes as a result of cherry picking by the carrier. Both arguments are valid and most carriers agree that it should be both parties that are concerned with creating the packages to bid on. It was even named by some carriers as a common ground for effective co-operation. When the shipper involves the carrier, the packages can be more precise. In figure 7-17 it can be seen that no matter the type of carrier, a minimum of 65% feels that both carrier and shipper should be involved in creating packages of lanes to bids on. The national carriers, unlike the others, have not opted for package creating by carrier alone.

![Figure 7-17: Who should create packages to bid on?](image3)
7.4.1 Observations on Carriers’ Preferences regarding E-procurement Event Design

From this first part of the questionnaire the following observations can be made about the carriers’ preferences regarding e-procurement event design:

- Single sourcing or splitting the volume is depending from case to case and in the end it is the shipper’s decision.
- Most carriers like multiple bidding rounds in procurement events.
- Most carriers like to receive feedback which compares their position to the competitors. However, from the international carriers a considerable number prefers comparison to the best bid.
- Adding of extra time in e-auction is not liked by most carriers.
- Most carriers prefer an e-procurement event on country-to-country level above one on pan-European level.
- In case of an e-auction, the carrier’s preference shifts towards more simple bidding functionality.
- Most carriers think that both shipper and carrier should create packages to bid on.

7.5 Carriers’ Preferences regarding Co-operation

According to many carriers the e-tenders and e-auctions are a matter of winning some and loosing some. They have difficulties to see these transport purchasing events in the light of a long-lasting co-operative relationship. However, if one considers the shipper’s objective of network optimisation, it is very explicable to see a carrier loose business at one time or location to regain it at another, because networks change and therefore also optimal carrier allocation changes. From a shipper’s perspective it is clear that a co-operative partnership should still leave enough flexibility to respond to changing circumstances. This paragraph aims to establish the carrier’s idea of co-operation and partnership when it comes to a shipper-carrier relationship.

7.5.1 Co-operation and Partnership

**Added value**

Before starting to talk about the demands on co-operation, maybe the key issue in respect of this study is the question if there is also a benefit for the carrier in the first place. Luckily almost all carriers seem to think there is (vide figure 7-18). The questionnaire has shown that the carriers see enough potential for added value. The result is very outspoken. It is also a sign for IKEA that there is still a lot of room for improvement.

**Is there added value in a partnership with IKEA?**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>3</td>
</tr>
</tbody>
</table>

**Objective of Partnership**

**Question 8A:** “What is the most interesting part of performing services for IKEA for your company?”

**Question 8B:** “Our company sees added value in creating a partnership (not meaning any 4PL constructions) with IKEA.”

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Figure 7-18: Who should create packages to bid on?
Carriers also need shippers with big volumes to fill up capacity in their transport network and, as such, function as a stable factor in their network. The last reason is repositioning of empty equipment. Carriers are willing to sell transport capacity under the actual cost price when it allows them to reposition their equipment back in an area where they have customers and volumes to load. Figure 7-19 shows a statistical significant preference of the international carriers for using IKEA as a stable factor in their networks. The national and pan-European carriers do not have general preference for either one of the answers. For the pan-European carriers it is the mix of reasons that motivates them to do business with IKEA.

**Fields for Co-operations**

In figure 7-20 it can be seen that the carriers see potential for a co-operative relationship in the fields of development (developing alternative transport set-ups with the carrier and developing the size of the volume serviced by a carrier), performance (improving the performance by improving communication, visibility, routines, measurements etc), and planning (making planning more reliable and more flexible). Procurement (with efficient negotiations and insight in the offered routes and volumes), however, is according to the carrier not a field of transport management that offers potential for co-operation. This aversion for procurement as a field for co-operations was statistically significant for all carriers.

**Quality Rating**

It is remarkable that to the question whether or not IKEA should introduce a public quality rating system, such a high number of respondents answered ‘yes’ (vide figure 7-21). It shows that many carriers are very convinced about their own quality. A rating system made public (among contracted partners) is an opportunity for IKEA to create a stimulator for better quality and performance. Rating could take place on for instance environmental quality and operational performance. When the top 5 carriers obtain special privileges or higher freight rates, it will be stimulating for others.
**Distribution of Benefits**

For co-operation it is important that both parties benefit from the partnership. Question 8B did already establish that the majority of the carriers acknowledge that there is added value in partnership with IKEA. However, concerning the question of even distribution of benefits between shipper and carrier none of the carrier types have a general opinion. It seems like the carrier types are undecided on this question.

![Figure 7-22: Distribution of benefits](image)

**Co-operation and E-auctioning**

All most all carriers (international and pan-European with statistical significance) are interested in co-operating with IKEA, if IKEA were to purchase the transport services by means of an e-auction. Note: This still does not mean that they see the field of procurement itself as a potential field for co-operation (vide question 9, Fields for co-operation). Carriers that responded negative to this question did so with the reasons of price pressure. Some quotes taken from the questionnaire as examples: “E-auctioning suggests that price is everything and tends to exclude other aspects i.e. service”, “Service, performance, environmental standards, continuous improvement and others would become kind of senseless”, “Obsession with the lowest price undermines quality”, and “Given prices are based on contracted volumes with the railways for a certain period, mostly one year. If we would not achieve the agreed volume we would not be able to guarantee the offered rates, even for the volume shipped until that time.”

![Figure 7-23: Co-operation and e-auction](image)

**Growth Potential**

The offered bidding functionalities have enough potential for the carriers to grow their business with IKEA. In itself this is not a big surprise, because the current in force bidding functionality of IKEA (on specification bidding) also offers the carriers potential for growth. Still, some of the carriers replied negative (unfortunately for unknown reasons).

![Figure 7-24: Potential for growth](image)
**Better Insight**

One of the alleged benefits of e-procurement events for carriers is that it gives them better insight in the available routes and volumes of a shipper. The answers to questionnaire demonstrate that carriers do in fact agree that a better insight in the routes and volumes would incline them to attract a larger share of volume. Only a small minority says that they are satisfied with their current IKEA-volume or that insight does not determine the volume they want to service.

*Figure 7-25: Better insight in volume*

**Participation**

Most carriers would still participate in an e-tender or e-auction when they have not been nominated twice in a row. However, especially inter-national carriers ask for feedback on not being nominated. Only a small minority draws the conclusion after two unsuccessful tenders that they do not have a chance to gain some of the business.

*Figure 7-26: Participation*

**7.5.2 Prerequisites for Co-operation**

**Prerequisite for Co-operation**

The international and pan-European carriers give value to trust and a long term relationship. The international carriers have a statistical significant preference for long-term relationships. Especially with the pan-European carriers we see a more balanced out mix of trust, win-win potential and a long-term relationship as prerequisites for partnership.

*Figure 7-27: Prerequisites for co-operation*

**Insurance Policy**

To this question the international carriers stated a general statistically significant preference for having a contract with a certain time period. The national carriers' preference for a minimum volume is unfortunately not backed up by statistically significant data. The pan-European carriers have no statistical significant preference for either of the options.

*Figure 7-28: Insurance policy*
### Duration of Contract

Looking with more detail at the time period that is considered as minimum requirement for co-operation the answers show that the combined preferences for a contract based on certain duration, such as 1, 2 or 3 years, is preferred by the majority of respondents above a contract based on “Until Further Notice” (UFN). One of the possible reasons behind it is that the respondents have commitments with inter-modal carriers (business agreements). Still, the UFN contracts seem like a reasonable alternative for a lot of the carriers. In general there is not one specific time period which is preferred with statistical significance over the others.

*Figure 7-29: Preferred duration of contract*

### Start of Business

Most carriers prefer to start off a relationship with a new shipper or in a new region for a known shipper with volumes and lanes that suite their network. In itself this seems logical as carriers are always looking for optimisation of their networks. It could however also implicate that a carrier would prefer to start a co-operation with a considerable volume (because it suits the network), in stead of starting off small. A few of the international carriers are the only ones to indicate that they prefer to start off a new business relationship small to make it bigger step by step. Bundling routes or volumes in this start up stage would be more in the interest of the shipper.

*Figure 7-30: Start of business relationship*

### 7.5.3 Observations on Carriers’ Preferences regarding Co-operation

Form the subparagraphs in paragraph 7.5 the following observations can be made about carriers’ preferences regarding co-operation and partnership:

- Almost all carriers see added value in creating a partnership with IKEA.
- Most international carriers use IKEA volumes as a stable factor in their networks.
- Procurement is not popular among carriers as a field for co-operation.
- Almost all carriers think that IKEA should introduce a public quality rating system. They are willing to accept and adopt openness about key-performance figures.
- The carriers in general leave the answer to the question if benefits will be distributed evenly among shipper and carrier undecided.

Co-operation in relation to e-auctions

- Most carriers believe that co-operation is possible in case the shipper procures transport by means of an e-auction.
- Most carriers believe that the bid functionalities that were presented in the questionnaire offer enough possibilities to establish business growth.

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**Questionnaire Results**

**Question 10C:** "Which type of security is considered a minimal basis to start co-operations between shipper and carrier?"

**Question 12D:** "How would you prefer to start of a business relationship with a new shipper or in a new region for a known shipper?"
• Most carriers believe that an improved insight or visibility in the offered volumes will incline them to attract a larger share of volume.

• Most carriers would continue to participate in the next e-procurement event from the same shipper after not being rewarded twice on previous occasions. However, good feedback is important.

Prerequisites for co-operation

• Pan-European carriers give high priority to trust as a prerequisite for co-operation.

• As 'insurance policy' international carriers prefer have co-operation for a certain period of time.

• The combined preference of 1, 2, and 3 year contracts is higher than the preference for Until Further Notice (UFN) contracts.

• Most carriers like to start a business relationship with volumes that are suitable to their network.

7.6 Summary of observations

This paragraph extracts the most significant sub conclusions from the previous paragraphs. Further elaboration on the interpretation will be given in chapter 8. In appendix C a profile of the different carrier types (domestic, international and Pan-European Carriers) can be found that summarises the preference per carrier regarding all questions in the questionnaire.

• E-procurement of transport services

E-procurement of transport services is well accepted by the carriers. Out of the respondents 80% has had some kind of experience with e-procurement. Some of the carriers expect their turnover generated by e-procurement to increase significantly.

• Procurement part of partnership?

It is surprising to see that the large carriers are of the opinion that procurement tools should not be part of co-operation. On the one hand the carriers acknowledge the argument that it offers them better visibility in the goods flows doesn’t outweigh the fear of loosing personal contact. Large carriers want to develop business on a larger scale, based on personal communication, not on numbers and figures. Smaller carriers more often see the e-procurement as an opportunity for entry in different markets to establish quick growth.

This chapter has presented the reader with a representation of the results of the questionnaire. It established the demands and desires of the carriers regarding e-tendering and e-auctioning of transport services. The next chapter will combine and interpret these individual results to create a more profound understanding of what this actually means for IKEA’s transport organisation.
8 Interpretation of Questionnaire’s Results for IKEA

When the carrier’s wishes and desires concerning e-procurement are taken into account and combined with the requirements of IKEA on transport capacity purchasing, an e-procurement tool can be constructed and put in effect that has the support of both parties. Therefore this chapter aims to give an interpretation of the questionnaire results from the previous chapter.

8.1 Introduction

This chapter focuses on interesting similarities and dissimilarities in the results of the questionnaire and makes observations and/or interpretations of the consequences of these for IKEA. The similarities, dissimilarities, observations and interpretations are constructed around different themes derived from the questionnaire.

Based on this, in chapter 9 a suggestion will be presented on how to design and implement a possible Virtual Organisation on IKEA’s Transport Organisation and, as part of that, a specific advice on how to design the e-procurement event to be eventually accepted by the carrier. An important prerequisite for IKEA is of course to remain an attractive business partner.

8.2 Similarities, dissimilarities and consequences for IKEA

This paragraph will address interesting similarities and dissimilarities in the preferences of the carriers regarding themes derived from the questionnaire. The themes that provoked similar or rather dissimilar answers offer the best learning opportunities for IKEA. The consequences of the stated preferences for IKEA are explained from the perspective of carrier size and the power balance in the relationship and supported by the insights gained by interviews.

Similarities, dissimilarities and consequences for IKEA will be related to the following themes:

- Size of tender
- Bidding functionality
- Bidding rounds
- Prerequisites for partnership

8.2.1 Size of tender

Most of the carriers, including the pan-European carriers, seem to agree on the fact that an IKEA tender should be on a country-to-country level. (The data from the questionnaire does not offer statistical significance here, but there seems to be a tendency in this direction). This is a rather surprising result at first sight, but from interviews with pane-
European carriers it becomes apparent that even the pan-European carriers are not ready to approach the business from an overall integrated pan-European viewpoint (vide appendix I: Interview VOS Logistics). And e-procurement events on a Pan-European scale will only work when carriers are able to deploy their assets efficiently on a pan-European scale. Even the largest road carriers today steer their business from country-to-country perspective. This has a lot to do with the way in which these carriers are organised. Most pan-European and also the large international carriers are divided in individual business units operating part of the company wide fleet on country-to-country relations. These setups have to be considered in the historic perspective of the fact that Europe was not (and is still not) one region with free labour. But with the progressing unification of Europe, this will one day change. There is a tendency among pan-European carriers to start developing systems to optimise the deployment of their total European fleets (in stead of optimising the different parts individually; vide interview in appendix J: Interview DHL). These systems are at this point still in a development phase and only used by some advanced carriers on a limited scale. However, these developments are very interesting for IKEA because once such developments will be implemented on a larger scale, they will possibly change the way large international and pan-European carriers approach their business. They will strive for optimisation by reducing the empty mileage of their fleet with own volume, in stead of volumes from spot markets.

This offers potential benefits for both shipper and carrier, but also sets two important preconditions. The interdependencies in the networks will become more important and the need for agreements which facilitate this will rise accordingly. Also the transport procurement type and the bidding functionality (vide paragraph 5.2) used by the shipper in its e-procurement event will have to be able to handle interdependent information. IKEA’s e-procurement event can help the carrier by offering visibility in the routes and volumes on a pan-European scale.

8.2.2 Bidding Functionality

It can be concluded that if IKEA follows the preferences from the carriers concerning the e-tender/ e-auction tool functionality, the result would not differ too much from the current way of purchasing transports within IKEA. Some of the large carriers, however, have a preference for additional bidding functionality.

The additional bidding functionalities (conditional bidding & combinatorial bidding; vide also chapter 5, paragraph 2) that can be incorporated in an e-procurement event give the carrier the opportunity to incorporate constraints in his bidding. This can be very useful if the focus is not on individual routes and lanes, but on the bundled volumes and packages of routes in order to implement large scale, more efficient transport solutions, or to create loops of follow-on routes from one shipper. Using bidding functionalities like these creates dependencies in the network. How to deal with that? Should it be a carrier risk or an IKEA risk, or can the risk be distributed over both parties? A general preference for such bidding functionalities could imply that IKEA needs to alter its purchasing procedure.

- Creating packages

Most carriers are of the opinion that creating packages to bid on is something that should be done by both carrier and shipper, because this should in the end bring the best results to both parties. The carriers know best how to use the packages to optimise their own networks enabling them to reduce costs and IKEA is best served with the attractive prices resulting from this. However, IKEA should also make sure that it does not get left behind with all the unattractive routes. In this reasoning both parties must have a say in creating the packages (vide appendix D: Interview with Ewals Cargo Care). Evaluating all different packages that could emerge from such a setup would be impracticable if manual work. The application of a tender tool offers the benefit of easy comparison of different

Interpretation of Questionnaire’s Results for IKEA
scenarios. This way the shipper can find the optimal allocation of carriers to routes and volumes. Working with packages of routes (for the benefit of optimal price or better performance) however, has some serious implications on the business relation with the carrier. Creating packages of routes is creating dependencies between routes. In case of follow-on routes, it makes the shipper partly responsible for the quality of service at the next loading place. In general, when the distribution matrix changes in such a way that the carrier is no longer able to service this route, the carrier could be forced to give up all routes in the package. The routes can be offered to the transport market by means of an e-procurement event, which will allow for new scenarios to be made. It is still the question if this would simplify things for IKEA? There must be very clear agreements that protect the interest of both parties. More research is needed here. How are other shippers organising this?

- Single sourcing versus splitting the volume
The opposite of creating packages of several routes handled by one carrier is to split the volume of one route over more carriers. As was already mentioned in chapter 7.4, there are good reasons imaginable from IKEA’s point of view to opt for either one of the two options: single sourcing and splitting the volume. From carriers’ point of view, however, the pan-European carriers have clearly a different attitude towards this dilemma than the international carriers. Regardless of the specific circumstances (that do matter also in the eyes of the pan-European carriers) they are in favour of single sourcing, and it seems that they are more willing to invest in a unique relationship with the shipper than the international carriers that seem to have more risk aversive attitude.

8.2.3 Bidding rounds
On the scale of “single round, multiple rounds, continuous bidding” in general most carriers opt for the alternative with multiple bidding rounds. The carriers that prefer the multiple bid rounds, like to use the opportunity to get a sense of the market. However, 20% of the pan-European carriers and 30% of the international carriers prefer a single bidding round to give a straight forward best price. These carriers try to build the relationship more on trust.

The choice between bidding in a single round or in multiple rounds presents IKEA with a bit of a dilemma. On one hand bidding multiple bid rounds gives IKEA more opportunities to secure good prices (which could also be secured by doing more bench marks). On the other hand bidding in a single round gives perhaps more common ground to build a trusted relationship and probably saves a lot of work on both sides.

- Type of feedback
In general the e-procurement events of other shippers apply one of two different types of feedback to the carrier. The carriers were requested to state their preference for either one of them to find if there is a general tendency for one of the alternatives. From the results it appears that the carriers have different preferences when it comes to the type of feedback. Most of the international carrier seems to aim for best bid, while the national and pan-European carriers are interested in ranking among the top 3. It could be important for IKEA to know more about the motives of the different carriers in this respect, when designing the transport e-procurement event.

8.2.4 Prerequisites for partnership
- Start of business
All carriers have clear preference to start off a business relationship with a shipper with suitable (not necessarily small) volume. This underlines their need for network optimisation. The carrier seeks volume that suits best to his existing network. The carrier will be able to deliver better performance on routes and volumes that suits well in its network. To try and find the best suiting volume is therefore contributing to good
performance. This implies that “switching” (vide also chapter 3, paragraph 4) is a realistic possibility in transport networks. The start-up of new business between shipper and carrier does not necessarily have to be small in nature as long as it fits both parties. The e-procurement event can be of service to establish that fit.

- **Co-operation**
According to the carriers; real co-operation lies in development. The e-procurement tool should facilitate the transport purchasers in developing the business together with their carriers by increasing the visibility in the available routes and volumes. The co-operation is in the fact that IKEA does not look at price per lane, but allows the carrier to make a bit more profit on some lanes in order to make the less attractive routes in the setup also run well. In other words: to look at the total picture. The e-procurement tool will help to make better judgement about packages of routes and combinations of lanes, which is beneficial to IKEA, but also to the carrier (win-win situation). In which direction the co-operation should evolve is different for every carrier. Some carriers are interested in development in the direction of total market coverage, because it makes them less sensitive for matrix changes (vide appendix H: Interview with carrier Van Dieren Maritime) Other carriers are unwilling to go for total market coverage, because it decreases their internal flexibility.

- **Participation**
After two unsuccessful e-auctions with the same shipper, the international carrier will in only 50% of the cases definitely participate again in a next e-auction with the same shipper. It seems therefore much more difficult to keep the attention of the international carriers as opposed to that of the national and pan-European carriers. A pan-European carrier would presumably still participate to maintain its relationship with the shipper. A national carrier still participates after two unsuccessful attempts mainly to try and make profit. The international carriers are because of their number and (frequently) size a very important group for IKEA.

- **Trust**
An important notice to end this paragraph with is that the carriers generally see the potential of the e-procurement event. Although they are unsure about the even distribution of the benefits among shipper and carrier, they do agree on the potential for growth an IKEA organised e-procurement event could offer for their company and also that a better insight in the IKEA-volumes will allow them to attract more volume during the e-procurement event. They also seem to agree on the fact that this is possible in a co-operative environment, even if the e-procurement event of IKEA’s choice would be an e-auction. Probably this stipulates a great trust in IKEA’s transport organisation, because the e-auction in itself is in general not regarded by the carrier as a very co-operative approach to the business from the shipper.

In general the carriers also seem to have great trust in their own capabilities as most of them are in favour of having a ‘public’ performance follow up. They feel confident enough to have their own performance compared with that of other (competing) carriers. The advantage of such a system for IKEA could be that it can make a better argument against underperforming carriers. The downside would be that IKEA has to treat all carriers completely equal (same penalty for the same mistake). And a precondition for such ‘public’ performance rating is that the performance is measured completely equally at all business units.

Because the carriers are different in their preferences regarding the e-procurement of transport services and co-operation between shipper and carrier, and (consequently) in their attitude towards the business, it is up to IKEA to make the best possible use out of that. This means to treat and use the different carrier types in such a way that IKEA’s goals are achieved.
8.3 Observations

From the interpretations made in the previous paragraphs we can make some observations on general characteristics per carrier type:

National carriers
Because of the limited number of national carriers that participated in the questionnaire it is not possible to make general remarks with statistical significance about national carriers. It seems however, that national carriers tend most to opportunism (vide adding of extra time, duration of contract, win-win situations as a prerequisite for co-operation). Short term relations are acceptable to the national carrier. A guaranteed volume is valued more for security than a long term contract. In this way the national carrier’s profile fits best to what is needed for the so-called “switching” principle.

International carriers
International carriers operate in a highly competitive environment since the international transport market is under heavy pressure of eastern-European competition. The international carrier therefore tends to reduce risks. International and pan-European carriers are willing to invest in a long-term relationship based on trust. It was significantly shown that the international carrier is depending heavily on long-term partnership. It confirms the risk aversion that was noticed earlier. The international and pan-European carriers strive for stability. Stability can be generated by trust, long-term relationships and mutual investments. The stability allows these carriers to increase efficiency and belonging profit.

Pan-European carriers
Pan-European carriers tend to look for the long term. They operate in a very competitive environment, just like the international carriers, but they have learned to look at their customers business as a whole to see the overall picture. Their aim is to have a long term relationship with the shipper based on trust. They are looking for a good mix of trust, win-win situations and long-term co-operations.
Interpretation of Questionnaire’s Results for IKEA
9 Implications of Questionnaire Results and VO-theory for IKEA

Following on the discussion points in the previous chapter a further analysis will be given by delving deeper into certain aspects for a possible implementation of the Virtual Organisation on IKEA’s Transport organisation. This suggested implementation has resulted from the combination of practice from the questionnaire with the theory on Virtual Organisations and on purchasing of transport services. This chapter contains specific directions for the potential creation of the Virtual Web, the Virtual Corporation and the design of the e-procurement event. Conclusions and recommendations will follow in chapter 10.

9.1 Introduction

This chapter forms the synergy of the theory and practice that are the building blocks of this thesis. The literature study on Virtual Organisations and on transport purchasing combined with the market survey in the form of a questionnaire and several interviews have made it possible to propose a solution to the question that was presented as the main research question of this thesis as stipulated in chapter 1.

For easy reference the main research question is depicted hereunder in a highlighted box:

How can the concept of virtual organised relationships be implemented by IKEA in the organisation of its transport relations?

9.2 Create the Virtual Web

Part of the implementation plan should be the creation of a Virtual Web (VW) that will provide IKEA with a network of back-up solutions. The weak spots in the existing ‘carrier base’ related to the different markets in which IKEA has its activities should be identified. It was already mentioned in chapter 3. Identifying satisfiers does not stop once all tasks are satisfied. It is an ongoing process to keep up-to-date information on new developments in the field of potential satisfiers and on technological developments.

The VW should contain carriers that have specific strengths that can support IKEA when the need arises. This requires a good market knowledge, which is the task of the Business Developers (BD) today, but the suggestion in this thesis is to take it a step further by not only identifying potential carriers, but by also preparing potential carriers in detail about how doing business with IKEA works. These carriers should be made aware of IKEA’s standard operational procedures, working routines, order and settlement systems, and performance requirements. And they should even have quoted their rates on certain foreseeable routes and volumes (although prices may change over time). This may seem to be a waste of valuable effort at first, but in the end it will enable quick switching of
Carriers. It helps in this respect that IKEA has already standardised a lot of its transport related procedures.

If somewhere a problem arises which jeopardises the transport capacity, the current carrier could be switched for a back-up carrier from the virtual web. The additional gain for IKEA is that having a Virtual Web in place, fosters competitiveness and keeps the carriers that are part of the Virtual Corporation on their toes to perform. IKEA is using already a similar principle among its product suppliers.

9.3 Create the Virtual Corporation

A Virtual Corporation should offer potential for closer co-operation than the current setup of IKEA. Within the Virtual Corporation (the network of IKEA and its contracted carriers) a closer co-operation could be stimulated by the following:

1. Reviewed Transport Agreement Package
The backbone of the Virtual Corporation should be a reviewed Transport Agreement that offers a framework for closer co-operation with certain selected carriers. Long-term contracts (1, 2, or 3 years) are desired by many of the carriers in this research that offer inter-modal services. For these services the carriers need long-term contracts to secure the relationship with their service provider (e.g. the rail-operator) and/or for investments in expensive equipment. Road transportation equipment is a much more flexible asset. For the large carriers it is therefore no problem to perform services under Until Further Notice (UFN) contract. Their investment in equipment is not based on one client only but on a whole range of clients.

In order to establish a closer relationship with a higher level of commitment IKEA could offer commitment in the terms of volume or growth guarantees independent of specific routes. Analogue to the ocean transport purchasing model, IKEA could create long term relations with big pan-European carriers and be willing to invest together in the setups to get real partnership and still keep flexibility in the way that volume is fixed, but location is not, thereby remaining in the position to optimise the network on a regular basis. The benefit would be that the discussions between IKEA and carrier will be placed in the context of growing together. It should be mentioned that not all carriers qualify for such an approach to the business by IKEA. As we have seen earlier the UFN contracts suite very well to the business relationship IKEA has with national carriers.

2. Selecting the carriers for future partnership
IKEA should select the carriers that it sees as potential for future development, and as such qualify for the above. Developing the business together only works if there is a perfect match between the culture and the ambition of both companies. The most important criteria in this respect should therefore be the business idea and the strategy of the carrier and its geographical coverage. Next to this also criteria such as company structure and size, financial situation, existing co-operation and history with IKEA, capacity and mode of transport should be considered.

Because the selected carriers should represent excellent service, they should be allowed certain privileges, such as a price advantage during e-procurement events, in order to stimulate their development over others. The e-procurement tool will be able to assess the exact cost impact of such a privilege, which can be weighed against the costs of maintaining an additional relationship with one carrier and the costs of receiving bad service.
3. Strategic purchasing
In order to move away from the competitive approach that IKEA followed until today in its transport purchasing activities (vide paragraph 2.6) and to stimulate a more co-operative approach, IKEA could establish a strategic purchasing department that takes active participation in the purchasing process. That means that it should have responsibility (contract ownership) for the selected strategic carriers and strategic purchasers that develop the business with these carriers. The internal competition that is part of the current purchasing process could then be replaced by an integral approach to develop the selected carrier with a view on the complete business between IKEA and that carrier (by means of a strategic business development plan) and with equal efforts in all areas.

4. Strategic business development plans
There should be a clear focus on co-operation between carrier and IKEA. This will be established by means of strategic business development plans, which will give more direction to the Virtual Corporation of IKEA and its network of carriers. The development plan is essential to create not only direction, but also trust for both parties, and also can be used as a lever to improve the performance of the carrier.

Such strategic business development plans should contain directions on growth development, environmental development, transport setup development, intermodal development (if applicable) and equipment development (to comply with latest safety standards).

9.4 Design the E-procurement Event
The findings from the questionnaire should now be translated into a design for the e-procurement event that suits the needs and requirements of first and foremost IKEA, but also of the participating carriers and does right to their different types. This paragraph describes the e-procurement event that IKEA should apply to meet the carriers’ preferences and IKEA’s requirements to the transport business. For easy reference to paragraph 5.3.2, this paragraph is constructed around the same six dimensions of procurement event design:

Open or closed Participation
The choice between open or close participation is one that was already made beforehand, by not taking into account open participation as an alternative in the questionnaire. For IKEA an open participation procurement event is not an option, because the company is not looking for a screening of the market but for realignment and optimisation. An open participation e-procurement event also would not meet the goal of carrier reduction. Form the carriers’ point of view, closed participation is also the preferred alternative, because it will make it easier for them to distinguish themselves from the competition. Especially some of the national carriers also stated that for them a certain level of exclusiveness is also a prerequisite for co-operation. Therefore IKEA should apply a closed participation e-procurement event.

Single versus multiple rounds
Although literature suggests otherwise (vide chapter 5, Sheffi, 2004) most carriers that participated in the questionnaire clearly prefer multiple rounds of bidding during an e-procurement event. As this is also IKEA’s preferred setup it should not be changed.

Real-time rate visibility
The choice for multiple bidding rounds rules out real-time rate visibility (or continuous bidding). With real-time rate visibility the carriers would feel too much pressure on prices. The focus would be on price instead of on quality and the carriers would feel forced to
Implications of Questionnaire Results and VO-theory for IKEA

bid below their minimum and in the end they would not be able to perform. The answers from the questionnaire also suggest strongly against real-time rate visibility.

Single Sourcing versus split Lanes
Most carriers opted for single sourcing (be it that the International carriers where divided on the subject), but acknowledged that in the end it is the decision of IKEA to decide between single sourcing and splitting the volume. The right choice depends on the specific route and its volume and should be made separate in each individual case. In current tenders KEA already allows the carriers to state their maximum capacity on route level. It allows IKEA to create new possible configurations with multiple carriers on a route. This automatically also creates redundancy in the network, which could be used for backup solutions.

Comprehensible data
A procurement event on a pan-European level would ask for a big effort on both IKEA’s and the carriers’ side, but it offers opportunities to get an access to synergies within a well developed network. The risk of information overflow and loss of quality are the most important objections of the carriers, but under the condition that the e-procurement event is well-structured and presented in a carrier friendly format (by using gating and filter options) it is possible to keep the level of data comprehensible. The real benefit of having a pan-European spanning procurement event, however, will come only when carriers also start to deploy their fleets on pan-European level.

Bidding functionality
Out of the discussed bidding functionalities, all should be applied in IKEA’s procurement event except for combinatorial bidding. Neither IKEA nor the carriers in general are prepared for the dependencies that it creates due to combined follow-on routes. The dependencies that originate from the combinatorial bidding functionality cannot be properly assessed yet by IKEA and therefore cannot be fitted in renewed transport agreements.

The transport purchasing process followed by IKEA today by means of its transport tenders (supported by the “Transport Tender Tool”) does not essentially differ from the e-procurement event as it is suggested. It means that IKEA is purchasing transport services in line with the preferences of the carriers. There are, however, some improvements that can be made to the usage of the “Transport Tender Tool”, because it is not yet being used to full of its potential (vide paragraph 10.4 Recommendations).

An e-procurement event/tool (how well designed it may be) can never replace the human contact between shipper and carrier. It is in the human contact that the relation is really manifested. Therefore it is of great importance that the e-procurement tool is incorporated in the organisational structure such as described in the two previous paragraphs.

9.5 Summary

The concept of virtual organised relationships can be implemented by IKEA in the organisation of its transport relations by creating a Virtual Web, a Virtual Corporation and a dynamic assignment tool in the form of an e-procurement event as described in this chapter. IKEA already applies a tool that is in line with the preferences of the carriers, but it could still make better use out of it.
Conclusions and Recommendations

The goal of this research was to find out whether or not virtual organised transport relations is something that IKEA should strive for (with hindsight to the organisation’s main objective of high availability against lowest possible costs). Therefore this research was set up to provide a better insight and understanding of the desires of the carrier considering the virtual organisation of relations and what impact that would have on the transport organisation of IKEA. The combination of gained theoretic knowledge during writing of this document, the analysed results from the dispatched questionnaire to carriers together with some experts’ opinions obtained by interviews leads to below conclusions and recommendations.

Introduction

This chapter presents the conclusions and recommendations. Part of IKEA’s future strategy is to increase the logistical efficiency throughout the whole supply chain and to guarantee a good and stable service level against reduced logistic costs. Furthermore IKEA wants to respond agile, flexible and quick to the volatile market (vide paragraph 2.1.4 Future Strategy). As we have been able to see during this thesis the Virtual Organisation fits perfectly to these ambitions. Therefore it can be assumed that the commercial will is available in the present organisation to take into consideration the following conclusions and recommendations.

Endeavours are made to answer the research question presented in chapter 1, as extensively as possible within the context of this research. The conclusions and recommendations are interesting not only for IKEA and other organisations active in the field of transportation, but possibly also for companies that start to outsource relationships with service providers.

For easy reference the main research question and the sub research questions, initially introduced in the first chapter, are represented below:

For easy reference the main research question is depicted again hereunder in a highlighted box:

How can the concept of virtual organised relationships be implemented by IKEA in the organisation of its transport relations?

The following sub questions will help answering the main question.

A) Generic sub questions:
   A1) What are virtual organised relationships?
   A2) How is “virtual organising of relationships” embedded in the theory of traditional organisational structures?
   A3) How can “virtual organised relationships” be reflected in the shipper-carrier relationships?
B) Specific sub questions for IKEA:
B1) How is IKEA organising the fulfilment of its present need for transportation?
B2) What are IKEA’s criteria and demands on relationships with carriers in respect to purchasing and operating transport capacity?
B3) What are IKEA’s carriers’ criteria and demands on their relationships with IKEA in respect to purchasing and operating transport capacity?
B4) What are the consequences of virtual organised relationships between shipper and carrier for IKEA’s transport business?

10.2 Answering the main Research Question with sub Questions

The answer to the main research question was addressed in chapter 9 where a suggestion was made for a Virtual Organisation as it could be applied on IKEA’s transport processes. In this concluding chapter first the sub questions will be answered and then an advice will be formulated in the form of an implementation schedule.

10.2.1 Answers to the generic sub questions:
A1) What are virtual organised relationships?
Literature offers many different interpretations of the Virtual Organisation (VO). It is often referred to as some kind of network organisation. Although Virtual Organisations have a link to networks, in my opinion they are not network organisations as such. Therefore, the Virtual Organisation in this thesis is defined by its core-element; the virtual organised relationship as Business Technology (BT) to cut down Operational Expenditure (OPEX).

The VO is a collection of virtual organised relations that together (enabled by the “switching-principle”) form a competitive and at the same time co-operative environment through Virtual Web (VW) and Virtual Corporation (VC). When placed next to the organisation of transport, there is a clear relevance of the VO model for the purchasing of transport services.

Virtual Organising of relationships means on one side to co-operate as partners and on the other side to create a competitive environment within a network of partners by being able to apply the switching principle on the relationships. The switching principle was highlighted in chapter 3.

A2) How is “virtual organising of relationships” embedded in the theory of traditional organisational structures?
The answer to the previous question already gave away part of the answer to this question. The Virtual Organisation, as collection of virtual organised relationships, is not classifiable in the range of traditional organisational structures, such as: the ad-hoc organisation, the professional organisation or the network organisation. Virtual organising is not a specific organisational form, but rather an attribute of relations in a Virtual Organisation (vide chapter 3).

The Virtual Organisation is the natural successor of more traditional Supply Chain Management. SCM and VO have a high intensity of co-operation in common, but in the VO this can take place based on a short-term as well as a long-term agreement, whereas in SCM the long-term agreement is the standard (vide chapter 4).
A3) How can “virtual organised relationships” be reflected in the shipper-carrier relationships?

Three important prerequisites for Virtual Organisation can be formulated:

1) The organisation that initiates the Virtual Organisation needs to be able to create or purchase the tools that will support the dynamic assignment -“the controlling mechanism”- of the Virtual Organisation.

2) There must be a network of complementary business relations available presently or in future.

3) There must be a certain level of trust in the network of business relations that enables the exchange of sensitive information.

Following the definition of Virtual Organising in question 2, Virtual Organising can be reflected in a shipper-carrier relation by applying a proper switching mechanism or switching tool. By applying the “Switching-principle” on the transport processes of IKEA it should lead to an organisation that exhibits the characteristics of a Virtual Organisation. There is an evident parallel here with the purchase function in the transport processes. E-procurement tools are a method to quickly assign concrete satisfiers to the abstract requirements of a task.

Further it is noteworthy to mention that the “switching-principle” can be used when better satisfiers appear on the market to fulfil the needs. It can also be used when partners currently in the VO fail to live up to their responsibilities. As such it creates also a competitive environment which stimulates the performance of the carriers that are part of the Virtual Corporation.

10.2.2 Answers to specific sub questions for IKEA:

B1) How is IKEA organising the fulfilment of its need for transportation?

The big, fast-growing IKEA Company with an extensive and complex distribution network owns and controls a large part of its own supply chain. The Transport Department and the Transport Organisation within IKEA (with a high level of transport knowledge in-house) play an important part in this concept. They are subject to a diversity of internal and external demands, which causes the Transport Department to have to balance transport capacity, price and service in order to get the best solutions.

IKEA tenders the transport capacity need under a number of pre-selected, known carriers. The business model IKEA uses includes an agreement package that sets legal, social & environmental and payment standards. The core of the agreement determines the pricing (on route-level) and the operational performance. The contract term is “until further notice” (UFN) with the exception of some long-term agreements. IKEA uses a variety of small, mid and large-sized carriers (with different organisational setups) as direct contracted partners. The required transport capacity is secured based on volume forecasts per destination.

In its ‘business tool’ (vide paragraph 2.4.3) IKEA formulates the need for competitiveness and co-operation, which are also characteristics of the VO, depending on the given situation. The current relationship model with the carriers, however, puts too much focus on competitiveness.
B2) What are IKEA’s criteria and demands on relationships with carriers in respect to purchasing and operating transport capacity?
IKEA wants to receive transport services according to the required service levels against lowest possible costs. IKEA has some very clearly stated demands on service and performance towards its carriers, like for instance arrival-on-time performance, pick-up on time performance and also the IWAY-requirements (vide paragraph 2.5).

Next to these transport related criteria and demands, IKEA expects the carriers to be able to grow their business together with IKEA. As IKEA is a fast growing company, it needs partners that can accommodate that growth in order to avoid having to end up with double the number of carriers in a few years time. Therefore growth-potential as well as a certain size are very important. Because of the size of IKEA’s transport volumes, the carriers must also have a certain magnitude in order to avoid an unhealthy business relation.

Finally, IKEA is depending on efficient and effective communication channels to its carriers. Often meaning that there should be a key-account on the carrier’s side that is able to overlook all IKEA-business the carriers is responsible for on European (or global) scale.

B3) What are IKEA’s carriers’ criteria and demands on their relationships with IKEA in respect to purchasing and operating transport capacity?
First of all, one of the most vital parts of making a transport company successful is to be able to optimise the efficiency of the equipment. This in the end influences the willingness to service certain customers more than the way in which they purchase the service. Still, the type of procurement procedure the shipper uses to purchase the service from the carrier determines for a great deal the available potential to make a good operation for the customer and how much the carrier can gain from it.

The results from the questionnaire revealed the carriers’ preferences regarding e-procurement event design. They stated their preferences concerning a number of design parameters, which gives IKEA a good understanding of how the carriers would like to the e-procurement event to be. General tendencies are: the carriers prefer the e-tender over the e-auction, some things are/remain the choice of the shipper (single sourcing versus splitting volume), there is a risk of incomprehensible amounts of data, in e-tendering there is a better opportunity to implement more complex bidding functionalities and creating packages should be done in co-operation between shipper and carrier.

In general the carriers are of the opinion that there is added value in co-operating with IKEA. They also see possibilities for co-operation and growth with IKEA. A better insight in the volumes of IKEA would encourage most carriers to attract a larger share to serve as stable factor in the existing network. Most carriers are willing to participate in e-procurement events even if they were not nominated in previous e-procurement events (this partly suggests that “switching” is acceptable for a carrier). Most carriers like to start up new businesses with suitable volumes, which either can be small or large, as long as they fit in the existing network, which is a positive indication for “switching” because apparently the match between the shipper’s and carrier’s networks is most important when starting new business. As prerequisite for partnership there is a strong tendency towards building long-term security.
B4) What are the consequences of virtual organised relationships between shipper and carrier for IKEA’s transport business?

First of all, as part of the consequences for IKEA it should be considered that a Virtual Web of complementary relationships must be created, which is an activity that demands time and resources. The tool that takes care of dynamic assignment of satisfiers to a task is already available in the Transport Tender Tool, which offers all the discussed possibilities regarding bidding functionality.

Increased dependency due to sophisticated bidding functionality is a threat and an opportunity. In the beginning IKEA should not strive for network optimisation by means of the combinatorial bidding functionality, because both IKEA and the carriers are not ready for it yet.

Applying the “switching” principle seems not to scare the carriers away. When it is supported by arguments the carriers can accept it. A reason for switching in most cases will be underperformance by the carrier. Therefore, the portrayed willingness by the carriers to be open about achieved quality of performance is an indication that supports the previous statement. Also the willingness of carriers to quote on IKEA business after not having gained any new business in the last two events supports the thought that switching might be a successful strategy.

The Virtual Corporation should be given shape by means of a reviewed Transport Agreement package that enables closer co-operation between IKEA and selected carriers for future partnership. A selection needs to be done mainly on corporate culture and strategy of the carrier. A good match with IKEA here indicates good chances on a successful partnership. The partnership relation should be under responsibility of a strategic purchase function in order to protect the mutual interest in long-term development that is supported by development plans.

A very important notification is the fact that especially on the suggested high level of co-operation between IKEA’s strategic purchase function and carrier a certain amount of trust is required in the business relations that enable the exchange of sensitive information in order to stimulate development. This also includes the need for: one strategy and one ‘face’ to the carrier, one way of performance measurement and a certain commitment needed from IKEA.

10.3 Conclusions

After answering the research questions in the previous paragraph the following conclusions can be drawn that will hopefully support IKEA in its future endeavours.

1. There is a need to stimulate a co-operative but at the same time competitive environment among the network of carriers that perform services for IKEA.

The most important conclusion was already implicitly formulated by IKEA itself when it created its ‘transport business tool’. The co-operative and at the same time competitive environment is needed to safeguard both competitive prices and good quality of service for IKEA. Until now the focus in IKEA has been mainly on creating a competitive environment and not so much on creating a co-operative environment.

Changing circumstances in the marketplace have led to the need for a different, more flexible and adaptable way of organising and managing the supply chain. This means also the relationship with the carrier must be adequate to handle this flexible and adaptable character. The VO promises a solution for this need.
2. The requirements to create a VO are: a dynamic assignment tool, a network of complementary relations and trust.

An e-procurement tool is in fact a dynamic assignment tool or “switching tool”. A Virtual Web is a network of complementary relations that provides redundancy and back up solutions. Trust is generated by development and commitment.

3. The risks for IKEA of starting a VO are limited.

The risks of starting a VO are limited for IKEA due to three factors. The first one is the fact that the Virtual Web will provide a network of back up solutions. The second one is the fact that with certain carriers (the strategic carriers) closer partnerships will be formed. Closer partnership creates dependency, which goes both ways between shipper and carrier and can be used to an advantage by both parties.

Strategic partnerships in a VO can only be started with a limited number of carriers. Partnership relations with a limited number of carriers imply a higher mutual dependency. But there will of course always remain non-strategic carriers. The ideal number of partners is not known at this stage.

The third one is the fact that carriers will accept the switching principle. Also see the next conclusion.

4. Carriers will accept the switching principle.

The questionnaire and interview results suggest there are three main indicators for the carriers’ acceptance of the “switching” principle.

The number one argument for carriers to participate in a tender is the reputation of the shipper. Many carriers want to do transport business for IKEA. Most of them will even participate in an e-procurement event for the third time after not winning business twice. Many carriers live by the “you win some, you loose some”-principle. Loss of business due to matrix changes or in case of miss-performance is an acceptable fact of life for the carriers (vide appendices H, I and J). It is, however, important to give good feedback and keep the carriers involved. Relationship management to generate and maintain trust are very important. Finally, the carrier’s first priority is to optimise its own network. Most of them want to start up new business with suitable volumes. Switching can help here as well, even though the first priority for the shipper is of course to optimise his own network and not that of the carrier.

5. IKEA has a high level of transport knowledge in-house.

IKEA is one of the largest buyers of transport services on the European market. It has always bought the needed transport services under its own administration, in which it therefore gained a lot of experience. The transport department is a mature organisation that controls and improves the transport processes.

6. The IKEA “Transport Tender Tool” matches carrier preferences, but is not used to full potential.

The transport tenders and “Transport Tender Tool” IKEA uses today do not essentially differ from the ‘ideal’ e-procurement event and e-procurement tool according to the preferences of the carriers. It means that IKEA is purchasing transport services in line with the preferences of the carriers.

IKEA could, however, still make better use out of its “Transport Tender Tool” by incorporating the value of good performance in the decision making process and by aligning the scenario building functionality with strategic business development plans thereby focusing more on creating packages of routes and volumes.
7. The e-procurement tool is supporting but not replacing good business development.
The e-procurement tool is part of the VO, which is based among other things on trust. Since the VO is such an abstract phenomenon it should be underlined that the human factor plays an important role in this concept. Company culture of the parties involved should match and the human contact should be based on mutual confidence. Good business development involves working together with the carrier to explore opportunities. This can not be replaced by any system tool. In other words, the transport business is a business which highly depends on good relations.

8. In the big world of IKEA many aspects need further investigation and/or improvement before the VO can be successful.
Due to the complexity of the many referred aspects further investigations are recommended below. The recommendations will elucidate the following items, but not limited to: setup of taskforce and Virtual Web, the scope of responsibility and the mandate of the strategic purchaser, review the Transport Agreement package, improvement of performance data, and investigation into the supply chain.

10.4 Recommendations (Scope of work)
From the conclusions in the previous paragraph it can be derived that the Virtual Organisation is something which IKEA can strive for, without having to fear for the security of the business. The recommendation of this report is that IKEA in fact should strive for implementation of the Virtual Organisation on its transport organisation, because it is a promising tool to control the cost development and secure business on the long term. The VO strengthens IKEA’s ability to create a co-operative, but at the same time competitive environment with the objective of reducing costs and increasing quality of service. It is recommended that IKEA implements the Virtual Organisation on its transport processes by creating the Virtual Web, the Virtual Corporation and by improving the usage of the e-procurement tool (as described in chapter 9). The VO should be implemented by and from the standing organisation by means of a taskforce in order to get involvement and commitment of IKEA’s organisation. Moreover to profit from the available knowledge of transport and logistics and of the organisation itself. This should result in a pilot project.

Hereunder the main parts that build up the Virtual Organisation are highlighted once more as well as the actions and questions that IKEA should focus on during implementation.

Establishment of budget, time schedule and taskforce for implementation of these items is specified in the paragraph 10.5 Implementation.

Under the own responsibility and control IKEA Transport Global could start to give structure to the following four items:

1. What is the scope of responsibility and mandate of the strategic purchasers?
In the current organisational setup the Business Developers have country responsibility. They have the responsibility to secure transport setups from the sending perspective of a certain country or group of countries. They therefore decide, together with Transport Global, which carriers will be nominated on which routes. The strategic purchasers should not have country responsibility anymore. It will be their sole responsibility to develop the business between IKEA and the strategic carrier. The strategic purchasers should act independent of the transport areas and look at the bigger picture of what is the optimal match between the carrier and IKEA. The strategic purchasers should be supported by local Business Developers, a Social & Environmental Co-ordinator (SECO), and an
Conclusions and Recommendations

administrative function. The mandate of the strategic purchasers when it comes to nominating (their own) carriers on routes and volumes should be established in a brainstorm discussion on Transport Global’s level.

An estimated 4 or 5 strategic purchasers should be enough to manage the strategic carriers. This relatively small number of purchasers is also easily manageable itself. Because it is best to be in the market to have a hands-on approach the strategic purchasers should work according the principle; Think global, act local! As extensive travel will come with the job of the strategic purchaser anyway the question of one centralised department versus decentralised individuals becomes less important.

2. Which are strategic carriers for IKEA?
Paragraph 8.2 showed that different carrier types have different demands and expectations towards a partnership with IKEA. It is recommended that IKEA should create carrier profiles to be able to differentiate the carriers based on certain characteristics such as; organisational setup, networks extent, business model, or turnover with IKEA. Carrier differentiation should lead to specific contractual agreements that match the different needs of different types of carriers that are used for the different specific transport setups. Certain carriers might be offered certain privileges in order to secure the right competence and quality in the right locations and in order to be able to follow the strategic business development plan. It goes with out saying that all of the previous must be under the condition that it is beneficial for IKEA.

3. Strategic business development plans
The VO should be built on trust and therefore it is of the utmost importance that both IKEA and the carrier have a common understanding of the direction in which the development will take place. It is recommended to secure this by means of strategic business development plans that give a strategic guideline to the mutual ambitions. As mentioned before, the strategic business development plans should contain directions on growth development, environmental development, transport setup development, inter-modal development (if applicable) and equipment development (to comply with latest safety standards).

By having open exploratory talks with potential carriers it should be investigated what the own development plans of the carriers are. Where and how will they grow? Subsequently match any potential to IKEA’s growth plan to see if the carrier can support the growth of IKEA. The in force Transport Agreement package should be reviewed to match different transportation setups and different privileges that might follow from the ambitions of the strategic business development plans.

4. Improvement of the usage of the e-procurement tool
It is recommendable to improve the usage of the e-procurement tool (IKEA’s tender tool) by aligning its possibilities with the strategic business development plans. This way the potential of the scenario building functionality of the tool is used to improve the decision making. In the e-tender for the German market in 2008, IKEA started to nominate carriers on packages of routes for the first time. It is recommended to continue in this direction in combination with the strategic business development plans.

However, in the beginning IKEA should not strive for network optimisation by means of the combinatorial bidding functionality. From interviews given by carriers it appeared that at the moment the carriers are not ready for this as many of them do not deploy their fleet on a pan-European level yet.

There are also some items that do not fall completely under IKEA Transport Global’s scope of responsibility and control, but still need to be delved deeper into. In the bigger
Applying a Virtual Organisation on IKEA’s Transport Organisation

supply chain organisation of IKEA these must be taken into consideration. Therefore, take the initiative, but also involve the internal and external partners in the chain to get grip on the following three items. Parallel to starting the VO, IKEA should address the following subjects:

1. Quality and accessibility of performance data
   To enable the strategic purchasers to achieve the right results in the development plans with their strategic carriers and to be able to take corrective actions when needed it is essential that IKEA improves the systems and routines it uses to monitor and control the performance of the carriers. There should be one uniform way of measuring and registering arrival and departure times for the reporting of the carriers’ performance at all business units which should be followed with the same discipline. Based on highly reliable performance information the strategic purchasers will be able to make the best decisions for IKEA and securing that all carriers are treated equal will earn the trust of the carrier and increase its acceptance for the Virtual Organisation.

   For the strategic purchasers to be able to control their carriers, the performance data must be easily accessible on carrier level for all activities the carrier deploys for IKEA all over Europe. It requires a joined effort together with DS, Retail and Trading, co-ordinated by Transport Global to achieve this uniformity in the reporting.

2. Supply chain orientation
   IKEA’s Transport Department should be better ‘linked’ with the rest of the supply chain. Questions such as; What is the long-term strategy of the Trading organisation? and Where will major expansions on retail side take place in the coming years? are essential for making the strategic business development plans, because these should be in line with the IKEA’s supply chain development. This knowledge should be available on at least the level of the strategic purchaser, and preferably also on the supporting layer below him or her.

3. Supply chain visibility
   Investigate in the price of quality. IKEA needs to be able to better assess the value of the service rendered by the carriers in order to take the right strategic decisions in the purchasing process of nominating carriers to routes and volumes. Differentiation in carriers and/or carriers’ services needs to be balanced against certain cost advantages or disadvantages. Therefore it is recommendable to investigate in the value of service to be able to put a price tag on the quality of the service. In this respect IKEA needs to move away from sub optimisation and from ‘silo-thinking’ (where every business unit is optimising its own figures) in the supply chain. The impact of (improved) transport performance should be related to total supply chain costs, which implies an investigation into the cost-structure of processes on the interfaces between transport and sender and receiver. For the moment this surpasses the scope of this study and was therefore also left out of scope for the pilot project.

10.5 Implementation of the Virtual Organisation

10.5.1 General
   The last three items mentioned in the previous paragraph are very important to the success of the Virtual Organisation, however, they are not completely within the scope of responsibility and control of Transport Global within IKEA and therefore support from (and good communication with) other organisations within the IKEA company are necessary. Nonetheless this paragraph will describe the implementation of the Virtual Organisation (under the assumption of ideal circumstances where necessary), because of the urgency to start building up the Virtual Organisation. With the ever growing volumes
it becomes more and more important to put the right organisational structure in place that facilitates the management of the relationships with the carriers.

In the first step IKEA should run a pilot project to setup the VO, where it explores what the implications of starting up the VO are. The implementation process described here focuses on tasks and responsibilities, man-power, budget and a time schedule. The implementation is elucidated by two tables viz. the below implementation task schedule with cost estimate and implementation time schedule.

10.5.2 Time plan, investment, responsibility

The task of implementing the Virtual Organisation as suggested in this thesis lies with Transport Global supported by the different Transport Areas. They must be supported by a taskforce consisting of IKEA’s most experienced purchasers (a lot of transport knowledge and the best knowledge to the company are already in house) from all transport areas, to create the core of the Virtual Corporation, the selection of carriers for partnership and write the development plans. They should also support Transport Global in reviewing the transport agreement package. The taskforce should preferably also form the core of the strategic transport purchase group; because they are best qualified in terms of transport purchasing knowledge and they have a lot of local knowledge and contacts. Locally, the small carriers, niche players and back up carriers should be managed. This offers the additional benefit to train own people to be transport purchasers.

10.5.3 Taskforce

For the implementation of the Virtual Organisation as described in this thesis a project group should be formed to setup the strategic purchasing organisation and to start investigating deeper into the ‘open issues’ mentioned in the recommendations. This project group is responsible for the initial start up phase which should span approximately 4 months to perform the following tasks (vide schedule below).

The setup of the taskforce consists of:
- Project manager : 10,000 EUR/month (IKEA-internal),
  intermitted: 50% of full-time equivalent (FTE)
- Assistant Project Manager : 8,000 EUR/month (100% of FTE)
- Expert 1 : 6,000 EUR/month (100% of FTE)
- Expert 2 : 5,000 EUR/month (50% of FTE)
- Backup staff : 9,000 EUR/month (25% of FTE)

Total guestimated budget costs for the start up phase amount approximately: EUR 90,000 (excluded contingencies)
### 10.5.4 Implementation Task Schedule with Cost Estimate

The recommendations mentioned before are divided hereunder into tasks to support the implementation plan:

Table 11: Task schedule implementation

<table>
<thead>
<tr>
<th>No</th>
<th>Task description*</th>
<th>Responsible **</th>
<th>Duration ***</th>
<th>Costs in EUR ****</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identify critical routes for which backup carriers should be nominated.</td>
<td>PG</td>
<td>1 month</td>
<td>6,900</td>
</tr>
<tr>
<td>2.</td>
<td>Request special classification in CNS that indicates that a carrier is nominated as backup carrier.</td>
<td>IT support</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>3.</td>
<td>Identify and introduce potential back up carriers for critical routes.</td>
<td>LP</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>4.</td>
<td>Educate new carriers on IKEA’s standard operational procedures.</td>
<td>LP</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### Create the Virtual Corporation

5. Create strategic transport purchasing function. | PG
6. Recruit 4 or 5 strategic purchasers from the own organisation. | TG + PG | 2 months | 13,800 |
7. Define the mandate for the strategic and the local purchasers. | TG + PG + SP | 1 month | 6,900 |
8. Create carrier profiles. | PG + SP | 1 month | 6,900 |
9. Select carriers for strategic partnership and have development talks. | PG + SP + carrier | 1 month | 6,900 |
10. Write carrier development plans to compliment IKEA’s growth. | SP + carrier | 1 month | 6,900 |
11. Review Transport Agreement package. | TG + SP + carrier | 2 months | 13,800 |

#### Quality and accessibility of performance data

12. Investigate the ways of time registration at all business units (stores, DC’s and supplier) and create uniformity. | PG | 3 months | 20,700 |

#### Supply chain orientation

13. Investigate into the volume development of the supply chain by getting involved in the trading and retail strategies. Share the gained knowledge on strategic purchaser level. | PG | 1 month | 6,900 |

#### When in operation (not included in pilot project)

14. Improve the usage of the e-procurement tool. | SP + LP | N/A | N/A |

Total (rounded off) | 90,000 |

PG = Project Group (Taskforce), TG = Transport Global (backup staff), SP = Strategic Purchaser (Experts), LP = Local Purchaser (Experts), N/A = Not Applicable (not in budget)

* The tasks described should be implemented by the standing organisation.

** IKEA is in the ‘driving seat’ of the implementation of these tasks and therefore marked as responsible.

*** For certain tasks, however, input and support of the carriers is a necessity.

**** The duration of the tasks is indicated in number of man-months involved. The start point needs to be defined, but preferably as soon as possible (vide also time schedule).

**** For purposes of transparency the shown guesstimated budget costs are derived by multiplying assessed man-months involvement with monthly salary, exclusive VAT. Further 20% of contingencies should be taken into account due to limited insight in the costs structure of the organisation and possible extension of Scope of Work during task description (for instance survey/study related travel costs).
Conclusions and Recommendations

10.5.5 Time schedule of pilot project
4 months time frame (exclusive study trips/field investigation)

Table 12: Time schedule implementation

<table>
<thead>
<tr>
<th>Steps</th>
<th>Description</th>
<th>Time schedule</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick-off meeting</td>
<td>Start pilot project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create the VW</td>
<td>Identify critical routes for which backup carriers should be nominated</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Request special classification (in CNS) that indicates that a carrier is</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>nominated as a backup carrier</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identify &amp; introduce backup carriers for critical routes (handled by LP’s)</td>
<td></td>
<td>(1 month)</td>
</tr>
<tr>
<td></td>
<td>Educate new carriers on TSOP’s of IKEA (handled by LP’s)</td>
<td></td>
<td>(1 month)</td>
</tr>
<tr>
<td>Create the VC</td>
<td>Create strategic transport purchasing function</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recruit 4 or 5 strategic purchasers from the own organisation</td>
<td></td>
<td>2 months</td>
</tr>
<tr>
<td></td>
<td>Define the mandate for the strategic and the local purchasers</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Create carrier profiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select carriers for strategic partnership and have development talks</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>Write strategic development plans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review Transport Agreement package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance data</td>
<td>Investigate the ways of time registration at all business units (at stores,</td>
<td></td>
<td>3 months</td>
</tr>
<tr>
<td></td>
<td>DC’s and supplier) and create uniformity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply chain orientation</td>
<td>Investigate into the development of the supply chain by getting involved in</td>
<td></td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>the trading and retail strategies. Investigate IKEA’s growth planning. Share</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the gained knowledge on strategic purchaser level.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Happy</td>
<td>End pilot project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project in full swing</td>
<td>When in operation: Improve the usage of the e-procurement tool</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Steps Descrip
tion Duration

| = time activity (included in budget guestimate) |
| = time activity (out of budget guestimate)     |
| = milestone                                    |

10.5.6 Follow-up Note
This thesis contains relevant background information about the establishment of a Virtual Organisation for IKEA. If the recommended pilot project will be successful for all parties involved it will result in insight information on following relevant issues:

a) What is a strategic carrier? (To control the magnitude of scale of the organisation.)
b) What is the mandate of a strategic purchaser? (In order to establish a matrix organisation with carrier responsibility and country responsibility.)
c) What will be the contents of a strategic transport business development plan? (mission, vision and role, action plan)
d) How to adjust a uniform short-term Transport Agreement package for facilitating the strategic business development plans? (Long-term contracts under which conditions? Possibly with performance related pricing spin-off.)
e) How to improve/normalise/uniform registering of performance of the carrier for input of new developed IKEA’s central performance databank? (To get better grip on the carrier’s performance.)

As writer of this report the author would like to express the willingness to further elucidate the findings of the conclusions and recommendations and/or to be involved in the suggested taskforce with objective to implement the Virtual Organisation on IKEA’s Transport Organisation if so desired by IKEA.
11 Reflection

This paragraph presents a personal reflection after performing the research and writing this thesis. It has proven to be a challenging assignment where I had to overcome difficulties but also made great learning.

The subject of this thesis encompasses a complex theme with a sometimes abstract content and lots of connection points to different subjects. It has invited me to read a lot of literature on diverse subjects which all had some kind of relevance to this study, but of course some were more relevant than others. Because the main topic of research, the Virtual Organisation, is a ‘living animal’ it was initially very difficult for me to make a selection out of the vast amount of available literature which was added and changing all the time. This was sometimes frustrating and caused for delay in the process of writing this document. Eventually I have learned to structure the information offered, to determine what was relevant and what was not and to understand the essentials.

In the beginning of this research I have not been clear enough to myself about the exact scope of the research. I had not succeeded to find the core of the research, because of my natural tendency to look at the bigger picture in stead of zooming in on one or two key points. Only after I started working for IKEA’s Transport department in professional life, I regained the needed focus by ‘being part’ of the subject of research. It also showed me that the topic is still very valuable to IKEA, which gave me in the end the motivation and courage to restructure, edit, update and finish this thesis at last.

In any future research on this same topic, there are certain things I would do differently:

Firstly, due to the lack of focus on the scope and demarcation of the research, too many activities were done parallel (for instance literature research and interviews). Next time such activities should be finished sequentially in order to get more value out of them.

Secondly, I put too much focus on the positive side of developing co-operation, trying to improve partnership, and not enough on what I perceived as a negative component; the switching principle (ending business or maybe even a relationship with a carrier). It is more clear to me now that in these ‘negative components’ there is still a lot to learn for many companies, including IKEA. Is switching also possible when commitments have been made in the relationship with the carrier? How can such issues be integrated best in the agreements?

Thirdly, the questions on certain subjects in the dispatched questionnaire were sometimes maybe too superficial, whereas on certain other subjects they went in too deep on the matter. Also the distinction between inter-modal traffic and road transport could have been better. They sometimes blurred together in the questionnaire, while they have different business rationale.

Fourthly, the questionnaire tried to cover many things, from the whole procurement process and complete tender setup to contractual agreements and co-operation. In hindsight, it would have been better to focus more on a single item out of the range, to be able to address this in more detail and ask the carriers more about the motivations behind their answers. This would maybe have given IKEA more concrete and valuable
information, although the answers on the dispatched questionnaire gave me enough background information to integrate the results into the thesis.

The frustration and ‘missteps’ in the execution of this research have had a positive effect in the sense that it made me very committed to the subject of research and enforced the will to write a valuable report for IKEA. By working for IKEA I have learned to understand the full complexities of IKEA’s organisation and of the transport market. But, I miscalculated the time and effort needed to finalise this report on such a complex topic while working full-time for IKEA. But, by seeing the daily practice, the international travel, and the trust I received to work independently have developed me and have given me the confidence that with this research I succeeded to combine theory, tendencies and practice into a valuable output for IKEA.

Stefan du Perron
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Research approach</td>
<td>9</td>
</tr>
<tr>
<td>1-2</td>
<td>Structure of report</td>
<td>10</td>
</tr>
<tr>
<td>2-1</td>
<td>Organisational set-up (Source: <a href="http://www.corporate.ikea.com">www.corporate.ikea.com</a>)</td>
<td>15</td>
</tr>
<tr>
<td>2-2</td>
<td>The three pillars of IKEA’s Supply Chain</td>
<td>16</td>
</tr>
<tr>
<td>2-3</td>
<td>Supplier staircase model</td>
<td>18</td>
</tr>
<tr>
<td>2-4</td>
<td>Plan, Purchase and Operate, monitored by controller(s)</td>
<td>20</td>
</tr>
<tr>
<td>2-5</td>
<td>IKEA’s “Business Tool”</td>
<td>22</td>
</tr>
<tr>
<td>2-6</td>
<td>The “Olympic” model, Source: Transport Global Strategy FY 05-08</td>
<td>24</td>
</tr>
<tr>
<td>2-7</td>
<td>Matrix structure of Transport Organisation</td>
<td>26</td>
</tr>
<tr>
<td>3-1</td>
<td>Conceptual Model of the Virtual Organisation and the Business Environment (source: adapted from Becker, 2001)</td>
<td>33</td>
</tr>
<tr>
<td>3-2</td>
<td>Virtual Organisation of Transport</td>
<td>36</td>
</tr>
<tr>
<td>4-1</td>
<td>Shift in Manufacturing Practices. (Source: S. Sharifi, K.S. Pawar, 2001)</td>
<td>41</td>
</tr>
<tr>
<td>4-2</td>
<td>Transformation of logistical concepts in time</td>
<td>44</td>
</tr>
<tr>
<td>4-3</td>
<td>Logistical concepts in comparison (Source: Schönsleben, 1999)</td>
<td>45</td>
</tr>
<tr>
<td>4-4</td>
<td>Resilient Supply Chain, Based on Christopher and Peck (2003)</td>
<td>46</td>
</tr>
<tr>
<td>4-5</td>
<td>Potential of VO in relation to the degree of business transformation</td>
<td>47</td>
</tr>
<tr>
<td>5-1</td>
<td>Transport procurement processes</td>
<td>49</td>
</tr>
<tr>
<td>7-1</td>
<td>Division of carriers based on their turnover in FY 04</td>
<td>65</td>
</tr>
<tr>
<td>7-2</td>
<td>Turnover and network extent</td>
<td>65</td>
</tr>
<tr>
<td>7-3</td>
<td>Core-competence of Transport Company</td>
<td>66</td>
</tr>
<tr>
<td>7-4</td>
<td>Knowledge of IKEA network</td>
<td>66</td>
</tr>
<tr>
<td>7-5</td>
<td>Experience with e-procurement</td>
<td>67</td>
</tr>
<tr>
<td>7-6</td>
<td>Yearly turnover of e-tender / e-auction. (Now and expected in 3 yrs time)</td>
<td>67</td>
</tr>
<tr>
<td>7-7</td>
<td>Yearly turnover of e-tender/ e-auction compared to total yearly turnover. (Now and expected in three yrs time)</td>
<td>68</td>
</tr>
<tr>
<td>7-8</td>
<td>Number of e-tenders / e-auctions participated in (2004)</td>
<td>68</td>
</tr>
<tr>
<td>7-9</td>
<td>Advantages versus disadvantages for e-tenders and e-auctions</td>
<td>70</td>
</tr>
<tr>
<td>7-10</td>
<td>Single sourcing versus splitting the volume</td>
<td>71</td>
</tr>
<tr>
<td>7-11</td>
<td>How many bidding rounds in e-tender/ e-auction?</td>
<td>71</td>
</tr>
<tr>
<td>7-12</td>
<td>Type of feedback</td>
<td>72</td>
</tr>
<tr>
<td>7-13</td>
<td>Type of feedback</td>
<td>72</td>
</tr>
<tr>
<td>7-14</td>
<td>Cty-to-cty vs. pan-European level</td>
<td>72</td>
</tr>
<tr>
<td>7-15</td>
<td>Bidding functionality in e-tender</td>
<td>73</td>
</tr>
<tr>
<td>7-16</td>
<td>Bidding functionality in e-auction</td>
<td>73</td>
</tr>
<tr>
<td>7-17</td>
<td>Who should create packages to bid on?</td>
<td>73</td>
</tr>
<tr>
<td>7-18</td>
<td>Who should create packages to bid on?</td>
<td>74</td>
</tr>
<tr>
<td>7-19</td>
<td>Objective of partnership with IKEA</td>
<td>75</td>
</tr>
<tr>
<td>7-20</td>
<td>Potential fields for co-operation?</td>
<td>75</td>
</tr>
<tr>
<td>7-21</td>
<td>Quality rating system</td>
<td>75</td>
</tr>
<tr>
<td>7-22</td>
<td>Distribution of benefits</td>
<td>76</td>
</tr>
<tr>
<td>7-23</td>
<td>Co-operation and e-auction</td>
<td>76</td>
</tr>
<tr>
<td>7-24</td>
<td>Potential for growth</td>
<td>76</td>
</tr>
<tr>
<td>7-25</td>
<td>Better insight in volume</td>
<td>77</td>
</tr>
<tr>
<td>7-26</td>
<td>Participation</td>
<td>77</td>
</tr>
<tr>
<td>7-27</td>
<td>Prerequisites for co-operation</td>
<td>77</td>
</tr>
<tr>
<td>7-28</td>
<td>Insurance policy</td>
<td>77</td>
</tr>
<tr>
<td>7-29</td>
<td>Preferred duration of contract</td>
<td>78</td>
</tr>
<tr>
<td>7-30</td>
<td>Start of business relationship</td>
<td>78</td>
</tr>
</tbody>
</table>
List of Tables

Table 1: Extract of conclusions ................................................................. xii
Table 2: Extract of recommendations ...................................................... xii
Table 3: Task schedule implementation ................................................. xiv
Table 4: Time schedule implementation ................................................. xv
Table 5: Road transport scope, figures of 2003 ........................................ 19
Table 6: Strategic factors in securing transport services ....................... 21
Table 7: Service criticality ..................................................................... 22
Table 8: Service Level Requirements. (Source: IKEA Transport Requirements) ................................................................. 25
Table 9: Questionnaire subjects ............................................................. 61
Table 10: Approached and responding carriers from different categories ... 62
Table 11: Task schedule implementation ................................................. 101
Table 12: Time schedule implementation ................................................. 102

List of Abbreviations

3PL 3rd Party Logistic Service Provider
4PL 4th Party Logistic Service Provider
APS Advanced Planning and Scheduling
B2B Business to Business
BE Business Environment
BD Business Developer
CDC Customer Distribution Centre
CNS Cargo Network Services system
Cty-to-Cty Country-to-Country
DC Distribution Centre
DD Direct Delivery
DS Distribution Services
Env. Environment
FTL Full Truck Load
FY Financial Year
GPS Global Positioning System
GPRS General Packet Radio Service
ICT Information and Communication Technology
IT Information Technology
IoS IKEA of Sweden
IWAY IKEA Way on distributing home furnishing products.
KPI Key Performance Indicator
LP Local Purchaser
LTC Long Term Contract
LTL Less than Full Truck Load
OPDC Order Point Distribution Centre
PG Project Group
PEVT Pan-European Visibility Tool
RIQ Request for Quotation
R&D Research and Development
SCM Supply Chain Management
SMS Short Message Service
SP Strategic Purchaser
STO Store
SUP Supplier
TA Transport Agreement
TSOP Transport Standard Operational Procedures
TG Transport Global
UFN Until Further Notice
VC Virtual Corporation
VMI Vendor Managed Inventory
VO Virtual Organisation
VW Virtual Web
Applying a Virtual Organisation on IKEA’s Transport Organisation

Literature


Literature


IKEA Documents
(Source: www.corporate.ikea.com)

A   Transport Global Strategy FY 05-08
B   Leading in supplying 2010 - SC Transportation Strategy FY2006 – FY2010
D   IKEA Transport Requirements
E   IKEA Transport Standard Operational Procedures
F   10 Jobs in 10 years, A direction for IKEA 2001-2010
G   The IKEA WAY of Distributing Home Furnishing Products (IWAY), IKEA Services AB, 2005

Recommended Websites

<table>
<thead>
<tr>
<th>A. Recommended Websites on Transport and Logistics</th>
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<thead>
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</thead>
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<td><a href="http://www.elupeg.com">www.elupeg.com</a></td>
</tr>
<tr>
<td><a href="http://www.freight-traders.com">www.freight-traders.com</a></td>
</tr>
</tbody>
</table>
Appendices

Appendix A: Questionnaire For Transport Carriers
Appendix B: Statistic Background of Questionnaire
  B.1 Response rate
  B.2 Chi-square test results
Appendix C: Carrier Profiles
Appendix D: Interview with Ewals Cargo Care
Appendix E: Interview Holland International Distribution Council (HIDC)
Appendix F: Interview with an International Food Producer
Appendix G: Interview with a Chilled Convenience Food Producer
Appendix H: Interview Van Dieren Maritime (VDM)
Appendix I: Interview VOS Logistics (VOSL)
Appendix J: Interview DHL
Appendix A: Questionnaire For Transport Carriers

Questionnaire For Transport Carriers

This questionnaire is executed by Stefan du Perron for IKEA Distribution Services B.V. Transport department West/Central Europe

On behalf of a research into the demands and desires of carriers concerning the E-tendering of transport services.

May 2005
Questionnaire for Transport Carriers

Complementary Writing

This research is done in assignment of IKEA Distribution Services B.V. department of Transport West/Central Europe, responsible for the purchase and operations of transport services in Germany, the UK and the Benelux countries. IKEA as an organization is always looking for new ways of working. This research aims to contribute in investigating new ways of purchasing transport services for IKEA.

Why is it important for IKEA to look into new ways of purchasing transport services?

There are a couple of reasons for this.

1. IKEA wants to create an optimal match between its own transport network and that of the carriers, by offering the carrier insight into all routes and volumes. Hereby making sure IKEA pays not the lowest price, but the right price for the purchased services.
2. IKEA wants to speed up the traditional tender process.
3. IKEA wants to be able to adjust its transport solutions more flexibly to changing goods flows.
4. IKEA wants to rationalize the number of contracted carriers.
5. IKEA wants to build on a more profound relationship with the carrier.

New ways of working is not something you decide on just like that. Since IKEA’s decisions are affecting other parties in the supply chain, it is necessary to get input from the affected parties. This is why IKEA wants to measure the attitude of the carrier towards the concept of E-tendering and your view points on set-up and functionality of E-tenders.

Some important Definitions:

This questionnaire makes an important distinction between E-tenders and E-auctions. Both are internet-based transport procurement tools. The difference is in the number of bid rounds and the feedback.

- **E-tender**: A tender set-up with typically one or two bid rounds with an automatic feedback to the carrier.
- **E-auction**: A tender set-up with continuous bidding and live feedback to the carrier. In this case the bids are open to view by all participating carriers.

Research Scope:

- This questionnaire is part of a final thesis project that might lead to the implementation of an E-tender tool to facilitate IKEA’s purchase of transport services for FTL within the continent of Europe and the UK.

Research Goal:

- To provide insight into the demands and desires of carriers concerning E-tendering of transport services. IKEA wants to lower transport prices by presenting the carrier the tools to reduce its transport costs.
- This questionnaire should provide IKEA with information on three topics:
  - The attractiveness of different E-tender set-ups to carriers;
  - The attitude of different carrier-types towards E-tendering;
  - Possible compositions of the carrier-base contracted by IKEA and the type of relationships involved.

Target Group:

- The target group for this questionnaire are carriers that have focused their business on the transportation of pallet-packed FTL’s or containers.
Questionnaire for Transport Carriers

Disclaimer:
- This questionnaire is executed as part of a final thesis project. The results of this research will be property of IKEA. What will be the follow-up for this research or what actions IKEA will take as a result of this research is not yet decided. IKEA can not be held responsible for any expectations that may rise from this questionnaire.

Index:
- 15 open-ended questions;
- 4 Sections:  
  - Company profile
  - E-tendering of transport services
  - Cooperation
  - Evaluation

Answering Questions:
- Answer the questions of this questionnaire from the perspective of your own company and based on your own experience.

Anonymity:
- During the processing of the data and the reporting of results the anonymity of the respondents will be treated with the proper respect.

Time:
- The time required for filling out the questionnaire will be approximately 45 minutes.

Questions:
- If you have any questions, don’t hesitate to contact me. I will try to answer all your inquiries as good as possible.
  Tel nr: +31 (0)25 51 41 16
  Email: stefan.duperron@memo.ikea.com

Return Address:
IKEA and I would like to thank you very much for your participation in this questionnaire.
- Please send back the completed questionnaire to the following address or email address:
  Email: Stefan.duperron@memo.ikea.com
  Address: IKEA Distribution Services West/Central B.V.
  T.v.v. S.F. du Patou
  L van Durenstraat 1
  2031 CX Haarlem
  Postbus 1616
  2003 BB Haarlem
  The Netherlands

*Thank you for your participation in this research!*
Company Profile

In the first section of this questionnaire you are asked to answer questions concerning the characteristics of your organisation. The objective is to construct a company profile that will help to better understand the stated preferences concerning E-tendering of transport services, in the following sections of this questionnaire. The company profile gives us a better notion of your business setup, the dimensions of your company and your experience with IKEA and with E-tendering of transport services.

Question 1 is an assessment of the size and dimensions of your company. Please give your best estimates concerning turnover, capacity and transport network. If your company is part of a pan-European partnership of multiple carriers, please indicate only those numbers concerning turnover and capacity that your company itself generates.

1A. What was your company’s turnover in financial year 2004?

- £40M - £34M
- £100M - £29M
- £100M - more
- £25M - £49M
- £25M - £49M
- £50M - £99M
- £50M - £99M
- £100M - £199M
- £100M - £199M
- £200M - £499M
- £200M - £499M
- £500M - £999M
- £500M - £999M
- £1bn - £999bn
- £1bn - £999bn
- £1bn - £999bn

1B. Please give (rough estimates of) your company’s transport capacity for pallet packed FTLs?

Company owned capacity:

<table>
<thead>
<tr>
<th>Equipment type</th>
<th>% of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>T300 trailers</td>
<td></td>
</tr>
<tr>
<td>T150 trailers</td>
<td></td>
</tr>
<tr>
<td>S45/S50 Swap Bodies</td>
<td></td>
</tr>
<tr>
<td>C40PM Containers</td>
<td></td>
</tr>
</tbody>
</table>

Subcontracted capacity:

<table>
<thead>
<tr>
<th>Equipment type</th>
<th>% of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>T300 trailers</td>
<td></td>
</tr>
<tr>
<td>T150 trailers</td>
<td></td>
</tr>
<tr>
<td>S45/S50 Swap Bodies</td>
<td></td>
</tr>
<tr>
<td>C40PM Containers</td>
<td></td>
</tr>
</tbody>
</table>

1C. Please specify the extent of your company’s transport network?

- Specialised in National Freight Handling
- Specialised in International Freight

Specific country: [__] Most important specific country relations: [__]

---

**Company Profile**

- Specialised in Pan-European Freight

2A. Which of the following description best suits your company?

- We are a freight hauling company
- We are a freight forwarding company
- We are a 3PL party
- We are an asset based 4PL party
- We are a non-asset based 4PL party

2B. What do you consider to be your company’s core competencies?

- FTL Transport
- LTL Transport
- Groupage
- Other

2C. Does your company also perform inter-modal services?

- Yes
- No

3A. Is your company currently contracted by IKEA for the performance of line haulage services?

- Yes (Continue with question 3B)
- No (Continue with question 3C)

3B. What is the amount of business you do for IKEA?
(Please fill in (estimates for) all three answering possibilities)

<table>
<thead>
<tr>
<th>Transport volume</th>
<th>m3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Shipments</td>
<td>___</td>
</tr>
<tr>
<td>Turnover IKEA share</td>
<td>___</td>
</tr>
</tbody>
</table>

3C. What is the reason for not doing any business with IKEA?

- We are not interested in the business IKEA offers
- Would you care to explain why?
- We were not aware of the possibilities
- We were never granted the business
- Other

---

7 of 19 Pages
Questionnaire: For Transport Carriers

4. Does your company have an accurate picture of the shape and size of IKEA’s transport volumes?

In general:

☐ Yes
☐ No

More specifically:
(Place grade the statements below with a school mark to indicate the level of validity of the statement. Use 1 for 'I completely disagree with this statement' and 10 for 'I completely agree with this statement'.)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Statement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>We have knowledge of IKEA’s routes in the regions of our interest.</td>
<td>-grade-</td>
</tr>
<tr>
<td></td>
<td>We have knowledge of IKEA’s volumes in the regions of our interest.</td>
<td>-grade-</td>
</tr>
<tr>
<td></td>
<td>We have knowledge of IKEA’s entire routes network.</td>
<td>-grade-</td>
</tr>
<tr>
<td></td>
<td>We have knowledge of IKEA’s entire routes network and accompanying volumes.</td>
<td>-grade-</td>
</tr>
</tbody>
</table>

Company Profile

5A. Does your company know the concept of E-tendering/E-auctioning?

☐ No (You are now done filling out the questionnaire. Please send the result to the email address mentioned on page 4. Thank you very much for your cooperation.)

☐ Yes (Continue with questions 5B, 5C, and 5D)

5B. What is your company’s experience participating in E-tenders/E-auctions for transport service?

☐ We have studied the concept, but have no hands-on experience (Continue the questionnaire, starting from question 6 by imagining what the concept of E-tendering/E-auctioning could mean to your company).

☐ We have participated in e-tenders/e-auctions. (Please fill in the following.

At the moment on a yearly basis we participate in E-tenders/E-auctions
This number corresponds to about 4% of the total number of tenders we participate in yearly.

5C. What is your company’s turnover in Euro generated by E-tendering/E-auctioning of transport services?

Our yearly turnover generated by E-tenders/E-auctions amounts to Euro.

Our yearly turnover generated by E-tenders/E-auctions amounts to 4% of our total turnover.

5D. What do you expect these numbers to be in three years time?

In three years time, we expect our yearly turnover generated by E-tenders/E-auctions to amount to Euro.

In three years time, we expect our yearly turnover generated by E-tenders/E-auctions to amount to 4% of our total turnover.
**E-tendering of Transport Services**

This section of the questionnaire explores the characteristics of E-tendering of transport services. The questionnaire objective is to establish a better notion of the general attitude of carriers towards the concept of E-tendering of transport services and your preferences concerning the design of an E-tender. Please be frank in your answers to the questions. There are no right or wrong answers. While answering these questions think of the E-tender as an IKEA-organised E-tender for FTL transport services.

6A. What are the most important potential advantages of E-tendering of transport services for your company? (Please rate the most important with 1, 2, 3, and so on)

- E-tendering offers the opportunity to acquire new customers
- Through E-tendering we can lower our marketing costs
- Through E-tendering we are able to increase our turnover
- E-tendering allows us to cut time and costs spend on negotiations
- The E-tender offers valuable insight in the potential business of the shipper
- E-tenders allow us to build up a closer relationship with the shipper
- The E-tender is a good opportunity to find well defined freight
- The E-tender offers opportunities for network optimisation
- Other:

6B. What are the most important potential disadvantages of E-tendering of transport services for your company? (Please rate the most important with 1, 2, 3, and so on)

- The E-tender prohibits personal contact between shipper and carrier
- The E-tender prohibits us from distinguishing ourselves from the competition
- The E-tender puts too much pressure on transport prices
- We have insufficient knowledge of the functioning of E-tenders
- The E-tender provokes opportunistic behaviour from the shipper
- Our questions are not treated with the right confidentiality
- Other:

6C. Please respond to the next statements.

**Statements:**

- "In general to our business the E-tenders advantages are more important than its disadvantages"
- "In general to our business the E-auctions advantages are more important than its disadvantages"

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Feel free to elaborate on your position concerning this statement.

7A. What is the most important aspect of an E-tender or E-auction that determines your decision to join in or not? (Please rate the most important with 1, 2, 3, and so on)

- The bid functionality of the tender
- The reputation of the shipper
- The reputation of the E-tender hosting company
- The list of service requirements from the shipper
- The fit of the offered lanes in our network
- Other:

Feel free to elaborate on your position concerning this question.

7B. Which bidding functionality would your company prefer in an E-tender? (multiple answers are possible)

This question discusses four bidding concepts that were derived from literature. IKEA is preparing a pilot tender these bidding concepts will be part of. The aim is to reduce the transport prices by handing the carrier the tools to reduce its cost structure. These bidding concepts are under IKEA’s serious consideration, and we would like the carriers to think along with us.

Before answering question 7B on bidding functionality please read the following definitions:

---

**E-tendering of Transport Services**

6C. Please respond to the next statements.

**Statements:**

- "In general to our business the E-tenders advantages are more important than its disadvantages"
- "In general to our business the E-auctions advantages are more important than its disadvantages"

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Feel free to elaborate on your position concerning this statement.

7A. What is the most important aspect of an E-tender or E-auction that determines your decision to join in or not? (Please rate the most important with 1, 2, 3, and so on)

- The bid functionality of the tender
- The reputation of the shipper
- The reputation of the E-tender hosting company
- The list of service requirements from the shipper
- The fit of the offered lanes in our network
- Other:

Feel free to elaborate on your position concerning this question.

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This question discusses four bidding concepts that were derived from literature. IKEA is preparing a pilot tender these bidding concepts will be part of. The aim is to reduce the transport prices by handing the carrier the tools to reduce its cost structure. These bidding concepts are under IKEA’s serious consideration, and we would like the carriers to think along with us.

Before answering question 7B on bidding functionality please read the following definitions:
Applying a Virtual Organisation on IKEA's Transport Organisation

**Bidding concepts**

1. **Price/quantity bidding**
   Inserted bids are calculated according to the specifications provided by the shipper. The calculation should follow these specifications precisely, in order for the shipper to be able to make price comparisons. Specifications presented by the shipper include pick-up and drop-off information, lead-time, unloading time, loading unit type information, and so on. Bidding and evaluation takes place lane by lane.

2. **Alternate bidding**
   Alternate bids in an offer by the carrier to serve some portion of traffic under different specifications than the ones presented by the shipper. Opposite to an specification bidding the carrier can take initiative to present alternatives. An example of an alternate bid would be a carrier that offers a price on a certain amount of volume from A to B based on an alternative mode of transport, loading unit types, or pick-up time than stated on the specifications. Carriers can use these freedoms to optimise the fit of the volume in their network and schedule.

3. **Conditional (discount) bidding**
   A conditional (discount) bid is an offer by a carrier to serve (with a discount) some portion of traffic (a partial lane, a single lane or a package of lanes) when certain conditions are met. Such conditions are, for example; a bid is only valid if a certain minimum amount of volume is awarded, or if payment for empty mileage in your bids is included, or if the carrier is awarded every single lane out of a set of lanes.

4. **Combinatorial bidding**
   Combinatorial bidding is a special form of conditional bidding. In combinatorial auctions the shipper asks the bidding carriers to quote prices on groups or packages of specific lanes. The carrier can form his own package based on his own economics of scope. The carrier will thus be able to create packages that minimize the number of empty driven kilometers, allowing him to cut costs and pass part of this cost cut on to the shipper.
   - On specification bidding
   - Alternate bidding
   - Conditional bidding
   - Combinatorial bidding

Feel free to elaborate on your position concerning this question.

7C. Which bidding functionality would your company prefer in an E-auction? (multiple answers are possible)
   - On specification bidding
   - Alternate bidding
   - Conditional bidding
   - Combinatorial bidding

Feel free to elaborate on your position concerning this question.

*E. If IKEA would desire to tender packages of lanes, Who should create packages of lanes to bid on?*
   - The carrier
   - The shipper
   - Both carrier and shipper

Feel free to elaborate on your position concerning this question.

7E. In case of high volume lanes, should the shipper single source the lane or split the volume?
   - Single source (to have clear ‘ownership’ of the lane)
   - Split volume (to divide the burden among carriers)

Feel free to elaborate on your position concerning this question.

7F. How many rounds do you prefer the bidding process to consist of?
   - Single round, let the carrier give his honest price ‘without playing games’
   - Multiple rounds, with in between feedback to get an accurate sense of the market
   - Continuous bidding, with live feedback for real-time visibility (E-auction)

Feel free to elaborate on your position concerning this question.

7G. Which size do you prefer an IKEA tender to have, considering on the one hand business opportunities and on the other hand the danger of information overflow?
   - We prefer the tender to be on Pan-European level
   - We prefer the tender to be on a country-to-country level

Feel free to elaborate on your position concerning this question.

7H. Please indicate the maximum number of lanes that your company can handle in dealing with one E-tender or E-auction?
   We can effectively handle a maximum number of _______ lanes in one E-tender.
   We can effectively handle a maximum number of _______ lanes in one E-auction

Feel free to elaborate on your position concerning this question.
Co-operation

In the previous sections you have stated your demands and desires and your opinion on what is the best way to design an E-tender to suit your needs. Bearing this ‘perfect’ set-up in mind, do you think the E-tender offers a good basis for professionalizing the relationship between shipper and carrier? This next section aims to assess your thoughts about co-operation between carrier and shipper.

8A. What is most interesting part of performing services for IKEA for your company?

☐ To be able to use IKEA’s large volumes for the repositioning of your transport material
☐ To be able to use IKEA’s large volumes as a stable factor in your network.
☐ To make a profit of the business IKEA provides.

8B. Our company sees added value in creating a partnership (not meaning any 4PL constructions) with IKEA.

☐ Yes
☐ No

Feel free to elaborate on your position concerning this question.

8C. What is your company’s opinion on how co-operation or partnership with IKEA (not meaning any 4PL constructions) should be given shape? (Open question)

9. Which of the following parts of the transport management would you like to perform in a shipper-carrier co-operational set-up?

Before answering question 9 please read the following explanations:

Planning
Planning of transport is concerned with pick-up and drop-off times at suppliers and distribution centres. IKEA assigns fixed time slots to specific trucks. Better and more timely information exchange between carrier and shipper about late arrivals would open up opportunities for more flexible planning of the loading or unloading schedules.

Procurement
E-tendering or E-auctioning speeds up the traditional procurement process, giving both parties the benefit of efficient negotiations. The carrier gets the added benefit of having the option of choosing the tender and the shipper the added benefit of being able to receive quotations from more carriers.

Performance
In many cases poor communication and inconsistent policies lead to suboptimal transportation performance. (Electronically) connecting shippers and carriers offers solutions to improve communication, visibility of transport orders, pick-up and delivery time slot bookings, waiting times, transport documents and real time updated estimated times of arrival and so on. Improved data capture, such as on-time collections, on-time deliveries, reasons for errors, short shipments and delays, gives far greater control over both internal operations and carrier performance.

Development
Development can be explained two ways. First of all it is IKEA’s ambition to develop the carrier as a whole, to take on more responsibility and a bigger part of the volume. Second of all, the development of new transport set-ups for new flows or as alternatives for existing set-ups is an important field for shipper-carrier co-operation.

☐ Planning (co-operation through more timely information sharing)
☐ Procurement (optimisation of network match through e-tendering)
☐ Performance measurement and improvement
☐ Development
☐ Other

10A. What is to you the most important prerquisites for a shipper-carrier co-operational set-up?

☐ having a long term relationship
☐ having a certain level of trust in the relationship
☐ the availability of potential gains/benefits win-win situations
☐ there should be a limited number of participating carriers

10B. What is your preferred ‘insurance policy’ for a shipper-carrier co-operation set-up?

☐ making mutual investments
☐ being awarded a certain minimum amount of volume
☐ having a contract for a certain period of time

10C. Which type of security is considered a minimal basis to start co-operations between shipper and carrier?

☐ 1 years contract
☐ 2 years contract
☐ 3 years contract
☐ Contracts Until Further Notice, (with a 4 months notice period)
### Questionnaire for Transport Carriers

**11A. How important is having experience with the operational procedures of IKEA for the performance of the desired quality?**

- [ ] Very important
- [ ] Important
- [ ] Neutral
- [ ] Unimportant
- [ ] Very unimportant

**11B. Is your company capable of specifying and guaranteeing service and quality levels on route level?**

- [ ] Yes, we report to our clients about the achieved service levels.
- [ ] No, we do not report to our clients about the achieved service levels.

We measure our service levels by:  
(please give a short description on how you measure service levels)

**11C. Is it good that IKEA uses a public quality rating system for her carriers?**

- [ ] Yes
- [ ] No

Who should collect the performance data?

- [ ] IKEA
- [ ] the Carrier
- [ ] Both

**12A. Would your company be interested in doing business in a co-operative manner with IKEA in the future, if IKEA were to make use of E-auctions in purchasing transport services?**

- [ ] Yes, on the condition that the e-auction isn't repeated too frequently
- [ ] No, because:

**12B. Would an E-auction with a combination of the bid functionalities mentioned in question 7B offer your company enough possibilities to grow your business with IKEA?**

- [ ] Yes
- [ ] No, the process would become too complex for us.

**12C. Would your company be inclined to attract a larger share of volume from IKEA if a better insight in IKEA's routes and volumes was available?**

- [ ] Yes, the insight in volumes the tender tool offers would make it interesting to attract a larger share.
- [ ] No, we are very satisfied with the current volumes from IKEA.
- [ ] No, a better insight doesn't determine the volume we want to service.

**12D. How would you prefer to start a business relationship with a new shipper or in a new region for a known shipper?**

- [ ] start of deal with 1 or 2 lanes
- [ ] start of with volumes that suit our network
- [ ] start of with the bundled volume of one business unit (supplier, dc, store)
- [ ] Other:

**12A. What is your opinion on the adding of extra time before the closure of an E-auction, when significant changes in the top 3 occur in the final minutes before regular closure time?**

- [ ] We dislike it
- [ ] We are neutral
- [ ] We like it

**12B. If your company is not nominated for two years in a row, would you consider participating in a third E-auction from the same shipper?**

- [ ] No, apparently we do not have a realistic chance to get the business.
- [ ] No, unless we have received clear feedback on the previous rejections.
- [ ] Yes, we look at every E-auction individually.

**12C. In question 7B, you indicated how many bids rounds you prefer a bid process to have. Which type of feedback would you prefer, when you would consider multiple rounds or continuous bidding?**

- [ ] We prefer to know our position compared to the competitors.
- [ ] We prefer to know our position compared to the best bid.

**14. Do you think that the benefits of co-operation will be evenly distributed among shipper and carrier in the E-auction?**

- [ ] Yes
- [ ] No
Appendices

Evaluation

In this section you are asked to give your opinion on three different possible set-ups for the E-tendering of transport services. IKEA would like to assess whether your company sees possibilities for cooperation in these set-ups.

15. Potential Tender Set-ups

The following set-ups of E-tendering should be viewed as initial proposals to mould ideas into potential final tender set-ups. They are explicitly not intended as crystallised representations of future situations at IKEA, just as starting points for internal idea formation.

In designing a tender set-up, the shipper has to decide on four main issues:

1. E-tender vs. E-auction
2. Closed participation vs. Open participation
3. Full bidding function vs. Lane by lane bidding
4. Single sourcing vs. Split volumes

A1. The E-tender consists of one or two rounds with in-between feedback. The E-auction is about continuous bidding and live feedback.

A2. In closed participation only a limited number of pre-selected carriers are allowed to participate. In open participation every carrier is allowed to participate.

A3. In full bidding functionality, the bidding functionality of question B is included in the tender. In lane by lane bidding, every single lane is bid on individually.

A4. IKEA aims to single source lanes, packages, business units or regions over multiple carriers.

Please, consider the following tender set-ups. Note that they differ only on two issues. IKEA’s aim is to grow the business with the carrier, therefore only set-ups with closed participation and single sourcing objective are under consideration.

<table>
<thead>
<tr>
<th></th>
<th>E-tender Closed Lane by lane Single sourcing</th>
<th>E-tender Closed Full bid function Single sourcing</th>
<th>E-auction Closed Full bid function Single sourcing</th>
<th>E-auction Closed Lane by lane Single sourcing</th>
</tr>
</thead>
</table>

1. Q: Please give your ranking for most preferred set-up in general?
   A: Most preferred set-up nr: __________
   Second most preferred set-up nr: __________
   Third most preferred set-up nr: __________
   Fourth most preferred set-up nr: __________

2. Q: Which set-up leaves the least room for shipper opportunistic behaviour?
   A: Set-up nr: __________

3. Q: Which set-up is the best option to create win-win situations?
   A: Set-up nr: __________

Final

Your participation in this questionnaire was highly appreciated. If you have any final comments on this questionnaire on the subject of E-tendering that you feel you couldn’t express in one of the questions, please note them here.

Comments:

What is your opinion on the quality of this questionnaire?

Have you ever participated in other questionnaires on this subject?

Yes

No

Comments:
Appendix B: Statistic Background of Questionnaire

This appendix shows the statistic background of the questionnaire, viz: the response rate and the Chi-square test.

### B.1 Response Rate

<table>
<thead>
<tr>
<th>Question</th>
<th>Relevancy to # of respondents</th>
<th>Response</th>
<th>Response rate %</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A</td>
<td>76</td>
<td>75</td>
<td>98,68%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>76</td>
<td>71</td>
<td>93,42%</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>76</td>
<td>75</td>
<td>98,68%</td>
<td></td>
</tr>
<tr>
<td>2 A</td>
<td>76</td>
<td>76</td>
<td>100,00%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>76</td>
<td>76</td>
<td>100,00%</td>
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</tr>
<tr>
<td>C</td>
<td>76</td>
<td>76</td>
<td>100,00%</td>
<td></td>
</tr>
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<td>3 A</td>
<td>76</td>
<td>76</td>
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<td>B</td>
<td>76</td>
<td>64</td>
<td>88,89%</td>
<td>Question is only relevant for 4 non-IKEA carriers.</td>
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<td>4 General Specific</td>
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<td></td>
<td>76</td>
<td>74</td>
<td>97,37%</td>
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</tr>
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<td>B1</td>
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<td></td>
</tr>
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<td>B2</td>
<td>54</td>
<td>47</td>
<td>87,04%</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>54</td>
<td>28</td>
<td>51,85%</td>
<td>Many carriers regard this as confidential information</td>
</tr>
<tr>
<td>D</td>
<td>54</td>
<td>28</td>
<td>51,85%</td>
<td>Many carriers regard this as confidential information</td>
</tr>
<tr>
<td>6 A</td>
<td>64</td>
<td>40</td>
<td>62,50%</td>
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<td>42</td>
<td>65,63%</td>
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<td>64</td>
<td>100,00%</td>
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<td>44</td>
<td>68,75%</td>
<td>Difficult question to answer. Many carriers did not understand it.</td>
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<td>B</td>
<td>64</td>
<td>63</td>
<td>98,44%</td>
<td></td>
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<td>64</td>
<td>64</td>
<td>100,00%</td>
<td></td>
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<td>D</td>
<td>64</td>
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<tr>
<td>E</td>
<td>64</td>
<td>61</td>
<td>95,31%</td>
<td>3 carriers could not decide. It all depends on the volume.</td>
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<td>F</td>
<td>64</td>
<td>64</td>
<td>100,00%</td>
<td></td>
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<td>G</td>
<td>64</td>
<td>62</td>
<td>96,88%</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>64</td>
<td>43</td>
<td>67,19%</td>
<td>Difficult to specify. It also depends on the bidding functionality.</td>
</tr>
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<td>8 A</td>
<td>64</td>
<td>64</td>
<td>100,00%</td>
<td></td>
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<td>63</td>
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<tr>
<td>C</td>
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<td>57,81%</td>
<td>Open question.</td>
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<td>64</td>
<td>62</td>
<td>96,88%</td>
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<td>63</td>
<td>98,44%</td>
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<td>C</td>
<td>64</td>
<td>64</td>
<td>100,00%</td>
<td></td>
</tr>
<tr>
<td>11 A</td>
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<td>64</td>
<td>100,00%</td>
<td></td>
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<tr>
<td>B</td>
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<td>95,31%</td>
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<td>12 A</td>
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<td>98,44%</td>
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<td>64</td>
<td>100,00%</td>
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<td>D</td>
<td>64</td>
<td>63</td>
<td>98,44%</td>
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<tr>
<td>13 A</td>
<td>64</td>
<td>64</td>
<td>100,00%</td>
<td></td>
</tr>
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<td>B</td>
<td>64</td>
<td>64</td>
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<tr>
<td>C</td>
<td>64</td>
<td>59</td>
<td>92,19%</td>
<td>Relatively many carriers with no opinion.</td>
</tr>
<tr>
<td>14</td>
<td>64</td>
<td>61</td>
<td>95,31%</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>64</td>
<td>54</td>
<td>84,38%</td>
<td>Difficult question to answer. Many carriers did not understand it.</td>
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### B.2 Chi-square test results

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<tr>
<th>Question</th>
<th>Category</th>
<th>Distribution of Answers</th>
<th>Chi-square value</th>
<th>Degrees of freedom</th>
<th>P-value</th>
<th>Statistically Significant result?</th>
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<td>1 4 1 3  3 3 0,3916 No not statistically significant.</td>
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<td>Inter</td>
<td>21 23 9 18  6,465 3 0,0911 No not statistically significant.</td>
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<td>2 3 3 2  0,571 3 0,9029 No not statistically significant.</td>
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<td>Inter</td>
<td>26 16 5 11  16,345 3 0,001 Yes extremely statistically significant.</td>
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<td>8 7 3 7  2,36 3 0,5011 No not statistically significant.</td>
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<td>7E Nat</td>
<td>6 1 3,571 1 0,0588 No The chi-square calculations are only reliable when all the expected values are 5 or higher. This assumption is violated by the data, so the P value may not be very accurate.</td>
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<td>Inter</td>
<td>18 22 0 1  7,143 1 0,0075 Yes very statistically significant.</td>
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<td>7F Nat</td>
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<td>0 12 3 15  1,6 2 0,0004 Yes extremely statistically significant.</td>
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<tr>
<td>7G Nat</td>
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<td>Inter</td>
<td>25 15 2,5 1 0,1138 No not statistically significant.</td>
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<td>Pan Eur</td>
<td>15 6 13 22  9,286 3 0,0257 Yes statistically significant.</td>
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<tr>
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<td>11 10 8 12  0,854 3 0,8366 No not statistically significant.</td>
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<tr>
<td>13B Nat</td>
<td>0 1 6 8,857 2 0,0119 Yes By conventional criteria, this difference is considered to be statistically significant. The chi-square calculations are only reliable when all the expected values are 5 or higher. This assumption is violated by the data, so the P value may not be very accurate.</td>
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</table>

Note: Calculations performed on: www.graphpad.com/quickcalc/chisquare2.cfm
Appendix C: Carrier Profiles

In chapter 6 the reason for using these carrier profiles was already introduced (vide par 6.2). Probably no individual carrier will fit completely to the profile descriptions as described below. The carrier type as a group, however, tends to give these answers and therefore it gives a good average of the individual preferences and requirements.

Profile of national Carrier
National carriers’ preferences and requirements:

A  Regarding e-procurement event design, national carriers:
Due to the low number of participating national carriers in the questionnaire, the data showed no statistical significant preferences for any of the answers regarding e-procurement event design.

B  Regarding co-operation and partnership, national carriers:
(1) do not see procurement as a potential field for co-operation
(2) are undecided when it comes to the even distribution of benefits of partnership over the partners
(3) are unanimous in their statement that they will attract more volume when given better visibility in the routes and volumes
(4) will participate in any e-procurement event form IKEA almost regardless of the historic results
(5) want to start of a relationship with volumes that suite their network

Profile of international Carrier
International carriers’ preferences and requirements:

A  Regarding e-procurement event design, international carriers:
(1) have equal preference for split volume and single sourcing of transport solutions
(2) mostly prefer e-procurement events with multiple bidding rounds, but also single rounds
(3) have equal preference for feedback based on the position compared to competitors and feedback based on the difference compared to the best bid
(4) mostly dislike or are neutral about adding extra time before the deadline of an e-auction
(5) have equal preference for e-procurement events on a country-to-country level and e-procurement events on a pan-European level
(6) prefer alternate and on specification bidding in e-auctions
(7) mostly think that both the carrier and IKEA should create packages to bid on

B  Regarding co-operation and partnership, international carriers:
(1) use IKEA mostly as stable factor in their network.
(2) prefer the other fields of co-operation above procurement as a potential field for co-operation
(3) are undecided when it comes to the even distribution of benefits of partnership over the partners
(4) think that co-operation is possible under the condition of an e-auction
(5) mostly feel that the bidding functionalities offer enough potential for growth
(6) mostly feel that they will attract more volume when given better visibility in the routes and volumes
(7) a small majority will participate in any e-procurement event form IKEA regardless of the historic results, the rest demands feedback or will opt out.
(8) give high priority to long-term relationship as prerequisite for partnership
(9) give high priority to having a contract for a certain time period
Appendices

(10) mostly want to start of a relationship with volumes that suite their network, but minorities opt for bundled volume or for small volume

Profile of pan-European Carrier
Pan-European carriers’ preferences and requirements:

A  Regarding e-procurement event design, pan-European carriers:
(1) prefer single sourcing of transport solutions
(2) mostly prefer e-procurement events with multiple bidding rounds, but also single rounds
(3) prefer feedback based on the position compared to competitors
(4) are in general indifferent about the adding of extra time before the deadline of an e-auction
(5) have equal preference for e-procurement events on a country-to-country level and e-procurement events on a pan-European level
(6) have equal preference for all bidding functionalities
(7) preference shifts a bit more to alternate and on specification bidding in e-auction
(8) mostly think that both the carrier and IKEA should create packages to bid on

B  Regarding co-operation and partnership, pan-European carriers:
(1) prefer the other fields of co-operation above procurement as a potential field for co-operation
(2) are undecided when it comes to the even distribution of benefits of partnership over the partners
(3) think that co-operation is possible under the condition of an e-auction
(4) mostly feel that the bidding functionalities offer enough potential for growth
(5) mostly feel that they will attract more volume when given better visibility in the routes and volumes
(6) a majority will participate in any e-procurement event form IKEA regardless of the historic results, a minority demands feedback
(7) think that trust and a long-term relationship are most important prerequisites for partnership
(8) are indifferent to the length of the contract term
(9) mostly want to start of a relationship with volumes that suite their network, but a minority opts for bundled volume
Appendix D: Interview with Ewals Cargo Care

Interviewee: Michiel van Herten
Interviewer: Stefan du Perron
Date: 18th of November 2004

How attractive is an e-procurement event for a carrier like Ewals?

A premium carrier like Ewals Cargo Care (Ewals) encounters many problems in differentiating from the competition in e-procurement events. Especially online auctions, with an ‘unlimited’ number of participants (sometimes up to 500) are purely focusing on price level. Preparing bids for a tender of a couple of hundreds of routes takes Ewals several days. The tender should therefore reward the efforts somehow. If an auction is open for all to participate, it becomes apparent for Ewals that the shipper is only interested in price level. Ewals acknowledges that from a shipper’s perspective this can be sometimes the right course of action. However, for Ewals these are not the interesting procurement events. If Ewals has the feeling it is only being used as a benchmark, than the incentive to put a lot of effort in the tender disappears.

Ewals is of the opinion that it is difficult to differentiate from the competitors in an online tender, because the exchanged data between shipper and carrier about price- and service level is much harder to interpret from a screen than from real life discussions. Personal contact is necessary to be able to criticise the paper figures. Ewals likes to think of itself as the shipper’s partner in solving logistic challenges. By looking for creative solutions together, transport costs can be saved.

As an advantage of e-procurement events was mentioned the opportunity to get insight in the available routes and volumes of a shipper, in order to find flows that can help to optimise the carrier’s network. Ewals also sees possibilities for the e-procurement events to work as an initial price filter, to be followed by a second round of more profound negotiations.

Who should create packages to bid on? The shipper or the carrier?

In is practise that the shipper creates packages of routes and/or volumes to bid on. Or the other way around, splits up mega-routes into multiple smaller parts for several carriers to bid on. Ewals sofar has had no experience with creating its own packages out of the total offer of a shipper. The idea however is very appealing and could be an added value of an e-procurement event. It is however very important to consider that route prices in packages are interdependent and that changes to the package call for a recalculation of the whole package.

Not all transport networks are suitable for creating packages. When all lanes are 1-way traffic, it can be more difficult to find combinations. The advantage of shipper created packages is that evaluation of the bids is easier. There will be no overlap in the different bids. The nomination of the carriers on the different routes is however not optimal in terms of economies of scope.

The carrier is capable of leveraging the economies of scope out of a shipper’s network by picking the routes that fit best to his network. The carrier knows best which capacities are available in the area of pick-up or delivery. It is a very appealing perspective for a carrier.

The shipper, in the end, needs to reduce the risk of ending up with routes that no carrier wants to bid on. The offered routes in the total package should therefore have enough diversity to be interesting for different carriers.
Which trade-offs are part of creating a transport bid?
To be able to create bids on certain routes and/or volumes Ewals takes into consideration the following:

- The total volume of the route/package is the most important indicator for attractiveness of a route/package.
- The availability of transport capacity in the area of loading and the area of unloading.
- Long-term contracts for very large volumes are more attractive for Ewals.
- The desired flexibility in the required transport capacity.
- Intermodal traffics are more interesting for Ewals as it is one of their strong suits.
- The type of equipment requested. Ewals has a lot of ‘Mega trailers’ that are suitable for the transportation of high volume goods over long distances.

How is Ewals differentiating itself from the competition?
Ewals is known as a good logistical service provider. The quality of service comes to life by means of:

- Punctual delivery
- Flexibility to deal with fluctuating volumes
- Usage of good equipment
- Usage of clean engines
- Flexibility in thinking together with the customer
- Using well trained drivers with good administrative skills

The capability to deal with fluctuating volumes becomes most important in times of scarcity on the transport market. Scarcity on the market returns yearly with for instance the orange season in Spain, the Beaujolais season in France and Christmas.

What should be considered by a shipper before entering into e-procurement events?
First of all the shipper should question himself how important price is as opposed to service. It can be a valid choice to select on lowest price alone, but one should realize that the quality of service will drop. E-procurement events that are open to anyone attract all kinds of unreliable carriers that will offer bottom prices. These companies may be cheap, but do not deliver good service. Ewals has seen the examples of shippers that initially opted for a strategy of price steering, but that later returned on this decision.

A second risk of using the e-procurement auction to follow a lowest price strategy is that every route will have to be awarded to a different carrier. The number of carriers driving for IKEA and the costs of managing this will rise accordingly.

A third consideration is that many carriers are not able to present reliable data on their own performance on a route level. Depending on the setup this can however be very important. Technically speaking it is of course possible to send detailed information across the internet, but in practice it often results in ‘cold data’.
Appendix E: Interview Holland International Distribution Council (HIDC)

Interviewee: Mr. R. Roest
Interviewer: Stefan du Perron
Date: 14th of December 2004

The role of HIDC is best described as promoter of Dutch logistics & distribution. HIDC matches foreign shippers to Dutch logistic service providers, creates knowledge by developing new logistical concepts (such as “distrivaart”) and analyses the effects of governmental policies on field of logistics & distribution. HIDC main objective is to improve Holland’s position as a logistical hub. As such HIDC represents more than 160 logistic service providers, more than 25 shippers, logistic consultants, port authorities and various governmental bodies. HIDC’s knowledge of the field of logistics & distribution is extensive. The organisation performs research and publishes reports on different aspects of distribution and logistics, for example on pan-European logistic networks. Already in 2000 HIDC together with IG&H Management Consultants did research into the state of art of e-marketplaces, the awareness thereof and their opportunities and treats.

E-procurement
According to HIDC the most important objective of e-procurement of the shipper is often to reduce costs. It’s important for online tendering or e-procurement that routes and volumes of a shipper have a certain level of stability, because these routes and volumes are most interesting for carriers. Usually, shippers re-tender their volumes in a yearly cycle. This is a reasonable term for both shipper and carrier. Network optimisation is possible, if the carrier is allowed to quote on the routes and packages of routes that fit best to his existing network, because it will enable him to better match transports with return transports. Network optimisation through combinatorial auctions presumes a rather advanced planning capability of the carriers. The development over the last few years has been that the large pan-European carriers have brought their planning tools to a more advanced level.

It is not possible for HIDC to predict something about the development of the carrier base of a shipper as a result of e-procurement, because situations of shippers differ too much. E-procurement tools and events in general are good instruments, if both shipper and carrier are able to profit from them. Frequently, however, they are used as a means to increase the pressure on the carriers. If the e-procurement event does not bring the shipper the expected results there is always the option to go back to the traditional way of purchasing transport services.

Co-operation
Co-operation between shipper and carrier can take place on operational, tactical and strategic level. Operational/tactical co-operation supported by smart planning tools, for instance, offers part-load carriers many opportunities. Big international carriers make use of advanced planning tools which would allow them to assume the role Fourth Party Logistic service provider (4PL). A 4PL is an integrator that assembles the resources, capabilities, and technology of its own organisation and other organisations to design, build and run comprehensive supply chain solutions. Co-operation on strategic level can have an impact on the whole supply chain. Issues such as warehouse location and their specific function can play a role. Strategic co-operation is about an integrated approach, long term planning, and sharing of risks. Two important prerequisites are a large enough commitment from the shipper and insight into the goods flow, forecasts and other critical information for the carrier.
Depending on the possibilities of the carrier co-operation on operational and tactical level is possible within the competitive environment of an e-procurement event. Yearly cycles are in principle long enough for this purpose. In case the shipper’s ambition is to have co-operation on strategic level, than the yearly tendering is not possible. 4PL’s need stability in order to optimise the network. Especially, in case investments are needed to build up capacity in new markets there must be a level of commitment from the shipper that ensures a reasonable time to get return on investment. Still it is not unusual to tender also for this type of contracts every 3 to 5 years.

The level of co-operation is mainly depending on the wish of the shipper. The type of service that the shipper purchases can vary from basic transport services from A to B to transport services with additional value adding services. Co-operation on a higher level generates integration of tasks and responsibilities and sharing of critical information. It is up to the shipper to decide to what extent to implement. Co-operation on strategic level can only succeed if there is trust between the parties. This means that commitment must come from both sides and that there must be a willingness to share information and insight in each others processes. It is a trend that carriers with pan-European networks want to take over more and more tasks from their customers in order to add value. They want to take on the role of 4th Party Logistic service provider. Besides the large international carriers with this ambition (such as carriers like “VOS Logistics” and “Ewals Cargo Care”) further also non-asset based companies offer 4PL services.

**Other**

E-procurement events can also be used to get a 4PL party on board. Another, more common, strategy is to hire a 4PL party as a monitoring and checking function. Pure invoice control can already save between 5% and 8%, because of the detection of mistakes. After some time the 4PL service provider can start to take over the responsibility of certain packages of routes and volumes. The 4PL in its turn can organise an e-procurement event to purchase the required transport capacity. The 4PL, however, will usually have more buying power due to its customer base. Moreover, the 4PL can search for return volumes to balance the network and minimise the costs.
Appendix F: Interview with an International Food Producer

Interviewee: Logistics Services buyer
Interviewer: Stefan du Perron
Date: 23rd of December 2004

The Company
The interviewed company, company X (so called due to sensitive information for competitors), is an American International food producer which is 100% family owned. It is a company that greatly values its independency. Therefore it does not engage into partnerships which require investments, risk taking or sharing of benefits. Much rather it preserves its independency by creating simple relationships with clearly divided tasks and responsibilities between partners. This philosophy is also adopted for the purchasing of transport services.

Much like IKEA this company does neither co-invests in projects with carriers nor gives volume guarantees. Nominations are made on route-level with 100% nomination share to service the whole volume. To secure the capacity, also in the future, shared investments are not necessary.

Company X’s goods flow is quite stable. There are fluctuations for busy periods for instance around Christmas time, but the network of routes however stays more or less the same. Matrix changes can cause ‘sudden’ needs transport capacity, which will than be purchased separately.

Transport organisation
Much like IKEA, company X purchases transport services from point A to B without much value adding services. Planning and purchasing are functions that are performed in house. Company X has approximately 90 carriers under contract. Rationalisation would ideally lead to 50-75 carriers. The transport spend is approximately 170M Euro for international transportation within Europe. The purchasing is done by 4FTE. The network of international routes is tendered with a yearly frequency. Since 1991 the company tendered the network 10 times. Next to this also approximately 10 ocean tenders were organized. All tenders were e-tenders, so company X build up a lot of experience with this type of transport purchasing. According to company X the real experience comes after organizing four e-tenders.

Purchasing Transport services
The volumes of companies such as company X and IKEA are so big that they can stir up the market to quite an extent. Carriers will always fear to loose such business and are therefore inclined to offer very competitive prices. The pressure e-tendering puts on the transport price is perceived by the carrier as threatening. Still, company X feels that on the moment there are that many carriers on the market that increasing the pressure on a price is possible. By offering the whole packages of 1000 routes at once in an e-tender, this effect is sorted. The carrier base that is invited to participate in the bidding is a combination of known carriers and new carriers (selected by freight-traders). The carriers vary from small to mid-sized and large. Company X also works with ‘very small’ carriers every now and then to give them an opportunity to grow and become competitive.

Company X preferably uses the term e-tender, while actually they organize an e-auction. E-auction has the negative connotation that lowest price means everything. Company X values, next to low prices, also quality and experience. Next to this company X assesses the volume development of its carriers and the amount of dynamics in the carrier base.
Company X saved money on transport costs in every e-auction so far, ranging from 2 or 3% up to 10%. The first e-auction even split the transport costs in half. This big decrease in transport costs is the consequence of the fact that the e-auction forces the carriers to do their utmost to keep the business. It sets the prices again on the market level. An important notification is that e-tendering is a mechanism that follows the market prices very closely. If the prices go down that is a benefit for the shipper, but if the market turns in favor of the carrier it can be less positive. On the moment (Dec 2004) the market is in favor of the shipper, capacity is widely available because of Eastern-European carriers that have entered the market. But the European transport market shows a tendency to follow the American transport market on a few years distance and the American transport market is now slowly moving to a sellers-market. Therefore, to be secured of enough capacity, also in future, it is never wise to squeeze the carrier out of his last penny. It is better to try and build up a co-operative relationship. Once the right price level is reached, cost reduction must be made in another way. Company X does this by co-operating with the carrier in improving the transport setups. For example by using reefers for shipments to the UK, this is, due to market circumstances, cheaper than using normal containers.

Company X has the intention to build on long-term relationships with its carriers. As a long-term relationship a period of 5 yrs qualifies. Carriers can sometimes use this to get investments from the bank. At the same time the 1-year contracts remains the legal binding document.

**Tender design**

Company X tenders national and international routes in separate e-tenders. In their experience routes is the maximum number of routes that can be tendered in one go. Packages of routes are created by taking together all routes from one supplier (f.i. a factory in Warschaw) to a certain region (f.i. an arrondissement in France) and agreeing on a universal price for all routes in this package. The e-tender containing up to 1000 routes is 'live' for 9 days. The invited carriers have access to these routes and can enter their bids. The carrier also receives feedback as soon as a lower bid is inserted. During the course of the e-auction the carrier is free to increase, decrease or withdraw his bid. After closing of the e-auction the carrier is kept to his bid and (in case of nomination) made responsible for servicing 100% of the volume on the route. Company X does not obligate itself to nominate the lowest priced carrier. It is important to communicate such details in the process clearly to the carriers in advance.

It is the aim to find the optimum between creating a competitive environment and fostering co-operative relationships. Therefore the number of participating carriers and the composition of the carrier base is an important factor in e-procurement events. The number of participating carriers is around 250 of which 80/90% is a known carrier. This results in approximately 15 to 20 bids per route. Unpopular routes generate maybe 10 bids and popular routes generate maybe 30 bids. In the end all routes are bid on and company X will not be stuck with left-over routes. In the end there is also still the possibility to negotiate with a carrier to take on the responsibility of an unpopular route as part of a package deal. To win a route the new carrier’s price has to be at least 2 or 3% below the current price. This is a protection mechanism for the currently nominated carrier. If the currently nominated carrier does not perform the protection will stop.

The e-auction setup that Company X uses will not allow the carrier to make dependent bids. The dependency creates added complexity. If for instance one routes out of the package created by the carrier changes, the whole package must be revised. Another downside of interdependent bids is the fact that multiple carriers can let one specific route determine if they want to service a number of other routes. This stands in the way of quick and unilateral decision making regarding the nominations. Possibly there are software tools that calculate optimal assignment of routes to carriers, also in case of inter-
dependent bids, to support such decision making processes available on the market, but company X feels it needs to have more direct influence on the decision making. The decision making process at company X is based on long experience and gut-feeling.

Company X does not give feedback to all participants after nominations have been made. Doing this would undo a lot of the gained efficiency. Being open and honest to the carrier about the course of the process in advance will create acceptance for this and the carrier will participate again next time.

Quality
Most of the carriers that participate in an e-tender of company X are familiar with the way of working of company X. The ‘new’ carriers that participate are voorgedragen and prepared by Freight-traders. If carriers are well informed and prepared, they can be exchanged without loss of quality. During the year, the carriers are given feedback on their performance, possible changes etc, so that they can improve the quality of their service. There is also a lot of value in assigning the right carrier to the right route, because one carrier can perform very well in one route and on the same time mess up on another route.

After nominating the carriers on the routes, there is a lot of contact between shipper and carrier. Visits to check and improve the service level make sure that the human contact does not go lost. On the contrary, it gets stronger and is more focused on improving the relationship by sharing information on changes in the distribution network, developing goods flows and possible areas for investment potential. In this way company X is in fact already preparing the carriers for the next e-tender.

Preparing an e-tender (especially the first one) takes a lot of time (creating packages of routes, etc). But a well organised, professional e-tender is guaranteed to deliver benefits. On the other hand, a bad organized e-tender, where price is the only criteria, can ruin everything. Company X still decided even to e-tender their ocean business, which is none to be still a sellers-market. By inviting and explaining clearly the objectives of the e-tender Company X managed to get all ocean carriers behind their plans.
Appendices

Appendix G: Interview with a Chilled Convenience Food Producer

Interviewee: Rick Stoevenbeld
Interviewer: Stefan du Perron
Date: 20th of January 2005

Company Y (so called due to sensitive information for competitors) is a renowned player in the chilled convenience food market in Europe, with over 25 different subsidiaries in 14 different countries. In the Netherlands Company Y owns two subsidiaries that are known for their sandwiches and salads.

The profitability is at stake due to continuous price pressure of the supermarket industry. Therefore cost reductions are a necessity. Moreover, Company Y is, as mentioned before, a collection of subsidiaries that each service their individual markets. Therefore the total product range is also split up over these different markets. The aim is to generate cost reductions and synergy by servicing the market with the full range. For this purpose the supply chain is being re-engineered and purchase of services is centralised. As a consequence of the re-engineering of the supply chain, some production locations will be integrated and some production flows will be optimised, but in general the locations and flows are quite stable. Fluctuations due to seasonal changes do play a role. Cost reductions are sought after by online tendering of the transport services.

In September 2003 Company Y has initiated the process of implementing an e-procurement event for the purchasing of transport services for the region of Northern Europe, consisting of Scandinavia, the Benelux, Germany, Poland, Austria and Switzerland. At the moment the process is in the implementation phase, where the bids on transport or volume packages are collected and the nominations and implementation will follow.

The process of implementing an e-procurement event for the purchase of transport services consists of a few steps;
- Establishing the necessity. The previous paragraph has illustrated the need for Company Y.
- Listing and evaluating the potential partners by means of an extensive “request for information” and market evaluations. The “request for information” offered the carriers the opportunity to display its geographically dispersed activities, value adding activities, ICT-capabilities, Supply Chain knowledge, vision and strategy, organisational structure, assets, etcetera.
- Consequently a selection is made of logistical service providers or carriers and the setup of the e-procurement event is determined.
- After running the tender procedure, an evaluation, nomination and implementation procedure is started to finalise the whole process.

Raw materials and semi-finished products are delivered to Company Y by the product suppliers. Company Y therefore purchases transport services for the outbound flow from factory to customer and in between of productions sites. Delivering to the customers DC’s is done by smart groupage together with other production companies that deliver to the same clients. As such Company Y needs logistical service providers that have made the distribution of small consignments of chilled convenience goods their core-competence and have strong ICT-capabilities for tracking and tracing (compulsory by the International General Food Law). “Dachser” and “Kraftverkehr Nagel”, both market leaders in Germany in the field of chilled convenience goods distribution, are examples of potential strategic partners for company Y. In return company Y is an interesting party for the carriers, because the distribution of chilled convenience goods offers a lot is potential for
added value services. Next to transport, warehousing and cross-docking, the logistical service provider also performs services such as picking and packaging and tracking and tracing.

Company Y has divided the total package of routes in volumes into two e-procurement events viz. one for Full Truck Load (FTL) transport services and the other for groupage transport. With the results of the FTL-tender it is currently implementing the first e-procurement event in its history. The main trigger was the potential cost reductions. The pursued synergy advantages must come from the bidding process where the most optimal match between the networks of the carriers and company Y will be expressed into the best prices.

All routes in the groupage-tender are offered individually. The carriers are not offered the possibility of creating packages of routes by means of conditional bids. It would add even more complexity to the already complex bidding and analysing of bids in groupage transport. This e-procurement event consists of 80 lots. This may not seem to be much, but groupage transport is more complex than regular FTL transport. The bidding and evaluating of bids, therefore, takes more time. The participating carriers are made familiar in the usage of the e-procurement event tool by the facilitating company hired by company Y.

For the evaluation of bids, Company Y uses an evaluation matrix which assigns weight to a set of criteria. With the preferred service providers a second round of negotiations can be started. Company Y prefers to do business with large logistic service providers (LLP's) in order to be able to create a strong network with a limited number of partners. Price, however, remains a very important criterion. If a smaller party can offer a better rate against the same conditions, then it will be nominated for the business. LLP's are also allowed to subcontract part of the business to smaller carriers. However, they have to assume responsibility for the delivered quality of service. For this e-procurement event both large and smaller carrier were invited. The big ones, with their large networks and high standards, set the standard. The small ones keep the big ones on their toes by putting some pressure on the prices.

This first set of two e-procurement events took up a lot of resources for company Y. Presumably any future events will take less time to organise (learning curve). At this point, however, it is not possible to be sure about that. Just as it is still unknown for which term the relations with the carriers will be. This will be determined by experience. (With some carriers that took over some assets, however, company Y had to commit to certain timeframes)

An important lesson learned is that good preparation is time consuming, but essential for the success of the e-procurement event. The shipper needs to determine its desired strategy before selecting potential partners that match this strategy. Company Y conducted a thorough preparation supported by an in transport specialised consultant, to get to know the market and its key-players, before moving on to e-procurement of transport services.

A secondary lesson was found in the importance of clear and unambiguous information. Creating as much transparency as possible for the carriers with regards to the transport requirements has contributed to the success of the e-procurement event. The carrier will not always be happy with an extensive list of demands, but he will always prefer it that they are mentioned upfront and that they apply for all participating carriers in the same way, thus making it possible to compare the offers.
Appendices

Appendix H: Interview Van Dieren Maritime (VDM)

Interviewees: Mr. Johan Logtenberg
               Mr. Henk van Dieren
Interviewer: Stefan du Perron
Date: 13th of July 2006

E-procurement

VDM believes that the e-tender has lost its deterrent character. E-auctions still are
discouraging; shippers don’t like them. Lots of shippers tend to reconsider their decision to
participate in e-auctions. Reason for this is too much pressure on price: shipper lowers
price (because of emotional reasons) wanting to be sure to get the business, cannot live
up to its promises and as a result has to return the business.

E-tenders, provided that they are set-up well, have advantages for carriers as well as
shippers. VDM sees the benefits of transparency in the total package of routes and
volumes. Possibility of combining routes to offer very keen prices (efficiency-advantages
as a result of combining round-trips) is also seen as a large benefit. The possibility to
create bids under conditions offers potential. To get the right view of all the operational
details, the contact between carrier and shipper is still seen as the most important matter.

Freight-traders are seen as too limited in their possibility of creating combinations.
CombineNet (by Conti) is well-structured, in which one can search well for interesting
routes or combinations of routes. Phillips has developed a package in-house, but it is
actually too complicated. VDM strategy while bidding though e-tenders is always: in a
weekly meeting review which e-tenders are available and which parts of the e-tender
offer prospects, and subsequently place a bid. Many other carriers bid on anything and
hope to end up with 5% of the business.

Contracts

Duration of contract is especially important for inter-modal carriers. VDM has to enter into
long-term contracts with its own suppliers, e.g. the rail-operator. Short-term is ruled-out.
To determine rail- or short sea services, long-term is necessary because of the large
investments involved. In road-transport this is of lesser concern because trucks are a much
more flexible usable asset. VDM presumes the industry is conservative by nature and
maybe insecure about its own capacity. Most of the time also based on emotional
reasons. On the other hand, large investments in rolling equipment mean bank loans.
Many carriers do not have the means to invest more than 50-70% of their own resources.
Bank-loans only are given based on contracts that guarantee certitude. Or the market
has to offer that many possibilities that this in itself offers enough certitude. Momentarily
the market is moving in this direction. As a result one can see many carriers entering in
short-term contacts. The risk is put towards the shipper, because this means a greater risk
of not being able to guarantee the necessary capacity, because carriers can get more
money elsewhere.

There are also many carriers that do not have the strategy to develop and grow, but who
concentrate on consolidation and improved efficiency. These carriers are inclined to
choose for more money when the opportunity arrives.

The difference between an UFN contract with 4 months notice and a one-year contract
with 2 months notice: the one-year contract offers more certitude, which is important for
inter-modal carriers. The 2-month notice is shorter than the 4-month, but the carrier has
more control. If he does well he keeps the contract, if he doesn’t he loses it. To VDM this is
totally acceptable. The carrier has to try as hard as it can to offer the desired service.
Development into total-market-covering
VDM sees great potential in developing towards total-market-covering. This is already the case for Sweden to Benelux, France and Germany. VDM covers the whole package. Matrix-modifications in Sweden only are of minor influence, because there always is volume of the other suppliers available. The development into total-market-covering should not be implemented too far, in the sense that the carrier is forced to deliver certain transport services that do not fit. E.g. LKW Walter will not provide outbound delivery, because they specialise in international transport.

Conti has also taken the step towards using ten carriers for the whole of Europe. VDM would like to continue in this way with IKEA. The tender-tool creates potential to tune the networks of carrier and shipper in to each other, thus creating close collaboration. When shipper and carrier enter in such close co-operation, mutual dependence is created which eventually benefits trust and service provided. Example: A large shipper needs to nominate carriers on a package of routes from the Baltic States and Russia. It wants to give the total package to carrier A. In the end the decision is made to give Russia to another carrier. The other carrier leaves the shipper after some time because elsewhere it can get a better price for the job. Carrier A never would have done this, because the relationship also included more besides Russia (the Baltic States). In the past IKEA has indicated wanting to proceed in this way with its whole transport organisation. Forgotten is the fact that in that case the choice for the specific carrier should be based on a package-price and that there should not be any negotiations about the routes within this package.

Flexibility
In practice not as necessary, because the dynamics in the network are small. The coverage of a market provides security in itself and offers flexibility. Matrix-changes are an acceptable argument towards the carrier to end contracts on route level.
Appendices

Appendix I: Interview VOS Logistics (VOSL)

Interviewee: Mr. Jules Menheere
Interviewer: Stefan du Perron
Date: 8th of Aug 2006

Preliminary remarks
VOSL wants to grow organically to preserve flexibility in order to meet the customer’s wishes. E.g. If it is necessary to add an extra trailer, it is better to do this by yourself than to ask a subcontractor. Serious growth, for which investments in trucks and trailers are necessary, should in fact be included in or put into a long-term contract. A shippers’ growth of business should always be taken step by step. Better slow but steady than rapidly but not well thought through. This does not mean that investing in materials is not possible (in long-term contracts). VOSL’s growth-strategy with relation to IKEA is aimed at building country-to-country relationships.

E-Procurement
Most shippers enter into e-auctions to save money. A number of carriers are invited to make a bid in order to lower the freightage. There still are carriers (even nowadays) that submit to the pressure of wanting to be sure to bring in the business. They lower their prices even below cost price in order to gain entry to the shippers business. In a later stadium they still have to raise their prices (because the carrier cannot provide its services for the money offered) or the contract of the carrier will be cancelled. Sometimes a shipper asks a number of carriers to make an offer, but in the end the shipper stays with the same carrier as before. To VOSL the above two scenarios are reasons not to enter in the e-auction.

VOSL only has had bad experiences with e-auctions. The prolonging of the deadline, when changes take place in the ranking just before closing the auction, entices the carrier to make a price even below its own minimum. Viewing the current market, this should be somewhat less the case, but it still happens because of the lure of long-term contracts. VOS thinks that the biggest problem about e-auctions or even e-tenders is that digitalisation will stand in the way of personal contact.

Tenders are interesting only when the shipper is known, so that one can be sure that the contract is serious and the tender process will be honest. VOSL’ approach is to filter out interesting routes (those who fit in its network) and subsequently put interesting prices on those routes. The advantage of e-tenders to VOSL is, that the e-tender gives VOSL the opportunity to cut the package presented in smaller parts to be able to make prices in collaboration with multiple offices, divisions, subcontractors, etc. all at the same time. In principle, the improved insight of the shipper should lead to better decisions that are of benefit to the carrier.

This improved insight in the routes offered is nice, but not at all decisive. Carriers are presented with that many tenders that they - so to speak - do not remember the next day what was offered in the IKEA tender the day before. To the carrier the most important issue is optimisation of its own network, not the shippers’ network.

Therefore, it is not the question of finding round-trips within the network of a shipper but to create round-trips within the own network by using the lanes in the shippers’ package. Where or when the carrier needs connecting cargo to optimise its own network, depends on its other customers. Logically, this cannot be concentrated in one certain moment in time for all carriers. The developments in all those networks do not coincide with the developments within the IKEA-network. Considering this, it is therefore not necessary to organise a pan-European tender. VOSL follows the procedure of finding out which flows of goods exist/are available though development-talks. With that VOSL prefers country-
to-country tenders. Because VOSL is divided in clusters, a pan-European tender is not of much more added value.

Growth has to be taken step by step. If whole packages at one time are brought in, it is very difficult to grow into them, just out of one tender. Real growth can happen, by making investments, but this has to take place under different conditions. E.g. the 5% clause regarding increase in petrol-prices has to change. It is better to agree on price-increase and price-drops as a result of petrol-prices.

Contracts
For large investments, long-term contracts are necessary. Firstly for the bank, that only provides loans on a secure basis. Secondly for the carrier, who has to depreciate its investments over a certain time period. The depreciation period of a truck is about 5-7 years. That of a trailer is about twelve years. Based on these figures, VOSL would like to enter in 5-year long term contracts with six months- to a year’s notice. Six months is enough time to put the materials into use elsewhere. Notice of one year at least is necessary, because of staff-contracts that usually comprise one year. These kinds of structures become more and more necessary as the used fleet expands. Four trucks can easily be put in use elsewhere, without too many problems. Twenty-five trucks are a lot more difficult to put in use alternatively. A larger fleet is a less flexible asset.

There is in fact no real difference between a UFN contract with four months notice and a one-year contract with two months notice. Guaranteed volumes are not necessary. Certainty is provided by giving exclusivity on a route and a forecasted volume. A performance-clause in the contract is no problem. The carrier is responsible for its performance and has to do its utmost. Not every contract has to have the same structure. Business from a supplier is different. It offers less certainty, because the matrix can change, but it also does not require a trailer pool, which means less material and less investments.

Flexibility
If VOSL would choose to supply the Dutch market as a whole, it would limit its own flexibility. With multiple carriers on an outbound market, it still is theoretically possible for a carrier to say it does not want to take on a certain store anymore. When a carrier is the responsible for the whole market, this is no longer possible. As a result, flexibility decreases. However, a long-term vision is important. This is the reason why VOSL would not ask to stop its transport to one store. As soon as VOSL supplies the whole Dutch market e.g. from the Oosterhout Distribution Centre, they would be a little less flexible, but they made the choice to do this themselves. VOSL would like to do all of the business for The Netherlands and could adjust their other activities upon this.

Creating mutual dependency is acceptable. It creates loyalty and makes the carrier develop its organisation and setup around the business of IKEA. On the other side, it gives carriers a sense of commitment if the shipper relies on them. The shipper has to make investments in order to run the business like it is supposed to.

Securing capacity
The biggest challenge IKEA faces is preserving transport capacity in the next couple of years. There is no other shipper with a network as large as IKEA’s. This is the reason why IKEA has the opportunity to use many options that others cannot. E.g. No carrier or shipper was able to setup an inter-modal solution for transport from Ruhr-area to Spain up till now. IKEA has a lot of influence in Brussels and could use this to accelerate these kinds of projects. Large gaining is still to be made by further optimising the network.
Appendices

Appendix J: Interview DHL

Interviewee: Mr. Michiel van Berkel
Interviewer: Stefan du Perron
Date: 11th of August 2006

Creating round-trips in a pan-European network only works if products to be transported are of the same nature and if volumes are sufficiently large. IKEA meets both requirements, so in principle it is possible to offer cargo on a pan-European scale and obtain efficiency benefits. Even so, a carrier will try to optimise its own network in the first place. This is where the biggest benefits are to be found for the carrier.

However, only carriers that operate an actual pan-European network based on local offices, can obtain these benefits (of being able to service the pan-European IKEA network) at the moment. The local offices are necessary due to cabotage-legislation. In the year 2008 things will be different when legislation is altered. In that case, improved transparency will yield more profit.

Not many carriers operate an actual pan-European network. DHL (initial letters of the founders Dalsey, Hillblom and Lynn, created in the year 1969) is one of the largest carriers in the world. Schenker also is very large. The DFDS and Frans Maas combination will become an important competitor. The current pan-European networks however, that are in use as such, are always groupage networks. Up till now not one carrier is able to employ its whole network as one, in order to take on mega-volume or full-truckloads. This has to do with the division-structure of all carriers.

DHL is separated in different divisions that have disposal of parts of the total fleet of cars. These separate divisions, each one for itself, try to make use of their part of the fleet as best as is possible. This however leads to sub-optimisation. Trucks from DHL Spain, drive from Spain to e.g. Belgium with cargo for DHL and return with different cargo, found at the spot market. A DHL Benelux truck does the same thing in opposite direction. To DHL it would be better if both runs would contain DHL cargo.

For this reason DHL is currently developing the Pan-European Visibility Tool (PEVT). This tool now runs as a pilot on the route Belgium - Spain. Due to the unequal trade-balance this is an interesting country-to-country relationship. This tool allows DHL to show all available cargo and all available trucks on European scale, and at the same time tune them into each other. This tool will eventually lead to transporting available cargo within the European DHL network structurally with DHL trucks. Schenker is also trying to create visibility into the own network of cargo and available trucks on a European scale.

E-tender approach
DHL looks at the customer behind the tender. Does it concern a serious tender or only a benchmark? Is the customer prepared to implement the tender’s actual results? Does one have faith in the fair course of the tender-process?

DHL doesn’t have to buy itself into the customer. DHL attracts customers by looking at subjects like: does DHL fit the client and do the requirements fit the DHL-network. If the client’s volumes are large enough, DHL can construct a tailored product, making use of existing own networks and products as much as possible.

E-tender design
E-tenders often tend to be inflexible and rigid and leave little room for creativity. The carrier is only allowed to enter a price, and nothing else. This makes it difficult to suggest alternative solutions. Alternate bidding could offer the carrier more possibilities to show it is creativity.
DHL has seen many customers returning to the traditional way of placing a tender after trying e-tendering. Probably in too many cases something goes wrong with electronic tenders. DHL has had insight in the competition’s prices by accident!

Combinatorial bidding is something almost no client of DHL enters in. It produces internal dependency, which in a later stadium one wants to get rid of. As soon as a loop is created, the risk arises that some things may change again. Pan-European tenders still are one step too far. For many (all) carriers a country-to-country tender is better to process.

**Contracts**
DHL has no problems regarding UFN contracts. They have various customers with comparable contract forms. DHL does not look for customers which place a tender every six months. Despite of the right intentions, often something goes wrong. The implementation of transport solutions is very costly. DHL looks for customers wanting to engage in a long-term relationship. Investments are made based on the whole customer-record. In most cases, material is used for multiple clients; almost never dedicated to one customer only. Performance-clauses within contracts are no problem. The carrier would like to render a good performance, and has this within its own control.

**Flexibility**
Using charters gives extra flexibility. Working with charter gives the carrier the possibility to cut down capacity in quiet times by putting every individual charter on hold for a day. In this way losses for the charter can be kept to a minimum, but still the capacity can cut in half. Moreover, it is cheaper to work with charters. It saves a lot of overhead costs. Also the drivers are small entrepreneurs that do a lot of maintenance on their trucks themselves. DHL also rents a lot of trailers, which increases their flexibility. The rental contracts have a notice period of one month.

**Alternative business models**
For other customers DHL orchestrates the whole transport business for a certain fee. Whatever extra efficiency DHL can make is for their benefit.