Designing for Acceptance
Exchange Design for Electronic Intermediaries

Erwin Fielt

Enschede, The Netherlands, 2006

Telematica Instituut Fundamental Research Series, No. 020 (TI/FRS/020)
Telematica Instituut Fundamental Research Series
(see also: http://www.telin.nl/publicaties/hrs.htm)

001 G. Henri ter Hofte, Working apart together: Foundations for component groupware
002 Peter J.H. Hinssen, What difference does it make? The use of groupware in small groups
003 Daan D. Velthausz, Cost-effective network-based multimedia information retrieval
004 Lidwien A.M.L. van de Wijngaert, Matching media: Information need and new media choice
005 Roger H.J. Demkes, COMET: A comprehensive methodology for supporting telematics investment decisions
006 Olaf Tetteroo, Intrinsic information security: Embedding security issues in the design process of telematics systems
007 Marike Hettinga, Understanding evolutionary use of groupware
008 Aart T. van Halteren, Towards an adaptable QoS aware middleware for distributed objects
009 Maarten Wegdam, Dynamic reconfiguration and load distribution in component middleware
010 Ingrid J. Mulder, Understanding designers, designing for understanding
011 Robert J.J. Slagter, Dynamic groupware services: Modular design of tailorable groupware
012 Nikolay K. Diakov, Monitoring distributed object and component communication
013 Cheun N. Chong, Experiments in rights control expression and enforcement
014 Cristian Hesselman, Distribution of multimedia streams to mobile Internet users
015 Giancarlo Guizzardi, Ontological foundations for structural conceptual models
016 Mark van Setten, Supporting people in finding information: Hybrid recommender systems and goal-based structuring
017 Remco Dijkman, Consistency in multi-viewpoint Architectural design
018 João P.A. Almeida, Model-driven design of distributed applications
019 Margit C.M. Biemans, Cognition in Context: The effect of information and communication support on task performance of distributed professionals
020 Erwin Fielt, Designing for Acceptance: Exchange Design for Electronic Intermediaries

ISSN 1388-1795; No. 020

Copyright © 2006, Telematica Instituut, The Netherlands

All rights reserved. Subject to exceptions provided for by law, no part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the copyright owner. No part of this publication may be adapted in whole or in part without the prior written permission of the author.

Telematica Instituut, P.O. Box 589, 7500 AN Enschede, The Netherlands
E-mail: info@telin.nl; Internet: http://www.telin.nl
Telephone: +31 (0)53-4850485; Fax: +31 (0)53-4850400
Designing for Acceptance
Exchange Design for Electronic Intermediaries

PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan de Technische Universiteit Delft,
op gezag van de Rector Magnificus prof. dr. ir. J.T. Fokkema,
voorzitter van het College voor Promoties,
in het openbaar te verdedigen

op dinsdag 28 november 2006 om 12.30 uur

doork Erwin Johannes FIELT

ingenieur in de technische bedrijfswetenschap

geboren te Doetinchem
Dit proefschrift is goedgekeurd door de promotor:
Prof. dr. R.W. Wagenaar

Samenstelling promotiecommissie:
Rector Magnificus, Voorzitter
Prof. dr. R.W. Wagenaar, Technische Universiteit Delft, promotor
Prof. mr. dr. ir. S.C. Santema, Technische Universiteit Delft
Prof. dr. ir. E. van Heck, RSM Erasmus University
Prof. dr. S. Klein, University College Dublin
Prof. dr. Y.H. Tan, Vrije Universiteit Amsterdam
Prof. dr. Rolf T. Wigand, University of Arkansas at Little Rock
Dr. ir. W. Janssen, Telematica Instituut
Preface

The metaphor of a journey is often used to describe important events in life. Journeys have always been significant happenings in my life, whether it is a long one to Australia or a somewhat shorter one to Münster. My six months stay in India as masters student was a turning point in my life. My journey from Utrecht back to Enschede was the start of my career as a scientific researcher and Ph.D. candidate at the Telematica Instituut.

Sometimes it is stated that the path is more important than the destination. Personally, I am very pleased that I reached the destination of my Ph.D. journey, not only because it was difficult at times, but also because it enables me to commence a new one.

An important part of my Ph.D. journey consisted of travelling along four electronic intermediaries. I am deeply grateful to the people involved in Tapestria, SeaQuipment, Meetingpoint and Voogd & Voogd. I thank them for their guidance and support. Being part of their discovery of ‘what works and what does not’ in the world of electronic business provided me with key information needed to develop this thesis.

Of course, a successful journey depends tremendously on the travel companions. I want to thank my family, friends, colleagues and peers that made it possible. In particular my fellow Ph.D. students at the Telematica Instituut and Edispuut were a great support and motivation. Because naming a few would mean not naming many others, I will restrict myself to a few personal acknowledgements. I would like to thank my parents, Agnes and Wim Fielt, for always being there to help me. I would also like to thank my supervisors Wil Janssen, Edward Faber and René Wagenaar for their support and, above all, their patience. Finally, I wish to thank Chris Vissers as founder of the Telematica Instituut, the organisation that provided me with this opportunity.

Erwin Fielt

Enschede, the Netherlands, October 2006
Table of contents

CHAPTER 1. Introduction 1
1.1 The success and failure of electronic intermediaries 1
1.2 The exchange design problem 6
1.3 Towards exchange design theory 7
1.4 Research problem and questions 9
1.5 Research approach and contribution 12
1.6 Outline of the thesis 13

CHAPTER 2. Research approach 15
2.1 Research perspective 15
2.2 Research strategy and process 17
2.3 Case selection and overview 20
2.4 Data collection and analysis 25

CHAPTER 3. Theoretical framework 31
3.1 Introduction 31
3.2 A view on business networks 31
3.3 Theories on exchange design 34

CHAPTER 4. The Tapestria pilot case and the exchange design model 59
4.1 Introduction 59
4.2 The Tapestria pilot case 60
4.3 Exchange design model 76

CHAPTER 5. The SeaQuipment case 87
5.1 SeaQuipment and its business network 87
5.2 Exchange design, interests and acceptance 92
5.3 Case study findings 103
<table>
<thead>
<tr>
<th>CHAPTER 6.</th>
<th>The Meetingpoint case</th>
<th>107</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Meetingpoint and its business network</td>
<td>107</td>
</tr>
<tr>
<td>6.2</td>
<td>Exchange design, interests and acceptance</td>
<td>116</td>
</tr>
<tr>
<td>6.3</td>
<td>Case study findings</td>
<td>126</td>
</tr>
<tr>
<td>CHAPTER 7.</td>
<td>The Voogd &amp; Voogd case</td>
<td>131</td>
</tr>
<tr>
<td>7.1</td>
<td>Voogd &amp; Voogd and its business network</td>
<td>131</td>
</tr>
<tr>
<td>7.2</td>
<td>Exchange design, interests and acceptance</td>
<td>137</td>
</tr>
<tr>
<td>7.3</td>
<td>Case study findings</td>
<td>145</td>
</tr>
<tr>
<td>CHAPTER 8.</td>
<td>Exchange design patterns</td>
<td>149</td>
</tr>
<tr>
<td>8.1</td>
<td>Cross-case findings</td>
<td>149</td>
</tr>
<tr>
<td>8.2</td>
<td>Exchange design patterns</td>
<td>153</td>
</tr>
<tr>
<td>8.3</td>
<td>Theoretical support for the patterns</td>
<td>171</td>
</tr>
<tr>
<td>CHAPTER 9.</td>
<td>Conclusions and further research</td>
<td>177</td>
</tr>
<tr>
<td>9.1</td>
<td>Addressing the research problem and questions</td>
<td>177</td>
</tr>
<tr>
<td>9.2</td>
<td>The exchange design model and patterns</td>
<td>179</td>
</tr>
<tr>
<td>9.3</td>
<td>Towards an approach for exchange design</td>
<td>181</td>
</tr>
<tr>
<td>9.4</td>
<td>Limitations of the research</td>
<td>183</td>
</tr>
<tr>
<td>9.5</td>
<td>Topics for further research</td>
<td>184</td>
</tr>
<tr>
<td>9.6</td>
<td>Concluding remarks</td>
<td>186</td>
</tr>
</tbody>
</table>

References | 187 |

Summary | 195 |

Samenvatting | 201 |
Introduction

The success and failure of electronic business in general and electronic intermediaries in particular has prompted this study. A major problem for electronic intermediaries is the voluntary acceptance of their electronic service by customers and suppliers. Our research focuses on the exchange design choices of the intermediary that can contribute to acceptance. Developing the right exchange design is a complex undertaking because of the many design options on the one hand and the interests of multiple actors to be considered on the other. The objective of this study is to develop design theory from the vantage point of the intermediary as the designer in an electronic service design process. This study contributes to the scientific and practical community through reusable design knowledge in the form of an exchange design model and patterns.

1.1 The success and failure of electronic intermediaries


The promises of electronic business have given rise to a boom in business-to-business initiatives by new internet start-ups and traditional firms. Every business is information business and ICT enables the blow-up of the richness/reach trade-off (Evans & Wurster, 1999). In particular,
electronic business offers new opportunities for coordination and value creation. According to Malone, Yates and Benjamin (1987), electronic coordination between firms can be used to take advantage of the electronic communication, brokerage and integration effects of ICT. Amit and Zott (2001) suggest that electronic business can create value via four major drivers: efficiency, complementarities, lock-in and novelty. Successful firms such as eBay and Google illustrate the possibilities of electronic business.

However, the disappointing growth of electronic business in general and the lack of success of specific firms have given rise to a less optimistic and positive outlook for electronic business. For example, in its 2005 review of the digital economy, Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS) concluded that the advanced use of the internet by firms is relatively low from a sales perspective (CBS, 2005). Although Dutch firms have a website, they trade online or couple their ICT systems internally or externally to a much lesser degree. Another specific example, Covisint (www.covisint.com), which was created by three large car manufacturers, failed to become the industry-wide exchange for the automobile industry and to result in substantial savings for car manufacturers and part suppliers. The progress of business-to-business electronic commerce has been hindered by unanticipated technical, organisational, economic and legal challenges that diminish its value (Dai & Kauffman, 2002a). Electronic intermediaries such as Covisint are an interesting domain of electronic business because they can provide insights into the success and failure of electronic business.

An intermediary brings together customers and suppliers and facilitates demand and supply activities for the exchange of goods, services and information (Figure 1-1). The term ‘intermediate’ refers to a position: being or occurring at the middle place, stage, or degree or between extremes (Merriam-Webster Online Dictionary, www.webster.com, 2/6/2006). An intermediary provides value-added services such as aggregation and distribution of products and product information, quality checks and warranties (Chircu & Kauffman, 2000). Intermediaries solve customers’ problems and, as a result, suppliers’ problems. Their position on the high ground between both groups enables them to create value and charge for it (Anderson & Anderson, 2002).

Intermediaries can solve problems of demand and supply because of their special position in the business network. Firstly, they can connect many customers with many suppliers. Therefore the intermediary can provide services that individual customers and suppliers cannot offer and gain efficiencies via the reduction of necessary contacts between customers and suppliers. Secondly, they can specialise in exchange activities and supportive production functions; an exchange is a task in itself (Wigand,
Picot, & Reichwald, 1997). Thirdly, they can act as a neutral party, a buffer between the interests of customers and suppliers (Sarkar, Butler, & Steinfield, 1995).

Singh (2000) differentiates between two views on intermediaries: (1) a narrow view, in which a ‘middleman’ comes between a buyer and a seller in a specific transaction, and (2) a broader view involving anyone along the entire value chain from raw inputs to final consumption. Intermediaries can perform one or more of the following functions (Singh, 2000):

- Transforming products (manufacturing, assembling, bundling, packaging)
- Being physically closer to the final buyer than the producer
- Smoothing the market by carrying inventory
- Providing expert actions or information
- Being long-term players with good reputations (for quality assurance)
- Economising on search costs for consumers
- Matching buyers and sellers (in willingness to pay as well as what is bought and sold)
- Economising on costs of completing and implementing the transaction

An electronic intermediary provides a critical part of its service via the internet, for example, buying or selling products online. The most extreme case is digital pure-play, which provides all services electronically. Electronic intermediaries have suffered from extreme optimism and, subsequently, substantial negativism (Day, Fein, & Ruppersberger, 2003). While electronic business has worked out as more troublesome than expected for most firms, dealing with electronic business is even more complicated for intermediaries: one of the most debated topics in electronic business is the role and function of wholesalers, distributors and other intermediaries (Chircu & Kauffman, 2000). Intermediaries are at the forefront of the changes by virtue of being in the middle and operating on thin margins (El Sawy, Malhotra, Gosain, & Young, 1999). Electronic business provides intermediaries with both significant opportunities and considerable threats. On the one hand, it presents opportunities to reinvent their value logic by offering new services or providing existing services in new ways. On the other hand, intermediaries are threatened by the
opportunities that electronic business offers to customers and suppliers for
doing direct business more easily. Business-to-business electronic
intermediaries are an interesting and important phenomenon because of
their potential to affect company and supply chain performance and to alter
industry structure (Christiaanse & Markus, 2002).

Success stories of electronic intermediaries have been reported over the
past few years, for example, ChemConnect, eBay, Tele Flower Auction
(Kambil & van Heck, 2002). However, according to Wise and Morrison
(2000) most internet exchanges are floundering. These exchanges suffer
from meagre transaction volume and equally meagre revenues, and face a
raft of competitors. Day, Fein and Ruppersberger (2003) found that of the
5120 electronic marketplaces they observed at the end of 2000, only 43% sur-
vived to mid-2002 and they forecast that only 180 would be left by mid-
2003. Why are some electronic intermediaries successful and others not? A
closer study of some specific cases illustrates that electronic intermediaries
often face a lack of participation by customers and/or suppliers. Tapestryria
(www.tapestry.com), a new electronic intermediary in the soft furnishing
industry, had problems attracting customers to purchase interior fabrics.
Meetingpoint (www.mp4all.nl), a new electronic intermediary in the
insurance industry, has difficulties attracting some of the major suppliers.
The issue of participation can be split into two parts: the opportunity for an
electronic intermediary in general and the acceptance of a specific kind of
intermediary in particular.

There is a lively debate about intermediation, disintermediation and
reintermediation in the literature on electronic intermediaries (Chircu &
Kauffman, 2000; Giaglis, Klein, & O’Keefe, 2002). Intermediation refers to
the entry of a new player as an intermediary, disintermediation to the exit
of an existing intermediary, and reintermediation to the re-entry of a
disintermediated player. Benjamin and Wigand (1995), for example, show
how transaction patterns in a traditional value chain may change and how
selling prices can be affected. They discuss different scenarios such as
bypassing the wholesaler and retailer, introducing an electronic market and
supporting the consumer with a market choice box. Traditionally the focus
has been on the reduction of (external) coordination costs due to ICT
based on Transaction Costs Economics (TCE) (for example, Clemons,
Reddi, & Row, 1993; Gurbaxani & Whang, 1991; Malone et al., 1987).
This has resulted in different hypotheses about the increasing utilisation of
ICT favouring specific governance structures like the ‘move to the market’
(Malone et al., 1987), or ‘move to the middle’ (Clemons et al., 1993). TCE
has its shortcomings, however, as it provides only a limited theoretical
perspective on coordination, and coordination should not be viewed as a
single unified service.
Later research employs more extensive theoretical frameworks than transaction costs, including business marketing, manufacturing strategy and organisational behaviour literature (Klein, 1996). Based on such an extended framework, Holland and Locket (1997) show that ICT can be used to support and improve a range of governance structures and that these forms are often far more complex than simple markets or hierarchies. Furthermore, Sarkar, Butler and Steinfield (1995) state that rather than viewing intermediaries as providing a single unified service known as ‘coordination,’ intermediaries must be considered in more detail. For example, an intermediary can service a customer by supporting search and evaluation, needs assessment and product matching, risk reduction, and product distribution/delivery. Sarkar, Butler and Steinfield (1995) conclude that more and less intermediation are equally plausible outcomes and that some functions of intermediaries are not easily assumed by suppliers. While the debate on intermediation, disintermediation and reintermediation remains undecided, the general conclusion is that intermediaries are still needed but that the intermediary role is changing (Anderson & Anderson, 2002). (Bailey & Bakos, 1997; Giaglis et al., 2002)

The changing role of intermediaries raises the issue of voluntary acceptance of a specific kind of intermediary. Day, Fein and Ruppersberger (2003) studied different kinds of electronic intermediaries and concluded that most electronic marketplaces are re-formed applications enabling cost reductions or improvements rather than breakthrough applications that rewrite the rules by creating new products or services. Often the unique, superior benefits for customers and/or suppliers are fewer than expected, while the resistance to change is much higher (Day et al., 2003). Customers and suppliers need to believe in the electronic intermediary’s ability to match the needs of demand and supply successfully (Kollmann, 2001). For suppliers, for example, an electronic intermediary that enables them to reach new customers but also increases price transparency may be unacceptable. For customers, it may be unacceptable that an electronic intermediary does not offer substantial benefits yet requires them to significantly change the way they work.

The kind of intermediary and its contribution to the intermediary’s acceptance are still largely unaddressed. Acceptance literature only provides a limited understanding of exchange design choices (for example, compatibility), while business design theory is either too general (for example, business models) or specific (for example, auction mechanisms). By studying the exchange design, our research focuses on the kind of electronic intermediary in terms of the services it provides to customers and suppliers. The next section will address exchange design and its problematic nature because of the host of design options and balancing the interests of the different actors.
1.2 The exchange design problem

Exchange design refers to the way an intermediary coordinates activities and resources in the vertical business network by structuring all or part of the exchange between customers and suppliers. Figure 1-2 provides an example of an intermediary in a vertical business network. Here the total exchange between customers and suppliers is formed by the customers’ and suppliers’ exchanges with the intermediary and a direct exchange between customers and suppliers. For example, shipyards can find maritime suppliers via the web catalogue SeaQuipment (www.seaquipment.com) but transact with the maritime suppliers directly. This example of a vertical business network includes end customers, who are customers of the intermediary’s customers. In the case of SeaQuipment, the customers of shipyards are the shipowners.

Developing the right exchange design is a complex undertaking because of the many design options on the one hand and the interests of multiple actors to be considered on the other. Electronic intermediaries have numerous possibilities for their exchange design, offering different electronic services in different ways to customers and suppliers. There are many traditional forms and roles for intermediaries (see, for example, Coughlan, Anderson, Stern, & El-Ansary, 2001) and there are many new ones enabled by ICT (see, for example, Bailey & Bakos, 1997). Some intermediaries only provide an electronic catalogue, while others operate an electronic marketplace or act as a wholesaler. An intermediary can also blend characteristics of these forms or change a form by adding, adapting or removing characteristics. For example, Tapestria decided to become a mix of a marketplace (prices set by producers) and a wholesaler (warehouse and logistics by Tapestria).

The exchange design choices can affect the interests of customers, suppliers and intermediary either positively or negatively. An intermediary should choose an exchange design that has a positive net effect for all actors (Kambil & van Heck, 2002). However, a problem with most exchanges is that they are not well thought-out. Often the intermediary does not pay enough attention to the priorities of customers and the benefits for sellers (Wise & Morrison, 2000). Moreover, while it seems obvious that an
Towards exchange design theory

1.3 Towards exchange design theory

To make the concept of reusable exchange design knowledge more specific, our research takes as its vantage point the intermediary – the designer of an electronic service for the exchange between customers and suppliers. A description of the electronic service design process is used to position our research, making the ambition and scope of the study more explicit. A design process can be divided into a number of logical phases with different design activities and instruments (see, for example, Roozenburg & Eckels, 1998). Figure 1-3 presents a simplified overview of the electronic service design process that differentiates between three phases:

1. The business idea is an initial conception of the relationship between market needs (problem) and electronic business (solution). The central issue is to have an electronic service that provides customer value. This
is where the intermediation, disintermediation and reintermediation debate can be positioned.

2. The service concept elaborates the electronic business idea. This is where the high-level structure of the service is developed and critical business and technological issues are identified and resolved. The central issue is the feasibility of the electronic service in terms of provisioning and use.

3. In the detailed design the service concept is further completed and refined. Excellence is the central issue. For example, the business processes can be defined in detail to leverage customer contact or to optimise the throughput time. Or the technical architecture can be specified to determine the hardware capacity needed to handle the expected amount of traffic for the electronic service.

The focus of our research is upon designing for acceptance: the critical exchange design choices that require trade-offs relating to balancing the interests of customers, suppliers and the intermediary. Using the electronic service design process, we can specify more precisely the ambition and scope of our research on exchange design: developing reusable exchange design knowledge in the area of the electronic service concept (Figure 1-3). This is an important stage in the design process because it is here that critical, high-level design choices are made and the initial closure of the electronic service design takes place. As part of the feasibility concerns, an assessment should be made as to whether it is possible to design an electronic service that contributes to acceptance of the intermediary by balancing the interests of the different actors.

The objective of our research is to further develop design theory for electronic business in vertical business networks in general and electronic intermediaries in particular. Developing design theory has been identified as an import issue in literature on both management (for example, van Aken, 2004) and information systems (for example, Hevner, March, & Park, 2004). More specifically, the focus of our research is upon exchange design theory from the viewpoint of designing for acceptance and with the intermediary as designer. This can be positioned in the service concept phase of the electronic service design process described above.

In addition to design-oriented research, other authors have studied the acceptance of electronic intermediaries, mostly electronic marketplaces. Day, Fein and Ruppersberg (2003) have looked at the survival or exit of business-to-business exchanges, and Grewal, Comer and Mehta (2001) have investigated the nature of organisational participation in electronic marketplaces. Kollmann (2001) has identified acceptance criteria of customers and suppliers. However, despite some research on design and acceptance in the area of electronic intermediaries, exchange design in general and designing for acceptance in particular remain little understood, relatively new research areas.

1.4 Research problem and questions

The previous sections have looked at the success and failure of electronic intermediaries. This led to a focus on the exchange design choices of an electronic intermediary that can contribute to acceptance by (potential) customers and suppliers. Developing the right exchange design is problematic because of the many design options and the interests of multiple actors that need to be taken into account. We are specifically interested in critical exchange design choices that require trade-offs relating to balancing the interests of customers, suppliers and the intermediary. This results in the research problem described below and illustrated in Figure 1-4.

*Research problem:* How can an electronic intermediary successfully balance the interests of customers, intermediary and suppliers in the exchange design?

This ‘how’ problem can be addressed by studying the content, process and context of exchange design. For example, the decision to make use of a multi-channel strategy concerns the content of exchange design. Van Aken (1994) refers to an object-design as the design of the intervention or of the artefact. An example of the process of exchange design is the way in which customers or suppliers participate in the design of the electronic service. Van Aken (1994) refers to a realisation-design as the plan for the implementation of the intervention or building of the artefact and the
process-design as the professional’s own plan for solving the problem. The competition with other intermediaries is an example of the context of exchange design. For our study we concentrate on the content of exchange design. As a result, we develop an exchange design model and patterns described as research contributions below.

With ‘successful’ we mean that exchange design, by balancing the interests, contributes to the voluntary acceptance by buyers and sellers. Voluntary acceptance is the absence of coercion with respect to using the electronic service provided by the intermediary. Customers and suppliers are relatively free in their choice of whether or not to make use of the service. Moreover, acceptance can be problematic if there is insufficient trust in the business network. We therefore require a minimal level of trust to ensure that trust does not become a dominant issue. Much has already been said about increasing trust in electronic services, for example, Schneiderman (2000) and Resnick, Zeckhauser, Friedman and Kuwabara (2000).

Before breaking the research problem down into research questions, we restrict our research domain. One prerequisite is an opportunity for a new or traditional intermediary to add value in the business network. Otherwise, no balancing of interests is possible. This is related to the business idea phase in the electronic service design process and to the intermediation, disintermediation and reintermediation debate. For example, an intermediary is often not viable when there are only a few customers and suppliers available.

We want to limit the research domain because there are many different types of electronic intermediary. Our focus is on independent intermediaries with many-to-many, business-to-business exchanges directed at the primary activities of customers and suppliers. Balancing the interests of customers, intermediary and suppliers requires the intermediary to be an independent actor. The focus is upon many-to-many exchanges because one-to-many or few-to-many exchanges generally have a buy-side or sell-side bias. We confined ourselves to business-to-business intermediaries because there are some fundamental differences between business and consumer markets (Kotler, Armstrong, Saunders, & Wong, 1997), although these differences are less when dealing with smaller firms. To ensure that the interests of customers and suppliers are related, the intermediary should be directed towards the primary activities of customers and suppliers.
Figure 1–4 presents the research problem in diagrammatic form, breaking it down into a number of research questions. The central object is the exchange design. As there are many different design options for an electronic intermediary, we need to identify the exchange design themes that are relevant to the interests of customers, suppliers and the intermediary. This results in the first research question.

**Research question 1**: What are the major exchange design choices that affect the interests of customers, intermediary and suppliers?

The answer to this question will be the exchange design model. A design choice may have positive and/or negative effects on the different interests of each actor. We should determine how design choices relate to the interests of customers, intermediary and suppliers. We are particularly interested in the critical exchange design choices that require trade-offs relating to balancing the interests of these actors. This results in the second research question.

**Research question 2**: How do these exchange design choices affect the interests of customers, intermediary and suppliers?

The answer to this question will be in the ‘pattern problem’ part of the exchange design patterns. Successfully balancing the interests of customers, suppliers and intermediary should contribute to voluntary acceptance of the intermediary’s electronic service by customers and suppliers. Once the critical exchange design choices and their impact on the interests of customers, intermediary and suppliers have been identified, we need to find out what the ‘right’ choices are for an intermediary to achieve voluntary acceptance by customers and suppliers. This results in the third research question.

**Research question 3**: How do these exchange design choices and interests contribute to voluntary acceptance of the electronic intermediary?
The answer to this question will be in the ‘pattern solution’ and ‘pattern consequences’ parts of the exchange design patterns.

1.5 Research approach and contribution

Our research can be positioned in the design perspective. Design science focuses on artefacts that are practical or useful. In the disciplines of Management and Information Systems – where this study is positioned – design science is a valid approach (Hevner et al., 2004; van Aken, 2004). It develops scientific knowledge for a class of similar design problems and improves the solutions by focussing attention and restricting options (Markus, Majchrzak, & Gasser, 2002). We selected the case study as research strategy. Case studies make it possible to identify good and bad practices of problem-solution processes and enable the researcher to capture the knowledge of practitioners (Benbasat, Goldstein, & Mead, 1987; van Aken, 2004). This is particularly suited for our research because there is still little knowledge available for exchange design in theories on electronic intermediaries, acceptance and business design, as mentioned after the research objective described above (section 1.3). Therefore, our research is mainly explorative research driven by empirical evidence while theory is used to evaluate the exchange design model and support the exchange design patterns. We discuss the research approach more in-depth in chapter 2 and theories on exchange design in chapter 3.

The previous sections have argued that research into exchange design can add valuable insights. Electronic business and intermediaries are interesting phenomena whose successes and failures need to be understood. However, there is a gap in current knowledge. In particular, exchange design and its contribution to acceptance are largely unaddressed. Developing the right exchange design is a complex undertaking due to the many design options on the one hand and the interests of multiple actors that need to be considered on the other. Our research is seeking to further develop exchange design theory from the viewpoint of designing for acceptance.

Design knowledge will be laid down in an exchange design model and exchange design patterns. The exchange design model provides systematic insights into exchange design themes that are relevant to the interests of customers, intermediary and suppliers. The model will consist of a number of high-level design themes, each one emphasising a distinct issue. Together, these themes should cover the service concept from an acceptance viewpoint. A theme is further specified by defining certain aspects. For example, role can be a theme with the aspects of functional scope, activity
Exchange design patterns are based on trade-offs with respect to one or more themes from the exchange design model relating to balancing the interests for one or more actors. The concept of design patterns comes from Alexander (1977). Whereas Alexander applied patterns to designing and building towns and buildings, Gamma (1995) is well known for using them to develop ICT software. Design patterns capture the essence of general repeatable solutions to commonly-occurring problems. Based upon Alexander and Gamma, we describe a design pattern as: (1) the context under what conditions a pattern holds, (2) the problem that needs to be solved, (3) the solution that solves the problem, and (4) the consequences of using a design pattern. The patterns are derived from multiple case studies (including the pilot case) and are supported by theories on exchange design.

1.6 Outline of the thesis

The remainder of this thesis is structured as follows (Figure 1-5). The next chapter presents the research approach by discussing the design perspective and the case study strategy. It also introduces the four case studies: Tapestria (pilot case), SeaQuipment, Meetingpoint and Voogd & Voogd. The third chapter elaborates the theoretical framework of our research, consisting of our view on business networks and theories of exchange design. For exchange design, we discuss three theoretical perspectives: electronic intermediaries, acceptance and business design. The chapter concludes with an overview of suitable exchange design themes from the exchange design theories.

Chapter 4 discusses the Tapestria pilot case and the derivation of the exchange design model from this case. The chapter concludes by comparing the empirical exchange design model with the theoretical themes identified in the previous chapter. Figure 1-5 shows that chapter 4 uses the results of chapter 3 but the exchange design model is derived from the Tapestria pilot case, as explained in the research approach (chapter 2).

Chapters 5, 6 and 7 deal with the SeaQuipment, Meetingpoint and Voogd & Voogd cases respectively. All case chapters follow a similar structure, with three main sections: the intermediary and its business network section describing the context; the exchange design, interests and acceptance section discussing the focal areas of our research; and the case findings section, which concludes the chapter with a brief overview of the case and the findings with respect to balancing interests in exchange design. For a quick survey of a case chapter, it is best to read the business initiative, exchange design and case findings sections and subsections.
Chapter 8 discusses the identification of exchange design patterns using cross-case analysis, which builds on the case findings from each case. Each exchange design pattern is then elaborated via its design problem and solution and its consequences. The chapter ends with theoretical support for the patterns based on the exchange design theories from chapter 3. The conclusions are presented in the final chapter, where we return to the research problem and questions and discuss how they are addressed. The exchange design model and patterns are presented as the contributions of our research. Finally, we discuss some limitations of our research and topics for further research.
Chapter 2

Research approach

This chapter presents the research approach by discussing the research perspective, strategy and process. Design science is the leading perspective and the case study has been selected as the research strategy. The research process is structured in four key phases: preparation, pilot, exploration and evaluation phase. The case study research consists of a pilot study and a comparative study, with four cases being selected: Tapestria (pilot case), SeaQuipment, Meetingpoint and Voogd & Voogd. Important activities such as case selection, data collection and data analysis are elaborated to underpin the research approach.

2.1 Research perspective

The starting point for our research is exchange design: how an intermediary coordinates activities and resources in the vertical business network by structuring all or part of the exchange between customers and suppliers. This research aims at developing design theory for electronic business in vertical business networks in general and electronic intermediaries in particular in the form of an exchange design model and exchange design patterns. This raises the question as to how our research objective fits the different perspectives on scientific research in the disciplines of Management and Information Systems – where this study is positioned – and what constitutes the leading perspective of our research.

Every researcher has a perception of the world and holds assumptions about scientific research. While this influences the research activities, it is often left implicit. Using ontology (nature of reality), epistemology (nature of knowledge) and axiology (nature of values), we can distinguish three research perspectives: the positivist, the interpretive and the design perspective (Vaishnavi & Kuechler, 2005), presented in Table 2-1. Design science focuses on technological artefacts, which are practical or useful rather than ends in themselves (March & Smith, 1995). The design
perspective owes its origins in part to the work of Simon (1996). Simon refers to ‘sciences of the artificial’, which are about knowledge of artificial (man-made) objects and phenomena, and a ‘science of design’, which is about creating the artificial.

Scientific interest in the design area is aimed at improving the effectiveness of technology, with research being a knowledge-using activity corresponding to design science (March & Smith, 1995). Design research on information systems ‘involves the analysis of the use and performance of designed artefacts to understand, explain and very frequently to improve on the behaviour of aspects of information systems’ (Vaishnavi & Kuechler, 2005). Because our research focuses on a design problem for an electronic service, which is an artefact with business and information technology characteristics, the design perspective fits best. However, our research also draws heavily upon behavioural science for understanding business networks, intermediaries, interests and acceptance. Rather than seeing design science and behavioural science as a dichotomy, complementarity can best advance research into information systems (Hevner et al., 2004).

Table 2-1: Three research perspectives (Vaishnavi & Kuechler, 2005)

<table>
<thead>
<tr>
<th>Basic belief</th>
<th>Research perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positivist</td>
</tr>
<tr>
<td><strong>Ontology</strong></td>
<td>A single reality. Knowable, probabilistic</td>
</tr>
<tr>
<td><strong>Epistemology</strong></td>
<td>Objective, dispassionate. Detached observer of truth</td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td>Observation: quantitative, statistical</td>
</tr>
<tr>
<td><strong>Axiology</strong></td>
<td>Truth: universal and beautiful; prediction</td>
</tr>
</tbody>
</table>

What does conducting design science imply? For management, design science results in prescription-driven research contributing to management theory that can be used in an instrumental way to design solutions for management problems (van Aken, 2004). For information systems, design science creates and evaluates IT artefacts intended to solve identified organisational problems (Hevner et al., 2004). This raises the question as to what constitutes the difference between researchers and professionals who solve management problems or create information systems. Whereas professionals address specific, unique problems, scientists address the development of scientific knowledge for a class of similar problems (van
Aken, 2004). Design theories support designers by focusing their attention and restricting their options, thereby improving developmental outcomes (Markus et al., 2002). The general knowledge captured by the exchange design model and patterns must be translated by the professional to the unique and specific case at hand (van Aken, 2004).

The exchange design model and patterns are technological rules that define not so much what is, but more what can be. A technological rule is ‘a chunk of general knowledge, linking an invention or artefact with a desired outcome or performance in a certain field of application’ (van Aken, 2004). Technological rules are often of a heuristic nature where the prescription is used as a design exemplar that needs to be translated to the specific problem at hand. For heuristics an exact prediction is not possible. Van Aken states that for technological rules it is important that they are tested and grounded. To come to tested rules we study good and bad practices in the field via case studies, as described below. To come to grounded rules we use theories on exchange design to evaluate the exchange design model and to support the exchange design patterns.

More specifically, design science can produce four kinds of products: constructs, models, methods and instantiations (March & Smith, 1995). Our exchange design model and patterns relate to the constructs and models. The constructs are the vocabulary that can be used to define and communicate the problems and solutions. The models use the constructs to represent situations as problem solution statements. Research activities relating to design science are building and evaluating (does it work?) while research activities relating to natural science are theorizing and justifying (why or how does it work?) (March & Smith, 1995). Our research on the exchange design model and patterns can be positioned as the building and evaluating of and theorizing about constructs and models.

### 2.2 Research strategy and process

The research strategy describes how the research problem and questions are addressed in order to attain the research objective. We selected the case study as our research strategy based on arguments from case study research in general and design research in management studies in particular. We will firstly discuss the reasons for choosing a case study research design and then elaborate on the kind of case study. Next, the research process specifies more precisely how case studies are used in this study. In the following sections, we will examine the case selection, data collection and data analysis in more detail and present the quality measures.

For design science in management studies, the reflective cycle results in the generation of design knowledge (van Aken, 1994). This cycle consists of
a series of case studies and a reflection upon the relationship between problems and solutions in context. Researchers can either identify good and bad practices of problem-solution processes in the field (extracting multiple case study) or take part in problem-solution processes themselves (developing multiple case study) (van Aken, 2004). For our research it is more practical and realistic to study existing electronic intermediaries than to develop one ourselves. A realistic setting is particularly important for studying the relationship of exchange design to balancing interests and comparing this with actual acceptance. The choice of a case study strategy will then be substantiated and specified through a more in-depth discussion.

Several research strategies are available when addressing a research problem. Yin (1994), who discusses experiments, surveys, archival analyses, histories and case studies, states that a specific strategy has a distinct advantage in some situations. A case study is ‘an empirical inquiry that investigates a contemporary phenomenon within its real-life context’ (Yin, 1994). According to Yin, a case study is advantageous ‘when a “how” or “why” question is being asked about a contemporary set of events over which the investigator has little or no control.’ The research questions addressed in our study are ‘how’ questions. The study aims to find out how the exchange design can balance the interests of the different actors. When studying electronic intermediaries, a case study – unlike a historical study – allows access to a full range of evidence. They are difficult to study in an experiment, where behaviour can be manipulated.

Our research objective is to generate exchange design theory. As concluded in the previous chapter, there is a need for additional knowledge on exchange design for electronic intermediaries. Case studies are useful for developing exchange design theory because research on exchange design is still at an early stage and because they bring a freshness to the well-researched topic of electronic intermediaries. It is here that the strengths of case study research most apply (Eisenhardt, 1989). According to Eisenhardt, these strengths include the likelihood of generating novel theory and the fact that the resultant theory is likely to be empirically valid. Particularly in the information systems area, which is characterised by constant technological change and innovation, researchers can learn by capturing the knowledge of practitioners and developing theories based on this knowledge (Benbasat et al., 1987).

There are different kinds of case study involving different units of analysis and single or multiple cases (Yin, 1994). In our research, the unit of analysis is the electronic service of a new or traditional intermediary in a business network. We consider a service to be an electronic service if (at least) a critical part of the service is provided to customers and/or suppliers by the intermediary via the internet. The case study has an embedded...
design whose subunits of analysis are the intermediary as the service provider, and customers and suppliers as actual or potential service users. A case study can be single or multiple, each with its own advantages and disadvantages (Yin, 1994). We use a single case study for developing the exchange design model and a multiple case study for developing design patterns. A *pilot case study* was conducted as a ‘revelatory case’ (Yin, 1994), allowing the researcher to access a new electronic intermediary with an explicitly designed exchange. A *comparative case study* with multiple cases was chosen for reasons of theoretical replication and for having compelling evidence (Yin, 1994). To better understand the different exchange design choices and their relationship to the interests of the actors, it is necessary to study different kinds of electronic intermediary. All case studies are *snapshot studies*, examining the case at a single point in time. We wish to research the exchange design as it is and not as it develops over time or the design process. The focus is on the operational service at the moment of study, not the preceding or following version. Practical constraints with respect to research resources, especially time, and the firms’ commitment also make a longitudinal study unfeasible because we opted for a multiple case study with embedded design.

The research process is described in Figure 2-1, specifying more closely how case studies are used in the study and what the relationship is to other research activities. The research process is structured by defining four major phases and outputs for each phase:

1. In the *preparation phase*, an examination of the scientific and popular literature on electronic business in business networks resulted in identifying the research interest in exchange design for electronic intermediaries and a tentative research problem. The research approach was determined with a focus on design research and the case study as its research strategy. A literature study on business networks resulted in a perspective on business networks that served as the basis for our research.

2. In the *pilot phase*, one case study was conducted, which was selected as a revelatory case study for exchange design. This study brought to our attention the problematic nature of acceptance and balancing the different interests. This resulted in the definitive research problem and research questions and the development of the exchange design model. The pilot case findings also provided insights into the specific exchange design trade-offs for this intermediary.

3. In the *exploration phase*, three other case studies were conducted using the exchange design model in order to gather more information on specific exchange design choices of intermediaries. The relationships between exchange design and the interests of customers, intermediary
and suppliers were also studied and compared with actual acceptance, which produced case findings giving insights into the specific exchange design trade-offs for these intermediaries. The within-case findings of all cases were used to perform a cross-case analysis that led to the development of the exchange design patterns.

4. In the evaluation phase, the design model and patterns were evaluated. A literature study on electronic intermediaries, acceptance and business design helped identify suitable exchange design themes. The empirical exchange design model was then compared with these theoretical themes, and evaluated through application in the three case studies of the exploration phase. The literature study on electronic intermediaries, acceptance and business was also used to support the exchange design patterns with theory. Note that the actual research process is not as linear as this description suggests. The evaluation in particular was a continuous activity and an initial theoretical evaluation of the design model was performed before the model was used in the other case studies.

2.3 Case selection and overview

This section describes case selection. Firstly, it looks at the selection of the pilot and the other cases, and then introduces the cases selected. For each case, we also discuss the control variables and present a brief comparison of the cases.

An important issue in case study research is the selection of the individual cases. As stated in the previous section, the unit of analysis for our research is the electronic service of an intermediary. The case population needs to be restricted further because of the research problem and domain (see also section 1.4). Firstly, there must be an opportunity for an intermediary in the business network. Secondly, we confine ourselves to
intermediaries that are independent actors and that have many-to-many, business-to-business exchanges directed at the primary activities of customers and suppliers. Finally, there has to be a sufficient level of trust in the business network and acceptance by buyers and sellers should be voluntary. Because we wished to select our cases from this population, we evaluated the cases for these control variables.

Case selection can be broken down into the selection of the pilot case and other cases. The pilot case study was selected as a revelatory case study with explicit design choices about the exchange. It was conducted at Tapestria, an intermediary in the soft furnishing industry. Information from interviews and internal documentation showed that the exchange had an explicit design. The further selection criteria for the pilot case were relatively simple and pragmatic. It had to fit the research domain and there had to be easy and free access to the key decision makers and documentation at the intermediary. There was ready access to Tapestria’s people and information thanks to a larger joint research project between Tapestria and the Telematica Instituut, the researcher’s organisation. This setting for the pilot case study allowed opportunities for satisfactory access, something that is often problematic in traditional research (Gummesson, 2000).

Every case in a multiple case study has a specific purpose in the overall research. Theoretical replication logic was used for the selection of the other cases (Yin, 1994). Replication occurs on the basis of the themes in the exchange design model. Varying the design themes across the cases results in the identification of different design choices per design theme. This makes it possible to identify trade-offs in the cross-case analysis for developing exchange design patterns. This will be discussed further following the development of the exchange design model (see section 4.3.3). The SeaQuipment case in the maritime industry was identified through information in the popular literature on electronic business, while the Meetingpoint and Voogd & Voogd cases were the results of an investigation of the insurance industry. These other case studies were also part of a larger research project involving the Telematica Instituut, with the electronic intermediaries making satisfactory access possible.

This chapter introduces the four case studies: Tapestria, SeaQuipment, Meetingpoint and Voogd & Voogd. They are examined in depth in the following chapters. For each case we also discuss the control variables: opportunities for the intermediary, trust in the business network and voluntary acceptance by customers and suppliers (Table 2-2). The other variables (independent, many-to-many, business-to-business and targeting primary activities) are only discussed if there is a possible conflict.
### Table 2-2: Control variables for the cases

<table>
<thead>
<tr>
<th>Control variable</th>
<th>Tapestria</th>
<th>SeaQuipment</th>
<th>Meetingpoint</th>
<th>Voogd &amp; Voogd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opportunity</strong></td>
<td>Fragmentation of demand &amp; supply, international trade, traditional intermediaries present in industry</td>
<td>Fragmentation: many maritime and other suppliers, complementary to traditional chain</td>
<td>Complementary to traditional relationships, traditional intermediaries present in industry</td>
<td>Voogd &amp; Voogd is an existing intermediary, traditional intermediaries present in industry</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>New player, parent firm active in adjoining market</td>
<td>New player owned an industry association</td>
<td>New player owned by insurance companies, free choice, incentives, insurance companies compete</td>
<td>Customers: free choice, incentives, selection</td>
</tr>
<tr>
<td><strong>Trust</strong></td>
<td>Parent firm well known, Tapestria as trusted party for designers and producers</td>
<td>Owner an industry association, limited use risk (free, only information), simple check of suppliers</td>
<td>Owner well-known insurance companies, use within existing customer-supplier relationships</td>
<td>Well-known intermediary, use with existing customers and suppliers</td>
</tr>
</tbody>
</table>

Tapestria is an electronic intermediary in the soft furnishing industry, offering a web purchasing service for interior fabrics to professional interior designers in the United States and a sales service to European producers. Tapestria is a new initiative of Hunter Douglas, a large firm active in the adjoining markets of window coverings and architectural products. There are opportunities in the interior fabrics industry for an intermediary because of the fragmentation – many designers and producers – and complexity of international trade. This is a reintermediation scenario, with Tapestria replacing a number of traditional intermediaries in the traditional supply chain. Tapestria cannot use coercion based on existing relationships with interior designers or fabric producers because it is a new intermediary. In its contacts with interior designers and interior producers, Tapestria does make use of its relationship with Hunter Douglas as a well-known, respected firm. However, Hunter Douglas cannot use coercion either because it is not an active player in this market. Tapestria itself acts as a trusted party for interior designers and fabric producers who trade with each other, taking full responsibility for every transaction. The Tapestria case is the pilot case study with a focus on an explicit exchange design, resulting in the research problem and exchange design model. Because of this focus, the emphasis was on the intermediary’s perspective and less on that of customers and suppliers, in particular data collection at (potential) customers and suppliers. Moreover, once the problematic nature of the acceptance became a more prominent feature of the study, Tapestria was unwilling to cooperate by contacting actual and potential customers, and this contact was hampered by the fact that they were located in the United States. Tapestria is examined in chapter 4, which is essentially an
abbreviated version of the case report (Fielt, 2003). The Tapestria case study took place from May 2002 to August 2003. It was performed as part of a larger research project, the WYSIWYG Project, in which the Telematica Instituut and Tapestria cooperated on the design of business processes in a business network setting. This was a pilot project of the Giga Transaction Services project (gigats.telin.nl).

SeaQuipment is an electronic intermediary in the maritime industry, offering a web catalogue to shipowners, shipyards and maritime suppliers. It has a Dutch focus but can be used worldwide. SeaQuipment is a new initiative of the VNSI, the Netherlands’ Shipbuilding Industry Association. There are opportunities for an intermediary in the maritime industry because of fragmentation on the supply side, with many national and international maritime suppliers and many other suppliers for whom the maritime industry is not the primary market. SeaQuipment is also complementary to direct business between buyers and sellers and traditional intermediaries such as wholesalers. Because it is a new intermediary, SeaQuipment is unable to make use of coercion based on existing relationships with shipyards and maritime suppliers. Even though the VNSI promotes SeaQuipment, it is neither willing nor able to force participation. SeaQuipment takes advantage of the fact that it is owned by a well-known industry association. Moreover, maritime buyers run no risks in using SeaQuipment because it can only be used for gathering information and this service is free. Although maritime sellers have to pay when they register products, this is a relatively small amount. What happens between maritime buyers and sellers is beyond the scope of SeaQuipment and does not differ from the traditional risk firms run when contacted by another firm. SeaQuipment does perform a simple check on maritime sellers who register to ensure that they are to some degree reputable and relevant. SeaQuipment is examined in chapter 5, which is largely an abridged version of the case report (Fielt, 2004). The SeaQuipment case study was conducted from August 2003 to September 2004. Funded by the Dutch Ministry of Economic Affairs, it was part of a larger research project, the Impact Project, in which the Telematica Instituut participated. The objective of that project was to promote electronic marketplaces among small and medium-sized Dutch firms (marktplaatsen.telin.nl).

Meetingpoint and Voogd & Voogd are intermediaries in the Dutch insurance industry and serve insurance agents and insurance firms in the agent channel. Meetingpoint offers insurance agents and firms a platform for administrative transactions, while Voogd & Voogd offers insurance agents an electronic marketplace and is an authorised broker for insurance firms. Meetingpoint is a new initiative of a number of insurance firms and Voogd & Voogd is a family firm that is already active as an intermediary in the agent channel. For both Meetingpoint and Voogd & Voogd, the
opportunity for an intermediary is not an issue. The agent channel in the Dutch insurance industry contains both agents that do business directly with insurance companies and agents that use an intermediary. Meetingpoint supports direct business between insurance companies and agents, whereas Voogd & Voogd is a traditional intermediary whose continuity over many years testifies to its ability to meet a need. The use of electronic services by agents is voluntary for both Meetingpoint and Voogd & Voogd. Agents also have the traditional communication channels available. For Meetingpoint in particular, competitive reasons will not easily lead insurance companies to force use because it may cost them business. However, insurance companies do provide incentives for using the electronic service such as an additional premium. This additional premium for using the electronic service may be converted into a cut-back in premium for using traditional channels in the future. While Voogd & Voogd does not force its existing agents to use the electronic marketplace, it does select agents on the basis of their willingness and ability to work electronically. Voogd & Voogd also provides incentives for using the electronic service by guaranteeing same-day processing. Trust is not a major issue for the electronic services of Voogd & Voogd and Meetingpoint because they are offered to agents with existing relationships. Voogd & Voogd and the insurance companies that own Meetingpoint are well-known and respected parties in the agent channel. Meetingpoint is an independent actor but is owned and managed by multiple suppliers and has strong ties with them. It is not uncommon for Dutch insurance firms in the agent channel to be involved in ICT initiatives for agents, but with respect to being an independent actor, Meetingpoint is less compliant with the criteria outlined above. Meetingpoint and Voogd & Voogd are examined in chapters 6 and 7 respectively, which are largely abbreviated versions of the case reports (Fielt, 2005). The Meetingpoint and Voogd & Voogd case studies were conducted from September 2004 to September 2005. They are part of a larger research project, the ISI project, involving the Telematica Instituut, agents’ and brokers’ associations, insurance firms and ICT companies. The objective of the ISI project is to stimulate innovation in the insurance agent channel (isi.telin.nl).

Table 2-3 provides a brief comparison of the case studies. The study involved four different types of intermediaries of different sized firms and three different kinds of industry, with two cases (Meetingpoint and Voogd & Voogd) in the same industry. The products are physical goods (Tapestria), information products (SeaQuipment and Voogd & Voogd) or any kind of product (SeaQuipment). Tapestria, SeaQuipment and Meetingpoint are new intermediaries, while Voogd & Voogd is a traditional intermediary. All new intermediaries are initiatives of traditional players in the same or an adjoining industry. Tapestria ended its operations in 2004.
while the other intermediaries still existed in 2006. SeaQuipment is the only intermediary where users – the sellers – explicitly pay for the electronic service. For Tapestria and Voogd & Voogd, the revenue for the intermediary is part of the price customers or end customers pay. For Meetingpoint, the insurance companies contribute towards the cost. Tapestria and Voogd & Voogd are for profit, while SeaQuipment and Meetingpoint are not for profit.

<table>
<thead>
<tr>
<th>Table 2-3 Case comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind of industry</td>
</tr>
<tr>
<td>Soft furnishing industry</td>
</tr>
<tr>
<td>Type of intermediary</td>
</tr>
<tr>
<td>Country</td>
</tr>
<tr>
<td>Kind of initiative</td>
</tr>
<tr>
<td>Revenue/costs</td>
</tr>
<tr>
<td>Firm size</td>
</tr>
</tbody>
</table>

2.4 Data collection and analysis

This section first describes the data collection, which took place in two steps – at the intermediary and then at the customers and suppliers. Secondly, we discuss the case analysis, comprising a within-case and cross-case analysis. Its aim is to develop the exchange design model and patterns. Finally, we provide an overview of the measures that ensure the quality of the case study.

For the case studies, data collection occurred at different firms in two steps (Table 2-4): firstly, at the intermediary and secondly, at actual and potential customers and suppliers. In the pilot case study, more attention was given to the first step, and the second did not take place as outlined in the previous section. In addition to data collection at the intermediary and actual and potential users, other sources were used to collect data about the industry in general and the intermediary that was the object of study in
particular. They included the industry reports of financial firms and articles in industry magazines. A Google search was also performed for each intermediary to check whether online information was available on the intermediary other than on their own website.

A number of sources were used for data collection at the intermediary: information on the intermediary’s website, interviews with managers, a visit to the intermediary’s physical location, the intermediary’s internal and external reports and presentations, use or demonstration of the electronic service, and archival records on use of the electronic service. Data collection at the intermediary started with a visit to their website and collecting all information available on the firm and the service. For example, the directors of Voogd & Voogd have a column on their website entitled ‘Voogd’s Visie’ in which they provide information about their strategy and their perspective on the insurance industry. In another example, Tapestria’s website provided a great deal of information about their service in the form of help information, frequently asked questions, and terms & conditions for the service.

Semi-structured interviews were used to elicit information from persons involved in decision-making about the electronic service at management level at the intermediary. A questionnaire based on the business network model and exchange design themes was used, together with questions about the interests of the different actors and acceptance by customers and suppliers (Fielt, 2006). In the Tapestria pilot case, the director of business development, the logistics manager and the manager of the ICT project were each interviewed in face-to-face meetings lasting approximately two hours. An additional interview took place by phone with the director of business development. At SeaQuipment, there were five face-to-face meetings averaging two hours in length with the VNSI staff member responsible for SeaQuipment. These meetings also covered agreement on and preparation of a user survey. For Meetingpoint, two face-to-face meetings, each lasting two hours, were held with the operations manager and for Voogd & Voogd there was one face-to-face meeting of four hours with the director of marketing & ICT. For all cases, specific, additional questions and clarifications of previous answers were addressed by means of short telephone calls or by e-mail. In this way, data collection and analysis was an iterative process.

For Tapestria and SeaQuipment, the researcher was able to make use of the electronic service itself: in the former case, using the purchasing service as a customer with a guest account, and in the latter, using the full service as a customer and registering the Telematica Instituut as a supplier. For Meetingpoint and Voogd & Voogd, the researcher attended demonstrations of the electronic service. Only at SeaQuipment could the researcher gain access to archival records on the use of the electronic service. Website
Data collection at customers and suppliers was mainly aimed at acceptance: use of and satisfaction with all or part of the electronic service, and the main reasons for use and non-use. For data collection at customers and suppliers, different tactics were used for the different cases. As explained above, no data was collected at the customers or suppliers for Tapestria, the pilot case study. For the other cases, tactics differed because of the information available on users and use at the intermediary and the kind of electronic service provided by the intermediary. For the SeaQuipment case, there was less acceptance information available at the intermediary about users and use, especially customers, while the intermediary's service itself is relatively simple, making a less in-depth, large-scale survey more appropriate. The Meetingpoint and Voogd & Voogd cases, on the other hand, were better suited to more in-depth interviews because more acceptance information was available about users and the intermediary's service is relatively complex.

For the SeaQuipment case study, a market survey was conducted amongst purchasers and salespeople in the maritime industry so that a large number of actual and potential users could be interviewed in a structured way. The survey made use of computer-assisted telephone interviewing (CATI). A total of 1812 calls were made to 1176 firms, resulting in 242 successful interviews. The services of an experienced market research firm were used to conduct the telephone survey. In addition, the purchasing managers of the two largest shipyards in the Netherlands were interviewed by phone.

Data collection at customers (insurance agents) and suppliers (insurance companies) was partly combined for the Meetingpoint and Voogd & Voogd case studies because both intermediaries are active in the same industry. Data collection at agents was done via industry associations and individual agents. Representatives of the two industry associations were subjected to semi-structured, face-to-face interviews (one of one hour and one of two hours). These interviews were prepared by collecting information on the industry associations through their website. Individual agents were contacted via Meetingpoint. A request was made to Meetingpoint for ten individual agents who were current users: five active and five less active users. Semi-structured interviews lasting 15 to 20 minutes each were conducted with these agents by phone. The same was done for Voogd & Voogd. Data collection at insurance companies occurred through semi-structured, face-to-face interviews of one to two hours with senior marketing & sales managers or advisors at four insurance companies.
Preparation for these interviews involved collecting information on the insurance firm in general and their electronic service in particular from their own website, for example, the latest annual report, and a Google search.

Finally, each case was checked for any substantial discrepancies between the different information sources. In general, the sources confirmed or complemented each other. Potential contradictions were often caused by a lack of clarity or understanding and were solved by checking with informants. While some differences still remained, this was never too problematic in the sense that it was necessary to differentiate between different perspectives. For example, there were no instances in which customers and the intermediary mentioned totally opposing customer interests. Where applicable, a comment is made that this was an issue. For example, insurance companies and Voogd & Voogd had different views on the kind of insurance agents who would cooperate with Voogd & Voogd.

<table>
<thead>
<tr>
<th>Actor</th>
<th>Tapestria</th>
<th>SeaQuipment</th>
<th>Meetingpoint</th>
<th>Voogd &amp; Voogd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediary</td>
<td>Data collected via interviews</td>
<td>Data collected via interviews</td>
<td>Data collected via interviews</td>
<td>Data collected via interviews</td>
</tr>
<tr>
<td>(step 1)</td>
<td>Documentation on the service</td>
<td>Documentation on the service</td>
<td>Demonstration of the service</td>
<td>Demonstration and use</td>
</tr>
<tr>
<td></td>
<td>Use of the service (guest)</td>
<td>Use of the service (full user)</td>
<td></td>
<td>(as end-customer) of the service</td>
</tr>
<tr>
<td>Customers</td>
<td>No data collected at customers</td>
<td>Data collected via survey</td>
<td>Data collected via interviews</td>
<td>Data collected via interviews</td>
</tr>
<tr>
<td>(step 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppliers</td>
<td>No data collected at customers</td>
<td>Data collected via survey</td>
<td>Data collected via interviews</td>
<td>Data collected via interviews</td>
</tr>
<tr>
<td>(step 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data analysis was aimed at developing the exchange design model and patterns. It was split into a within-case and cross-case analysis. The exchange design model was developed in the within-case analysis of the pilot case, while the exchange design patterns were developed in the within- and cross-case analysis of all cases.

As a basis for the within-case analysis, a case description was made in a structured way using the business network as presented in section 3.2 of the theoretical framework chapter. Next, the most important exchange design choices were identified. For the pilot case, this was done using design choices emphasised by the intermediary. The exchange design choices of the pilot case were used to identify themes for the exchange design model, and the model was further developed by exploring each theme in relation to the pilot case study. This is further elaborated in section 4.3.1 of the Tapestria pilot case and exchange design model chapter.
For the other cases, the identification of design choices was dictated by the exchange design model. The design choices were related to the interests of the actors and compared with acceptance, resulting in the case findings. The case study findings consist of three parts: (1) a brief overview of the exchange design, interests and acceptance, (2) an overall finding with a brief discussion of the exchange design in relation to the interests of the actors for the case as a whole, and (3) specific findings that pursue an issue in greater depth. These issues are related to one or more design themes or to the balancing of interests. To keep the study within manageable proportions, we limited the number of specific findings; we are not aiming for a ‘complete’ list of specific findings from the case data.

The cross-case analysis consists of a cross-case overview and the development of design patterns. The former presents the exchange design, interests and acceptance of each case alongside one another to provide a comprehensive picture for the cross-case analysis. The latter are based on trade-offs with respect to one or more themes from the exchange design model and were identified by clustering the specific findings of the within-case analysis. This is further elaborated in section 8.1 of the exchange design patterns chapter.

<table>
<thead>
<tr>
<th>Step</th>
<th>Quality measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research design</td>
<td>Definition of research problem and questions (a ‘how’ problem)</td>
</tr>
<tr>
<td></td>
<td>Specification of constructs (business network and exchange design model)</td>
</tr>
<tr>
<td></td>
<td>Pilot case study and multiple case study</td>
</tr>
<tr>
<td></td>
<td>Specification of the unit of analysis and population for case selection</td>
</tr>
<tr>
<td></td>
<td>Theoretical replication logic for case selection based on design themes</td>
</tr>
<tr>
<td></td>
<td>Access to cases via larger research projects of the Telematica Instituut</td>
</tr>
<tr>
<td></td>
<td>Different roles of multiple investigators</td>
</tr>
<tr>
<td></td>
<td>Case database for collected data, analysis, and reports</td>
</tr>
<tr>
<td>Data collection</td>
<td>Elucidation of the data collection process</td>
</tr>
<tr>
<td></td>
<td>Data collection at intermediary and at customers and suppliers</td>
</tr>
<tr>
<td></td>
<td>Multiple data collection methods (website, interview, use, etc.)</td>
</tr>
<tr>
<td></td>
<td>Qualitative and quantitative (acceptance) data</td>
</tr>
<tr>
<td></td>
<td>Questionnaires and checklists documented</td>
</tr>
<tr>
<td>Case analysis</td>
<td>Elucidation of the data analysis process</td>
</tr>
<tr>
<td></td>
<td>Both within- and cross-case analysis</td>
</tr>
<tr>
<td></td>
<td>Within-case analysis in two steps (business network and exchange design)</td>
</tr>
<tr>
<td></td>
<td>Extensive case reports for each case</td>
</tr>
<tr>
<td></td>
<td>Each case report checked by the main informant at intermediary</td>
</tr>
<tr>
<td></td>
<td>Cross-case analysis dictated by exchange design model</td>
</tr>
<tr>
<td></td>
<td>Empirical and theoretical evaluation of model and patterns</td>
</tr>
<tr>
<td></td>
<td>Publication of tentative results in peer-reviewed papers</td>
</tr>
</tbody>
</table>

Finally, the quality measures of the research design, the data collection and the case analysis are summarised in Table 2-5. The starting point for the quality measures were suggestions made by Eisenhardt (1989) and Dubé
and Paré (2003), as well as the ideas of Benbasat et al. (1987) and Yin (1994). The measures not yet mentioned will be explained here. In the research process, the present author worked with two other researchers. They were involved in supervising the process and discussing the case analysis, but not in collecting data and making a detailed analysis. This enabled them to contribute a different, and perhaps more objective, perspective (Eisenhardt, 1989).

A case database was created for collected data, (intermediate) analysis results and (intermediate) case reports (Yin, 1994). With regard to collected data, all relevant information that was collected has been recorded. Information from the intermediary’s website has been placed in a document saved in the database. All interviews are saved as extended summaries and most have also been tape-recorded and transcribed. All data from the SeaQuipment survey has been placed in the database as an electronic file. An extensive written case report has been supplied for every single case, and interim reports were also written for the research on customers and suppliers. Every case report was checked by the main informant at the intermediary. In addition to these reports, the case studies have been written up in peer-reviewed papers and presented at research symposia and conferences targeting electronic business research, such as (Fielt, Janssen, Faber, & Wagenaar, 2004) and (Fielt, Faber, Janssen, & Wagenaar, 2005).
Theoretical framework

The theoretical framework presents a view on business networks and theories on exchange design. Our view on business networks underpins our understanding of intermediaries in their networked context. Theories on exchange design are examined to find possible themes for the exchange design model.

3.1 Introduction

In this chapter we discuss the theoretical underpinnings of our research. Firstly, we present our view on business networks to enable us to understand intermediaries in their networked context. This view presents the business network as a structure of actors and exchanges and addresses exchange design, interests and acceptance.

Secondly, we elaborate on exchange design by discussing theories from three perspectives: electronic intermediaries, acceptance and business design. While these theories do not provide an exchange design model, they do contain elements that are suitable possible themes for the model. These theoretical themes are used in the next chapter to evaluate the empirical model derived from the pilot case study.

3.2 A view on business networks

The business network is the starting point for this study on exchange design for electronic intermediaries. Business networks are used for understanding intermediaries in their networked context. Our view on business networks is inspired by research in business marketing, in particular industrial marketing and purchasing (Fielt, 2001), a field of research that investigates industrial buyers and sellers and takes into account interactions (Håkansson, 1982), relationships and networks (Axelsson & Easton, 1992;
Håkansson & Snehota, 1995). It is a marketing tradition that predates much
of the network thinking among management and social science researchers
(Johanson & Mattsson, 1994). It has a holistic view of marketing and
purchasing – in other words, it looks at a broad range of strategic and
organisational issues relating to exchange. Below we define our view on
business networks; the concepts are applied in the description and analysis
of the case studies.

For the purposes of our research, the vertical business network is defined as
a structure of actors and buyer-seller exchanges with forces of demand for
and supply of products. Vertical business networks exist because of the way
the economic system is organised: labour is divided into various tasks to be
performed by different firms, and these tasks are co-ordinated to
accomplish the activity (Wigand et al., 1997). A product is anything offered
by a supplier to a customer that might satisfy a want or need (for example,
Kotler & Armstrong, 1999). A product can be anything from tangible goods
to intangible services. The product that is offered to the final customer, the
end customer, is the end product.

Figure 3-1 presents a business network with actors and their exchange
relations applicable to our research. The focal actor is the intermediary, the
first actor on the demand side is the customer and the first actor on the
supply side is the supplier. As the focus is on business-to-business, the
customer can have an exchange with the end customer. The total exchange
between customer and supplier consists of the intermediary with a
customer exchange and a supplier exchange, and, optionally, an additional
exchange relationship between the customer and supplier that can be either
direct or via another intermediary.

For our research, the actors in the business network are firms, except for the
end customer, which can be either a firm or a consumer. Firms are
organisations with economic gain as their goal. An organisation is a social
entity that is goal-directed, is designed as a deliberately structured and
coordinated activity system, and is linked to the external environment
(Daft, 2001). The strategy of an organisation is the intended or realised
course of action selected to achieve the goals of the firm in the face of
competitive pressures (de Wit & Meyer, 1994). Firms consist of activities,
resources and people, which or who are connected to the activities, resources and people of other firms via exchanges (Håkansson & Snehota, 1995). A business process is a partially ordered collection of business activities with a specific business purpose.

An exchange comprises the interactions, relationships and channels between actors. The role of exchange is to coordinate the activities and resources controlled by one actor with those controlled by another (Johanson & Mattsson, 1994). Interactions represent the ‘here and now’ of exchange behaviour and constitute the dynamic aspects. Relationships are shaped by interactions and form the stable context in which interactions take place (Easton, 1992). We view relationships as organisational arrangements, which are defined as the more or less durable, formal and informal mechanisms to divide and co-ordinate the constituent activities of the distinct processes (Boer & Krabbendam, 1993). Channels are the means of interaction and can refer to distribution channels (for example, a sales agent or a web shop) or communication channels (for example, face-to-face, fax, phone or internet).

Exchange design refers to the way an intermediary coordinates activities and resources in the vertical business network by structuring all or part of the exchange between customers and suppliers. For exchange design, the focus of interactions is on the services provided by the intermediary to the customers and suppliers. On the one hand, this service is the product the intermediary offers to the actual and potential users in terms of the benefits for the users and, on the other hand, a logical grouping of the interaction possibilities for the users in terms of the functionality provided. For exchange design, the focus of relationships is on structural arrangements, those organisational arrangements that refer to directives (for example, rules and procedures) resulting from agreements, as opposed to cultural arrangements that develop.

Several other authors have drawn attention to a similar focal area as exchange design. They include Amit and Zott (2001), who discuss the transaction structure, and Klein (1996), who looks at the configuration of transaction and relationship attributes. Amit and Zott (2001) define the transaction structure as an element of a business model design (alongside transaction content and governance). A transaction structure refers to the parties that participate in the exchange, the ways in which these parties are linked and the order in which exchanges take place, including the exchange mechanism adopted. Klein (1996) refers to the configuration of transaction and relationship attributes that affect and are affected by the coordination strategy. A coordination strategy covers all aspects of the design and maintenance of inter-organisational relationships and arrangements. The transaction and relationship attributes are the concrete design and pattern
of relationships consisting of an institutional, operational and technological layer.

Actors in a business network need to cooperate and compete because of their common and individual interests (Brandenburger & Nalebuff, 1996). The introduction of an electronic service by the intermediary in the business network affects the interests of the actors in that network. The effects can be both positive and negative. For example, positive effects are often referred to as value propositions. The actors in the business network have different types of interests, and we can distinguish the following types: improving cost structure (efficiency), increasing return on assets (effectiveness), customer value and revenue opportunities (both strategic advantage). This classification is based on the strategic objectives of Kaplan & Norton (2000) and the business benefit types of ICT investments differentiated by Robson (1997).

The introduction of an electronic service by the intermediary in the business network can only be successful if the other actors, especially customers and suppliers, accept the service. Acceptance refers in our research to voluntary market acceptance by customers and suppliers through the actual use of and satisfaction with the electronic service. Our approach to acceptance has parallels with market research, especially product evaluation and customer satisfaction (de Pelsmacker & van Kenhove, 1994) and information systems success (DeLone & McLean, 1992; DeLone & McLean, 2003). Use of and satisfaction with the electronic service should be viewed in a broad sense. For example, Tapestria has interior designers who actually use the web purchasing service and fabric producers who participate by supplying fabrics to Tapestria. On a more detailed level, use also includes the nature of use (who uses it for what purpose) and the intensity of use (frequency, duration, etc.). Use and satisfaction can relate to the overall service but also to different service elements or ways of working. For example, the Meetingpoint service is mainly accessed via the insurance companies’ extranet and not via the Meetingpoint portal.

3.3 Theories on exchange design

The first chapter introduced exchange design and the exchange design model. Exchange design refers to the way an intermediary coordinates activities and resources in the vertical business network by structuring all or part of the exchange between customers and suppliers. The exchange design model provides insights into the options for the intermediary’s exchange design choices. The focus is on the critical design choices that
require the balancing of actors’ interests in order to contribute to the acceptance of the electronic intermediary.

This section will examine theories relevant to exchange design and evaluate the suitability of the various elements for the exchange design model. Three theoretical perspectives, which relate directly to the research problem, serve as the starting point: (1) theories on what electronic intermediaries are, (2) theories on the acceptance of electronic services in general and of the electronic services of electronic intermediaries in particular, and (3) theories on business design in general and the design of electronic intermediaries in particular.

To determine the suitability of theoretical elements as possible themes for the exchange design model, a number of criteria are identified based on the research interest and problem described in the first chapter. These suitability criteria address in particular the question as to whether a theoretical element should become a separate theme in the model.

Firstly, the subject of our research is the electronic service of an intermediary in a business network. Therefore, the theoretical elements should emphasise the business network or inter-organisational aspects rather than the intra-organisational aspects. In addition, elements relating to activities are more relevant to exchange design than elements relating to people (for example, professionalism) because our research places the electronic service at the centre, not the organisation of the intermediary.

Secondly, the focus of our research is on designing for acceptance, which means the theoretical elements should be design-oriented. The elements should aim at functionality of the electronic service in a constructive way, especially functionality that may affect the interests of the one or more actors because it can promote or hamper acceptance. This is located in the service concept phase of the electronic service design process presented in section 1.3.

Finally, the theoretical elements should not be too high-level or generic in the sense that they are about doing business in general (for example, business models). Nor should they be too low-level in the sense that they only apply to a specific aspect of a particular type of intermediary (for example, the information architecture of an electronic auction).

3.3.1 Theories on electronic intermediaries

A natural starting point for exchange design is the literature on what electronic intermediaries are and what they do. For a structured discussion, the literature has been divided into three categories: different forms of intermediaries, different roles of intermediaries, and different aspects of intermediaries.
Different forms
Traditionally, intermediaries were conceived of as part of the marketing channel between producers and consumers, with wholesalers, retailers and specialised intermediaries – such as finance firms, logistics firms and advertising agencies – as their main forms (Coughlan et al., 2001). Studies on electronic intermediaries have started to focus on more and less new forms of intermediaries enabled or supported by ICT.

In particular the electronic market, which offers market services to buyers and sellers and is operated by a market maker, has received considerable attention in the electronic business literature. An electronic market supports the basic trade processes and provides a trade context (Kambil & van Heck, 1998). For example, ChemConnect (www.chemconnect.com) is a marketplace that describes itself as ‘helping companies optimise their purchasing and sales processes for chemical feedstocks, chemicals, plastics, and related products’ (ChemConnect, 2005). Specific forms of electronic markets, like electronic auctions (Koppius, 2002), are also discussed in the literature. Kambil, Nunes and Wilson (1999) introduce the all-in-one market that offers multiple trading mechanisms ranging from transaction to relationship-based and where customers and sellers can dynamically shift between trading mechanisms.

In addition to electronic marketplaces that focus on trade processes, numerous authors present a whole variety of other kinds of electronic intermediary, for example, infomediaries that capture customer information for use by selected third-party vendors (Hagel & Rayport, 1997), workflow redesigners that redesign workflow across businesses in a specific industry (Kaplan & Sawhney, 2000) and collaboration electronic marketplaces that focus on demand & supply planning and new product design (Christiaanse & Markus, 2003). Some authors even discuss new forms of electronic intermediaries as the central part of new business network structures, such as the value web broker (Selz, 1999) or the service hub (Anderson & Anderson, 2002), or introduce a ‘business-to-business landscape’ with various kinds of electronic intermediaries similar to the financial services industry (Wise & Morrison, 2000). Also noteworthy is the fact that after an initial focus on purely electronic intermediaries, researchers have become interested in hybrid forms that combine traditional (physical) and new (electronic) elements, sometimes referred to as ‘clicks-and-mortar’ intermediaries (Steinfeld, 2002).

On the one hand, current knowledge about specific forms of electronic intermediaries can contribute to exchange design. All the forms identified and discussed in the literature represent high-level designs that describe abstract forms with the emphasis on the whole. The differences between

---

1 Alternative names include electronic marketplace or marketspace.
the forms also suggest that exchange design should be capable of dealing with considerable variety and complexity. On the other hand, current knowledge about specific forms of electronic intermediaries has shortcomings for exchange design. The literature on the different forms conveys the overall impression of a mishmash, with little understanding of how they relate to each other. It is not clear to what extent these different forms represent alternatives and, more precisely, what the key similarities and differences are. Most forms also confine themselves to a high-level description by sketching an abstract concept and highlighting a few distinctive characteristics. However, there is no systematic description or evaluation of the underlying characteristics of how the intermediary functions in the business network. For this reason, we consider the form of an intermediary as a possible theme for an exchange design model with medium suitability.

**Different roles**

Other research examines more closely the different functions of the electronic intermediary, focusing on (electronic) market functions in general and the role (or services or processes) of the (electronic) intermediary in particular (*Table 3-1*). After an initial focus on more basic, transaction-oriented roles (for example, Bailey & Bakos, 1997) (Kambil & van Heck, 1998; Schmid & Lindemann, 1998) there has been growing interest in more advanced, collaboration-oriented roles (for example, Anderson & Anderson, 2002; Wang & Archer, 2004). Sarkar, Butler and Steinfeld (1995) explicitly differentiate between customer and producer functions. McKinsey and CAPS (2000) take a broader view of the purchasing firm as the starting point, with the purchasing process including not only operational but also strategic and tactical decisions. Dai and Kauffmann (2002b) add technology adoption to the intermediary’s role.

The role of the intermediary also points towards exchange design choices, as with the form discussed above. For the purposes of our research, the role may be of a more appropriate level than the form, as discussed in the suitability criteria. On the one hand, the roles are more fine-grained than the forms because of the emphasis on the various ‘sub-functions’ of intermediaries in general rather than on a specific function of a particular kind of intermediary. On the other hand, roles are not so low-level that they render exchange design too detailed for an analysis of the relationship to the actors’ interests. We can therefore consider the intermediary’s role as a possible theme for an exchange design model with high suitability. However, like the literature on forms, the examination of roles is not well-structured either. While these roles help us to consider concrete alternatives for exchange design choices, they do not provide a systematic analysis of exchange design.
### Table 3-1 Overview of possible roles of intermediaries

<table>
<thead>
<tr>
<th>Context</th>
<th>Role</th>
<th>Source</th>
</tr>
</thead>
</table>
| Consumer and producer functions of intermediaries | - Consumer functions: search and evaluation, needs assessment and product matching, risk reduction, and product distribution/delivery  
- Producer functions: product information, consumer purchases, customer information, risk, reduction, transaction services (product distribution, financial) | (Sarkar et al., 1995) |
| Emerging role of electronic intermediaries | - Matching buyers and sellers: determination of product offerings, search for buyers or sellers, and price discovery  
- Facilitation of transactions: logistics, settlement and trust  
- Institutional infrastructure: legal and regulatory | (Bailey & Bakos, 1997) and (Bakos, 1998) |
| Trade processes for electronic markets | - Basic trade processes: search, pricing, logistics, payment & settlement, and authentication  
- Trade context processes: product representation, regulation, risk management, influence, dispute resolution | (Kambil & van Heck, 1998) |
| Phases of a market transaction | - Information: suppliers and customers acquire a market overview by gathering information  
- Negotiation: conditions of the transaction are negotiated which will enable an agreement to be made  
- Settlement: the agreed-upon terms of the contract are fulfilled | (Schmid & Lindemann, 1998) |
| B2B marketplace models mapped on purchasing process | - Design and plan  
- Develop sourcing strategy  
- Identify relevant supply base  
- Establish terms, product price, value added  
- Transact and execute  
| Generic functions of intermediaries | - Matching: information about sellers, buyers and products  
- Requisitioning: economies of scope, economies of scale, time-place utility  
- Problem solving: guarantee versus quality uncertainty, preserving anonymity, tailoring goods and services | (Anderson & Anderson, 2002) |
| Business models for B2B markets | - Basic market functions: aggregation, matching, facilitation  
- Management needs: procurement expertise, business process support (workflow, project, supply chain)  
- Role of technology adapters: system integrators, standards providers, outsourcing services | (Dai & Kauffman, 2002b) |
| Electronic marketplace functionalities | Market-oriented functionalities:  
- Aggregation: company directory, public product catalogues, product listing  
- Matchmaking: auctions, real-time bid and ask, RFx (Request For Proposal, Request For Bid, etc.)  
Collaboration-oriented functionalities:  
- Transactional level: private catalogue & transaction facilitation, integrated settlement and logistics  
- Strategic level: collaborative product development, Collaborative Planning, Forecasting and Replenishment (CPFR) | (Wang & Archer, 2004) |
**Different aspects**

The electronic intermediary literature on forms and roles lacks insight into the common, underlying characteristics of electronic intermediaries. There is research, however, on classifications and taxonomies that addresses different aspects of electronic intermediaries. These aspects provide insights into the different kinds of electronic intermediaries and their relationships, allowing us to analyse the similarities and differences.

Table 3-2 provides an overview of different aspects. For example, Kaplan and Sawhney (2000) differentiate between different business-to-business marketplaces for procurement based on two dimensions: what firms buy (kind of products) and how firms buy (kind of sourcing). These dimensions result in a classification with four categories: MRO hubs, yield managers, exchanges and catalogue hubs (Figure 3-2). Although Kaplan and Sawhney’s framework comes close to a starting point for the systematic analysis of exchange design, it is limited in scope because of its focus on marketplaces and the purchasing process.

<table>
<thead>
<tr>
<th>What firms buy</th>
<th>Operating inputs</th>
<th>Manufacturing inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic sourcing</td>
<td>MRO Hubs</td>
<td>Catalogue Hubs</td>
</tr>
<tr>
<td>Yield Managers</td>
<td>Exchanges</td>
<td></td>
</tr>
<tr>
<td>Spot sourcing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initially, classifications were based mainly on very basic aspects, for example, kind of user, number of users, kind of ownership, kind of industry or kind of product. These aspects can be useful when selecting and positioning the business model for the electronic intermediaries as they offer insights into the exchange design context and indicate contingencies for exchange design. However, these generic aspects do not refer to the characteristics of the exchange.

Other aspects focus more on specific characteristics of the exchange. The market mechanism relates to aspects such as the kind of sourcing and pricing. Although it is an important design choice for an electronic intermediary, as discussed above, the market mechanism is only relevant to an intermediary involved in transactions. Also, an intermediary can offer multiple trading mechanisms. Mahadevan’s study (2003) of 100 prominent business-to-business websites has revealed a trend towards offering multiple trading mechanisms. We therefore consider the market mechanism to be a possible theme for an exchange design model with medium suitability.
There are also aspects relating to the different roles of an intermediary as discussed above. These aspects give a more precise indication of the different exchange design options. Examples are the kind of core offering (Christiaanse & Markus, 2003; Holzmuller, 2002), the kind of activities in the purchasing process (McKinsey & Company & CAPS Research, 2000, see also the previous table), and functional integration (Timmers, 1998). We therefore consider these aspects to be covered by the role of an intermediary as a possible theme for an exchange design model.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Options</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind of users</td>
<td>Business-to-business, business-to-consumer, consumer-to-consumer</td>
<td>No specific source</td>
</tr>
<tr>
<td>Number of users</td>
<td>One-to-many (buy-side), many-to-many, many-to-one (sell-side)</td>
<td>No specific source</td>
</tr>
<tr>
<td>Kind of ownership</td>
<td>Public (independent third party), consortium (small group of firms), private (single firm)</td>
<td>No specific source</td>
</tr>
<tr>
<td>Kind of industry</td>
<td>Vertical (a specific industry, for example, chemical industry) or horizontal (a specific process, for example, office supplies or human resources)</td>
<td>No specific source</td>
</tr>
<tr>
<td>Kind of product</td>
<td>Direct materials (manufacturing inputs) or indirect materials (operating inputs, MRO(^2))</td>
<td>(Kaplan &amp; Sawhney, 2000)</td>
</tr>
<tr>
<td>Kind of sourcing</td>
<td>Systematic or spot sourcing</td>
<td>(Kaplan &amp; Sawhney, 2000)</td>
</tr>
<tr>
<td>Kind of pricing</td>
<td>Dynamic or fixed pricing</td>
<td>No specific source</td>
</tr>
<tr>
<td>Kind of offering</td>
<td>Transaction, interaction or support services</td>
<td>(Holzmuller, 2002)</td>
</tr>
<tr>
<td>Kind of activity</td>
<td>Different activities in the purchasing process</td>
<td>(McKinsey &amp; Company &amp; CAPS Research, 2000)</td>
</tr>
<tr>
<td>Functional integration</td>
<td>Single function or multiple functions/integrated</td>
<td>(Timmers, 1998)</td>
</tr>
<tr>
<td>Degree of innovation</td>
<td>Relatively lower or relatively higher</td>
<td>(Timmers, 1998)</td>
</tr>
<tr>
<td>Transaction automation</td>
<td>Low or high</td>
<td>(Piccinelli, Di Vitantonio, &amp; Mokrushin, 2001)</td>
</tr>
</tbody>
</table>

In addition to functional integration, Timmers (1998) uses degree of innovation to position business models for electronic markets. Piccinelli, Di Vitantonio and Mokrushin (2001) make use of the aspect of transaction automation. In line with this, Dai and Kauflmann (2002b) have defined

---

\(^2\) MRO: Maintenance, Repair and Operating products.
technology adoption as part of the role of the intermediary. This suggests taking themes relating to innovation and technology into account for exchange design. However, as defined by these authors, degree of innovation and transaction automation are rather vague and need to be specified more precisely. We consider innovation a possible theme for an exchange design model with high suitability because of its direct relationship to acceptance. Technology is regarded as a possible theme with medium suitability because intermediaries frequently offer users the option of using standard web technology. Technology is also partly covered by the role of the intermediary as the technological enabler of electronic business between customers and suppliers.

**Table 3-3** Suitable exchange design themes from the electronic intermediary literature

<table>
<thead>
<tr>
<th>Possible theme</th>
<th>Contribution to exchange design</th>
<th>Suitability</th>
</tr>
</thead>
</table>
| Form           | - Different types of intermediaries in distribution channels: wholesalers, retailers and specialised intermediaries  
- Traditional (wholesaler, catalogue), new (electronic marketplace, infomediary, workflow redesigner) or mixed (click-and-mortar) forms  
- Simple (catalogue, infomediary) or complex (all-in-one market, service hub) forms  
- Trade-oriented (wholesaler, transaction marketplace) versus other forms (infomediaries, collaboration marketplace) | Medium      |
| Role           | - From single function to multiple functions/integrated (functional integration)  
- Market (aggregation, matching) or collaboration/relationship (transactional, strategic) oriented  
- In addition to support for basic trade processes (searching, ordering, payment), support for trade context processes (regulation, dispute resolution)  
- Broader scope than operational purchasing, also strategic and tactical purchasing  
- In addition to functional role, technology adoption as part of the intermediary’s role | High        |
| Market mechanism | - Relates to different aspects: transaction or relationship-based; systematic or spot sourcing; and dynamic or fixed pricing | Medium      |
| Innovation     | - Relates to different aspects: degree of innovation and technology adoption | High        |
| Technology     | - Relates to different aspects: technology adoption and transaction automation  
- As separate theme or part of the role | Medium      |

**Suitable elements from an electronic intermediary perspective**

The overall impression conveyed by electronic intermediary research on forms, roles and aspects is that the domain of (business-to-business) electronic intermediaries is characterised by broad diversity. Clarke (2001) suggests that the failure to fully analyse what ‘business-to-business’ might
mean is a significant factor in the disappointments of business-to-business electronic commerce. A significant challenge for exchange design is to identify the underlying characteristics of different kinds of intermediaries and to address the right level of analysis – in other words, being specific enough to do justice to the diversity of the business-to-business context, but not so detailed that the main features are lost sight of. While the different forms, roles and aspects of electronic intermediaries provide input for exchange design, the literature is too fragmented to offer a ready-made model. Table 3-3 provides an overview of the theoretical elements identified as suitable themes for an exchange design model.

### 3.3.2 Theories on acceptance

Theories on technology acceptance seek to explain how and when people or organisations accept and use a technology. This section first discusses theories relating to the acceptance of electronic services in general, and then examines studies on the acceptance of electronic intermediaries.

**Acceptance theories in general**

Because electronic services are (inter-organisational) information systems, it is useful to take into account theories relating to the use of information systems. A literature review has revealed two widely-used theories: the Diffusion of Innovations (DOI) and the Technology Acceptance Model (TAM). Alongside these theories, a further two have been selected that are specifically developed for inter-organisational information systems: the EDI adoption model (EAM) and the Power and Trust model (PTM). Table 3-4 contains an overview of the main elements of these acceptance theories. While the theories do not cover all theoretical perspectives on the acceptance of (inter-organisational) information systems, they nevertheless provide a useful starting point.

The Diffusion of Innovation proposed by Rogers (1995) has been widely tested and adapted in many areas, including the IS field. According to Rogers, an innovation is ‘an idea, practice, or object that is perceived as new by an individual or other unit of adoption’ and ‘newness means that some degree of uncertainty is involved.’ The innovation decision process of an individual (or other decision-making unit) passes from first knowledge, to forming an attitude, to a decision to adopt or reject, to implementation and use, and on to confirmation of this decision. Adoption is ‘a decision to make full use of an innovation as the best course of action available.’ The theory suggests that perceived innovation characteristics are a key explanation for the rate at which innovations are adopted, in addition to the

---

1 Electronic Data Interchange
innovativeness of the potential adopters, the communication channels, the
social system and the change agents. The innovation characteristics are
relative advantage, compatibility, complexity, trialability and observability.
In their review and meta-analysis of innovation characteristics, Tornatzky
and Klein (1982) found that three characteristics (relative advantage,
compatibility and complexity) most consistently bore a significant
relationship to innovation adoption.

Davis (1989) introduced the Technology Acceptance Model (TAM),
which has been widely tested and adapted in the IS field. TAM is an
adaptation of the Theory of Reasoned Action (Davis, Bagozzi, & Warshaw,
1989) and is a cognitive and affective model for consciously intended
behaviour. Acceptance moves from a positive attitude towards use, via the
intention to use, towards actual use of systems. The Technology Acceptance
Model posits that two particular beliefs – perceived usefulness (enhancing
job performance) and perceived ease of use (free of effort) – are of primary
relevance for computer acceptance behaviours.

The EDI Adoption Model was proposed by Iacovou, Benbasat and
Dexter (1995) and tested by Chwelos, Benbasat and Dexter (2001). The
objective of Iacovou et al. was to identify the factors that influence the
adoption and impact of EDI in the small business context. Iacovou et al.
refer to adoption as ‘the process during which a firm becomes capable of
transaction via EDI’ and to integration as ‘the process during which a firm
alters its business practices and applications so that they can interface with
its EDI applications.’ Integration is both internal (variety of applications)
and external (number of trading partners). The factors they suggest are
perceived benefits\(^4\) (because of IT’s limited impact on small firms due to
underutilisation and lack of integration), organisational readiness (because
of the low level of IT sophistication and resource availability among small
firms) and external pressure\(^5\) (because of the weak market positions of
small firms and the network nature of the technology).

Hart and Saunders (1997) approach EDI adoption and use in the
context of dyadic inter-organisational relationships. In their view, ‘more
powerful firms, that is firms controlling resources that relatively more
dependent firms rely upon, influence their trading partners to adopt EDI.
However, once EDI is adopted, expanded use is determined by the extent
of trust between firms.’ There are different ways in which one firm can
exert power over another: persuasion that focuses on rewards or benefits
and has a long-term perspective, and coercion that focuses on punishments
and has a short-term perspective. Hart and Saunders propose that while
persuasion is positively related to trust, coercion is negatively related.

\(^4\) Based inter alia on Rogers’ Diffusion of Innovation presented above.
\(^5\) Relates to Hart & Saunders’ power and trust presented below.
Following Mishra, Hart and Saunders discuss four interrelated dimensions of trust: competence, openness, caring and reliability.

There are some similarities between these four acceptance theories. Relative advantage (DOI), perceived usefulness (TAM) and perceived benefits (EAM) all refer to a (relative) performance expectancy (Venkatesh, Morris, Davis, & Davis, 2003). Complexity (DOI) and perceived ease of use (TAM) refer to an effort expectancy (Venkatesh et al., 2003). There is also a relationship between complexity and compatibility (DOI) and organisational readiness (EAM): more complexity and less compatibility require more organisational readiness. External pressure (EAM) includes power (PTM) via the imposition of trading partners.

<table>
<thead>
<tr>
<th>Table 3-4</th>
<th>Elements in acceptance theories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory</strong></td>
<td><strong>Element</strong></td>
</tr>
<tr>
<td>Diffusion of Innovation (Rogers, 1995)</td>
<td>Relative advantage</td>
</tr>
<tr>
<td></td>
<td>Compatibility</td>
</tr>
<tr>
<td></td>
<td>Complexity</td>
</tr>
<tr>
<td></td>
<td>Trialability</td>
</tr>
<tr>
<td></td>
<td>Observability</td>
</tr>
<tr>
<td>Technology Acceptance Model (Davis, 1989)</td>
<td>Perceived usefulness</td>
</tr>
<tr>
<td></td>
<td>Perceived ease of use</td>
</tr>
<tr>
<td>EDI Adoption Model (Iacovou, Benbasat, &amp; Dexter, 1995)</td>
<td>Perceived benefits</td>
</tr>
<tr>
<td></td>
<td>Organisational readiness</td>
</tr>
<tr>
<td></td>
<td>External pressure</td>
</tr>
<tr>
<td>EDI Power and Trust Model (Hart &amp; Saunders, 1997)</td>
<td>Power</td>
</tr>
<tr>
<td></td>
<td>Trust</td>
</tr>
</tbody>
</table>
The acceptance theories also differ in some respects. A theoretical perspective lies behind the factors in both the Diffusion of Innovation and the Technology Acceptance Model (a communication theory and a psychological theory respectively), while the factors in the EDI Adoption Model and the Power and Trust Model were identified following a literature review. The kind of decision-making unit (organisation or individual) also differs for the four models. Whereas the Technology Acceptance Model focuses on individual acceptance, the EDI Adoption Model and the Power and Trust Model focus on organisational adoption. The latter is logical considering the nature of EDI, which is intended for computer-to-computer communication. Diffusion of Innovation can be applied to individual and organisational decision-making units. The EDI Adoption Model and the Power and Trust Model take into account the relationships between organisations, unlike the Diffusion of Innovation and Technology Acceptance Model.

The main question for our research is what can acceptance theories contribute to exchange design? How can we use these theories constructively? Overall, these theories do not provide a ready-made model and the elements leave too much room for interpretation and implementation to support the design of electronic services for intermediaries as intended in our research.

Performance and effort expectancy are important considerations when designing the exchange. However, performance expectancy (relative advantage, perceived usefulness and perceived benefits) characterises the (desired) outcome of the design choices, not the actual choices. We therefore regard relative advantage as a possible theme for an exchange design model with low suitability.

Compatibility and effort expectancy (complexity and ease of use) point towards design characteristics. Trialability and observability are less important as design themes because of the lack of a consistent significant relationship to adoption. Moreover, effort expectancy, trialability and observability are in general more relevant to the detailed design than to the service concept. For this reason, we see compatibility as a possible theme for an exchange design model with high suitability, while complexity and trialability are possible themes with medium suitability. Observability is considered a possible theme with low suitability.

Some elements (organisational readiness and external pressure) are context characteristics, and cannot be influenced by the design. These elements are therefore regarded as possible themes with low suitability. Trust refers to context characteristics as well as suggesting directions for design choices, making it a possible theme with medium suitability.
Acceptance studies of electronic intermediaries

In addition to acceptance theories, there are some studies that focus on the acceptance of electronic intermediaries. This section will now examine three such studies, in particular on electronic marketplaces, and will discuss their contribution to exchange design beyond the acceptance theories.

Day, Fein and Ruppersberg (2003) studied 124 business-to-business exchanges in eight industries to gain an understanding of boom and burst processes in business-to-business exchanges. Their conclusion was that the kind of market opportunity was the main explanation for the survival or exit of the exchange (Figure 3-3). ‘Technological advances create market opportunities that can be placed on a continuum ranging from breakthrough applications, which create new offerings that would not have been possible without the new technology, to a re-formed application, which enabled cost reductions or improvements to existing products or ways of doing business.’ Day, Fein and Ruppersberg conclude that in retrospect most business-to-business exchanges were on the re-formed end where start-ups and new entrants have little chance of surviving.

Does this study give rise to additional exchange design themes? The kind of market opportunity covers different aspects relating to some of the elements from the acceptance theories, in particular relative advantage, compatibility and complexity. Therefore, we do not consider the kind of market opportunity to be a separate possible theme for an exchange design model. It is noteworthy that market opportunity also stresses the benefits of innovation and reflects a positive view of newness, as opposed to the more negative view suggested by compatibility.

A study by Grewal, Comer and Mehta (2001) investigates the antecedents of organisational participation in business-to-business electronic markets. They propose a motivation/ability framework where motivations include an economic expectation of enhancing efficiency (transaction costs economics) and a normative objective of attaining legitimacy (institutional theory). Abilities include organisational learning because of the newness and novelty
of electronic markets and IT capabilities as a dominant organisational resource in electronic markets. The nature of organisational participation can be in an exploration, expert or passive state.

Does this study give rise to additional exchange design themes? Motivation through enhancing efficiency is related to relative advantage, while legitimacy is a context factor relating to external pressure. Abilities in the form of organisational learning and IT capabilities are also context factors relating to organisational readiness. Thus, we do not consider these elements to be separate possible themes for an exchange design model.

Kollmann (2001) identifies factors that influence the acceptance of electronic marketplaces by customers and suppliers. They are as follows: readiness-to-use, database quality, intermediation service, transformation rate and intermediation costs. The operationalisation of these factors is different for customers and suppliers. For example, database quality for the demand side consists of the total number of items in a database, the number of hits per search, the description depth of items, and the quality of items for sale, whereas database quality for the supply side consists of the total number of buyers in the marketplace, the searches in own item group, and number of matches on own item.

Does this study give rise to additional exchange design themes? While these factors are more concrete than the elements in the acceptance theories, they are to a certain extent specific to electronic marketplaces. The ‘readiness-to-use’ factor relates to complexity or ease of use. The ‘database quality’ and ‘intermediation service’ factors contain both exchange design aspects (for example, database quality: description depth of item) and use aspects (for example, database quality: number of hits per search). Actual transformation comprises only use aspects, and intermediation costs are not regarded as exchange design aspects for our research. For this reason, we regard only database quality and intermediation service as possible themes for an exchange design model.

**Suitable elements from an acceptance perspective**

To conclude, the acceptance theories offer insights into acceptance and possible exchange design themes that can contribute to acceptance. Overall, however, these theories leave too much room for interpretation and implementation to be able to use their elements constructively as exchange design themes. While some of the acceptance elements may be suitable, others are less so (Table 3-5). Additionally, these theories stress the importance of the relative advantage of a new electronic service as an outcome of exchange design and point towards trust and power as important context factors for exchange design contributing to acceptance. Although specific studies of the acceptance of electronic intermediaries, especially marketplaces, have provided some additional insights, they have
not really changed the contribution of acceptance literature to exchange design for our research.

<table>
<thead>
<tr>
<th>Possible theme</th>
<th>Contribution to exchange design</th>
<th>Suitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative advantage (DOI)</td>
<td>• More a (desired) outcome than a design choice including perceived usefulness (TAM), perceived benefits (EAM), market opportunity (Day et al.) and efficiency (Grewal et al.)</td>
<td>Low</td>
</tr>
<tr>
<td>Compatibility (DOI)</td>
<td>• Points towards a design characteristic including market opportunity (Day et al.) and relating to organisational readiness (EAM)</td>
<td>High</td>
</tr>
<tr>
<td>Complexity (DOI)</td>
<td>• Points towards a design characteristic including ease of use (TAM), market opportunity (Day et al.), readiness to use (Kollmann) and relating to organisational readiness (EAM)</td>
<td>Medium</td>
</tr>
<tr>
<td>Trialability (DOI)</td>
<td>• Points towards a design characteristic • No consistent significant relationship to acceptance</td>
<td>Medium</td>
</tr>
<tr>
<td>Observability (DOI)</td>
<td>• More a (desired) outcome than a design choice • No consistent significant relationship to acceptance</td>
<td>Low</td>
</tr>
<tr>
<td>Organisational readiness (EAM)</td>
<td>• More a requirement than a design choice including organisational learning and IT capabilities (Grewal et al.) and relating to compatibility and complexity (DOI)</td>
<td>Low</td>
</tr>
<tr>
<td>External pressure (EAM)</td>
<td>• More a context factor than a design choice including power (PTM) and legitimacy (Grewal et al.)</td>
<td>Low</td>
</tr>
<tr>
<td>Trust (PTM)</td>
<td>• Points towards a design characteristic, but also a context factor</td>
<td>Medium</td>
</tr>
<tr>
<td>Database quality (Kollmann)</td>
<td>• Both design aspects and use aspects • To some extent specific for electronic marketplace</td>
<td>Medium</td>
</tr>
<tr>
<td>Intermediation service (Kollmann)</td>
<td>• Both design aspects and use aspects • To some extent specific to electronic marketplace</td>
<td>Medium</td>
</tr>
</tbody>
</table>

3.3.3 Theories on business design

Business design refers to a broad field of design research on business models, business networks, electronic markets, organisations and business processes. Table 3-6 presents an overview of business design models and their elements. This section will now examine these different domains and models and assess their suitability for exchange design.
<table>
<thead>
<tr>
<th>Domain</th>
<th>Design model and elements</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business model</strong></td>
<td><em>Business model for electronic commerce</em>: business actors and their roles; product, service and information flows; benefits for actors; and sources of revenue</td>
<td>(Timmers, 1998)</td>
</tr>
<tr>
<td></td>
<td><em>Electronic business models</em>: sources of revenue; ownership and intimacy of the customer relationship; ownership of the data and the transaction; and type of information</td>
<td>(Weill &amp; Vitale, 2001)</td>
</tr>
<tr>
<td></td>
<td><em>Business model</em>: product (value proposition); customer interface (target customer, distribution channel, customer relationship); infrastructure management (value configuration, capability, partnership) and financial aspects (cost structure, revenue model)</td>
<td>(Osterwalder, 2004)</td>
</tr>
<tr>
<td><strong>Business network</strong></td>
<td><em>Value network</em>: actor; value object; value port; value offering; value interface; value exchange; value transaction; and market segment (e²-value: global actor viewpoint)</td>
<td>(Gordijn, 2002)</td>
</tr>
<tr>
<td></td>
<td><em>Roles-linkage model</em>: role and linkage</td>
<td>(Kambil &amp; Short, 1994)</td>
</tr>
<tr>
<td></td>
<td><em>ICT-enabled business network</em>: products and services (modularisation, standardisation, and digitalisation); business processes (process standardisation and process integration); and information systems (communication standards and data standards and system integration)</td>
<td>(Alt, Fleisch, &amp; Werle, 2000)</td>
</tr>
<tr>
<td><strong>Intermediary</strong></td>
<td><em>Market process model</em>: search, pricing, logistics, payment &amp; settlement, and authentication</td>
<td>(Kambil &amp; van Heck, 2002)</td>
</tr>
<tr>
<td></td>
<td><em>Market Information architecture</em>: what type of information (product quality, market process, market state) is available to whom, or when and how it becomes available to whom</td>
<td>(Koppius, 2002)</td>
</tr>
<tr>
<td><strong>Organisation</strong></td>
<td><em>Structural properties</em>: formalisation; specialisation; hierarchy of authority; centralisation; professionalism; personal ratios</td>
<td>(Daft, 2001)</td>
</tr>
<tr>
<td></td>
<td><em>Coordination mechanisms</em>: mutual adjustment; direct supervision; and standardisation (work processes, work outputs or work inputs (worker skills))</td>
<td>(Mintzberg, 1995)</td>
</tr>
<tr>
<td></td>
<td><em>Design parameters</em>: individual positions (job specialisation, behaviour formalisation, training &amp; indoctrination), superstructure (unit grouping, unit size), lateral linkages (planning &amp; control systems, liaison devices), and decision-making system (vertical decentralisation, horizontal decentralisation)</td>
<td></td>
</tr>
<tr>
<td><strong>Business process</strong></td>
<td><em>Business process design</em>: actors; activities; items</td>
<td>(Franken, Bal, van den Berg, Janssen, &amp; de Vos, 2000)</td>
</tr>
</tbody>
</table>
**Different theories and models for business design**

Business models have received considerable attention in electronic business but are also discussed in other areas, such as strategy, management, and information systems (Pateli & Giaglis, 2003). A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm (Osterwalder, Pigneur, & Tucci, 2005) or business network (Haaker, Bouwman, & Faber, 2004). A good business model addresses who the customers are and what they value (Magretta, 2002). It also addresses how a firm or set of firms can make money and the underlying economic logic that explains how customer value can be delivered at appropriate costs.

One of the earliest definitions of business models for electronic business comes from Timmers (1998). He defines a business model as the combination of (1) ‘an architecture for the product, service and information flows, including a description of the various business actors and their roles,’ (2) ‘a description of the potential benefits for the various business actors,’ and (3) ‘a description of the sources of revenues.’ Weill and Vitale (2001) build on Timmers’ definition and emphasise as key issues for business models the sources of revenue, the ownership and intimacy of the customer relationship, the ownership of the data and the transaction, and the type of information. Osterwalder (2004) presents a business model ontology based on four ‘pillars’: (1) product, (2) customer interface, (3) infrastructure management, and (4) financial aspects. These four pillars are in turn based on Norton and Kaplan’s Balanced Score Card approach with the (1) innovation & learning, (2) customer, (3) internal business, and (4) financial perspective (Kaplan & Norton, 1992). Osterwalder breaks them down into nine building blocks and shows that this ontology covers most business model concepts in the existing literature.

As with business models, the design of business networks has also received particular attention in (business-to-business) electronic business (see, for example, Fielt, van den Eijkel, Janssen, Steen, & Oude Luttighuis, 2000). And business networks have been examined in areas other than electronic business, such as strategy (for example, value systems by Porter & Millar, 1985), marketing (for example, marketing channels by Coughlan et al., 2001), and logistics (for example, supply chains by Fine, 1998).

Closely related to business models, Gordijn (2002) has developed the e3-value ontology for exploring innovative electronic commerce ideas. E3-value focuses on the creation, distribution and consumption of economic value in a multi-actor network. It consists of three viewpoints: (1) the global actor viewpoint explaining the overall value model to all stakeholders, (2) the detailed actor viewpoint(s) for the representation of constellations and partnerships (a further breakdown of parts of the global actor
viewpoint), and (3) the value activity viewpoint(s) that show(s) what actors
do to create profit or to increase value for themselves.

Kambil and Short (1994) use the roles-linkage model to provide a
categorical scheme for representation and analysis of business networks.
‘Roles are defined as distinct, technologically separable, value-added
activities undertaken by firms or individuals.’ Each role requires different
and distinct types of applied knowledge and equipment. For example, a
traditional insurance firm typically combines the roles of money
management, actuarial services and claims management services. Kambil
and Short view the business network role as an expansion of the role
concept used for individuals in organisation theory (discussed later in this
section). ‘Linkages refer to the different ways that firms or individuals
manage economic interdependence across value adding roles in the
network.’ The different forms of linkage are simple market exchange,
standard linkage, specialised linkage, customised linkage (alliance or
hierarchy) and mandates. These forms reflect different forms of
coordination and influencing.

From more of an ICT perspective, Alt, Fleisch and Österle (2000)
discuss business networking as the design and management of ICT-enabled
relationships between business partners. A networking strategy can address
different types of business processes: electronic commerce with a focus on
transactions, customer relationship management with a focus on
relationships, or supply chain management with a focus on the flow of
goods (Alt, Puschmann, & Reichmayr, 2000). The central issue is
networkability: the ability of firms to cooperate internally as well as
externally (Wigand et al., 1997) by rapidly and efficiently establishing,
conducting and developing ICT-supported business relationships. To
achieve networkability, coordination mechanisms have to be designed for
products and services, business processes, information systems, employees,
organisational structure and culture (Alt et al., 2000). Most relevant to the
design of electronic exchange services are coordination mechanisms for
product and services (rapid and inexpensive individualisation of products
and services), business processes (rapid and flexible establishment and use
of appropriately coordinated processes), and information systems (rapid
and inexpensive establishment of an individual communications link).

Theories on business models and networks are very useful for a high-
level business design. However, in our study, exchange design is not aimed
at designing business models and business networks in general. The focus is
on the service concept with specific design themes for the intermediary as
the focal actor in the business network and targeted at acceptance by buyers
and sellers. Nevertheless, these theories do contain some elements suitable
for exchange design. The role element in the roles-linkage model overlaps
considerably with that discussed in the electronic intermediary literature.
The design of electronic intermediaries has received little attention in the literature. As concluded above (section 3.3.1), there is considerable information available on forms and roles, but what is lacking is an understanding of the underlying characteristics that can support a systematic analysis of the exchange design. Some authors have approached the design of electronic intermediaries on the basis of a role model. For example, Janssen (2001) supports the design of intermediaries by analysing roles and tasks (used to describe roles in more detail) in the transaction process with information, negotiation and settlement phases. For electronic marketplaces, Kambil and van Heck (1998) also take a functional role model as their starting point. The market process model consists of basic trade processes for executing a trade and trade context processes for enhancing trust and legitimising the trade.

Only limited research has been done on the design of electronic intermediaries from other viewpoints. An exception is the design of electronic market and auction mechanisms. Traditionally, this research relied heavily on theories developed in the literature on economics and operations research, and more recently, has made use of input from management science, information systems and computer science (Anandalingam, Day, & Raghavan, 2005). For example, Bapna (2003) discusses the mechanics of current bidding technology on eBay and compares the architecture of two relatively sophisticated third-party bidding agents. Mechanism design focuses on a specific kind of intermediary, namely electronic markets or auctions, concentrating more specifically on one specific feature. Nevertheless, this research does provide valuable insights for intermediaries in general by emphasising the functions relating to the exchange of information and its value for customers, intermediary and suppliers.

Koppius (2002) investigates information exchange for electronic auctions, leading to the concept of the market’s information architecture: ‘what type of information (that is relevant to the trader’s decision process) is available to whom, or when and how it becomes available to whom during the market process.’ Although optimising information flows is often an important motivation for introducing an electronic intermediary (for example, Hansen, Mathews, Mosconi, & Sankaran, 2001), maximising the visibility of information for customers and suppliers may not always be the best option. This corresponds to the findings of Zhu (2002), who found
that information access and disclosure rules crucially affect firms’ incentives to join a business-to-business exchange.

While the role theme has already been identified, information architecture as a separate possible theme for exchange design has not. Information architecture can be important for exchange design if it is interpreted more broadly than as a specific market mechanism. It is more or less implicitly present as part of different functions or processes in the intermediary’s roles, for example, information about sellers, price discovery or product presentation. However, it may be useful to explicitly address these issues by means of a separate design theme alongside role. For this reason, we regard the information architecture of an intermediary as a possible theme for an exchange design model with high suitability.

The design of organisations covers the design of organisational units, subunits and individual jobs. Nadler and Tushman (1997) differentiate between strategic and operational organisational design. The former relates to the composition and relationships of organisational units and organisation-wide systems, processes and technology, while the latter relates to organisational subunits and their work resources, reward systems and work environment or individual jobs.

Structural contingency theory has dominated explanations of effectiveness and efficiency for the design of organisations. The underlying premise is that context and organisational structure must somehow fit together (Drazin & van de Ven, 1985). For example, Chandler (1962) discussed the relationship between strategy (for example, extent of diversification) and structure (for example, divisional or functional), which resulted in the axiom ‘structure follows strategy’, Woodward (1965) studied the relationship between technology (unit and small-batch production, large-batch or mass production, and continuous process) and structure (mechanic or organic), and Lawrence and Lorsch (1967) examined the relationship between environmental uncertainty and turbulence and structure (differentiation and integration).

Typically, the following six structural properties are identified in this kind of research: (1) formalisation, (2) specialisation, (3) hierarchy of authority, (4) centralisation, (5) professionalism, and (6) personal ratios (Daft, 2001). In our study, exchange design is targeted more towards an intermediary’s inter-organisational arrangements and exchange services than intra-organisational arrangements and administrative structure in general. However, an organisational structure with the properties of formalisation and specialisation may be a suitable design theme for exchange design. These properties can be expanded from the firm to the business network level. The properties of hierarchy of authority and centralisation are not applicable to an inter-organisational setting because of the absence of a
formal hierarchy in a business network. The properties of professionalism and personal ratios are less relevant to exchange design in terms of our research because of the focus on activities rather than people. We therefore see organisational structure with the properties of formalisation and specialisation as a possible theme for an exchange design model with medium suitability.

Designing organisational structures results in a division of labour into various tasks, in turn giving rise to a need to coordinate these tasks. One of the most prominent researchers in organisational coordination is Mintzberg, whose work on designing organisation (Mintzberg, 1993) distinguishes five coordination mechanisms: (1) mutual adjustment, (2) direct supervision, and (3/4/5) standardisation of work processes, work outputs, or work inputs (worker skills).

Although Mintzberg applies these coordination mechanisms at the firm level, they can also be applied at the business network level. In a business network, coordination takes place by means of mutual adjustment or standardisation. There is no direct supervision because there is no formal hierarchy between firms. However, the organisation of the business network in general is not the focus of our research, as argued above in the discussion about business models and networks. Nevertheless, standardisation is an important theme for electronic services in a business network (see, for example, Wigand, Markus, & Steinfield, 2005). Standardisation is also closely related to the intermediary’s ability to connect many customers and suppliers. For this reason, we consider standardisation to be a possible theme for an exchange design model with medium suitability. Mintzberg relates the five coordination mechanisms to four groups of design parameters: (1) individual positions, (2) superstructure, (3) lateral linkages, and (4) the decision-making system. Design parameters relating to standardisation are behaviour formalisation (position), training and indoctrination (position), planning and control systems (lateral linkages), and vertical decentralisation (decision-making).

Another approach to organisational design can be found in the business process literature. A business process comprises the full range of activities that occur between the request for a service or product and its delivery – in short, from the customer to the customer (Franken et al., 2000). Davenport and Short (1990) define business process design as the analysis and design of workflow and processes within and between organisations.

The design of business processes revolves around the following issues: (1) who are involved (actors), (2) what activities are carried out (behaviour), and (3) which data/products are involved in the activities (Franken et al., 2000). The specifics of business process design vary considerably according to the type of process. Business processes can be differentiated on the basis of the entities (inter-organisational, inter-
Theories on Exchange Design

functional or inter-personal), objects (physical or informational) and activities (operational or managerial) (Davenport & Short, 1990). When applying traditional business process engineering models and methods to electronic business engineering, it is important to be aware of the essential differences, for example, the enterprise versus network focus and single versus multiple customers (Janssen, Steen, & Franken, 2003).

While business process design is essential for an electronic intermediary, it offers no additional insights for exchange design in our research. The intermediaries’ roles in the business network provide a medium-level design for the intermediary’s functions or processes, which is usually sufficient for exchange design. A more elaborate business process design is more relevant to the detailed design phase than to the service concept phase where we have positioned exchange design targeting acceptance.

---

**The contribution of exchange design to business design**

After separately examining the different domains and models, it is useful to position our approach to exchange design in relation to other theories on business design. We have used a two-dimensional space to position the different design theories and models (Figure 3-4): (1) the level of detail and (2) the genericity of application (range of aspect and/or domains). Firstly, design choices can be made at a high level, for example at the level of network structure, or at a more detailed level, such as arrangements and processes or information exchange. Secondly, design models can cover many aspects or be restricted to certain aspects (for example, value) and may have a very wide applicability (for example, enterprise architecture models) or be limited to a specific domain (for example, the design of an insurance process).

This section will next position some of the previously examined models in relation to exchange design as approached in our research. An example of a high-level, generic model is Osterwalder’s (2004) business model.
ontology. Kambil and Short’s (1994) roles-linkage model is also a high-level model but is more specific in the sense that it covers only the aspects of roles and linkages in a business network. Gordijn’s (2002) e3-value ontology is even more specific because of its focus on economic value. Unlike the roles-linkage model and the e3-value ontology, Franken et al.’s (2000) business process design is very generic but is commonly applied to a much more detailed design for a specific firm or a business network. Kambil and van Heck’s (2002) trade process model is a low-level, specific model because of its focus on trade processes and specific kinds of intermediaries (online auctions and exchanges), while Koppius’ (2002) information architecture is even more low-level and specific as it addresses only the information architecture of online auctions.

This range of models for business design in the electronic business domain reveals a gap between high-level and low-level models, and between generic and specific models in relation to where we position our approach to exchange design for electronic intermediaries. Whereas the high-level, generic models are less targeted towards the design of electronic intermediaries, the low-level, specific models assume that certain exchange design choices are already fixed. What is missing is an intermediary level, targeting the essential design choices for individual actors in relation to their position and function in the network. Such an intermediary level, in our view, helps in taking the step from the strategic to the operational level, without prescribing the precise ways of working that make less of a contribution to the balancing of interests. Note that such an intermediary level does not render the other models redundant. On the contrary, it complements them by allowing step-by-step development.
examination. Table 3-7 provides an overview of the elements with high or medium suitability. Note that the elements relevant to electronic intermediaries but not suited to our approach to exchange design have been omitted. It is our intention to develop a model that complements rather than replaces the other models.

3.3.4 Concluding remarks

This chapter has discussed the theoretical framework for our research. It presented our view on the business network and examined three theoretical perspectives that improved our understanding of exchange design and that can contribute to the exchange design model.

Firstly, this chapter examined the theories on electronic intermediaries. These theories’ strength lies in its discussion of the forms, roles and aspects of electronic intermediaries. Research in the different areas has revealed enormous variety in the different kinds of intermediaries, ranging from simple to complex and from transaction-oriented to collaboration-oriented. The weakness of these theories is that while it provides input for exchange design on high-level forms and more specific roles and aspects, it is largely descriptive and does not discuss common, underlying characteristics of different kinds of intermediaries. The aspects of electronic intermediaries that relate to the characteristics of exchange and exchange processes seem to be a suitable starting point for exchange design. However, these aspects tend to be relatively vague and/or limited in scope.

Secondly, this chapter looked at theories on the acceptance of electronic services in general and those provided by electronic intermediaries in particular. These theories’ strength is that it explicitly identifies the most significant factors that contribute to the acceptance of electronic services. This offers insights into the different concerns when designing an exchange. The weakness is that most of the factors are difficult to apply constructively. Most acceptance characteristics refer to the (desired) outcome of exchange design choices, and not to the actual choices. Other factors refer to context characteristics that cannot be influenced directly by design. In general, these theories leave too much room for interpretation and implementation.

Thirdly, this chapter evaluated theories on business design in general and electronic intermediaries in particular. Their strength is the fact that they are design-oriented: they offer constructive concepts and models that can be used as input for exchange design. Their weakness is that they do not provide a suitable framework for our research with respect to the level of detail and domain specificity. There is a gap between high-level and low-level approaches and between generic and specific approaches. The exchange design model developed by our study can help to bridge this gap in available design knowledge and support. In this way, it complements
existing design theories and allows for a more fluid step-by-step refinement of business design for electronic intermediaries.

In conclusion, while research is available that contains useful elements for exchange design, there is no cut-and-dried solution for answering the first research question about design variables for exchange design. Table 3-8 presents an overview of possible design themes that may suit our approach to exchange design based on the three theoretical perspectives.

Alongside possible themes, the examination of acceptance and business design emphasises the importance of the outcome of exchange design choices in terms of relative advantage or added value for customers and suppliers. This has also been addressed in chapters 1 and 2, where we discussed opportunities for an intermediary. There are also important context factors for exchange design, in particular power and trust, which have to be taken into account in the study of acceptance by customers and suppliers. These factors have also been addressed in chapters 1 and 2, in the discussion of voluntary acceptance and trust.

In the following chapter we approach the identification of exchange design themes from an empirical perspective and derive an exchange model from a pilot case study. The theoretical perspectives discussed here will return in the next chapter, when we evaluate the empirical model.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Possible theme</th>
<th>Suitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic intermediaries</td>
<td>Form</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Role</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Market mechanism</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Innovation</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Technology</td>
<td>Medium</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Compatibility</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Complexity</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Trialability</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Trust</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Database quality</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Intermediation service</td>
<td>Medium</td>
</tr>
<tr>
<td>Business design</td>
<td>Networkability</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Information architecture</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Organisational structure</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Standardisation</td>
<td>Medium</td>
</tr>
</tbody>
</table>
The Tapestria pilot case and the exchange design model

This chapter derives the exchange design model from the Tapestria pilot case. Tapestria offers a web purchasing service for interior fabrics to professional designers and a sales service to producers. Firstly, this chapter introduces Tapestria and its business network and discusses exchange design choices and the actors’ interests. Secondly, it identifies the themes and aspects of the exchange design model and evaluates the exchange design model using the possible themes examined in the theoretical perspectives from the previous chapter.

4.1 Introduction

This chapter covers the pilot phase of the research process, in which the pilot case study was conducted and the exchange design model formulated. The Tapestria section describes and discusses the Tapestria pilot case study. Tapestria was selected as a pilot case because of the explicit exchange design choices. The pilot case study was conducted for two reasons: (1) to derive an empirical model for exchange design and (2) to learn about exchange design choices in order to arrive at design patterns. This section starts by introducing Tapestria and its business network. It then discusses exchange design choices and the interests of the actors. The comparison of the design and interests with the acceptance of Tapestria results in the Tapestria findings.

The exchange design model, which consists of higher level themes and more specific aspects, is introduced and discussed in the exchange design model section. The derivation of the exchange design model from the Tapestria pilot case is presented. This empirical model is evaluated on the basis of the theories on exchange design examined in the previous chapter. The section ends with a discussion of the application of the exchange design
model to the other cases. In the research approach, the case selection was briefly discussed and all cases were introduced (see section 2.3). Here the case selection will be described by means the exchange design model. The model will also be empirically evaluated by the other cases with respect to the relevance of the design themes and the need for additional design themes.

4.2 The Tapestria pilot case

Tapestria (www.tapestria.com) was a newly established electronic intermediary in the soft furnishing industry, offering a web purchasing service for interior fabrics to professional interior designers in the United States and a sales service to European producers. Tapestria started offering a web purchasing service in 2001 and ceased operations in 2004. The focus of this case study is on Tapestria from the second half of 2002 to the first half of 2003.

4.2.1 Tapestria and its business network

The electronic business initiative
Hunter Douglas, Tapestria’s parent firm, manufactures and markets two principal product lines: window coverings and architectural products. Hunter Douglas wanted to introduce electronic business for major improvements to the distribution channels of fragmented and inefficient interior design markets. Opportunities were found not in Hunter Douglas’ traditional markets but in the adjoining soft furnishing market.

The American market for European soft furnishings is characterised by long chains between producers and customers that push up prices and cause delays. Hunter Douglas decided on a ‘greenfield’ operation and set up Tapestria. Tapestria offered an electronic purchasing service (Figure 4-1), enabling the soft furnishing trade to research and source at competitive rates, quickly and effectively, from a global network of leading suppliers. A newly established firm, it was located in both the Netherlands (focusing on project management, supplier service, finance and logistics) and the United States (focusing on customer service, marketing and ICT). Tapestria’s start-up took 2½ years and involved more than 25 million dollars and 100 people. Tapestria Netherlands had about 20-30 employees in 2002. The ‘Tapestria’ brand name was added to the offerings of Carole Fabrics, a long-established fabric firm of Hunter Douglas. The web platform has been continued by Richmond Textiles, a textile firm of Hunter Douglas active in the hospitality market.
Tapestria began by offering interior fabrics within the soft furnishing market. Interior fabrics are used for drapery (e.g., curtains) and/or upholstery (e.g., chair or sofa coverings). According to Tapestria, interior fabrics have the following attractive characteristics: (1) product: homogenous, intermediary good, and easy to ship, (2) market: global, fragmented (both demand and supply side) and inefficient, and (3) strategic: key design product and valuable database. Tapestria focused on the exclusive, high-end segment of the interior fabrics market. Within the high-end market, Tapestria aimed at a large collection that was as complete as possible. It considered its business model inappropriate for the low-end, bulk market because that market requires cheap, large-volume transportation. Tapestria did not target the top-end segment of the high-end market because it aimed for large-volume fabrics. To justify investment in the electronic business initiative, the market has to be sufficiently large, which is the case for high-end fabrics (about 2.5 billion a year).

The business network
In addition to Tapestria, the other actors in the business network were end customers (the interior designers’ customers), interior designers and fabrics producers (Figure 4-2). Tapestria’s exchanges were with interior designers and fabrics producers. The exchange between Tapestria and designers
included the purchasing and delivery of fabrics, while the exchange between Tapestria and producers included the sale and logistics of fabrics. There were two logistics scenarios for producers: (1) on consignment, whereby the inventory was kept at Tapestria’s warehouse and the producer owned and managed the inventory, and (2) drop ship, whereby the inventory was kept at the producer’s warehouse and the producer was part of the fulfilment process.

Tapestria provided services to designers and producers and made use of the services of producers and service providers (Figure 4-3). Tapestria provided a purchasing service for interior fabrics, including the delivery of samples and pieces of fabric to designers. It supported the sales of fabrics via the web for producers. Producers managed the inventory of rolls at Tapestria’s warehouse (on consignment) or supplied pieces of fabric for orders (drop ship). Tapestria itself did not perform all activities necessary to provide its services but used service providers for warehousing fabrics, producing and warehousing samples, financial settlement (credit card payment and credit insurance) and the transportation of samples and fabrics.

The purchasing process (Figure 4-4) shows how the different services of Tapestria, the producers and the service providers operated together. The figure shows the main steps and the actors involved in each step with demand for fabrics as the trigger and return/claim as an optional step. Most of the purchasing process involved the designers and Tapestria. Service providers were mainly present in the steps with financial (check out and
place order) or logistical (fulfil pieces of fabric and/or samples) aspects. Note that producers were not normally active in the purchasing process, except in the case of fulfilment of pieces of fabric via drop-ship logistics.

Tapestria’s revenues came from a fee (operational) or margin (legal) that was part of the designer list price. Designers paid Tapestria the list price as presented on its website and Tapestria paid producers the producer price. Producers set the producer price for Tapestria (principal concept) instead of list price for designers (agent concept). The producer gained insights into the margin, duties and operational charge calculations added to the producer price. In some cases Tapestria paid part of its fee to another actor (for example, the parent firm Hunter Douglas or a sales agent) which brought in the designer. Membership and use of the purchasing service (plus the samples) were free for designers. Producers paid part of the costs of placing their fabrics online and supplied Tapestria with pieces of fabric for free samples.

**The intermediary: Tapestria**

Tapestria sought to provide a large, high-end collection of fabrics via a cost-efficient and high-quality service to professional designers in the United States. To be cost-efficient, Tapestria removed structural costs from the supply chain, in terms of both the number of parties involved (no other agents, wholesalers or importers) and the kind of costs (no sample books, showrooms, salespeople). With respect to a high-quality service, Tapestria focused on speed, selection, reliability, convenience and responsibility. To provide such a service, Tapestria wanted to be in control of all the activities for the purchasing service: marketplace, finance and logistics. However, where a service provider was available, Tapestria outsourced as many activities as possible (for example, warehousing) because it did not have the skills (no experience) and/or the volume (high fixed costs) to perform these activities itself.

Because Tapestria viewed its relationships with designers and producers as core assets, it protected these relationships, taking care to ensure that they were not bypassed by direct contact between designers and producers. In the future, Tapestria planned to expand its business scope by broadening its product range via its own firm (for example, rugs, wallpaper) or via affiliates (for example, furniture). Tapestria also planned to access other
user markets (for example, the hospitality market) and extend its geographical market (for example, the United Kingdom).

Tapestria described itself as a mix between an electronic marketplace and a traditional wholesaler. Tapestria’s main activities involved the operation of an electronic marketplace and logistics. The marketplace supported the buying and selling of interior fabrics, the product catalogue (including the classification and visualisation of fabrics), order processing and providing support tools (for example, a price calculator for producers). Designers could order directly via the marketplace or via the customer order desk (phone and fax). Logistics supported the marketplace by means of available-to-promise functionality for products and order fulfilment for pieces of fabrics and samples. Logistics also involved warehousing and replenishing rolls of fabrics and samples. Tapestria had a warehouse in Europe for rolls of fabrics and one in the United States for samples. For designers, Tapestria took care of marketing and sales by means of customer relationship management and customer support and by promoting the ‘Tapestria’ brand. Tapestria did this through a customer support desk (phone and fax) and sales agents (a representative visiting in person). It contacted new suppliers and managed their relationship using supplier relationship managers. It also operated a supplier desk that supported the producers in placing their products online and with any problems or questions.

Tapestria made intensive use of ICT, not only for its marketplace but also for logistics. It had a web front end with an enterprise system (SAP) as back end. The Tapestria website offered functionality for both designers and producers. The website interface with the designers (designer browser) consumed much of Tapestria’s attention and resources because of its importance to marketing & sales. In particular, the visualisation of fabrics was a high-end feature of the designer browser with different, high-quality views available for zooming: full repeat, texture and rendered (drapery, upholstery). The web interface for producers (producer browser) focused more on functional aspects (for example, viewing sales information). For producers, Tapestria also offered some minor ICT tools (Microsoft Access applications) to provide product information and calculate prices. The enterprise system contained the inventory information to support the available-to-promise functionality for designers and the vendor-managed inventory for producers. This information came from the firms operating the warehouses and from the drop-ship suppliers.

The customers: interior designers
Tapestria targeted professional designers in the United States. A web purchasing service for interior fabrics is better suited to professionals than consumers because professional designers are more knowledgeable about
the products. Tapestria also targeted professional designers because it wished to keep the administrative process simple. Professional designers have a state sales/use tax exemption certificate, which meant that Tapestria did not have to keep accounts for state sales/use taxes.

Interior designers create a functional and quality interior design environment for end customers. They therefore perform a range of activities relating to managing and executing a design project. According to Tapestria, the most important added value of the designer was to create and communicate an image to its customer. The storyboard — a collage of the total design including walls, windows, floors, furniture, etc. — is important for this image, and it requires physical samples of fabrics. Typical activities of interior designers with respect to fabrics include researching, selecting, communicating and ordering pieces of fabrics.

Tapestria offered interior designers a web purchasing service for interior fabrics. With the purchasing service, Tapestria was mainly active at the back end of the designer. In addition, Tapestria offered some support for the front end vis-à-vis end customers, for example, support for e-mailing fabric information (description and visualisation). To access Tapestria, interior designers needed to sign up. Tapestria had two kinds of memberships: (1) a guest account that was open to anyone and (2) a trade account with full trade privileges for interior designers who were trade members. Both guest and trade accounts were free, but a trade account required verification. Tapestria laid down policy statements and terms and conditions for its members.

Specifically, the purchasing service entailed finding fabrics, ordering samples and pieces of fabric, checking orders and paying via the website. Tapestria delivered samples and pieces of fabrics to the delivery address entered by the designer. Designers could return fabrics after agreement with the customer support desk. In addition, designers could manage projects via the website (in other words, organise selected fabrics in folders) and generate an e-mail about selected fabrics for end customers (or other actors). Designers could also be informed by Tapestria about news on the service and interior fabrics. Finally, designers were able to manage their membership account via the website, and Tapestria operated a customer service via e-mail and telephone for problems and questions.

The suppliers: fabric producers
A fabrics producer manufactures interior fabrics. Most of Tapestria’s producers were located in Europe. According to Tapestria, the American market regards fabrics from European producers as exclusive. Typical activities of producers include developing new fabrics, and selling, producing and shipping rolls of fabrics.
Tapestria offered European producers a web sales service with logistics for the American market. To join Tapestria, producers had to negotiate a contract, which covered detailed issues like how producers should supply fabrics, the fact that producers should provide sample material, what the price systems entailed, how claims and returns were handled, who paid for product photos, what service level the producer should provide, etc.

Tapestria supported producers in placing their products online via product information (description and classification), visualisation (images and rendering) and logistics information (stock parameters). Tapestria allowed producers to set their prices; producers could also check all products and prices on the marketplace. Tapestria took care of order processing by arranging logistics and finances. Producers were either informed by Tapestria about sales and operations with respect to their fabrics or they could check this information themselves. Additionally, Tapestria had account managers for producers and a supplier service desk to support the producers.

Producers supplied fabrics to Tapestria by means of an on-consignment or drop-ship scenario. In the case of the former, Tapestria fully supported logistics (warehousing, order handling and transportation), while producers managed the inventory at the Tapestria warehouse and supplied rolls of fabric for inventory replenishment. Tapestria informed producers about stock levels at its warehouse when they reached a critical level, and producers managed the stock at the warehouse. For the drop-ship scenario, Tapestria only supported transportation (including customs), while producers supplied pieces of fabric for order fulfilment. Producers informed Tapestria daily about stock levels at their own warehouse. As soon as producers received an order forwarded by Tapestria, they delivered the fabric to Tapestria’s European warehouse (normal for drop-ship, European producers) or to the delivery address (except for drop-ship, American producers). Tapestria had an EDI coupling for forwarding orders to its largest supplier, which used drop-ship logistics. This was an experiment and was not continued with other drop-ship suppliers because the number of orders was not yet sufficiently high. Tapestria perceived EDI couplings as troublesome because they required considerable effort and were difficult to change.

The service providers

To perform the marketplace and logistics activities, Tapestria used the services of two partners with whom it collaborated closely for the production and warehousing of samples in America (an American firm) and the warehousing of fabric rolls in Europe (a European firm). Tapestria also used a number of other service providers for payment by credit card.
The Tapestria pilot case

(CyberCash), for credit insurance (NCM), for producing samples in Europe (a European firm), and for delivering samples and fabrics (UPS).

Tapestria had to find appropriate partners and other service providers and negotiate with them on the outsourcing scope (what to include and what to exclude) and the terms and conditions. The partners were involved early in the initiative and helped to develop the idea. For example, the European warehouse helped decide how to equip the warehouse. At the operational level, Tapestria planned and controlled the business processes in which these service providers were involved. There was extensive contact and frequent interaction with the warehouses in particular. Tapestria interacted with the service providers for each order in the sales and fulfilment processes.

Tapestria had an EDI coupling with its European warehouse, while the American warehouse made direct use of Tapestria’s enterprise system. Tapestria had electronic couplings with NCM and Cybercash for real-time credit and payment checks. Tapestria made use of the tracking & tracing tools of the carrier UPS, which it also offered to designers via its website, and had an EDI coupling with UPS for exchanging transportation files.

4.2.2 Exchange design, interests and acceptance

Exchange design
Tapestria made a number of major design choices that had a significant impact on the customer-supplier exchange: (1) it positioned itself as a managed marketplace: a mix between an electronic marketplace and a traditional wholesaler, (2) it offered an electronic business complemented by logistics, (3) on the one hand, it advanced transparency with respect to product information and prices, while on the other hand restricting transparency with respect to designers and producers, and (4) after an initial focus on maximum innovation, it began introducing traditional elements, explicitly combining them with new elements.

Tapestria described its role as a mix between an electronic marketplace (multi-vendor competition) and a traditional wholesaler (one face to the customer), Table 4-1 presents the different elements of a marketplace and wholesaler and Tapestria’s choices (with arrows and bold text). Tapestria aimed to do more than just bring designers and producers together; they wanted to be in control of marketing & sales, logistics and finance with one catalogue, one inventory and one-step shipment. While Tapestria presented itself as a wholesaler to designers, a fundamental difference was that producers were in control of pricing and owned the inventory.
Tapestria complemented the electronic business with logistics. It had its own warehouses, managed inventory information and took care of order handling. Moreover, it offered functionality in the marketplace that was closely integrated with logistics (for example, available to promise and sample service). Logistics was also heavily supported by ICT, for example, managing inventory and tracking & tracing.

For logistics there were two scenarios: on-consignment and drop-ship. For the former, Tapestria had one inventory and one source of inventory information. Tapestria was in full control and did not depend on producers. Producers were not involved in order handling but did have to provide Tapestria with rolls of fabrics. For the drop-ship scenario, producers had their own inventory and were the source of inventory information, which meant that they were involved in the handling of orders.

The differences between the logistics scenarios not only affected cooperation between Tapestria and producers but also the service Tapestria offered to designers. The available-to-promise functionality is more accurate for on-consignment than for drop-ship logistics. Tapestria had up-to-date inventory information from its own warehouse, whereas it received inventory information once a day from suppliers.

Tapestria knew who the designers and producers were and how they made use of the marketplace. It was able to gather a large quantity of information about designers and their preferences by recording, for example, what designers searched for and ordered. Tapestria’s product database was filled with information on fabrics and images of fabrics and Tapestria knew the
prices of all products. To the designers and producers, it promoted transparency with respect to fabrics and prices but not with respect to producers and designers.

Designers with a Tapestria account were supported in searching, viewing and comparing fabrics. Tapestria offered a uniform presentation for viewing fabrics. Designers could view product information in columns, making fabric comparison easier. Tapestria provided not only text-based information but also advanced visualisation, and it delivered physical samples. Designers with a trade account could also access prices and inventory information, while producers participating in Tapestria could obtain information on all products and prices. Producers had direct control over the producers’ prices and Tapestria provided insights into margin, duties and operational charges that determined the list price. Tapestria supported producers with an ICT tool called ‘Margin Calculator’ (a Microsoft Access application) to calculate list prices, which producers could download. A separate tool rather than website functionality, it prevented producers from gaining the impression that Tapestria could check their price calculations. For product information, Tapestria developed a product specification and search logic, and collected and classified fabric information together with the producers. Tapestria supported information collection and classification by producers via a classification tool (also a Microsoft Access application), which producers could use to enter their product information.

Tapestria did not inform designers about producers. The website and all fabrics were branded ‘Tapestria’, and when samples or pieces of fabric were delivered, the name of the producer did not appear anywhere, even in the exceptional case of American producers who shipped fabric directly to designers. These producers were instructed to use Tapestria’s labels and packaging lists. Nor did Tapestria inform producers about designers. Although producers obtained information about the sale of their fabrics, the individual designers were unknown to them.

Tapestria started as a new distribution channel with the help of electronic business. Initially, it saw itself as a web company and had a very positive attitude towards automation. It wanted to do things differently to improve the purchasing process by making it more cost-efficient and offering a high-quality service. For example, Tapestria had an online catalogue to save the costs of a paper catalogue and the latest fabrics were always immediately available. In addition to the paper catalogue, Tapestria saved on showrooms and salespeople through its website. Tapestria represented a new way of working for designers (for example, electronic catalogue and electronic ordering) with new services (for example, sample service, e-mail fabrics and product visualisation).
However, after this initial focus on innovation, Tapestria began placing more emphasis on traditional elements of the purchasing service, such as physical presence and personal interaction. For example, it introduced a paper catalogue and emphasised interaction via sales agents (face to face), customer support (phone and fax), and events for designers. Tapestria explicitly linked these traditional elements to its electronic marketplace; for example, the paper catalogue referred to the online catalogue for the latest prices and fabrics.

Sometimes the virtual presence and physical presence were able to reinforce each other. For example, visualisation provided a good initial impression of the fabric and electronic ordering of samples made sample books, which are expensive and soon out-of-date, redundant. However, designers ultimately need to touch and feel a physical sample and for their storyboards.

Although the web remained the most important channel for Tapestria because of its cost efficiency and unique features, Tapestria realised it needed multiple ways of interacting with its customers. Furthermore, Tapestria decided to focus more on innovative designers who had (broadband) internet connectivity or who were more interested in a contemporary style because they might be more open to a new service.

**Interests**

Tapestria’s intention was to remove structural costs and delays from the supply chain because this would give it the opportunity to offer lower prices to designers and higher prices to producers, with Tapestria receiving a fee/margin for each order. It is not clear whether lower prices matter to designers or their customers in the high-end fabrics market. According to Tapestria, high prices may even be beneficial for designers if they themselves add a margin to the end customer price. Producers have direct control over their own prices. Whether producers receive higher prices for their products depends on their own price setting. A potential effect is that Tapestria’s price transparency could have created price competition, which is negative for producers but positive for designers. However, there is no evidence that this happened. In Tapestria’s experience, producers set their prices once when a fabric came online and barely changed them later.

Tapestria offered a new (electronic) distribution channel to designers and producers. Designers could gain easy access to a large collection of exclusive (European), high-end fabrics, including the latest fabrics. As part of the service, designers could easily acquire fabric samples, an important resource for them. Producers could easily access professional designers in the United States and, potentially, other new or existing markets and could also introduce new fabrics faster (time-to-market). The fact that Tapestria introduced this new (electronic) distribution channel was attractive to
producers because setting up their own electronic business initiative, including marketing & sales and logistics, would require a lot more effort and cost. Because producers were not present with their own brand name in this channel, the chances of a channel conflict with the traditional channel were reduced.

Tapestria offered designers a high-quality purchasing service with respect to convenience (for example, sophisticated product search and 24x7 availability) and reliability (for example, fewer errors and tracking & tracing information). However, the online experience was not optimal for designers who did not have broadband internet connectivity. Tapestria also offered designers new services such as product visualisation (for example, rendering fabrics over a sofa), but it is not clear whether designers really used and valued these services. Tapestria concluded that a major obstacle to use was that its service did not fit the current way in which designers worked – hence the decision to improve the fit by introducing traditional elements. If we consider the main objective of designers (creating a functional and quality interior design environment), this raises the question as to what extent a fabric purchasing service is important enough for them to change their behaviour. To create an interior design environment, designers perform many more activities than just researching and sourcing (for example, helping end customers determine their goals, generating ideas and managing construction and installation) and they need many more resources than fabrics alone (for example, furniture and lighting).

Because they opted for a managed marketplace and combined electronic business with logistics, Tapestria had to invest considerable effort and cost in order to implement and operate the electronic business initiative. They were partially able to reduce that effort and cost by making use of partners and producers. This meant that producers also had to put in effort and invest in Tapestria, the kind and extent depending upon the logistics scenario. Tapestria introduced the drop-ship scenario to accommodate the larger producers. It also incurred extra costs because of the decision to offer traditional elements to designers.

The managed marketplace did offer Tapestria the opportunity to occupy a central position in the business network in relation to designers and producers. Tapestria owned the relationship with the designer and could not be easily bypassed by designers or producers trying to do business directly. It could expand its business scope, thereby leveraging its platform and relationships. It could broaden its product range (for example, rugs or wallpaper) or enter new markets, which could be either new user markets (for example, the hospitality market) or geographical markets (for example, the United Kingdom). It could also introduce and establish its own ‘Tapestria’ brand name via the website and interior fabrics. However, this meant that it was unable to leverage the brand names of the producers.
Tapestria’s position also provided it with exclusive market information, which, however, it failed to exploit at the time.

Hunter Douglas, the parent firm, also had a role in Tapestria, in addition to being the owner. Tapestria benefited from the fact that Hunter Douglas is a well-known firm and therefore trusted by designers and producers. Through Tapestria, Hunter Douglas could enter a new (adjoining) market and gain experience with new technology.

### Effects of Tapestria on the actors’ interests

<table>
<thead>
<tr>
<th>Efficiency: improve cost structure</th>
<th>Interior designers</th>
<th>Tapestria</th>
<th>Fabrics producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-quality purchasing service [+/-]</td>
<td></td>
<td>Effort and cost of managed marketplace and logistics [-] Use partners and producers to lower effort and cost [+/-] Compatible with way of working [-]</td>
<td>Effort and cost of (electronic) distribution channel [+/-]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effectiveness: increase return on assets</th>
<th>Interior designers</th>
<th>Tapestria</th>
<th>Fabrics producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy access to high-end fabrics [+/-]</td>
<td></td>
<td>New technology for parent firm [+/-] Opportunity to expand business scope [+/-] Central position in relation to designers and producers [+/-]</td>
<td>Easy access to US designers [+/-] Single, trusted party for producers [+/-] No conflict with traditional channel [+/-]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enhance customer value</th>
<th>Interior designers</th>
<th>Tapestria</th>
<th>Fabrics producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional and quality interior environment [?]</td>
<td>Establish the Tapestria brand [+/-] Valuable market information [?]</td>
<td>New markets, new fabrics [+/-]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expand revenue opportunities</th>
<th>Interior designers</th>
<th>Tapestria</th>
<th>Fabrics producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue from design project [+/-] Lower prices for interior fabrics [?]</td>
<td>New (adjoining) market for parent firm [+/-] Fee/margin per order [+/-]</td>
<td>Higher prices for interior fabrics [+/-] No price competition [?]</td>
<td></td>
</tr>
</tbody>
</table>

[+] = positive effects; [-] = negative effects; [+/-] = positive and negative effects; [?] = effects not known or unclear

In conclusion, the net effect of Tapestria on the interests of designers is unclear (Table 4-2). For interior designers, Tapestria offered a high-quality service with lower prices. However, the service may not have been sufficiently attractive and lower prices may be not that important. Moreover, it required a substantial change in the way designers work. The net effect on the interests of producers seems more positive. It offered them an extra sales channel via electronic business for relatively low effort and cost. Price competition could be a potential risk. Effects upon producers depend on the use of on-consignment or drop-ship logistics. For Tapestria, strategic interests were effectively covered by means of its central position and brand. However, implementing and operating the managed marketplace required substantial effort and cost.
Acceptance
According to Tapestria, 85% of American retailers/designers have access to
the internet and use it frequently. Tapestria had more than 10,000
American interior designers registered as full members (trade account). All
these designers took the effort to register as a full member. Tapestria
estimated that there are about 120,000 interior designers in total in the
American market, 30,000 to 40,000 of whom are serious. Tapestria
considered the ratio of 33% to 24% successful. However, it also noticed
that its members were not very active on the website and that the number
of orders did not meet expectations. In Tapestria’s view, although designers
were enthusiastic about the concept, they simply did not use the internet to
research and source fabrics. The existence of the intermediary was not
reason enough for them to change their behaviour. Tapestria also found
that it takes time before designers start ordering; there is usually a period of
seven months between collecting fabric information and samples and
ordering the fabric. Designers who do use the website may have had an
unsatisfactory user experience because it did not perform optimally for a
narrowband internet connection.

There are 60 to 70 producers that sold fabrics via Tapestria, including
five large producers. Together, they offered more than 6000 fabrics, with
the largest producer offering 700. Tapestria selected producers that
matched its profile and offered fabrics that did not overlap too much with
its current collection. Producer involvement occurred mainly during the
set-up phase, in which the fabrics had to be placed online and samples and
rolls of fabric had to be made available. Most producers placed their
products on consignment in the Tapestria warehouse, Tapestria’s preferred
scenario. The five larger producers and the American producers used the
drop-ship scenario, which in Tapestria’s view had a lower barrier for
producers than the on-consignment scenario. While producers could
change their prices whenever they wished, Tapestria found that this rarely
happened in practice. Tapestria also found that producers became
dissatisfied because the number of orders from designers did not match
expectations (as communicated to them by Tapestria).

In conclusion, Tapestria was well accepted by fabrics producers but not
by interior designers. While Tapestria had a satisfactory number of
designers as full trade members, website activity and the number of orders
failed to meet expectations. This lack of success was probably the reason
that Tapestria ceased operations in 2004.

4.2.3 Pilot case study findings
Tapestria was a new intermediary that started a managed marketplace in the
soft furnishing industry in 2001 and ended its operations in 2004. Table 4-
provides a brief overview of the Tapestria case in terms of exchange design, interests and acceptance. From the Tapestria case, we can learn about balancing interests by relating Tapestria’s exchange design choices to the interests of interior designers, Tapestria and fabrics producers and by comparing them with the acceptance by interior designers and fabrics producers. Firstly, we present the overall finding for Tapestria, which discusses the balancing of interests for the case as a whole. Secondly, we present the specific findings, which explore some of the balancing issues in greater depth.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange design</td>
<td>• Managed marketplace combines marketplace and wholesaler</td>
</tr>
<tr>
<td></td>
<td>• Electronic business with logistics (on consignment and drop ship)</td>
</tr>
<tr>
<td></td>
<td>• Partial transparency (no supplier transparency)</td>
</tr>
<tr>
<td></td>
<td>• Combine new and traditional elements for customers</td>
</tr>
<tr>
<td>Interests</td>
<td>Customers</td>
</tr>
<tr>
<td></td>
<td>• Benefits for designers less important than expected (service, price); problems larger than expected (change way of working)</td>
</tr>
<tr>
<td></td>
<td>Suppliers</td>
</tr>
<tr>
<td></td>
<td>• For producers it is a new sales channel; relatively easy way of doing international trade via electronic business; expect sales volume</td>
</tr>
<tr>
<td></td>
<td>Intermediary</td>
</tr>
<tr>
<td></td>
<td>• Short-term, operational interests of Tapestria (order volume, cash flow) versus long-term interests (strategic position, brand, expand scope)</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Customers</td>
</tr>
<tr>
<td></td>
<td>• Large number of designers became member but use of website and ordering of fabrics was too low; Tapestria ceased operations in 2004</td>
</tr>
<tr>
<td></td>
<td>Suppliers</td>
</tr>
<tr>
<td></td>
<td>• Producers participated and offered fabrics; large producers used drop-ship logistics</td>
</tr>
</tbody>
</table>

**Overall finding for Tapestria**

As a web company with a managed marketplace, Tapestria was an ambitious initiative. In spite of this, the innovative web purchasing service proved to be insufficiently attractive to designers. Tapestria tried to overcome this by adapting more closely to the way designers work. For producers, it was a new sales channel (international, electronic business) with relatively little effort and cost apart from providing rolls of fabric for the on-consignment scenario. Producers were accommodated by an alternative drop-ship scenario. Tapestry covered its strategic interests by means of its position and brand but faced substantial effort and cost. This made them vulnerable to slow acceptance by designers because their revenues depended upon order volume.
TP1. Different kinds of (electronic) services for designers and producers

There was a large difference between the services for designers and producers in terms of the way they had to conduct their electronic business. For designers, it meant self-service and doing business online; they really had to use the Tapestria website to purchase fabrics. Producers were not directly involved in online business; they rarely needed to use the website themselves to sell fabrics. Moreover, suppliers could choose from two kinds of service because two logistics scenarios were available.

TP2. Complete, advanced (electronic) service via managed marketplace and logistics

Tapestria was a managed marketplace that combined electronic business with logistics. This meant it could offer designers a complete service with advanced functionality such as visualisation, available to promise and a sample service. Tapestria could occupy a central position and was not dependent on producers’ willingness and ability to cooperate in offering the service.

TP3. Managed marketplace and logistics require effort and cost

Setting up a managed marketplace combining electronic business with logistics required a wide range of capabilities and substantial resources from Tapestria. This was particularly troublesome because it was a new, small-scale firm with little experience.

TP4. Outsourcing can make managed marketplace and logistics feasible

Tapestria outsourced as much as possible to third parties where suitable service providers were available. Involving the suppliers in some activities can also be seen as a kind of outsourcing.

TP5. Standardisation prevented Tapestria from becoming too large and complex

Because Tapestria worked with many producers with different capabilities and ways of working, it standardised this cooperation. For example, the standard logistics scenario for Tapestria was to work through its own warehouse with fabrics on consignment.

TP6. Tapestria created non-transparency about suppliers for customers and about customers for suppliers

Tapestria promoted product and price transparency for customers but not transparency about suppliers. This allowed it to establish its brand name
and prevented channel conflict for producers. However, it also meant that Tapestria could not leverage suppliers’ brands and suppliers were unable to distinguish themselves using their own brands. By not informing customers about suppliers and suppliers about customers, Tapestria also protected its customer relationships and prevented customers from approaching suppliers directly and vice versa.

**TP7. Combining new and traditional elements for customer service**

After an initial focus upon new (electronic business) elements, Tapestria began to introduce traditional elements (for example, a paper catalogue), which were more compatible with the way customers worked. Tapestria linked these traditional elements to the website to encourage use of the site. The website was meant to prove itself by offering added value functionality (for example, visualisation). For Tapestria, the introduction of traditional elements meant that it partially lost the initial benefits with respect to lower costs and uniqueness in comparison to traditional wholesalers.

The Tapestria pilot case study was conducted for two reasons: (1) to learn about options for exchange design choices in general in order to arrive at an exchange design model, and (2) to learn more about specific exchange design choices in order to come up with design patterns. The following section presents the empirical exchange design model based on the Tapestria findings. Chapter 8, which deals with the exchange design patterns, will use these findings to develop design patterns.

### 4.3 Exchange design model

Our study has developed an exchange design model from empirical research and evaluated it by means of theories on exchange design. This model consists of higher level themes and more specific aspects. Firstly, this section constructs an exchange design model based on the critical exchange design issues from the Tapestria pilot case. It then defines the themes and aspects and presents their derivation from pilot case issues. Finally, it presents a theoretical evaluation of the themes and aspects on the basis of the theories on exchange design in the previous chapter.

#### 4.3.1 Definition and foundation of the design model

Using the Tapestria pilot case study, we developed four exchange design themes: role, linkage, transparency and novelty. *Figure 4-5* provides an overview of the themes and the different aspects per theme and sketches
their relationship to the business network. The role theme comes from choices for a managed marketplace and combines electronic business with logistics. The linkage theme comes from the membership of designers and combines electronic business with logistics, including the exchange of inventory information. The transparency theme comes from the strategic use of information by Tapestria via partial transparency. The novelty themes derive from the fact that Tapestria wanted and needed to be innovative on the one hand, while on the other hand needing to take account of the traditional way that interior designers worked. Each theme is then examined separately by defining the theme and its aspects and describing its relationship to the design issues of the pilot case study (Table 4-4).

An intermediary makes many explicit choices relating to its role as seen in Tapestria’s choice of a managed marketplace and doing electronic business in combination with logistics. Tapestria targeted more than just the purchasing function of customers or the marketing & sales function of suppliers. For designers, Tapestria also targeted the design function by means of researching fabrics, acquiring samples and interacting with the end customer. For suppliers, it targeted the logistics function in addition to marketing & sales. Tapestria decided to support the full purchasing process: from searching and ordering to financial settlement and product delivery. Designers were involved in the purchasing process because most of the steps required actions from the designer (self-service). For logistics, Tapestria adopted an on-consignment scenario with full support for inventory, order handling and transportation and a drop-ship scenario with limited support, only transportation (including customs). Suppliers were also involved in the process of getting the product online (delivering product information) and having to set prices.
In conclusion, role refers to the position of the intermediary in relation to the other actors in the business network with respect to the business activities. We can distinguish the following role aspects:

- **Functional scope**: the business functions that the intermediary aims at the demand-side actors (e.g. purchasing or engineering) and supply-side actors (e.g. marketing & sales).
- **Activity focus**: choices about what (parts of) business processes the intermediary supports (e.g. providing information or also conducting transactions).
- **Level of involvement**: the level of support the intermediary offers to the demand-side and supply-side actors and the contribution required from these actors (e.g. who manages the inventory, who enters the product data).

Membership for designers and two logistics scenarios, with different ICT couplings, were typical issues for Tapestria that show how an intermediary can arrange its interactions. Tapestria was not open to just anyone: designers had to become members and only professional designers could become full members. In addition, producers were selected by Tapestria and had to negotiate about participation. Tapestria also introduced standardisation within its business network. For designers this meant, on the one hand, having to purchase in accordance with how Tapestria had implemented the purchasing process via its website and in accordance with its terms & conditions, and, on the other hand, purchasing from different producers in the same way. Tapestria also introduced a standard product classification for interior fabrics and made use of the ‘Pantone Textile Color System’ (a de facto industry standard). Tapestria was coupled via EDI with its EU warehouse (on-consignment logistics) and its largest supplier (drop-ship logistics). The US warehouse used Tapestria’s enterprise system. Tapestria decoupled the flow of fabrics via its warehouse for rolls of fabric, which also resulted in decoupled information flows between Tapestria and producers for order handling.

To conclude, linkage refers to how the exchange interactions between actors in a business network are arranged. We can distinguish the following linkage aspects:

- **Access**: the choices about how easy it is for demand-side and supply-side actors to start and stop using the intermediary’s services (e.g. membership).
- **Standardisation**: the extent of enforced uniformity by the intermediary and options for differentiation and adaptation with respect to the way of working and the transfer of information.
An intermediary can make strategic choices with respect to transparency, as Tapestria’s partial transparent marketplace has shown. Tapestria had information about designers and their purchasing (search, order), producers and their products, the prices of products, and logistics. It facilitated the informing of designers and producers about products and their prices but not about the producers of these products. Price information was only available for users with a full trade account. Nor did Tapestria give producers information about designers. To inform designers about products, it also provided product visualisation via the website and supplied them with physical samples.

In conclusion, transparency refers to the visibility of information in the business network, the extent to which information is made available. We can distinguish the following transparency aspects:

- **Kind of information**: what information (products, prices, firms and processes) and in what form it is made available in the business network.
- **Information flows and processing**: the routes information takes through the business network, in particular the sources and destinations, and the processing of this information.
- **Information rules**: the rights, obligations and constraints with respect to providing, handling and accessing information.

Tapestria started a new international distribution channel based on the innovative concept of a managed marketplace, promoting the application of electronic business in the soft furnishing industry. For designers, Tapestria introduced web applications such as the online catalogue and new services like the sample service. Initially, it did not want to offer traditional elements like paper catalogues or sample books. Although Tapestria’s website could be used with standard web technology (computer, browser, internet connectivity), its high-end features – especially product visualisation – required a broadband internet connection for a satisfying user experience. For producers, Tapestria only required a new way of working online in the start-up phase, when they had to place their products online. In the on-consignment scenario, managing inventory at the Tapestria warehouse and putting inventory on consignment may have been new for producers, while in the drop-ship scenario, handling orders for pieces of fabric instead of rolls may have been different for producers.
To conclude, **novelty** refers to the newness and compatibility of the electronic service introduced by the intermediary compared to the traditional situation in the business network. We can distinguish the following novelty aspects:

- **Network structure**: the relationship between the structure of the business network with the electronic intermediary and the traditional business network without the electronic intermediary.
- **Way of working**: the relationship between the business processes and tasks in the business network with the electronic intermediary and the traditional business network without the electronic intermediary.
- **ICT sophistication**: the relationship between the electronic business capabilities and resources of the business network with the electronic intermediary and the traditional business network without the electronic intermediary.

### 4.3.2 Theoretical evaluation of the design model

Having derived an exchange design model from the Tapestria pilot case, we conducted an evaluation on the basis of the theories on exchange design examined in the previous chapter. This theoretical evaluation consists of three parts. Firstly, we examine the matches between the empirical and theoretical themes. We then discuss the added value of our exchange design model in relation to the theoretical perspectives. Finally, we identify some vulnerabilities of the exchange design model based upon the theoretical perspectives.

Table 4-5 presents the empirical themes from our exchange design model and their matches with the theoretical themes from the three perspectives on exchange design: electronic intermediaries (EI), acceptance (AC) and business design (BD). The overall match between our themes and the theoretical themes is good. All theoretical themes with high suitability (role and innovation from EI theory, compatibility from AC theory, and networkability and information architecture from BD theory) have a direct counterpart in our empirical model. It should be mentioned that the role and linkage themes in our exchange design model resemble the nomenclature in Kambil and Short's (1994) Roles-Linkage model discussed in BD theory. However, whereas our use of role partly corresponds in meaning to theirs, our linkage theme does not overlap with theirs.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Aspect</th>
<th>Tapestria issues</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Role</strong></td>
<td><strong>Functional scope</strong></td>
<td>• Support designers with purchasing and design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Support producers with marketing &amp; sales and logistics</td>
</tr>
<tr>
<td></td>
<td><strong>Activity focus</strong></td>
<td>• Support full purchasing process: from searching and ordering to financial</td>
</tr>
<tr>
<td></td>
<td></td>
<td>settlement and product delivery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full (on-consignment) and partial support (drop-ship) logistics</td>
</tr>
<tr>
<td></td>
<td><strong>Level of involvement</strong></td>
<td>• Designers active in purchasing process (self-service)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Producers not active in purchasing process, except drop ship</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Producers provide product information and set prices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Producers manage inventory of EU warehouse (on consignment)</td>
</tr>
<tr>
<td><strong>Linkage</strong></td>
<td><strong>Access</strong></td>
<td>• Membership required for purchasing service (free of charge)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Trade account only for professional designers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Purchasing service available 24x7 for designers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Producers are selected and have to negotiate</td>
</tr>
<tr>
<td></td>
<td><strong>Standardisation</strong></td>
<td>• Uniform way of working for designers and producers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Two logistics scenarios: on-consignment and drop-ship</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Product classification for interior fabrics</td>
</tr>
<tr>
<td></td>
<td><strong>Coupling</strong></td>
<td>• EDI coupling with EU warehouse and UPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• US warehouse uses enterprise system of Tapestria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• One EDI coupling with large supplier (drop ship)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tapestria warehouses for inventory and order handling</td>
</tr>
<tr>
<td><strong>Transparency</strong></td>
<td><strong>Kind of information</strong></td>
<td>• Designers and their purchasing (search, order)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Producers and their products (also samples)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Product prices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tapestria brand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Logistics (available to promise, tracking &amp; tracing)</td>
</tr>
<tr>
<td></td>
<td><strong>Flows &amp; processing</strong></td>
<td>• Price and product information for designers and producers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Product search, presentation and comparison</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Information about sales and logistics to producers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Producers unknown to designers, designers unknown to producers</td>
</tr>
<tr>
<td></td>
<td><strong>Rules</strong></td>
<td>• Price information only for trade account</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• US drop-ship producers use Tapestria material (ship directly)</td>
</tr>
<tr>
<td><strong>Novelty</strong></td>
<td><strong>Network structure</strong></td>
<td>• New international distribution channel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• New model of managed marketplace</td>
</tr>
<tr>
<td></td>
<td><strong>Way of working</strong></td>
<td>• Much electronic business for designers (web purchasing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sample service for designers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Little electronic business for producers (done by Tapestria)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inventory information and order handling for drop-ship producers</td>
</tr>
<tr>
<td></td>
<td><strong>ICT sophistication</strong></td>
<td>• It is standard web technology for designers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Visualisation requires broadband for user experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Also support via a helpdesk (phone and fax)</td>
</tr>
</tbody>
</table>
As expected from the analysis of the EI and BD literature, role emerges as a prominent theme in exchange design. We see a direct match between the role theme in our model, in particular the activity focus aspect, and that in EI theory and organisational structure, in particular specialisation, in BD theory. Our role theme can also be used to specify different forms and market mechanisms from EI theory, but it is not particularly developed to differentiate specific forms or mechanisms. The role theme can be used to address complexity in AC theory to the extent that roles of different levels of complexity can be specified. Trust and the intermediation service (in particular opportunities for contacting the seller) in AC theory match our role theme insofar as these can be included in the intermediary’s activity focus.

Our linkage theme covers some different possible themes from theory through the different aspects: access relates to AC theories, and standardisation and coupling relate to EI and BD theories. The linkage theme has an overall match with networkability from BD theory because both focus on establishing ICT-supported relationships. The access aspect of our model corresponds to trust and the intermediation service (in particular quality/authenticity of buyer interest) in AC theory. Access can be used to separate customers and sellers who are trustworthy and interested from those who are not. The access aspect of our model also matches complexity and trialability. Access can render use of an electronic service easy or difficult, for example, Tapestria’s guest and trade accounts. The standardisation aspect of our model directly matches networkability (in particular standardisation) and standardisation in BD theory, while the coupling aspect matches technology in EI theory and networkability (in particular digitalisation) in BD theory because of its focus on automated interactions. Our standardisation and coupling aspects also correspond to some extent to organisational structure (in particular formalisation) in BD theory because standardisation and coupling require the specification of interactions between firms.

Our transparency theme covers some different possible themes from AC and BD theories. In particular, transparency in BD theory has been identified as a separate theme via information architecture. Organisation structure also matches transparency because exchange design can formalise information flows and rules and an intermediary can specialise in information services. Database quality in AC theory corresponds directly to transparency, while trust in AC theory matches our transparency theme to the extent that the visibility and availability of information may enhance trust. In EI theory, transparency is often an implicit part of the roles of an intermediary, for example, providing information about products and sellers.
Our novelty theme combines EI and AC theories. In particular, it combines innovation from EI theory, for which novelty has a positive effect on interests, with compatibility from AC theory, for which novelty has a negative effect on interests. Novelty also covers to some extent form and technology from EI theory. For form, novelty addresses differences between new and traditional network structures and ways of working. Technology is covered in our ICT sophistication aspect. Via ICT sophistication, novelty matches to a limited extent complexity from AC theory.

Table 4-5 Theoretical evaluation of the exchange design model

<table>
<thead>
<tr>
<th>Exchange design model</th>
<th>Themes from theoretical perspectives</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>Form (EI)</td>
<td>Different forms</td>
</tr>
<tr>
<td></td>
<td>Role (EI)</td>
<td>Different orientations, different functions</td>
</tr>
<tr>
<td></td>
<td>Market mechanism (EI)</td>
<td>Different mechanisms</td>
</tr>
<tr>
<td></td>
<td>Complexity (AC)</td>
<td>Complexity of role</td>
</tr>
<tr>
<td></td>
<td>Trust (AC)</td>
<td>Trust functions or activities</td>
</tr>
<tr>
<td></td>
<td>Intermediation service (AC)</td>
<td>Opportunity to contact seller</td>
</tr>
<tr>
<td></td>
<td>Organisational structure (BD)</td>
<td>Role as specialisation in network</td>
</tr>
<tr>
<td>Linkage</td>
<td>Technology (EI)</td>
<td>Interaction automation via linkage</td>
</tr>
<tr>
<td></td>
<td>Complexity (AC)</td>
<td>Complexity of access and coupling</td>
</tr>
<tr>
<td></td>
<td>Trialability (AC)</td>
<td>Trialability via access</td>
</tr>
<tr>
<td></td>
<td>Trust (AC)</td>
<td>Trust via access</td>
</tr>
<tr>
<td></td>
<td>Intermediation service (AC)</td>
<td>Quality/authenticity of buyer interest via access</td>
</tr>
<tr>
<td></td>
<td>Networkability (BD)</td>
<td>Integration, standardisation and digitalisation</td>
</tr>
<tr>
<td></td>
<td>Organisational structure (BD)</td>
<td>Formalisation via standardisation and coupling</td>
</tr>
<tr>
<td></td>
<td>Standardisation (BD)</td>
<td>Standardisation</td>
</tr>
<tr>
<td>Transparency</td>
<td>Role (EI)</td>
<td>Information functions</td>
</tr>
<tr>
<td></td>
<td>Trust (AC)</td>
<td>Trust via (actor) information</td>
</tr>
<tr>
<td></td>
<td>Database quality (AC)</td>
<td>Product information; search functionality</td>
</tr>
<tr>
<td></td>
<td>Information architecture (BD)</td>
<td>Kind of information, information flows</td>
</tr>
<tr>
<td></td>
<td>Organisational structure (BD)</td>
<td>Formalisation and specialisation</td>
</tr>
<tr>
<td>Novelty</td>
<td>Form (EI)</td>
<td>Traditional, new or mixed</td>
</tr>
<tr>
<td></td>
<td>Innovation (EI)</td>
<td>Degree of innovation, technology adoption</td>
</tr>
<tr>
<td></td>
<td>Technology (EI)</td>
<td>Technology adoption; transaction automation</td>
</tr>
<tr>
<td></td>
<td>Compatibility (AC)</td>
<td>Compatibility with network, processes or ICT</td>
</tr>
<tr>
<td></td>
<td>Complexity (AC)</td>
<td>Complexity of processes or ICT</td>
</tr>
</tbody>
</table>

The added value of our exchange design model is in the combination of elements from the three theoretical perspectives. Table 4-5 shows how each theme from our model emphasises a specific view on exchange design but
also covers different possible themes from the theoretical perspectives. If we compare the exchange design model with the literature on electronic intermediaries, the model adds linkage, transparency and novelty as separate themes. Compared with acceptance literature, the exchange design model offers themes that can be used constructively. Moreover, the novelty aspects make the abstract notion of compatibility concrete for an electronic intermediary in a business network. The model complements business design by covering the intermediate level of detail and genericity for the design of electronic intermediaries.

On the basis of the theoretical perspectives, it is also possible to identify some vulnerabilities of the exchange design model. The aspects of role (functional scope, activity focus and level of involvement) are not directed at specific functional choices. For example, the role theme can include one or more phases in the transaction model but does not provide a functional model as such. This is directly related to the fact that functional models often depend on the kind of intermediary and we want to cover different kinds. It is therefore useful to employ the descriptions of forms and roles from EI theory to complement our analysis. In the same way, the discussion on Tapestria’s managed marketplace was based on a comparison of two forms: a marketplace and a wholesaler. For example, the transaction model can be useful for analysing the intermediary’s activity focus.

From an acceptance perspective, complexity and trust are not explicitly covered in the exchange design model as separate design themes. For our study, we argue that for complexity our implicit coverage via role, linkage and novelty is sufficient for most business-to-business intermediaries and that complexity as a separate design theme is primarily a concern for the detailed design rather than the service concept. An exception must be made for those cases in which simplicity is the major source of value for the electronic service.

For trust, we assume that our implicit coverage via role, linkage (access) and transparency is sufficient for most business-to-business intermediaries. For example, the role theme can include trust in the functional scope or activity focus but does not support the design of trust services as such. Here too the use of functional models may complement our role theme. The market process model (Kambil & van Heck, 1998) explicitly covers trust-related processes via the trade context. However, when applying the design model and patterns, it is important to check whether this assumption is valid and to bear it in mind for generalising the design model and patterns. If trust becomes a key issue for exchange design, it may be more appropriate to cover it wherever possible by means of a separate design theme.

The previous chapter did not address ICT technology as a separate theoretical perspective for exchange design. As a result, ICT themes and
aspects were not identified as possible themes (for example, scalability) and not used in this theoretical evaluation. We assume that ICT as such is not a separate concern for exchange design, but is an integral part of design. For our research, we argue that for ICT technology our implicit coverage via linkage and novelty is sufficient for most business-to-business intermediaries. However, when applying the design model and patterns, it is important to check whether this assumption is valid and take it into account for generalising the design model and patterns. If an intermediary's electronic service is based on the advanced application of ICT, it may be necessary to cover this via a separate design theme.

4.3.3 The exchange design model and the other cases

Once the exchange design model has been developed and theoretically evaluated, it can be applied to the selection of the other cases. It can also be empirically evaluated by the other cases. The empirical evaluation tested whether the four design themes where relevant to the other cases and whether additional design themes, as discussed in the theoretical evaluation, were needed.

The case selection was discussed briefly in the research approach (see section 2.3), and a theoretical replication logic based upon the exchange design model was chosen. This resulted in three other cases, namely SeaQuipment, Meetingpoint and Voogd & Voogd, in addition to the Tapestria pilot case. In this section, we will discuss case selection in relation to the exchange design model. Table 4-6 describes the similarities and differences between the different cases with respect to the exchange design themes. The values for each design theme are based upon a high-level assessment. A more accurate explanation can be found in the different case chapters.

As the table shows, each design theme has a value across the cases that varies from low or limited to high or extensive. The table also shows that each case has a different composition of values across the design themes. We therefore conclude that together these four cases provide a broad range for exchange design and sufficient empirical evidence, while still keeping the research project manageable in terms of complexity and volume of data (Eisenhardt, 1989).

<table>
<thead>
<tr>
<th>Design theme</th>
<th>Tapestria</th>
<th>SeaQuipment</th>
<th>Meetingpoint</th>
<th>Voogd &amp; Voogd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>Extensive</td>
<td>Limited</td>
<td>Moderate</td>
<td>Extensive</td>
</tr>
<tr>
<td>Linkage</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Transparency</td>
<td>Moderate</td>
<td>Limited</td>
<td>Moderate</td>
<td>Extensive</td>
</tr>
<tr>
<td>Novelty</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
The next questions are whether the four design themes were relevant to the other cases and whether additional design themes were needed. The following chapters will show that each design theme addresses relevant issues for each case. For example, while the role theme can be used to question the extensive role of Voogd & Voogd, it does the opposite for the limited role of SeaQuipment.

The theoretical evaluation of the design model suggested that additional themes relating to trust, complexity and/or technology may be required for other cases. In general, we did not find that our case studies would benefit from such an extension by articulating additional design choices that are essential for the case findings. The discussions of the analysis with multiple researchers and the reviews of the case reports by the main informant at the intermediaries did not give occasion for an extension, especially in relation to the additional amount of research effort and cost involved. Trust, complexity and technology issues were not so prominent in the other cases that they could not be covered by the current themes as described in the theoretical evaluation. Moreover, trust is used as a control variable to ensure that it does not become a dominant issue (see also section 2.3).
The SeaQuipment case

SeaQuipment is a web catalogue in the maritime industry. It operates in the maritime supply chain, which is made up of shipowners, shipyards and maritime suppliers. This chapter starts by introducing SeaQuipment and its business network. It goes on to discuss SeaQuipment’s exchange design choices and the actors’ interests. A comparison of the design and interests with the acceptance of SeaQuipment results in the SeaQuipment findings.

5.1 SeaQuipment and its business network

SeaQuipment (www.seaquipment.com) is a web catalogue in the maritime industry offering a web service to shipowners, shipyards and maritime suppliers for searching maritime firms and products and viewing firm and product information. It is a new intermediary established by the Netherlands’ Shipbuilding Industry Association (Vereniging Nederlandse Scheepsbouw Industrie, VNSI). The focus of this case study is on SeaQuipment from the second half of 2003 to the first half of 2004, when the firm offered the first version of its web catalogue.

5.1.1 The electronic business initiative

The Dutch shipbuilding industry is active in five sectors: building new vessels, repairing vessels, small shipbuilding and repair, naval shipbuilding and repair, and yacht building. Shipbuilding has strong links with both the maritime and metalworking sectors. The strength of the Dutch shipbuilding industry lies in building one-off and small series of complex boats, and customised standard ships. The industry operates in a highly competitive, global market. It has to contend with increasing competition within Europe and from other parts of the world, especially Japan, Korea and China, resulting in lower margins for Dutch firms.
The VNSI represents the interests of the Dutch shipbuilding and ship repair industry. It also advises individual companies and supports its members through education, labour conditions, environmental issues, technical standards and regulations, statistics, research and development and subsidies. The VNSI views electronic business as one of the ways to make the Dutch shipbuilding industry more competitive. Electronic business is expected to support efficiency, quality, innovation and co-operation in this industry.

The VNSI is involved in two major electronic business initiatives: a web catalogue and supply chain management. It regards the web catalogue initiative as simpler and more generic, aiming for rapid success. This has resulted in SeaQuipment, a web catalogue for the maritime industry owned by VNSI. The supply chain management initiative is more complex and in-depth, aimed at thorough and ambitious improvements of the entire shipbuilding supply chain. The present study covers the SeaQuipment web catalogue (Figure 5-1). Although a Dutch initiative, the website is in English and explicitly targets the international market, especially Europe.

A maritime web catalogue is needed because the maritime market is a special one. Ships, especially seagoing vessels, operate in specific circumstances: seawater, long voyages and far from civilisation. This means that ships (and ship parts) must be maritime, of good quality and reliable. While some products are specifically maritime (such as anchors), others are generic (such as valves). The VNSI estimates that there is an opportunity for a maritime web catalogue for three reasons: (1) fragmentation on the supply side, (2) a need for efficient and convenient tools for marketing & sales, and (3) the fact that products cannot be searched directly.

Most prominent is the fragmentation of sellers in the maritime market. It is a worldwide market with many and diverse sellers offering numerous and various products. Some sellers offer solely maritime products, while others also offer non-maritime ones. Sometimes maritime products are only a small part of the total range of products or a minor adaptation of non-maritime products. Or a supplier may be known, but not its product range. For example, a firm well-known for its steel products may also offer sprinkler installations.

In addition to fragmentation, smaller or new firms in the maritime market require efficient and convenient tools. These firms often lack marketing & sales resources. They may be large and established firms in other markets but do not allocate resources to the maritime market. Finally, the traditional way of searching for a product is by means of a supplier’s catalogue, which entails first knowing and contacting the supplier. It is not possible to search for a product directly.
5.1.2 The business network

To understand SeaQuipment’s business network, we first need to understand the maritime supply chain. The actors in this chain (Figure 5.2) are shipowners, shipyards and maritime suppliers, and the exchanges are between shipowner and shipyard, between shipyard and maritime supplier, and between maritime supplier and maritime supplier.

Shipowners own and operate ships while shipyards build and repair them. Shipyards are also involved in maritime services, technological cooperation and delivering (spare) parts. The business functions of shipyards relate to the lifecycle of a ship: acquisition, design, engineering, production, maintenance & repair, and conversion & recycling.

Maritime suppliers supply maritime products to shipyards and other maritime suppliers. There is a diverse range of maritime suppliers, for example, system integrators, manufacturers, service providers, agents and dealers. Shipyards can also be maritime suppliers in the sense that they supply parts, for example, a lifeboat. System integrators produce complete systems for a ship such as hull/outfitting, propulsion, mechanical, electrical systems etc. They make use of other maritime suppliers for subsystems and/or components.
SeaQuipment has buy-side (buyers) and sell-side (sellers) users for its web catalogue; they can be almost any actor in the maritime supply chain (Figure 5-3). Buyers can be shipowners, shipyards or maritime suppliers searching for a maritime firm or product. Sellers can be shipyards or maritime suppliers offering maritime products ranging from full systems to subsystems or components. Once buyers find a suitable maritime firm or product, they have to contact the seller directly for more information and to acquire the product. As SeaQuipment has no further involvement with possible transactions between a buyer and seller, this aspect will not be discussed further.

SeaQuipment provides buy-side and sell-side services to its users (Figure 5-4). Its buy-side service enables users to search for maritime firms and products and view information about them, while its sell-side service enables users to reach new and existing customers and to publish firm and product information easily and efficiently. Sellers provide information about their firm and their products to SeaQuipment. In addition to the web catalogue, SeaQuipment also offers its users a Request For Data (RFD) service, which they can use to present a problem or need to other users, who can reply to the request. Some services require users to become members of SeaQuipment.

Most use of SeaQuipment is free of charge. Only firms that register products in the product catalogue pay a quarterly tariff, ranging from €75 to €150, based on the number of products they register. Members of the VNSI or a Dutch or European partner organisation receive a 50% discount. SeaQuipment as such does not have to be profitable; it only needs to cover expenses.
5.1.3 The intermediary: SeaQuipment

As an industry association, the VNSI represents the interests of the Dutch shipbuilding and repair industry in general and its members in particular. The VNSI makes SeaQuipment available to the (Dutch) maritime industry and wants it to be as open and simple as possible. The distinct advantage of SeaQuipment is the recognisable and well-organised product structure of its product catalogue. The VNSI believes that SeaQuipment is well-known amongst maritime firms. SeaQuipment views the quantity and quality of its user base as its most important assets.

SeaQuipment’s main activities are operating and managing the web catalogue. SeaQuipment had to develop the product catalogue and the software for the website. For the product catalogue, SeaQuipment developed a hierarchical product structure on the basis of their sector knowledge. The structure consists of three layers: system, subsystem and component, and provides standard terms (keywords) to search and position products. For example: [system: (7) navigation], [subsystem: (7.1) positioning], and [component: D-GPS]. The VNSI’s activities in operating SeaQuipment are limited to promoting the intermediary, monitoring website statistics, checking new members and handling RFDs.

5.1.4 The customers: maritime buyers

Buyers can be shipowners, shipyards and maritime suppliers. SeaQuipment’s primary targets are the larger shipyards and system integrators involved in building seagoing vessels, firms which are important members of the VNSI. SeaQuipment seeks to serve both the purchasers and engineers at buyers. Searching in the web catalogue and viewing firm and product information is open to anyone. Membership of SeaQuipment is not required for buyers, except for RFDs.

Buyers can search for maritime firms and products in the web catalogue via a free text or index search. The index search uses the product structure, and a product search results in a list of firms that offer that product. Buyers can select a firm and view firm and product information. For more information, buyers can use links to the sellers’ website – either a link to a generic firm homepage or a deeplink to specific product information.
Buyers can also contact sellers by other means using contact information (phone, fax, or e-mail).

5.1.5 The suppliers: maritime sellers

Sellers can be shipyards and maritime suppliers. Members of European associations for shipbuilding or maritime suppliers are an important target group. SeaQuipment is particularly suitable for firms that are not well known in the maritime industry or firms that are only known for a specific kind of maritime products but which also offer other kinds of maritime product. For sellers, SeaQuipment is intended for the marketing & sales function.

Sellers need to join SeaQuipment if they want their information on the website. Firms applying for membership are checked by SeaQuipment: they need to be reputable, and relevant to the maritime sector. Sellers can join SeaQuipment using the sign-on form on the website. Members are placed on the list of members on the website, which functions as a business directory.

After signing on as members, sellers can enter and change firm and product information in the web catalogue using a web form. Firm information consists of the firm’s name, a description of the firm, contact information, URL to the firm’s website, and membership of industry associations. Product information consists of the position in the product structure, brand, product description, nature (kind of supplier), and URL to product information on the firm’s website (deeplink). Sellers are responsible for the completeness and correctness of the information.

5.2 Exchange design, interests and acceptance

5.2.1 Exchange design

This section examines SeaQuipment’s exchange design choices in more detail. Table 5-1 provides an overview of the main design choices and a characterisation per theme.

Role

SeaQuipment targets engineers and purchasers at buyers, and marketing & sales at sellers. The information needs of purchasers and engineers differ: contact information is more interesting for purchasers, while technical information is more attractive to engineers. The current emphasis is upon purchasers.
Via the web catalogue, SeaQuipment facilitates contact between buyers and sellers. The focus is on searching for maritime firms and products and viewing firm and product information. SeaQuipment does not support complete business transactions.

Buyers and sellers perform most activities relating to the use and operation of the web catalogue themselves. Sellers are responsible for the firm and product information in the web catalogue and position their products in the product structure. SeaQuipment is not involved in this activity.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Choices</th>
</tr>
</thead>
</table>
| Role      | • Targets purchasers and engineers at buyers, and marketing & sales at sellers  
|           | • Search and view firm and product information, no transactions (no ordering or payment)  
|           | • Sellers provide firm and product information and position products  |
|           | Limited role with small activity focus and little involvement          |
| Linkage   | • No use barriers for buyers, only limited barriers for sellers          
|           | • Uniform product structure for index search, firm and product information mostly free text  
|           | • No coupling for firm or product information, (deep) linking to seller’s website  |
|           | Open to users with limited standardisation and no coupling              |
| Transparency | • Basic firm and product information, no technical or price information  
|            | • Sellers responsible for product and firm information (free text)       
|            | • Anonymity for buyers, not much information about buyers for SeaQuipment and sellers  |
|           | Basic transparency with elementary firm and product information         |
| Novelty   | • Complementary to the traditional, maritime supply channel             
|           | • Requires little adaptation of the way of working, only the use of the SeaQuipment product structure  
|           | • Standard web technology for buyers and sellers, not a substitute for electronic business of seller  |
|           | Little novelty beyond simple electronic business                        |

**Linkage**

SeaQuipment is very open for buyers. Anyone can search the web catalogue via a web browser free of charge and without being a member. Once buyers have found what they are looking for, they can interact directly with sellers outside SeaQuipment. SeaQuipment is also reasonably open for sellers, with any maritime firm able to participate as a seller. However, sellers are required to sign up, and are checked by SeaQuipment. Sellers decide themselves which products to register and what information to provide.

To standardise the product catalogue, SeaQuipment has developed a product hierarchy and keywords for maritime products. This product
structure is maritime-specific and one level deeper than the structures of
more generic catalogues like the Dutch ABC (www.abc-d.nl). The
description of the firm and products is not standardised, but is mainly free
text.

There is no automated coupling between buyers or sellers and
SeaQuipment. Sellers enter product and firm information manually using a
web form. There is (deep) linking to sellers’ websites for further
information on the firm or products.

**Transparency**

Buyers can use SeaQuipment to obtain basic information about the firm
and products of many sellers. Product information is made available
through the product-centred catalogue, which can be searched or browsed
using SeaQuipment’s product structure. For more detailed firm and
product information and other information, buyers have to contact sellers
directly. For example, buyers cannot use SeaQuipment to obtain price or
other purchasing information, such as product availability or delivery time.

Sellers have to provide their own firm and product information and
position their products in SeaQuipment’s product structure. Sellers are in
control of their own information at all times. They do not need to provide
sophisticated information (for example, three-dimensional drawings) or
sensitive information (for example, product prices).

SeaQuipment is not involved in the provisioning of information or the
positioning of products and does not systematically check or supplement
the information. However, it can remove information that does not add to
the quality of the website.

Because buyers can access SeaQuipment anonymously, it has only
limited information on buyers and their use. SeaQuipment does distil
information via website traffic statistics but cannot gather information
about search behaviour. It does not (and cannot) provide sellers with
structural feedback about buyers and use.

**Novelty**

SeaQuipment is complementary to the traditional supply chain and plays
only a minor role. Traditional intermediaries are not threatened by
SeaQuipment as they too can use it.

SeaQuipment affects only a small part of the purchasing and marketing
& sales processes. It only facilitates the initial contact between buyers and
sellers; the rest of the interaction is conducted directly. The only difference
is the use of a product-centric catalogue and SeaQuipment’s product
structure. Although SeaQuipment is a purely electronic channel, it provides
addresses, phone and fax numbers in addition to (deep) links to sellers’
websites and e-mail addresses.
SeaQuipment operates as a website that can be accessed via a browser on a normal computer with internet access. Essentially, it is simple electronic business for buyers and sellers. The only sophisticated element is the fact that sellers can deeplink a webpage with product information on their website. SeaQuipment is not a substitute for the total electronic business strategy of sellers. Sellers still need their own website with firm and product information and internet and e-mail facilities.

5.2.2 Interests

The VNSI views a web catalogue as a simple and generic way to use electronic business to tackle the problem of fragmentation at supply side for purchasers and engineers at buyers and to offer an efficient and convenient marketing & sales tool for sellers.

A web catalogue makes it easier for buyers to find new maritime suppliers or products. SeaQuipment offers a single very open and accessible source with firm and product information about many sellers. Buyers can search directly for a product in a product structure that is recognisable and well-organised. Purchasers can retrieve contact information, while engineers can retrieve technical information. SeaQuipment considers its catalogue to be more useful to purchasers than to engineers. SeaQuipment does not require purchasers to change their way of working because a catalogue has a limited impact on the purchasing process.

Via SeaQuipment, sellers can reach new (potential) customers or reach current customers with other products. This is particularly useful for firms that are not well known or not very active in the maritime market. SeaQuipment offers sellers an easy and convenient marketing & sales tool on the internet, which is especially important for smaller firms with fewer marketing & sales resources. However, SeaQuipment is not a substitute for their own website.

Because sellers are in control of their own information and the positioning of their products, they can also differentiate themselves. This offers smaller or new firms the same opportunities as larger and established firms. However, it also means that sellers have to put in effort and cost to gather and enter the information. These costs are not exceptional because SeaQuipment does not require expensive graphical information such as three-dimensional drawings or CAD files.

Through SeaQuipment, buyers can remain anonymous both to SeaQuipment – because they are not known to the intermediary – and to sellers – because they do not have to approach them directly. The fact that buyers are not known to SeaQuipment means that the intermediary has little knowledge about buyers and their use. For sellers, this means that it is hard to judge the efficiency and effectiveness of their marketing via
SeaQuipment because the intermediary cannot provide sellers with structural feedback about users and use.

SeaQuipment leaves room for competitive purchasing, with one buyer able to get a better deal than another because there is no insight into price information. For sellers, this does not encourage price competition. Confidentiality for buyers (and sellers) is also guaranteed by the fact that no actual transactions take place via SeaQuipment, which means that this information is not captured. Furthermore, sellers become the owner of the customer relationship because buyers have to approach sellers directly for further information and to acquire products.

The VNSI has no commercial interests in SeaQuipment. For the VNSI, it is important that SeaQuipment benefits the Dutch maritime sector in general and its members in particular. A web catalogue is a highly appropriate initiative because it is broad and visible. However, although SeaQuipment still has a large Dutch user base, it is in principle open for worldwide participation.

For the VNSI, it is important that SeaQuipment does not require too many resources or pose a financial risk. A web catalogue is a viable initiative for the VNSI because it requires a relatively low level of effort and cost and the VNSI is not financially liable for unsuccessful transactions. Efforts and costs are kept down further because sellers provide the necessary information, although this does make SeaQuipment dependent upon the motivation and abilities of sellers.

Developing the product structure involved effort and cost on the part of SeaQuipment. Although SeaQuipment views the product structure as its distinctive advantage, the fact that the structure is published openly on the website means that it is easy to copy. This is not altogether a disadvantage, however, as the VNSI promotes the use of a product standard in the maritime sector. SeaQuipment considers the quantity and quality of its user base as its chief assets. Quantity and quality may be in conflict if a seller is judged on the membership criteria of relevance and respectability. While quantity considerations require these criteria to be applied loosely, quality considerations require them to be applied strictly.

To conclude, SeaQuipment offers mainly advantages for both sellers and buyers (Table 5-2). For buyers, it appears only positive: they can find maritime firms and products more easily but are not burdened by the use of SeaQuipment. For sellers, SeaQuipment is also mainly positive. They can use SeaQuipment to reach (new) customers. However, it requires some effort and cost on their part, while the results for sellers are not clear. For the VNSI, it is a practicable solution for the use of electronic business to advance the maritime industry. However, SeaQuipment does not really focus on the Dutch industry or the VNSI members.
### Table 5-2: Effects of SeaQuipment on the actors’ interests

<table>
<thead>
<tr>
<th>Efficiency: improve cost structure</th>
<th>Maritime buyers</th>
<th>SeaQuipment</th>
<th>Maritime sellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Find new maritime supplier or product more easily [+]</td>
<td>• Low effort and cost of a web catalogue [+]</td>
<td>• Efficient and convenient marketing &amp; sales tool [+]</td>
<td></td>
</tr>
<tr>
<td>• No financial liability for transactions [+]</td>
<td>• Effort and cost of providing information [+]</td>
<td>• Substitute for own website [-]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effectiveness: increase return on assets</th>
<th>Maritime buyers</th>
<th>SeaQuipment</th>
<th>Maritime sellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Search for products anonymously [+]</td>
<td>• Product structure as distinctive advantage [ +/- ]</td>
<td>• Control over own information and positioning [+]</td>
<td></td>
</tr>
<tr>
<td>• Confidentiality (no transaction information) [+]</td>
<td>• Quantity and quality of the user base [ +/- ]</td>
<td>• Knowledge about users and use [-]</td>
<td></td>
</tr>
<tr>
<td>• Compatible with the way of working [+]</td>
<td>• Dependent upon cooperation of sellers [-]</td>
<td>• Confidentiality (no transaction information) [+]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Knowledge about users and use [-]</td>
<td>• Ownership of customer relationship [+]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enhance customer value</th>
<th>Maritime buyers</th>
<th>SeaQuipment</th>
<th>Maritime sellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Benefits for Dutch maritime industry and VNSI members [ +/- ]</td>
<td>• Reach new (potential) customers [+]</td>
<td>• Reach new current customers with other products [+]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expand revenue opportunities</th>
<th>Maritime buyers</th>
<th>SeaQuipment</th>
<th>Maritime sellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Competitive purchasing [+]</td>
<td>• No commercial interest [+]</td>
<td>• Price competition through comparison [+]</td>
<td></td>
</tr>
</tbody>
</table>

[+] = positive effects, [-] = negative effects, [ +/- ] = positive and negative effects, [?] = effects not known or unclear

### 5.2.3 Acceptance

Website statistics obtained from Nedstat Pro (www.nedstat.com), a web analytics service, show that use of SeaQuipment has risen steadily in three years (the beginning of 2001 to the end of 2003), from around 2000 to 13,000 page views (Figure 5-5) and from around 500 to 1500 unique IP addresses monthly. Table 5-3 provides more detailed website statistics for the 4th quarter of 2003. About 50% of the page views originated from the Netherlands, 11% from the United Kingdom, 7% from the United States, and 32% from other countries. The statistics also show that many page views originate from maritime firms and regions.

According to SeaQuipment, it had about 500 members in the 4th quarter of 2003, 20-25 of whom are shipyards, the rest maritime suppliers. About 350 members are from the Netherlands, from a total of about 600 maritime suppliers in this country. Of the 500 members, 160 registered products, in total registering almost 1600 components and subsystems. SeaQuipment has found that for every three sellers that become members,
one member actually registers products. Note that all members are not necessarily sellers and membership offers other benefits besides registering products (list of members, RFDs). Moreover, registering products entails entering product information and paying a quarterly tariff.

![SeaQuipment website: Pageviews](image)

<table>
<thead>
<tr>
<th>Table 5-3 SeaQuipment website statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>October 2003</strong></td>
</tr>
<tr>
<td>Page views</td>
</tr>
<tr>
<td>Page views/IP</td>
</tr>
<tr>
<td>Visits</td>
</tr>
</tbody>
</table>

We looked at the acceptance of SeaQuipment via a survey among purchasers at buyers and salespeople at sellers. The focus for buyers was on purchasers and not on engineers because SeaQuipment considers purchasers to be their primary users at buyers. Figure 5-6 presents the number of firms that participated in the interviews and their distribution over the type of firm (shipyard or maritime supplier) and function (purchasing or sales).

<table>
<thead>
<tr>
<th>Figure 5-6</th>
<th>SeaQuipment survey: type of firm and function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Is the firm you work for ...?</strong></td>
</tr>
<tr>
<td></td>
<td>shipyard</td>
</tr>
<tr>
<td>Are you responsible for ...?</td>
<td>purchasing</td>
</tr>
<tr>
<td></td>
<td>33.1%</td>
</tr>
<tr>
<td></td>
<td>sales</td>
</tr>
<tr>
<td></td>
<td>7.9%</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>49.9%</td>
</tr>
</tbody>
</table>

The purchasers interviewed were from shipyards (66%) and maritime suppliers (34%). Note that purchasers were the first choice for shipyards in the survey. These purchasers are almost equally distributed over firms with less than ten (53%) and more than ten (47%) employees. Table 5-4
provides an overview of the highlights from the SeaQuipment survey for purchasers. In general, less than half of the purchasers have experience with electronic business. Most purchasers search for information on the internet but do not order or pay via internet.

SeaQuipment is relatively unknown amongst purchasers and only a limited number of those who are aware of it actually use it. This is little different from the awareness and use of electronic maritime marketplaces in general. Purchasers mainly mention private lists of sellers and internet search engines as other means of searching for maritime sellers and products. Sellers’ websites score relatively low. It seems that traditional means are still very common and internet search engines are an accepted online alternative for SeaQuipment.

Most buyers that know of SeaQuipment and have an opinion about it indicate that it is appropriate for providing firm and product information. However, almost half of the buyers that know of SeaQuipment are not convinced. Many reasons for using SeaQuipment relate to ‘functionality’ and ‘assortment.’ These buyers mention ‘no benefits’ as an important reason for non-use. In addition to the survey, short interviews with the heads of purchasing of the two largest shipyards confirmed this reason for non-use. In their opinion, they often deal with the same suppliers and seldom search for something new, or they are already familiar with the information in the SeaQuipment catalogue.

Buyers are satisfied with the opportunities for finding sellers and products and the information obtained, but they have mixed feelings about the product structure. Most of these buyers showed no interest in additional functionality for ordering via SeaQuipment or an escrow service for foreign payments (four out of five were not interested in either). There were no specific wishes for a functionality that provides additional information about SeaQuipment’s acceptance by buyers.

Most of the salespeople interviewed were from maritime suppliers (84%), with a few from shipyards (16%). Note that salespeople were the first choice for maritime suppliers. They are roughly divided over firms with less than ten (46%) and more than ten (54%) employees. Table 5-5 presents an overview of the highlights from the SeaQuipment survey for salespeople. In general, half of the salespeople have experience with electronic business. Most firms have their own website and provide product information via that website. Considerably fewer firms offer websites where products can be ordered and only a few firms provide price information via their website.
### Table 5-4: Highlights from the SeaQuipment Survey for Purchasing

<table>
<thead>
<tr>
<th>Topic</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electronic business</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doing business via internet</td>
<td>Y: 43%; N: 57%</td>
</tr>
<tr>
<td></td>
<td>Search for information via internet</td>
<td>Y: 78%; N: 22%</td>
</tr>
<tr>
<td></td>
<td>Order via internet</td>
<td>Y: 46%; N: 54%</td>
</tr>
<tr>
<td></td>
<td>Pay via internet</td>
<td>Y: 35%; N: 65%</td>
</tr>
<tr>
<td></td>
<td>Awareness and use of marketplaces and SeaQuipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Awareness of marketplaces</td>
<td>Y: 21%; N: 79%</td>
</tr>
<tr>
<td></td>
<td>Use of marketplaces (of those aware)</td>
<td>Y: 23%; N: 77%</td>
</tr>
<tr>
<td></td>
<td>Awareness of SeaQuipment</td>
<td>Y: 19%; N: 81%</td>
</tr>
<tr>
<td></td>
<td>Use of SeaQuipment (of those aware)</td>
<td>Y: 22%; N: 78%</td>
</tr>
<tr>
<td></td>
<td>Other means of searching for maritime sellers and products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Private list of sellers</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>Internet search engines</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Catalogues</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td>Specialist journals</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>Exhibitions</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Sellers’ websites</td>
<td>67%</td>
</tr>
<tr>
<td></td>
<td>Appropriateness of SeaQuipment and reasons for (non-)use (for those aware)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SeaQuipment appropriate for firm and product information</td>
<td>Y: 75%; N: 48%</td>
</tr>
<tr>
<td></td>
<td>Total agree or agree (of those with an opinion)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disagree, neither agree nor disagree, or no opinion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reasons for using marketplaces or SeaQuipment [top 3 from categorising an open question]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Functionality</td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td>Assortment</td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td>User experience</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>Reasons for not using marketplaces or SeaQuipment [top 3 from categorising an open question]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No benefits</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Assortment</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>Not appropriate</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>User not ready</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with and wishes for SeaQuipment (for the users, note: only 5 users for purchasing)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall report mark</td>
<td>6.5 (out of 10)</td>
</tr>
<tr>
<td></td>
<td>Finding suppliers and products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very satisfied or satisfied</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>Key kind of information needed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supplier information</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Technical information</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Price information</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Purchasing information</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Graphical information</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Regulation information</td>
<td>6</td>
</tr>
</tbody>
</table>

SeaQuipment is reasonably well-known amongst salespeople and there is substantial use amongst those who know about it. This differs little from the awareness and use of electronic maritime marketplaces in general. SeaQuipment is better known and used more extensively by salespeople at
sellers than by purchasers at buyers. Half of the salespeople also use SeaQuipment regularly (at least quarterly) to check other firms, such as buyers or competitors. Almost half of the salespeople indicate that they came into contact with a buyer via SeaQuipment and one third made a sale afterwards. Most of them report that contact and sales rarely happen. Note that even this can be beneficial, considering the costs of SeaQuipment and the prices of some maritime products. Salespeople mainly mention specialist journals and their own website as other means of reaching buyers. The private list of buyers and exhibitions also scores high. Note that sellers’ websites score low for purchasers.

More than half of the salespeople who are aware of and have an opinion about SeaQuipment regard it as appropriate for providing firm and product information. However, more than half of the salespeople who are aware of SeaQuipment are not convinced. It seems that appreciation is higher among purchasers than salespeople, and purchasers are more convinced. Salespeople who are aware of SeaQuipment mention ‘customer reach’ as their primary reason for using the service. ‘Functionality’ and ‘user experience’ are also mentioned frequently. The main reasons for non-use relate to ‘assortment’, with ‘no benefits’ and ‘not functioning’ also often mentioned. For salespeople who use SeaQuipment, ‘customer reach’ is an even more salient reason for use, while ‘costs’ is the most prominent reason for non-use. Salespeople who are aware of SeaQuipment but do not use it mention ‘user experience’ and ‘functionality’ most often as their reason for use. Their most frequently stated reason for non-use is ‘assortment’, with ‘not suited’ and ‘no benefits’ often mentioned as well.

Salespeople were satisfied with buyers’ opportunities for finding sellers and products, but had mixed feelings about product structure. Most salespeople showed no interest in additional functionality for ordering via SeaQuipment (19 out of 24) or an escrow service for foreign payments (22 out of 24). The salespeople who were interested in ordering via SeaQuipment came from small firms with no experience in electronic business. Salespeople’s wishes related to more feedback from SeaQuipment about use and getting more results from SeaQuipment (customers, sales). Note that salespeople’s perception that they are getting few results can also be due to the fact that they are unaware that customers have found them through SeaQuipment.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic business</td>
<td>Doing business via internet</td>
<td>Y: 50%; N: 50%</td>
</tr>
<tr>
<td></td>
<td>Own website</td>
<td>Y: 85%; N: 15%</td>
</tr>
<tr>
<td></td>
<td>… with product information (of those with their own website)</td>
<td>Y: 75%; N: 25%</td>
</tr>
<tr>
<td></td>
<td>… with ordering (of those with their own website)</td>
<td>Y: 26%; N: 74%</td>
</tr>
<tr>
<td></td>
<td>… with price information (of those with their own website)</td>
<td>Y: 12%; N: 88%</td>
</tr>
<tr>
<td>Awareness and use of</td>
<td>Awareness of marketplaces</td>
<td>Y: 43%; N: 57%</td>
</tr>
<tr>
<td>marketplace and SeaQuipment</td>
<td>Use of marketplaces (of those aware)</td>
<td>Y: 49%; N: 51%</td>
</tr>
<tr>
<td></td>
<td>Awareness of SeaQuipment</td>
<td>Y: 46%; N: 54%</td>
</tr>
<tr>
<td></td>
<td>Use of SeaQuipment (of those aware)</td>
<td>Y: 44%; N: 56%</td>
</tr>
<tr>
<td></td>
<td>Results of using SeaQuipment</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>• Contacted by a buyer (rarely, sometimes, frequently)</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td>• Resulted in a sale (rarely, sometimes, frequently)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other means of reaching maritime buyers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Specialist journals</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>• Own website</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>• Private list of buyers</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>• Exhibitions</td>
<td>32%</td>
</tr>
<tr>
<td></td>
<td>• Catalogues</td>
<td>09%</td>
</tr>
<tr>
<td>Appropriateness of SeaQuipment and reasons for (non-)use (for those aware)</td>
<td>SeaQuipment appropriate for firm and product information</td>
<td>58%</td>
</tr>
<tr>
<td></td>
<td>• Totally agree or agree (of those with an opinion)</td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td>• Disagree, neither agree nor disagree, or no opinion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reasons for using marketplaces or SeaQuipment [top 3 from categorising an open question]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Customer reach</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>• Functionality</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>• User experience</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Reasons for not using marketplaces or SeaQuipment [top 3 from categorising an open question]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Assortment</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>• No benefits</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>• Not functioning</td>
<td>23%</td>
</tr>
<tr>
<td>Satisfaction with</td>
<td>Overall report mark (from 0 to 10, 10 is maximum)</td>
<td>6.6</td>
</tr>
<tr>
<td>and wishes for SeaQuipment</td>
<td>Finding suppliers and products</td>
<td></td>
</tr>
<tr>
<td>(for the users)</td>
<td>• Very satisfied or satisfied (of those with an opinion)</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Key kind of information needed</td>
<td>Points scored:</td>
</tr>
<tr>
<td></td>
<td>• Supplier information</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>• Technical information</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>• Purchasing information</td>
<td>063</td>
</tr>
<tr>
<td></td>
<td>• Regulation information</td>
<td>058</td>
</tr>
<tr>
<td></td>
<td>• Price information</td>
<td>044</td>
</tr>
<tr>
<td></td>
<td>• Graphical information</td>
<td>036</td>
</tr>
</tbody>
</table>
In conclusion, website statistics show that SeaQuipment is used to search firm and product information and that use is growing. We can conclude from the survey that purchasers are often unaware of SeaQuipment’s existence. A limited number of the purchasers who are aware of SeaQuipment make use of it, whereas purchasers do use the internet to search for information. An important reason for non-use by purchasers is the lack of benefits. Users who search via SeaQuipment may occupy other positions at maritime firms or come from other organisations (for example, students). The survey showed that salespeople are aware of SeaQuipment and make use of it. For them, SeaQuipment is an accepted marketing & sales tool. The number of sellers who both sign up and register products may be a concern for SeaQuipment. The survey also showed that salespeople use SeaQuipment because of its customer reach. However, they are not convinced that SeaQuipment is appropriate and would like more feedback and results.

5.3 Case study findings

SeaQuipment is a new intermediary that started as a web catalogue in the maritime industry. Table 5-6 provides a brief overview of the SeaQuipment case in terms of exchange design, interests and acceptance. From the SeaQuipment case, we can learn about balancing interests by relating SeaQuipment’s exchange design choices to the interests of maritime buyers, SeaQuipment, and maritime sellers and comparing them to acceptance by maritime buyers and sellers. Here we will firstly present the overall finding for SeaQuipment, discussing the balancing of interests for the case as a whole. Secondly, we present the specific findings that pursue some of the balancing issues in greater depth. We add the exchange design themes (Role, Linkage, Transparency, Novelty) for the specific findings that relate directly to one or more themes.

Overall finding for SeaQuipment

SeaQuipment is a small initiative with a limited role and supplier and product transparency. It has primarily positive, yet limited, effects for customers and suppliers and remains close to vested interests. Purchasers at customers often have no knowledge of SeaQuipment and perceive the benefits as being too limited. Salespeople are more knowledgeable about SeaQuipment and more positive about the benefits. This may be because they are more motivated to reach new customers than purchasers are to find new suppliers. For SeaQuipment, a web catalogue involving sellers requires relatively low effort & costs. However, a need for more marketing
and further development can increase effort & costs. The opportunities for SeaQuipment to create value have to be found in a role as information specialist, not in a transaction model.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange design</td>
<td>Role: Limited role with small activity focus and little involvement</td>
</tr>
<tr>
<td></td>
<td>Linkage: Open for users with limited standardisation and no coupling</td>
</tr>
<tr>
<td></td>
<td>Transparency: Basic transparency with elementary firm and product information</td>
</tr>
<tr>
<td></td>
<td>Novelty: Little novelty beyond simple electronic business</td>
</tr>
<tr>
<td>Interests</td>
<td>Customers: Positive for maritime buyers (find new maritime firms and products more easily) but benefits for purchasers are also limited</td>
</tr>
<tr>
<td></td>
<td>Suppliers: Mostly positive for maritime sellers (reach (new) customers) but requires some effort and cost and results unclear</td>
</tr>
<tr>
<td></td>
<td>Intermediary: For VNSI, practicable solution for using electronic business to advance maritime industry</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Customers: SeaQuipment is used for searching firm and product information and use is growing; Purchasers at Dutch shipyards and maritime firms who are aware of SeaQuipment are moderately positive but are currently not the main buy-side users</td>
</tr>
<tr>
<td></td>
<td>Suppliers: Salespeople at Dutch maritime firms who are aware of SeaQuipment are moderately positive and see it as an accepted marketing &amp; sales tool</td>
</tr>
</tbody>
</table>

SQ1. A limited role with product and supplier transparency and little novelty can be suitable but may have little added value [R,T,N]

A web catalogue can be an appropriate means for customers and sellers to find and provide elementary product and firm information. For the intermediary, it is a practical solution to become involved in electronic business with relatively low effort and cost. Moreover, the intermediary can make suppliers responsible for product and firm information.

While purchasers believe that the web catalogue is suitable, they feel that it has insufficient benefits. For the intermediary, a limited role as a web catalogue means that there are fewer opportunities for adding value. In addition, there is competition from generic business directories and catalogues and from internet search engines such as Google.

SQ2. An information specialist does not have to move to a transaction model [R,T,N]

The vulnerability of a limited role as a web catalogue may suggest a move from information to transaction-oriented services. However, the survey indicates that customers and suppliers did not favour transaction-related information and functionality. They perceive no need for transaction
services provided by a new, electronic intermediary. Moreover, transaction services require a change in role and transparency that may have a negative impact on some of the interests of customers, intermediary, and/or suppliers. It would also substantially increase the effort and cost for SeaQuipment, perhaps placing them in a position of financial liability.

SQ3. *Openness can be beneficial for customers but may harm the intermediary and suppliers* \([L,T]\)

Anyone can consult SeaQuipment’s web catalogue and there is no need to register or log on. It is therefore easy for customers to use the catalogue and to remain anonymous. However, this means that SeaQuipment does not know who the users are who visit its website and how they use it. Nor can SeaQuipment inform suppliers about their users and use. As a result, sellers are unable to assess whether SeaQuipment is effective and efficient as a marketing & sales tool.

SQ4. *A product structure matters and can add value* \([R,T]\)

The SeaQuipment case shows that there is an opportunity to add value via a recognisable and well-organised product structure. This kind of service is unique for an intermediary. Customers can search directly for products and suppliers can position their products. The survey shows that a product structure is not a trivial issue; it can be difficult to satisfy many different customers and suppliers. Suggestions for improvement relate to a more precise structure, a better focus on specific parts of the ship, and greater focus on the ship’s exterior (for example, for finding coatings).

SQ5. *The selection of suppliers has to balance quantity and quality* \([L]\)

An important asset for SeaQuipment as a web catalogue is the quantity and quality of suppliers. These criteria may be in conflict when SeaQuipment checks suppliers who apply for membership. Suppliers are checked on the basis of two criteria: respectability and relevance. While quality requires a stricter application of these criteria, quantity requires a more flexible one.

The survey shows that assortment is an important reason for use and non-use for both buyers and sellers. They state as reasons for use the fact that assortment targets the maritime industry, the completeness of the assortment and the overview provided. As reasons for non-use, they mention that it is either too broad or too narrow, too national or international, or it lacks a focus on specific segments (for example, building yachts).
The Meetingpoint case

Meetingpoint is an administrative transaction platform in the Dutch insurance industry. It operates in the agent channel, which consists of end customers, insurance agents and insurance companies. This chapter begins by introducing Meetingpoint and its business network, including a description of the insurance industry and the agent channel in general, which is also relevant to the Voogd & Voogd case examined in the next chapter. It then discusses the exchange design choices and the actors' interests. Finally, the comparison of the design and interests with Meetingpoint's acceptance results in the Meetingpoint findings.

6.1 Meetingpoint and its business network

Meetingpoint (www.mp4all.nl) is an administrative platform that supports electronic transactions between insurance agents and companies for less complex, standard insurance products. Administrative transactions involve obtaining insurance quotes, and applying for, viewing and adjusting an insurance policy. Meetingpoint is a new intermediary established by a number of insurance companies. The focus of this case study is upon Meetingpoint from the second half of 2004 to the first half of 2005.

6.1.1 The electronic business initiative

The agent channel has a market share of more than 50% in the Dutch insurance industry (DenO, 2005). However, it is increasingly faced with strong competition from other distribution channels such as direct writers, banks and retail stores. Moreover, the advent of electronic business has a large impact on the insurance industry in general and the agent channel in particular. Internet can be used, for example, to bring in customers, inform them about insurance policies, compare and apply for policies, or submit an insurance claim. Sometimes the internet is even perceived as a distribution channel of its own. On the one hand, the agent channel is threatened by the
application of electronic business in other channels, while on the other hand, electronic business opens up new opportunities for insurance agents and companies in the agent channel. Electronic business can be used in the agent channel to improve the interaction of both the end customer with the agent (and insurance company) and the agent with the insurance company.

For the interaction between agents and insurance companies, electronic business is used for self-service by insurance agents and administrative channel integration. Insurance companies help agents to perform activities themselves by providing ICT tools. An example of such an application is an offline tool for giving quotes for insurance policies. A problem with these tools, however, is the distribution of new versions of the software and the updating of data. It therefore seems more efficient to offer this kind of functionality via the internet. Moreover, insurance agents and companies maintain their own administration. If the administrative activities of insurance agents and company were integrated, the administrative process in the agent channel would be much more efficient. For example, the information required to give a quote via the insurance companies’ extranet is copied wherever possible from the agents’ administrative software.

A number of insurance companies felt that it would benefit insurance agents and companies if such an electronic business initiative was performed collectively. Three insurance companies (AMEV, Delta Lloyd and Stad Rotterdam) started a pilot study to discover whether the concept was viable. In June 2001 they began offering 25 insurance agents the opportunity to apply for car insurance via one website, one way of working and one security mechanism. An evaluation of the pilot showed that the users were enthusiastic about the idea but felt that the functionality was too limited. They also felt that it should be possible to adjust policies as this represents the bulk of administrative transactions. Users also wanted more insurance companies and products to be made available via the website. The three insurance companies decided to develop the concept further. Meetingpoint was founded as the central organisation for this initiative and charged with concentrating on implementation. Agents were able to conduct administrative transactions via Meetingpoint from the 4th quarter of 2002 (Figure 6-1).
6.1.2 The business network

In addition to Meetingpoint, the other actors in the vertical business network are end customers, insurance agents and insurance companies (Figure 6-2). The exchange between insurance agents and companies is the agency relationship. For administrative transactions, there is an exchange between agents and Meetingpoint and between Meetingpoint and insurance companies. End customers have exchanges with both agents and insurance companies. They (consumers or firms) are the customers of agents but have an insurance policy with the insurance company. End customers pay insurance premiums to insurance companies, while insurance companies pay the agents commissions.

Meetingpoint provides services to insurance agents and companies, and makes use of the services of insurance companies and information providers.
(Figure 6-3). It is a transaction platform for obtaining quotes, and applying for and adjusting an insurance policy. Agents can access the platform in three different ways: (1) the Meetingpoint internet portal, (2) the insurance company’s extranet, and (3) the agent’s administrative software. Agents can choose their mode of access insofar as insurance companies offer different options. They make explicit use of Meetingpoint via the portal, whereas Meetingpoint operates below the surface via the extranet or administrative software.

Meetingpoint offers insurance companies an electronic transaction platform that they can deploy according to their preferences with respect to products, functions and access options. Insurance companies provide electronic services to Meetingpoint for calculating quotes, approving or rejecting applications, and viewing and adjusting policy information. Insurance companies also provide Meetingpoint with product information on every insurance product they wish to make available via Meetingpoint. Meetingpoint needs this information to set up the transaction service for a specific product.

Meetingpoint also uses information providers to improve or check the information from agents. For example, an agent can retrieve car information from the Dutch Road Traffic Department (Rijksdienst voor het Wegverkeer, RDW) by entering the registration number of the car and the last four digits of the vehicle identification number.

Meetingpoint’s administrative transaction process (Figure 6-4) shows how the different services of Meetingpoint, insurance companies and information providers operate together. The figure presents the main steps and the actors involved in each step, with a need for an administrative transaction as the trigger. The process begins with agents initiating a transaction by accessing Meetingpoint. Agents provide information to Meetingpoint, which supports agents by reusing previously entered information and retrieving additional information from providers. Meetingpoint performs some simple checks on the entered data by means of the additional information and generic business logic (for example, the
‘11-check’ for bank account numbers). Insurance companies process the transactions via their electronic services. Agents receive feedback on processing from the insurance company via Meetingpoint. If the transaction is not completed by the electronic service, the insurance company concludes the transaction outside Meetingpoint.

Figure 6-5 shows the technical architecture that implements the administrative transaction process. Agents can use their web browser to directly access the Meetingpoint portal or the insurance companies’ extranet. They can also use their administrative software, which can communicate with Meetingpoint via the Generic Interface Manager (GIM) based on Https, XML and SOAP. Meetingpoint obtains transaction information from the administrative software and, if necessary, additional information via the web browser. The administrative software obtains the transaction result from Meetingpoint, which communicates with the electronic services of insurance companies and information providers via Https, XML and SOAP. Meetingpoint taps into the traditional EDI messages between insurance companies and agents via the Insurance Data Network (Assurantie Data Netwerk, ADN) to fill their policy database.

Meetingpoint is free for insurance agents. Some insurance companies encourage use of Meetingpoint by paying agents extra commission. The insurance companies that participate in Meetingpoint pay a yearly fee. In addition to this financial contribution, insurance companies provide people, knowledge and facilities. Meetingpoint does not have to be profitable, just cover expenses.
6.1.3 The intermediary: Meetingpoint

The basic principle behind Meetingpoint is that the success of self-service by insurance agents and administrative channel integration depends on cooperation between insurance companies. While the insurance industry works on standards, Meetingpoint believes that these standards leave too much room for interpretation. Meetingpoint aims to become the industry-wide administrative transaction platform for insurance agents and companies in the agent channel. However, it does not provide transaction services to agents on their own accord. The insurance companies offer Meetingpoint to their agents; everything Meetingpoint does is on behalf of the insurance companies.

Meetingpoint describes itself as an administrative transaction platform. It develops and manages the electronic platform and the couplings with the administrative software of agents and the electronic services of insurance companies and information providers. It has two databases: one for customer information and one for policy information. The former supports agents by reusing customer information so they only have to enter this information once. The latter supports insurance companies wishing to provide functionality for viewing and adjusting policy information but which cannot provide this electronic information themselves. If insurance companies want to add new products, Meetingpoint has to update the platform, for which they use a software generator.

Meetingpoint supports insurance companies in its promotion amongst their agents by introducing the platform and demonstrating its use. It focuses support on those agents that do business with several participating insurance companies. Meetingpoint also maintains contact with the participating insurance companies and approaches other insurance companies to participate in the intermediary.

6.1.4 The customers: insurance agents

An insurance agent mediates in concluding insurance policies between end customers and insurance companies. However, the agent is not a party in the insurance contract. Some agents are generalists, offering almost all kinds of insurance to any customer, while others are specialists focusing on specific insurances or customers. In addition to insurance policies, insurance agents can mediate in other financial products such as mortgages or asset management or perform other activities (for example, house agents). Insurance agents differ substantially in firm size. Of the 11,270 firms in the Netherlands in 2001 (Verbond van Verzekeraars, 2003), many are small firms (10,120 firms with 0 or 1-5 employees) and a few are very large (25 firms with 100 or more employees).
The main activities of the insurance agent are advising end customers, administering insurance policies, supporting the end customer with claims, and managing the relationship with end customers. For many agents, the personal relationship with the customer (including face-to-face contact at the customer) and good service (high-quality advice, fair claim handling and convenience for the end customer) are of great importance. Advising means that agents are involved in risk analysis, need determination and product choice. Some insurance products (such as pension insurance) require more advice than others (such as car insurance). Agents are involved not only in applying for an insurance policy but at any point during the term, for example, collecting premiums, adjusting policies and supporting claims.

Insurance agents cooperate with insurance companies, and this is formalised in an agency agreement. Often, agents cooperate with more than one insurance company because they want to be able to offer different products and compare different companies. For example, insurance agents who are members of the NVBA (a Dutch association of independent financial and insurance advisors) cooperate on average with 30 insurance companies and do active business with ten. It is important to agents that insurance companies offer a high-level administrative service (fast, convenient, and without errors). However, many agents feel that service levels do not meet their expectations. Moreover, many agents want standardisation for electronic services with respect to the way of working, presentation and security. This need is greatest among agents who do business with several insurance companies and who conduct a limited number of transactions per company.

Because Meetingpoint targets all insurance agents in the agent channel, any agent should in principle be able to use it. However, Meetingpoint is only available to those with a cooperation agreement with an insurance company that participates in Meetingpoint. These agents can obtain authorisation for Meetingpoint through their account manager at the insurance company. Agents wanting to use Meetingpoint via the portal or their administrative software also have to apply for a digital passport, a generic authorisation mechanism for the agent channel with ADP Business Services as Trusted Third Party (TTP).

Agents use Meetingpoint via web pages. They themselves can decide how they want to access Meetingpoint: via its internet portal, the insurance company’s extranet, or their own administration software if an insurance company offers these options. If agents access Meetingpoint via the portal, they go to the Meetingpoint website (www.mp4all.nl), which presents the main menu with the participating insurance companies and their products. Agents accessing Meetingpoint via the insurance company’s extranet have only that particular insurance company and its products at their disposal. In
this case, Meetingpoint has the look and feel (logo, colour, and font) of that insurance company. If agents access Meetingpoint via the portal or extranet, all information available at Meetingpoint is reused where possible. Agents who access Meetingpoint via their own administrative software go directly to the selected product of a specific insurance company within the portal. In this case, all relevant data from their administrative software is transferred to Meetingpoint automatically, which means agents do not have to enter the same information twice.

6.1.5 The suppliers: insurance companies

Insurance companies are service providers that take over the financial risks of consumers and firms. For consumers, they can offer life insurances, non-life/general insurance (for example, car insurance) and health insurances. Most companies that do business through the agent channel focus on this channel exclusively. They may be part of a larger financial group consisting of multiple insurance companies that offer different brands via different channels and/or other financial firms such as banks.

The principal activities of an insurance company are offering insurance products to customers, covering their own financial risks, and investing funds received and/or managed via insurance policies. Offering insurance products to customers implies marketing and selling these products, administrating insurance policies, collecting premiums and handling claims. Companies that make use of agents have to manage their relationship with the agents. Their cooperation agreements sometimes contain explicit statements about an agent’s commitment. Insurance companies have account managers who maintain the contact with agents and offer agents managerial and operational support. Because the cooperation with agents can be risky and costly, insurance companies have selection criteria for cooperation and sometimes employ a segmentation policy. If such a policy is used, insurance companies assign agents to different segments with different kinds of service and different service levels. One of the factors determining this assignment is an agent’s level of premium income for that insurance company.

Insurance companies develop electronic services for agents, consumers and firms (as employers). Most companies offer agents an extranet and offline (ICT) tools. The amount of support for administrative transactions differs per insurance company and can be narrow or broad (number of products) and shallow or deep (number of functions). Moreover, the possibilities and difficulties with regard to electronic transactions differ per insurance product and function. In addition to the front end, insurance companies also work on the back end for automatic transaction processing. This is required in order to derive maximum benefits from straight-through
processing. Because of different priorities and abilities, insurance companies differ in their level of sophistication regarding automated processing. The automation of business processes requires considerable effort and resources.

Meetingpoint targets all insurance companies in the agent channel. It does not regard technology and infrastructure as a source of (long-term) competitive advantage, especially for administrative transactions for commodities and simple risk-insurance products. However, insurance companies still want their own profile vis-à-vis customers (labels, products, target groups) and freedom of choice with regard to distribution strategy and channels. Meetingpoint considers itself complementary to the extranets of insurance companies, which have a much broader function than administrative transactions, for example, commercial (marketing and advice) and financial (current account) functions.

If an insurance company wishes to participate with Meetingpoint, it has to negotiate to reach an agreement. Insurance companies can deploy the Meetingpoint platform according to their own preferences. They determine the products and functions they wish to offer and the access options provided to agents (portal, extranet, and/or administrative software). For every product, insurance companies provide product information to Meetingpoint, which utilises this information to adapt the platform.

Insurance companies develop Meetingpoint components to make available electronic services for their products and functions. These components automatically process a transaction and provide a (near) real-time response. Meetingpoint has service level agreements with insurance companies about the availability and response time of these services. However, insurance companies themselves determine the extent to which transactions are automatically processed and to which they are concluded afterwards, outside Meetingpoint, and how much time this takes. Insurance companies are responsible for completing the administrative transaction in their back office, for example, providing an actual policy to the agent or end customer. They are also responsible for taking action when an application for insurance is not approved automatically or an error occurs during automatic processing.

Insurance companies decide to which agents they wish to offer Meetingpoint. They only provide authorisation to agents with whom they have a cooperation agreement. Insurance companies contact their agents via account managers, or agents can contact their account manager themselves. Insurance companies encourage the use of Meetingpoint amongst their agents, for example, by creating publicity, distributing promotion material and providing instructions. Insurance companies also promote active use of
Meetingpoint through incentives such as giving presents or paying extra commission.

6.2 Exchange design, interests and acceptance

6.2.1 Exchange design

This section examines the exchange design choices of Meetingpoint in more detail. Table 6-1 provides an overview of the main design choices and a characterisation per theme.

Role
Meetingpoint targets the administrative function of insurance agents and companies. The cooperation between insurance agent and company is much broader and also covers areas such as commerce (marketing & sales) and finance (current account). Commercial and financial services are the responsibility of the individual insurance companies.

Meetingpoint’s focus with regard to administrative tasks has been confined until now to applying for and managing insurance policies: obtaining quotes, applying for and viewing a policy, and adjusting a policy. It is not involved in the settlement of claims. While Meetingpoint enables agents to transact more easily with several insurance companies, there is limited support for working across multiple insurance companies. For example, there are different forms for applying for car insurance with several insurance companies, and support for comparing different offers is left to other service providers.

For agents, the administrative service of Meetingpoint is self-service. Agents provide the customer and object information. Meetingpoint supports them by reusing customer data at the platform, coupling the platform with the administrative software, and retrieving information from external providers.

There is a distribution of activities between Meetingpoint and the individual insurance companies. Meetingpoint takes care of the standardised screens and dialogues, security, communication with the agent’s administrative software and with information providers, and a policy database (optional). The individual insurance company takes care of online quote calculation and automatic acceptance, online policy information (optional), feedback about prolongation, and integration with the extranet of the insurance company.
Linkage
Meetingpoint is an industry-wide initiative targeting all insurance agents and companies in the agent channel. An insurance agent needs an individual cooperation agreement and authorisation for each insurance company participating in Meetingpoint. Meetingpoint offers agents different access options. Agents need a digital passport to access via the portal or their administrative software. Any insurance company can participate in Meetingpoint but they have to negotiate with Meetingpoint about the conditions.
Meetingpoint uses industry standards wherever possible and provides a uniform implementation for the participating insurance companies. It creates additional uniformity for the way of working, for example, workflow and error messages. Currently Meetingpoint employs industry standards for computer transactions (GIM and ADN), financial data (AFD) and security (digital passport), and plans to implement the industry standards for insurance forms and business processes. Most industry standards are developed by the Standardisation Institute for Insurance in the Agent Channel (Standaardisatie Instituut voor Verzekeringen in de Intermediairbranche, SIVI). The industry standards do not lead to product harmonisation because insurance companies are free to specify their own product via the All Finance Datamodel (AFD). Moreover, insurance companies can adjust the look and feel of Meetingpoint (logo, colour and font) when accessed via their extranet.

Meetingpoint strives for automatic, (near) real-time administrative processes between agents, insurance companies and other information providers. This means that it has electronic couplings with all actors, as shown in the technical architecture (Figure 6-5). Meetingpoint has synchronic couplings with the administrative software of the agents via GIM and with the electronic services of Meetingpoint components at insurance companies. In addition, it has an asynchronic coupling with insurance companies via AND for filling the policy database.

**Transparency**

Insurance agents and companies are known to each other. Meetingpoint’s visibility depends on how agents access the platform. Agents only explicitly transact via Meetingpoint if they access it via the Meetingpoint portal.

Meetingpoint supports the sharing of administrative information between insurance agents and companies. It utilises information providers to improve or check the information provided by agents. Meetingpoint supports sharing of administrative information by means of a customer and policy database.

Administrative information concerns information on end customers and objects (for example, a car) from agents and information on insurance policies such as quotes, conditions and clauses from insurance companies. However, Meetingpoint does not support the comparison of insurance policies on quotes or conditions.

Agents can access their own customer and policy information that is kept at Meetingpoint, including policies that were not applied for via Meetingpoint. Through Meetingpoint, agents have access to policy information across several insurance companies.
Insurance companies can access their own policy information but not agents’ customer information or other insurance companies’ policy information. All business logic resides at the insurance company. They do not have to provide information about their quote calculation or approval logic to Meetingpoint.

**Novelty**

Meetingpoint supports the existing relationships between insurance agents and companies. However, it is an extra party in the agent channel. For agents, this is only explicit if they use the portal, while for insurance companies, Meetingpoint is a central party in the transaction process and requires cooperation with competitors in the agent channel.

For agents, use of Meetingpoint means a change from paper forms and traditional mail or fax to working via computer and internet. Moreover, accessing the portal may be unusual for agents because they normally deal directly with insurance companies and may be accustomed to their extranets.

Agents have to adapt their way of working to benefit from Meetingpoint’s opportunities. They have to start working electronically instead of simply communicating electronically. For example, handling a customer’s phone call on the spot via the computer instead of writing the information on a piece of paper, entering it into the computer after the phone call, and phoning the customer back later.

Meetingpoint tries to accommodate the agents’ way of working through coupling with their administrative software so that agents do not have to enter the same information twice. Agents need to have standard ICT (computer browser and internet connectivity) in order to use Meetingpoint. For access via the portal or their own administrative software, they require a digital passport. For access via the administrative software, they also need to update their software to make the GIM coupling work.

Most insurance companies have their own extranet for providing electronic services to agents. Meetingpoint does not want to interfere with this way of working. It positions itself as complementary to these extranets, which offer a broader scope than administrative transaction and opportunities for integrating Meetingpoint with the extranet.

To deploy Meetingpoint, insurance companies need to provide electronic transaction services via Meetingpoint components. This requires from insurance companies that they make insurance products and transaction logic (calculating quotes, approving policies, and checking adjustments) suitable for automatic processing. Moreover, if insurance companies wish to derive more benefit from an electronic front end, they need an electronic back end and a coupling between the two. For an
optimal electronic process, this should also be fully automatic and (near) real-time.

However, use of Meetingpoint requires fewer ICT capabilities from the insurance companies than if they do everything themselves. Once the insurance companies provide the appropriate electronic services via Meetingpoint components, Meetingpoint takes care of the electronic interaction with the agent, such as GIM coupling with the administrative software, as shown in the technical architecture (Figure 6-5). Moreover, if the insurance company is not able to supply policy information to Meetingpoint via an electronic service, Meetingpoint can handle this via its own policy database.

6.2.2 Interests

Meetingpoint seeks to improve the efficiency and service level of administrative processes in the agent channel via a transaction platform. For insurance agents, the interests with respect to Meetingpoint relate on the one hand to electronic administrative services (with channel integration and self-service) in general, and on the other hand to Meetingpoint (as the collective initiative of insurance companies) in particular. For administrative services in general, an important question is whether agents regard it as necessary for competition between the agent channel and other channels or as an initiative from insurance companies directed at their own benefits.

Meetingpoint should result in administrative services that are faster and better (fewer errors, more information and greater availability). This means that agents can perform administrative tasks more easily and spend less time on them. It also makes it possible for the agent to increase the service level for the end customer. However, Meetingpoint may also increase the time agents spend on administration because of the self-service aspect and the fact that they have to enter customer and object information. Meetingpoint accommodates these drawbacks by reusing data and retrieving information from external sources. As a result, it is not known whether the net effect on agents’ administrative tasks is positive or negative.

The positive effects for agents also depend on the motivation and abilities of the agents themselves. Agents who actually work electronically are better able to increase administrative efficiency than those who only communicate electronically. Moreover, agents need to make this increase in administrative efficiency pay by increasing their revenues via commercial activities or saving on their employee costs. This may be more feasible for larger firms than for smaller ones. Ultimately, using Meetingpoint may demand from agents effort and cost to change the way they manage their business and perform their operations because communicating electronically is often incompatible with how they work, and working
electronically even less so. In addition, agents often feel that administrative services are directed more at the efficiency of insurance companies than the needs and preferences of agents and their customers. Meetingpoint tries to compensate agents by making it possible to access the platform via their administrative software so there is less need to change and the same information does not have to be entered twice. This can result in extra ICT expenditure because the software needs to be updated. Although the extra commission for using Meetingpoint makes it financially attractive for agents, it is only a temporary incentive and the financial implications for the longer term are unclear.

As the collective initiative of insurance companies, Meetingpoint should be particularly advantageous for agents working with multiple insurance companies. Agents benefit from the uniformity and information reuse that the Meetingpoint platform offers. As a portal, however, Meetingpoint is company-oriented and offers little functionality for working across multiple insurance companies. Moreover, it cannot guarantee a complete service because the distribution of responsibilities leads to different products and functionality offered by the insurance companies.

For insurance companies, the interests with respect to Meetingpoint also relate to electronic administrative services in general and Meetingpoint in particular, as with insurance agents. Moreover, insurance companies may perceive Meetingpoint as a strategic vision with regard to the future of the agent channel, with agents preferring to work with multiple insurance companies via a portal and a need for insurance companies in the agent channel to cooperate in specific areas. On the other hand, Meetingpoint may be seen as a pragmatic solution for introducing administrative services faster and more cheaply.

Electronic administrative services make it possible for insurance companies to save on administrative costs, especially employee costs, because they get better administrative information (fewer errors) in an electronic format (no data entry). These savings are largest when they fully switch to electronic processing for standard transactions. Electronic services also enable them to improve their administrative service to agents and (through them) to the end customers. Meetingpoint as a collective initiative makes it easier for new participants to reach agents because it already has a user community.

Offering electronic transaction services to agents requires insurance companies to invest substantially in changing their business processes and having the ICT software and hardware to provide these services. Because these services are increasingly provided to agents, most insurance companies have to take action sooner or later. Meetingpoint as a collective initiative can require less effort and cost for insurance companies than an
individual initiative. This is dependent, however, on the size of the insurance company (some are large enough themselves) and the condition of the processes and ICT. Because Meetingpoint has an operational platform, new participants can offer electronic services faster via Meetingpoint than if they start from scratch themselves.

Insurance companies have to cooperate with other insurance companies when they participate in Meetingpoint. Sharing the investment and making use of each other’s knowledge are advantages of this collaboration. However, insurance companies also become dependent upon Meetingpoint (as an extra party in the middle) and other insurance companies for their administrative services to agents. Moreover, the fact that Meetingpoint is a central infrastructure promoting uniformity makes it more difficult for insurance companies to differentiate themselves from other companies through the functionality they offer. Meetingpoint also limits the possibilities of service differentiation or lower costs for administrative processes than competitors. Insurance companies have different views about whether it is still possible to differentiate through administrative services. This also depends on the specific products and customers they apply to.

While Meetingpoint creates uniformity, it still leaves room for insurance companies to adopt their own distribution strategy (for example, which products) and retain control of their own quote calculation and policy approval. Insurance companies are also responsible for concluding the transactions and therefore still able to offer a higher service level than their competitors. They can adapt Meetingpoint to their own look and feel if accessed via the extranet. Meetingpoint does not encourage price competition either because it has no functionality to support price comparison and is limited in its functionality for requesting multiple quotes more easily.

Because Meetingpoint aims to become the administrative infrastructure for the agent channel, it is seeking to become an industry-wide platform. However, if agents access Meetingpoint via the extranets of insurance companies or their administrative software, Meetingpoint is not really visible to them. Meetingpoint needs to be a neutral party because multiple insurance companies are involved. It has to find the common interests of the insurance companies, which will also enable Meetingpoint to better meet the needs and preferences of agents.

Meetingpoint has to operate in a straightforward manner and at low effort and cost because the participating insurance companies want to restrict their own effort and cost and their (financial) contribution to Meetingpoint. Meetingpoint does not have to make a profit, only to cover its expenses. Meetingpoint’s interests bear a mixed relationship to industry
standards. On the one hand, it supports these standards and is of the view that implementing them for multiple insurance companies is one of its strengths. On the other hand, standardisation threatens the added value of Meetingpoint because it reduces the problem of multiple agents interacting with multiple insurance companies, a problem that Meetingpoint is seeking to solve. Moreover, the GIM standard will make Meetingpoint less visible for insurance agents.

<table>
<thead>
<tr>
<th>Efficiency: improve cost structure</th>
<th>Insurance agents</th>
<th>Meetingpoint</th>
<th>Insurance companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easier and faster administrative processes (+/-)</td>
<td>Straightforward with low effort and cost (+)</td>
<td>Save on administrative costs (+)</td>
<td>Effort &amp; costs processes and ICT (+/-)</td>
</tr>
<tr>
<td>ICT expenditure (-)</td>
<td>Faster electronic services (+)</td>
<td>Faster electronic services (+)</td>
<td>Faster electronic services (+)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effectiveness: increase return on assets</th>
<th>Insurance agents</th>
<th>Meetingpoint</th>
<th>Insurance companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to work with multiple insurance companies (+/-)</td>
<td>Industry-wide platform for insurance agents and companies (?))</td>
<td>Dependence on Meetingpoint and other insurance companies (+/-)</td>
<td>Competition with other insurance companies (+/-)</td>
</tr>
<tr>
<td>Compatible with business and work practices (-)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enhance customer value</th>
<th>Insurance agents</th>
<th>Meetingpoint</th>
<th>Insurance companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve customer service (+)</td>
<td>Neutrality (multiple insurance companies) (+)</td>
<td>Improve service to agents and end customers (+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Make use of industry standards (+/-)</td>
<td>User community of agents (+)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expand revenue opportunities</th>
<th>Insurance agents</th>
<th>Meetingpoint</th>
<th>Insurance companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of commission (+/-)</td>
<td>No profit required (?))</td>
<td>Price competition via comparison (+)</td>
<td></td>
</tr>
</tbody>
</table>

In conclusion, Meetingpoint has a mix of positive and negative effects on insurance agents and companies (Table 6-2). For agents, administrative services in general offer opportunities for easier and faster administrative processes, but the agents also have to contribute. Administrative self-service raises the question of whether agents perceive it as positive for the agent channel or as a shift in workload in their direction. Meetingpoint has limited additional benefits for agents because it is confined to helping them work across multiple insurance companies. It is therefore not clear to what extent agents really benefit from Meetingpoint in general and the portal in particular. The net effect is partially dependent upon how agents deploy Meetingpoint: are they willing and able to adapt their business and work practices?

Electronic transaction services enable insurance companies to increase their service level and reduce their costs. Whether they do so individually or
collectively (via Meetingpoint) can be a strategic or practical choice. As a strategic choice, participation relates to the vision of the future of the agent channel and collaboration and competition with other insurance companies. As a practical choice, it depends on the extent to which it enables them to introduce electronic transactions faster and more cheaply.

For Meetingpoint, the status of an industry-wide platform is difficult to achieve as long as some (key) insurance companies have strategic concerns. Standards may pose a threat to Meetingpoint, which runs the risk of becoming less visible. However, Meetingpoint can also be a useful actor in the agent channel as a service or solution provider to insurance companies.

6.2.3 Acceptance

According to Meetingpoint, 5,500 insurance agents have joined up, 1500 of them in the first quarter of 2005, which means Meetingpoint is showing rapid growth. The total number of (active) insurance agents in the Netherlands can be estimated at 8000 to 13,000, which means Meetingpoint has between 42% and 69% of all agents as participants. Meetingpoint assumes that most agents from the participating insurance companies have already joined.

Meetingpoint estimates that one third of the agents who have signed up actively use the platform. According to Meetingpoint, actual use has yet to develop and the regular (weekly) and structural (no longer any use of paper forms) Meetingpoint users are mainly innovators and early adopters. In a survey of its members by the NBVA, an industry association for insurance agents, 8.9% (fourth) named Meetingpoint when asked which extranet they use regularly for applying for and adjusting insurance policies (de Oliveira, 2004). Meetingpoint participant Stad Rotterdam scored 15.7% (second) with its extranet SR Net.

Figures from Meetingpoint show that 140,000 transactions (quoting, applying and adjusting) took place via Meetingpoint in 2004. Note that insurance companies encourage the use of Meetingpoint by means of various incentives such as extra commission. Most transactions are conducted with the larger insurance companies (Delta Lloyd, Reaal and Stad Rotterdam). Meetingpoint estimates this to be 98% to 99%. One of the larger participating insurance companies states that Meetingpoint handles more than half of the transaction volume for some products. Most use takes place through the insurance companies’ extranets, not the Meetingpoint portal. One of the larger participating insurance companies estimates that roughly 85% to 90% use the extranet and 15% to 10% use the portal. The option of using the administrative software became available in January 2005, with 500 agents applying to do so between January and August 2005.
Our telephone survey of ten Meetingpoint participants (six active users and four less active or inactive users) showed that all active users were satisfied with Meetingpoint, with ratings of eight out of ten or higher. The less active or inactive users do use the extranets of other insurance companies. All active users perceived Meetingpoint as a suitable tool for administrative transactions; it helps them to do their work better and is easy to use. The active users saw advantages in working with Meetingpoint for themselves and their customers. None of these active users mentioned the extra commission as a reason for use. Most active users did not perceive any added value for the portal. The active users were of the view that Meetingpoint suits the way they work, while the way they handle information did not change. They perceived few advantages or disadvantages of Meetingpoint compared with the extranets of other insurance companies. Most active users are positive with respect to ICT use and think software for comparing insurance products (quotes and conditions) is an important or effective support tool.

At the end of 2004, seven insurance companies participated in Meetingpoint (Table 6-3). Of these, four are part of the Fortis group, with three of the Fortis companies merging into Fortis ASR in 2005. Of these seven insurance companies, six actually offer products via Meetingpoint. AMEV is the only participant who does not use Meetingpoint. Due to the merger of Stad Rotterdam and Woudsend with AMEV to become Fortis ASR, Meetingpoint risks losing two participants if they join the AMEV platform. On the other hand, two new insurance companies (Generali and Turien & Co) joined Meetingpoint in 2005. The total number of active insurance companies for common insurance agents and small-to-normal risks in the Netherlands can be estimated at 35 to 50, which means that Meetingpoint has between 12% and 17% of insurance companies as active users. However, it does not have some of the large companies, such as market leader Nationale Nederlanden.

All insurance companies that offer products via Meetingpoint make use of the portal (Table 6-3). Most of them also offer insurance agents the option of using their administrative software. Only the larger insurance companies also offer Meetingpoint via their extranet. Most transactions take place via these extranets; Meetingpoint estimated this to be 98% to 99% in 2004. Woudsend has its own application for extranet transactions.

At the end of 2004, the insurance companies offered agents more than 40 insurance products via Meetingpoint. Most products are personal non-life insurance, health insurance and disability insurance. The number of products per insurance company varies from five to 30 products. Delta Lloyd, Reaal and Stad Rotterdam in particular expanded their product
offering in 2004. Not every insurance company offers all functionalities, for example, for Europeesche it is not yet possible to adjust insurance policies.

Our interviews with insurance companies indicate that the ones that use Meetingpoint are satisfied with it as a provider of a practical solution for administrative channel integration. For the insurance companies, Meetingpoint’s vision as a portal is currently less relevant. They are particularly satisfied with the use of Meetingpoint by agents, but to date are less interested in the way agents access Meetingpoint.

Insurance companies that do not participate in Meetingpoint can be divided into principle and practical non-users. For the former, Meetingpoint is not an acceptable solution; for the latter, although it is acceptable, they prefer their own solution. Non-users do not oppose electronic services in general. Most insurance companies are positive about offering agents the opportunity to conduct transactions via the insurance company’s extranet or the agent’s administrative software.

<table>
<thead>
<tr>
<th>Insurance company</th>
<th>Year</th>
<th>Portal</th>
<th>Extranet</th>
<th>Admin.</th>
<th>Name of extranet</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMEV (Fortis ASR)</td>
<td>2002</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Cockpit</td>
</tr>
<tr>
<td>Delta Lloyd</td>
<td>2002</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Digitale Domein</td>
</tr>
<tr>
<td>Europeesche (Fortis)</td>
<td>2004</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Reaal</td>
<td>2003</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Inside / In Meetingpoint</td>
</tr>
<tr>
<td>Stad Rotterdam (Fortis ASR)</td>
<td>2002</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>SR Net</td>
</tr>
<tr>
<td>Woudsend (Fortis ASR)</td>
<td>2003</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Woudsend Net</td>
</tr>
<tr>
<td>Yarden</td>
<td>2004</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

To conclude, Meetingpoint is moderately accepted by insurance agents. The number of agents who joined is high and in line with Meetingpoint’s ambition to become an industry-wide platform. However, the number who actually use Meetingpoint is much lower. Access takes place mainly via the insurance company’s extranet, not the Meetingpoint portal. Acceptance by insurance companies is limited: Meetingpoint can only offer a limited number of insurance companies and does not include some of the major ones.

### 6.3 Case study findings

Meetingpoint is a new intermediary that started as an administrative platform in the agent channel of the Dutch insurance industry. *Table 6-4* provides a brief overview of the Meetingpoint case in terms of exchange design, interests and acceptance. From the Meetingpoint case, we can learn about balancing interests by relating Meetingpoint’s exchange design...
choices to the interests of agents, Meetingpoint and insurance companies and comparing them with acceptance by agents and insurance companies. Below, we firstly present the overall finding for Meetingpoint, discussing the balancing of interests for the case as a whole. Secondly, we present the specific findings, which pursue some of the balancing issues in greater depth. We add the exchange design themes (Role, Linkage, Transparency, Novelty) for the specific findings that relate directly to one or more themes.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange design</td>
<td></td>
</tr>
<tr>
<td>Role</td>
<td>Focused, administrative role with involvement of insurance companies for transaction processing</td>
</tr>
<tr>
<td>Linkage</td>
<td>Access for agents of participating insurance companies with increasing use of industry standards and extensive coupling with all actors</td>
</tr>
<tr>
<td>Transparency</td>
<td>Product and price transparency for administrative purposes and confining end-customer information to agents</td>
</tr>
<tr>
<td>Novelty</td>
<td>Different way of working for agents within existing relationship; different network and way of working for insurance companies with advanced electronic business</td>
</tr>
<tr>
<td>Interests</td>
<td></td>
</tr>
<tr>
<td>Customers</td>
<td>Net effect for insurance agents can be positive (easier and faster service) but they have to contribute; also depends on how they deploy Meetingpoint (work electronically)</td>
</tr>
<tr>
<td>Suppliers</td>
<td>Electronic transaction services in general are positive for insurance companies (improve service, save costs); participation in Meetingpoint depends on strategic (dependence, competition) and/or practical issues (cheaper, faster)</td>
</tr>
<tr>
<td>Intermediary</td>
<td>Meetingpoint has to find the common interests of participating insurance companies; limited interests as independent party (industry-wide platform)</td>
</tr>
<tr>
<td>Acceptance</td>
<td></td>
</tr>
<tr>
<td>Customers</td>
<td>Moderately accepted by insurance agents: number of agents joining is high but fewer actually use it; portal use is limited</td>
</tr>
<tr>
<td>Suppliers</td>
<td>Limited acceptance by insurance companies: Limited number of participants and lacking some of the key insurance companies</td>
</tr>
</tbody>
</table>

**Overall finding for Meetingpoint**

Meetingpoint focuses on an administrative role with industry-wide access and coupling insurance agents, companies and information providers. Insurance agents and companies can benefit from electronic administrative services in general, implemented by Meetingpoint. Meetingpoint is currently more a solution provider for insurance companies (via extranet or administrative software access) than an intermediary with added value (via portal access). While the interests of insurance companies are leading, acceptance by insurance companies can be problematic because of strategic concerns. Administrative services and Meetingpoint offer benefits to agents
but agents also have to contribute. Moreover, the benefits depend on their motivation and abilities.

**MP1. Customers need the motivation and ability to optimally benefit from electronic services [R,N]**

In general, the insurance agents are positive about electronic administrative services. The benefits of these services appeal to the agents, particularly if they are clear, such as fewer errors or saving time. For agents, it is important that the services meet their requirements, such as no double data entry.

Agents who are willing and able to adapt their business are in a better position to benefit from using electronic services and they perceive fewer disadvantages than those who are not willing and able to adapt. Agents have to work electronically, instead of only communicating electronically with insurance companies. This enables them to increase their commercial activities or to save on employee costs.

**MP2. A platform with application options provides flexibility for customers and suppliers [R,N]**

Meetingpoint operates one transaction platform that can be accessed via the Meetingpoint portal, the extranet of insurance companies, and the administrative software of insurance agents. Insurance companies can choose which access options they wish to offer to agents, and agents can choose which of these they actually want to use. This flexibility creates complexity for the balancing of interests by the intermediary because of the relationship between the application options and the interests.

**MP3. A portal requires working across suppliers for customers [R,L,T]**

The Meetingpoint portal has only a limited added value for insurance agents because it offers little support for working across suppliers. Such support makes it easier for agents to do business with multiple insurance companies. Working across suppliers is supported to a limited extent by uniformity. However, Meetingpoint does not support, for example, single authorisation for multiple insurance companies, a product- instead of company-oriented website layout, and a single application form for multiple insurance companies.
MP4. *A limited role is possible because of complementary services [R]*

Meetingpoint can confine itself to administrative services because the insurance companies and third parties offer complementary services. The insurance companies offer, for example, financial and commercial services to insurance agents. A third party provides agents with software they can use to compare insurances. This requires from the agents that they integrate these services themselves.

MP5. *Industry standards are both an opportunity for and a threat to the intermediary [L]*

Meetingpoint considers its strengths to be a leading position in the use of industry standards and a single implementation of industry standards for multiple insurance companies. However, industry standards are also a threat to Meetingpoint. They can reduce Meetingpoint’s added value in comparison with the extranets of insurance companies. Industry standards enable these extranets to provide single sign-in and to increase the uniformity for insurance agents. Moreover, Meetingpoint becomes less visible to agents who use the standard GIM coupling, with agents selecting insurance companies and products directly from the menu in their administrative software.

MP6. *Limiting transparency for customers and suppliers as hygiene factor [T]*

Transparency is handled by Meetingpoint more as a hygiene factor than a motivator for insurance agents and companies. Meetingpoint ensures that only the necessary administrative information is exchanged. It supports agents in applying for quotes from insurance companies but does not support the comparison of offers. Insurance companies cannot access end-customer information from agents through Meetingpoint. To safeguard this, Meetingpoint has to strictly separate databases for end-customer and policy information.

MP7. *Building on existing relationships between customers and suppliers [L,N]*

Meetingpoint builds on existing relationships between insurance agents and companies. It does not have to bring in agents itself; this is done by the insurance companies. In this way Meetingpoint can easily reach a larger number of agents. The introduction of Meetingpoint to agents is also done by insurance companies in conjunction with Meetingpoint. Insurance companies also encourage the use of Meetingpoint by agents through promotion and incentives.
MP8. Cooperation between suppliers is possible but difficult

Meetingpoint is intended as an industry-wide initiative. This requires the participation of (almost) all insurance companies but is hard to realise. The participating insurance companies report that they can cooperate well because they share a vision of the future of the agent channel and recognise the advantages of cooperation. Non-participating insurance companies state that they have strategic concerns because Meetingpoint creates dependencies and reduces opportunities for differentiation.
Chapter 7

The Voogd & Voogd case

Voogd & Voogd is an authorised broker that offers an electronic marketplace to insurance agents via the ‘Klik & Sluit’ service (Dutch for ‘click & close’). This chapter begins by introducing Voogd & Voogd and its business network, with a focus on the Klik & Sluit service. Because of the similarities between Voogd & Voogd and Meetingpoint with respect to the Dutch insurance industry and the agent channel, these will not be described again. Following the description of Voogd & Voogd and its business network, Voogd & Voogd’s exchange design choices and the actors’ interests are discussed. A comparison of the design and interests with the acceptance of Voogd & Voogd results in the Voogd & Voogd findings.

7.1 Voogd & Voogd and its business network

Voogd & Voogd (www.voogd.com) is an authorised broker in the agent channel of the Dutch insurance industry. It offers an electronic marketplace called ‘Klik & Sluit’ for non-life/general insurances (for example, car insurance) as part of their service to insurance agents. Via this electronic marketplace, agents who cooperate with Voogd & Voogd can compare insurance policies and apply for a policy from the different insurance companies for which Voogd & Voogd is authorised. Klik & Sluit is a new electronic service from an existing intermediary. The focus of this case study is on Voogd & Voogd in general and Klik & Sluit in particular, from the second half of 2004 to the first half of 2005.

7.1.1 The electronic business initiative

Voogd & Voogd is a family firm established in 1909, with a long tradition as an intermediary between insurance agents and companies for non-life/general insurances. Voogd & Voogd Verzekeringen has been a back-office firm offering administrative services to insurance agents and companies. It has always been leading in the application of ICT for
administrative processes, which has resulted, among other things, in the establishment of a sister firm, Voogd & Voogd Diensten, offering insurance software and ICT services.

As an administrative service provider, Voogd & Voogd is involved in quote calculation and insurance applications. As part of its service, Voogd & Voogd began offering agents an offline ICT programme for quote calculation, which led to the development of Klik & Sluit. Agents can use this electronic marketplace to compare and apply for insurance policies. The Klik & Sluit service is offered to agents in an online version via the Voogd & Voogd extranet (Figure 7-1) and in an offline version for the PC. Voogd & Voogd also provides Klik & Sluit web modules that agents can integrate into their own website for use by their customers.

7.1.2 The business network

In addition to Voogd & Voogd, the other actors in the vertical business network are end customers, insurance agents and insurance companies (Figure 7-2). Voogd & Voogd’s main exchanges are cooperation agreements with insurance agents and companies. Voogd & Voogd has authorised brokerage and agency relationships with insurance companies. In the case of the former, Voogd & Voogd takes care of activities relating to insurance polices and claims in the name of the insurance company. For the latter, it
acts as agent, with the original agent becoming a subagent. For Klik & Sluit, Voogd & Voogd makes use of the authorised brokerage relationships.

In addition to a cooperation agreement with Voogd & Voogd, agents can also have cooperation agreements with insurance companies. The end customer is the customer of the agent but has an insurance policy with the insurance company. As the authorised broker, Voogd & Voogd handles the interactions that would normally take place between the end customer and the insurance company. For example, Voogd & Voogd can collect the premiums from the end customer if the agent does not wish to.

Voogd & Voogd provides services to insurance agents and companies, and uses the services of insurance companies and information providers (Figure 7-3). Via Klik & Sluit, Voogd & Voogd provides services to agents for comparing and applying for insurance policies; agents can also provide these services to end customers. In addition to Klik & Sluit, Voogd & Voogd as an authorised broker also offers other services to insurance agents, for example, financial settlement. Insurance companies authorise Voogd & Voogd to act as broker for their insurance products. Voogd & Voogd takes care of activities relating to insurance policies and claims. It uses information providers to improve or check the information provided by agents.

The users of Klik & Sluit are agents and end customers. In the latter case, an agent offers the end customer the opportunity of self-service via Klik & Sluit web modules integrated into their website. The Klik & Sluit process begins with a user selecting a type of insurance (for example, car insurance) and filling out a form with customer and object information. The user then receives different offers for multiple insurance companies, based on actual
policy information including real quotes, conditions and clauses. After selecting an offer, the user can apply for the selected insurance directly. The user receives temporary coverage if there are no specific circumstances. Once the electronic service is concluded, the application is processed by Voogd & Voogd acceptors for a final check. The processing of electronic applications, which has assigned acceptors, takes priority over other applications and occurs on the same day.

All Voogd & Voogd’s non-life/general insurances can be compared electronically; to date, electronic application is up till now confined to car, motor and moped insurance. The whole process is as electronic and real-time as possible, with most checks for approval taking place immediately. However, the user can also use e-mail or paper. There is always an opportunity for the end customer to contact the agent, and the agent is always consulted by Voogd & Voogd in the process. The agent has full access to the end customer’s information, including calculations, and can decide whether the insurance is concluded or not.

Klik & Sluit is free for agents that have a cooperation agreement with Voogd & Voogd. As authorised broker, Voogd & Voogd receives both an authorised brokerage and agency commission from insurance companies. It keeps the authorised brokerage commission and pays the agency commission to the agent. As the agent, Voogd & Voogd only receives an agency commission. It retains part of the agency commission and pays the other part to the agent, which is less attractive financially for both parties. End customers pay insurance premiums to insurance companies via Voogd & Voogd. Agents can return part of their premium as a discount to end customers. This is included as an option in the Klik & Sluit modules for the agents’ websites.

7.1.3 The intermediary: Voogd & Voogd

Voogd & Voogd’s strategy is based on its independent position between insurance agents and companies. This position allows Voogd & Voogd to offer insurance products from different insurance companies and to provide services across multiple insurance companies. As an authorised broker, Voogd & Voogd is able to integrate activities, both between different steps in the business processes (vertically) and across insurance companies (horizontally). In addition to its independent position, Voogd & Voogd emphasises control of administrative processes and ICT use, which enable it to work efficiently and to offer a high service level.

Although Voogd & Voogd strives to increase its premium income, this increase should not come at the expense of claim results. Voogd & Voogd seeks to increase its premium income with as few agents as possible because having a high premium income per agent is most cost-efficient. According
to Voogd & Voogd, this is possible because offering insurance products from multiple insurance companies enables it to become the preferred supplier.

For Voogd & Voogd, the size of the firm is important for financing its ICT investments and for its competitiveness. The strategy is therefore strongly focused on growth. Voogd & Voogd have opted for autonomous growth because it considers takeovers too risky. This growth comes from increases in sales by current agents and cooperation with new agents. Voogd & Voogd feels that its service allows its agents to grow faster than other agents. Its firm and ICT are organised for growth. For example, wherever possible it works with automated processes and digital information (paperless office), internally with employees as well as externally with agents.

As an authorised broker, Voogd & Voogd takes care of activities relating to insurance policies and claims in the name of the insurance company. It offers and approves insurances, draws up and administers policies, collects premiums at end customers, and deals with claims. This requires Voogd & Voogd to include knowledge about insurance products, such as quote calculation and approval rules, in its business processes and ICT. Voogd & Voogd develops its own software for use by its employees and its agents. The most important ICT applications are ‘Klik & Sluit’, ‘Backoffice’ (the extranet for agents) and VIA (Voogd Insurance Application). VIA is Voogd & Voogd’s administrative back end, which was newly developed in the period from 2001 till 2004. VIA contains functionality for policy administration, financial administration, claim administration, agent administration, end-customer administration, and correspondence. It lays the foundation for the firm’s growth and for developing new electronic services, for example portfolio analysis. An important module is the quote calculation program, used for both Klik & Sluit and VIA, which contains all quotes, conditions, approval rules, texts for offers, etc.

Voogd & Voogd develops relationships with agents via account managers and supports them in running their business in general (for example, advising on operational processes) and in offering and administrating insurance products in particular (for example, tools for calculating quotes). Voogd & Voogd also develops relationships with insurance companies. It must negotiate with an insurance company to become an authorised broker. As part of an authorised brokerage relationship, Voogd & Voogd has to periodically report aggregated information on financial results and insurance risks. Only in exceptional situations do they interact about a specific case. Voogd & Voogd also handles the financial settlement with insurance agents and companies via current accounts.
7.1.4 The customers: insurance agents

Voogd & Voogd targets professional insurance agents, both larger firms and smaller firms without employees. It aims to be the preferred supplier for independent agents that focus on non-life insurances. The emphasis is on those insurances for which Voogd & Voogd can act as an authorised broker. However, Voogd & Voogd does not have an exclusive relationship with its agents.

Agents wishing to work with Voogd & Voogd require a cooperation agreement. For Voogd & Voogd, the quality of the agent in terms of claim results is more important than quantity in terms of premium income. Voogd & Voogd also requires of its agents a willingness to work electronically and a high level of automation. For example, every workplace should have a computer with an internet connection. Voogd & Voogd therefore checks an agent with respect to their business plan, office and portfolio quality, independence, and compliance with legal requirements.

As an authorised broker, Voogd & Voogd offers its agents other services than just Klik & Sluit. Agents can also use the Voogd & Voogd extranet to view and adjust policy information, view claim information, view policy conditions, portfolio analysis (insight into indicators such as performance, type of policies, and policy density), view current account, and extranet administration (for authorisation of the agent’s employees). In addition to the internet (web and e-mail) and EDI (for automatically updating the administrative software of agents), Voogd & Voogd supports interactions by phone, mail and fax.

7.1.5 The suppliers: insurance companies

Voogd & Voogd targets insurance companies that wish to authorise Voogd & Voogd. In general, this is only possible for non-life insurances. Moreover, not all insurance companies want to authorise another firm because they run an increased risk and then have the responsibility of checking that firm. In addition to the authorised brokerage relationship, Voogd & Voogd has an agency relationship with insurance companies to complement their product assortment.

Voogd & Voogd only cooperates with insurance companies that have an added value for their product assortment. Moreover, they only offer their agent products that are more attractive than those the agents are already offering. Important criteria for Voogd & Voogd are the size and the reputation of an insurance company, the attractiveness of the products (price and quality), and a specific demand for that company or product from agents.

Voogd & Voogd negotiates with an insurance company about authorisation. Once the cooperation agreement is signed, Voogd & Voogd
has to include the selected products in their offering and adapt its (automated) processes. This requires from Voogd & Voogd that they have the capacity available. As an authorised firm, Voogd & Voogd takes care of activities relating to insurance policies and claims. Interaction between Voogd & Voogd and the insurance company is normally limited to periodical reporting and settling finances. Occasionally the insurance company can perform an audit at Voogd & Voogd.

### 7.2 Exchange design, interests and acceptance

#### 7.2.1 Exchange design

This section will look at the exchange design choices of Voogd & Voogd in greater detail. *Table 7-1* provides an overview of the main design choices and a characterisation per theme.

*Role*
Voogd & Voogd targets the commercial and administrative functions of insurance agents. Via Klik & Sluit, Voogd & Voogd supports agents by offering an electronic marketplace to compare insurance policies and apply for policies via the agent’s employees and website. In addition, Voogd & Voogd offers agents support for other activities relating to insurances in particular (for example, settling claims) and running their business in general (for example, advising on operational processes). Klik & Sluit is self-service for the agents (or their customers), with them entering customer and object information manually. Voogd & Voogd supports them in saving information and coupling with information providers. Agents also get electronic information back from Voogd & Voogd for their administrative software.

Voogd & Voogd targets the administrative and claim-handling functions of insurance companies. It is authorised by the insurance companies and has a full back office, just like an insurance company. Agents (and end customers) do not need to interact with insurance companies directly. For the insurance companies, authorisation is a form of outsourcing, requiring from Voogd & Voogd that they include the selected products from the insurance companies in their business processes and ICT. Voogd & Voogd also takes care of the financial settlement between end customers, insurance agents and insurance companies.
### Theme: Role

- Targets sales and administration functions of agents via an electronic marketplace for agents (and end customers) and additional support for (insurance) business
- Targets administration, financial and claim handling functions of insurance companies with full back office
- Self-service for agents (and end customers), entering most of the data; insurance companies not involved in marketplace or back office

| Characterisation | Extensive role offering a complete service for agents without involving insurance companies |

### Theme: Linkage

- Cooperation agreement between Voogd & Voogd and agents; selection based on attractiveness and business and ICT capabilities
- Cooperation agreement between Voogd & Voogd and insurance companies; selection based on prominence and interesting products
- Limited use of standards and coupling with agents (except for EDI) and insurance companies (only periodically exchanging electronic files)

| Characterisation | Selective access for insurance agents and companies; uniformity for agents but limited use of standards and coupling for electronic marketplace |

### Theme: Transparency

- Explicitly support product comparison (of authorised insurance companies), especially prices, for agents (and end customers)
- Policy administration, claim handling and portfolio analysis for agent
- Voogd & Voogd has information about agents, end customers, and policies across insurance companies
- Periodically aggregated information on financial results and risks for insurance companies

| Characterisation | Product, price and process information for insurance agents; aggregated sales information for insurance companies |

### Theme: Novelty

- New business model for most agents (alternative to direct cooperation) with electronic working and standard ICT for insurance agents
- New business model for insurance companies (alternative to direct cooperation) with traditional arrangement and way of working (no ICT required) for insurance companies

| Characterisation | New business model and way of working for agents (but selected); new use of traditional arrangement (with no ICT required) for insurance companies |

### Linkage

Using Klik & Sluit requires insurance agents to have a cooperation agreement with Voogd & Voogd. Although open to agents, Voogd & Voogd is selective. Agents need to be attractive and to meet the business and ICT criteria. Voogd & Voogd offers uniformity to agents across multiple insurance companies but does not implement the new industry standards for administrative channel integration from the SIVI (see also the Meetingpoint case). For example, it does not employ the presentation standard for its web pages, nor a GIM coupling with the administrative software. It does, however, use a standardised EDI coupling with the administrative software of agents via ADN.
Voogd & Voogd is also selectively open to cooperation with insurance companies, requiring from them that they authorise Voogd & Voogd. It wishes to cooperate with the major insurance companies and with those that offer interesting products. Voogd and Voogd periodically exchanges electronic files with insurance companies. This takes place in accordance with the standards of the Netherlands’ authorised insurance broker association (Nederlandse Vereniging van Gevolmachtigde Assurantiebedrijven, NVGA).

**Transparency**

Insurance agents (and end customers) receive information about the product and prices from Voogd & Voogd. Voogd & Voogd explicitly supports the comparison of insurances, especially on price, but this is limited to those companies for which it is authorised. Agents also obtain information about policies, claim handling and financial settlement via the extranet. The extranet also supports agents in the commercial use of portfolio information.

Voogd & Voogd receives information about end customers and objects from agents. It has information on agents, end customers and insurance policies, which is more complete than that of insurance companies because Voogd & Voogd has information across insurance companies for non-life insurances.

Voogd & Voogd obtains product information from insurance companies for calculating quotes, accepting applications, drawing up policies, and handling claims. Insurance companies periodically receive information about financial results and insurance risks from Voogd & Voogd. This is aggregated information about Voogd & Voogd’s portfolio, not about specific agents, customers, policies or claims.

**Novelty**

Voogd is an existing intermediary in the agent channel with traditional relationships with insurance agents and companies. Other firms are also active as intermediaries via authorised brokerage relationships. However, the normal practice for insurance agents and companies is to work together directly, not through an intermediary.

For agents, cooperation with Voogd & Voogd implies another business model. They have one access point for multiple insurance companies and do not work with companies directly. Voogd & Voogd’s back-office processes are similar to those of insurance companies. For agents, working with Voogd & Voogd implies both adapting to the way it works and working electronically. For this reason, agents are selected who are willing and able to do so. Agents need standard ICT in the form of a computer with a web browser and a (fast) internet connection.
Insurance companies have been working with authorised brokers for a long time, and Klik & Sluit does not change this. However, what may be new for them is that intermediaries like Voogd & Voogd may start to occupy a more prominent position in the agent channel. Insurance companies are preserved from Voogd & Voogd’s electronic way of working because they are not involved in the electronic services. Insurance companies do not need ICT to offer their products to insurance agents via Klik & Sluit.

7.2.2 Interests

For agents, there are interests both with respect to working with Voogd & Voogd as an authorised broker and to using Klik & Sluit as an electronic marketplace. Agents who do business with Voogd & Voogd as the authorised broker only need to develop and manage one cooperative arrangement and to have one service provider for multiple insurance companies. Agents have the same way of working and service level for different insurance companies. Moreover, Voogd & Voogd can provide a higher service level than many insurance companies because operating a back office is their core business. However, these benefits may be partly cancelled out if agents still need to cooperate with insurance companies because Voogd & Voogd does not provide all the insurances that an agent wishes to offer its customers.

Klik & Sluit makes working with multiple insurance companies even easier and faster for agents through policy comparison and directly applying for policies. Moreover, further processing of electronic applications happens on the same day. In addition to Klik & Sluit, the other electronic services contribute to an easier and faster service. Electronic services also enable Voogd & Voogd to offer its agents innovative services like portfolio analysis.

The agents can pass on the benefits of working (electronically) with Voogd & Voogd and Klik & Sluit to their customers. Thanks to the support of Voogd & Voogd’s electronic services, they can better advise their customers and make their own customer service easier and faster. Voogd & Voogd also enables agents to offer electronic services to their customers, which may result in additional, online sales and employee cost savings because of self-service by end customers.

Working with Voogd & Voogd requires of agents that they adopt its (electronic) way of working, which may imply changing their business processes and ICT. This is not problematic for Voogd & Voogd because it selects agents on the basis of their motivation and abilities. Moreover, the way Voogd & Voogd works as an authorised broker does not differ from how insurance companies work.
Insurance companies may perceive Voogd & Voogd as a traditional authorised broker on the one hand and as a new business model on the other. In the former case, the decision to cooperate with Voogd & Voogd is mostly a cost-benefit analysis with an emphasis on premium income and claim results. An authorised brokerage relationship is also a form of outsourcing that is financially attractive if the commission paid to the broker is lower than the insurance company's administrative costs. This has been the case up until now for many insurance companies but may become less so if administrative chain integration is successful. A traditional, authorised brokerage relationship also means that insurance companies do not need to change the way they work for Voogd & Voogd and Klik & Sluit. Nor do insurance companies have to put any effort or costs into an electronic service for agents such as Klik & Sluit.

Insurance companies may also perceive Voogd & Voogd as a new business model. Through Voogd & Voogd, insurance companies only need to develop and maintain a single cooperative arrangement with Voogd & Voogd instead of many with agents. However, this also means that insurance companies do not own the customer relationship with the agent and that they have to deal with one larger, relatively more powerful party instead of many smaller ones. Klik & Sluit can also stimulate price competition between insurance companies because price comparison is made easier.

This raises the question as to what extent Voogd & Voogd is a complementary distribution channel. An insurance company can use Voogd & Voogd to reach (new) agents (and end customers) with whom they themselves do not cooperate. This could be because either the agent or the insurance company does not wish to cooperate directly. However, Voogd & Voogd and insurance companies may also compete for cooperation and a preferred position with (attractive) agents.

Voogd & Voogd’s own independent position as an authorised broker in the agent channel is enhanced by Klik & Sluit as an electronic marketplace for insurance agents. Moreover, Voogd & Voogd can improve its service and save on (future) employee costs because it receives better information (fewer errors) in an electronic format (no data entry). It is also important for Voogd & Voogd to have full control over the business processes and ICT as this enables it to offer high-quality service to agents as a competitive advantage over insurance companies. However, this is accompanied by the effort and cost of having to implement everything itself.

Voogd & Voogd needs growth in terms of premium income to cover the investment in processes and ICT. In addition, premium income is needed to acquire additional authorisations in order to increase the product offering. To establish this growth, Voogd & Voogd needs more agents and
must become these agents’ preferred supplier. This is possible by offering multiple insurance companies in combination with innovative (electronic) services such as Klik & Sluit and a high service level. However, Voogd & Voogd must compete for the favour of the insurance agents with other intermediaries, other service/tool providers (for example, comparison software) and insurance companies.

In conclusion, Voogd & Voogd, with Klik & Sluit, has mainly positive effects for insurance agents as an (electronic) service provider for working with multiple insurance companies and for insurance companies as a traditional authorised broker (Table 7-2). Klik & Sluit aims at added value for insurance agents and Voogd & Voogd’s electronic way of working. For agents, it facilitates working with multiple insurance companies. However, it requires that they adopt Voogd & Voogd’s (electronic) way of working; this is less problematic for selected agents with the motivation and abilities. The fact that they may still have to work with insurance companies directly may partially cancel out the positive effects.

For insurance companies, Voogd & Voogd can increase their premium income and reduce their policy administration and claim-handling costs. However, the cost advantage may become a disadvantage once
administrative channel integration is successful. Because Voogd & Voogd is a traditional, authorised brokerage relationship for insurance companies, there is no need to change the way they work and no effort or costs are required for them to offer insurance products via Klik & Sluit. There is a potential conflict of interests between Voogd & Voogd and insurance companies when it comes to competing for direct cooperation with attractive agents.

For Voogd & Voogd, Klik & Sluit enhances its own independent position and is in line with its electronic way of working. It forms the basis of further growth in terms of number of agents and policies. However, it is also a risk for Voogd & Voogd because of the amount of effort and cost involved in (automated) processes and ICT to operate as an authorised broker in general and to offer Klik & Sluit in particular. In addition, Voogd & Voogd’s dependence on insurance companies can make it vulnerable if competition for agents increases and if administrative channel integration is successful.

7.2.3 Acceptance

According to Voogd & Voogd, it has cooperation agreements with 700 insurance agents, including some of the larger insurance agents for whom it is the preferred supplier. The number of agents grew in 2004 by 70. With 8000 to 13,000 active insurance agents in the Netherlands, this amounts to 5% to 9%. Voogd & Voogd manages approximately a quarter of a million policies with a premium volume of 80 million euros a year, equivalent to the size of a small insurance company. The volume of authorised products is roughly 80% to 90% and is growing by about 20% a year.

Voogd & Voogd claims that all its agents use their extranet and Klik & Sluit to compare products. The use of electronic applications differs per product. For car insurances, which have been available the longest as an electronic application, about 90% of applications take place electronically. Voogd & Voogd estimates that 20% of these applications come from agents using the Klik & Sluit web modules. According to Voogd & Voogd’s own research, the turnover of agents using web modules grew by 27% over the period of one year.

Voogd & Voogd believes that product comparison attracts agents to the extranet, resulting in agents using the extranet for other activities as well, such as adjusting policies. Agents that use web modules sometimes operate a separate website with a different name because they want to offer products online at a discount. According to Voogd & Voogd, insurances agents are generally satisfied with the extranet and Klik & Sluit. Key reasons are ease of use and speed (same day processing). As improvements, agents would like to see more products from different insurance companies and access to Klik & Sluit from their own administrative software.
Our telephone survey of ten insurance agents who cooperate with Voogd & Voogd showed that nine out of ten users are satisfied with the extranet and Klik & Sluit (a rating of seven or higher). Users view the extranet and Klik & Sluit as suitable tools for administrative transactions. They find that it helps them to do their work better and is easy to use. They see advantages in working with Voogd & Voogd for both themselves and their customers.

Users are most satisfied with the ease of use (simple, clear) and speed of online calculation, comparison and application. They are particularly satisfied if this is followed by fast and efficient processing by Voogd & Voogd. Users are less satisfied with the fact that Klik & Sluit does not always work flawlessly and that the information is not always correct, which cancels out the advantages of working electronically. They would like to see an increase in the number of products that can be applied for electronically.

Users feel that Voogd & Voogd suits the way they work and that the way they handle information has not changed. They perceive few advantages or disadvantages of Voogd & Voogd’s extranet compared with those of other insurance companies. Most active users are positive with respect to ICT use and feel that software for comparing insurance products (quotes and conditions) is an important or effective support tool. Most of them also offer insurance products online via their own website or are planning to do so with the help of the Klik & Sluit web modules.

Agents mention different reasons for their cooperation with Voogd & Voogd in general, such as a single access for multiple insurance companies, working electronically, and administrative simplicity and performance (in particular speed). They perceive both advantages and disadvantages in cooperating with Voogd & Voogd compared with insurance companies directly. Agents are of the view that Voogd & Voogd’s product assortment is sufficient and representative of the total offering of personal non-live insurance. However, they would like a larger product assortment. Also the advantage of one cooperation and service provider is partly cancelled out by the fact that they have to cooperate directly with insurance companies for some products.

Voogd & Voogd cooperates with 30 insurance companies, 17 of whom they have an authorised brokerage relationship with. These companies include all the large, major Dutch non-life insurance companies. The total number of active insurance companies for common insurance agents and small-to-normal risks in the Netherlands can be estimated at 35 to 50, which means that Voogd & Voogd covers 35% to 50% with its authorisations.

Agents also perceive the number of insurance companies and products as being reasonable and representative. Voogd & Voogd and some agents, however, feel that this number could be higher. Voogd & Voogd says it has no problem acquiring additional authorisations provided there is sufficient
premium income to divide amongst the insurance companies. The relationships between Voogd & Voogd and insurance companies are long-term cooperations. In general, it is difficult to end an agency or authorised brokerage relationship. The latter is particularly difficult to end because this would require a complicated administrative and insurance-technical settlement.

Our interviews with insurance companies indicate that they believe Voogd & Voogd to be most suitable for agents with whom they do not wish to cooperate directly (for example, a low premium income for their company). Voogd & Voogd does not share this view, however. It states that it explicitly targets the attractive agents in terms of premium income and claim result and that it is succeeding in becoming the preferred supplier for some of the larger agents in the Netherlands.

To conclude, Voogd & Voogd as an authorised broker and Klik & Sluit as an electronic marketplace are well accepted by insurance agents. The number of Voogd & Voogd agents is limited in relation to the total market because this requires a cooperation agreement with Voogd & Voogd. However, Klik & Sluit use is high among Voogd & Voogd agents. They seem to feel that the Voogd & Voogd extranet and Klik & Sluit are suitable support tools and they seem satisfied with these tools. Acceptance among non-life insurance companies is good. With its 17 authorisations, Voogd & Voogd has sufficient market coverage and can offer all large, major companies.

7.3 Case study findings

Voogd & Voogd is an existing intermediary which, as an authorised broker, started an electronic marketplace in the agent channel of the Dutch insurance industry. Table 7-3 provides a brief overview of the Voogd & Voogd case in terms of exchange design, interests and acceptance. From the Voogd & Voogd case, we can learn about balancing interests by relating Voogd & Voogd’s exchange design choices to the interests of agents, Voogd & Voogd and insurance companies and comparing them with acceptance by agents and insurance companies. Firstly, we present the overall finding for Voogd & Voogd, discussing the balancing of interests for the case as a whole. Secondly, we present the specific findings that examine some of these balancing issues in greater depth. We add the exchange design themes (Role, Linkage, Transparency, Novelty) for the specific findings that relate directly to one or more themes.
**Overall finding for Voogd & Voogd**

Voogd & Voogd can create value for agents through its extensive role with product and price transparency and new services. The selection of agents prevents compatibility from becoming problematic. Voogd & Voogd leverages a traditional relationship with insurance companies. For insurance companies, the traditional role with low involvement and little coupling makes participation a cost-benefit decision. Voogd & Voogd can also serve its own interests (independent customer relationship) through its extensive role and innovative electronic services. However, a threat to Voogd & Voogd is its dependence on the authorised brokerage relationship and competition for agents with insurance companies.

**VVI. Extensive role provides the intermediary with many opportunities to create value for its customers through innovative services and a high service level [R,T,N]**

Thanks to its extensive role and independent position, Voogd & Voogd can offer agents innovative electronic services and a high service level (easier, faster). These services benefit from the fact that Voogd & Voogd can

---

<table>
<thead>
<tr>
<th>Topic</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exchange design</strong></td>
<td><strong>Role</strong></td>
</tr>
<tr>
<td></td>
<td>Extensive role offering a complete service for agents without involving insurance companies</td>
</tr>
<tr>
<td></td>
<td><strong>Linkage</strong></td>
</tr>
<tr>
<td></td>
<td>Selective access for insurance agents and companies; uniformity for agents but limited use of standards and coupling for electronic marketplace</td>
</tr>
<tr>
<td></td>
<td><strong>Transparency</strong></td>
</tr>
<tr>
<td></td>
<td>Product, price and process information for insurance agents; aggregated sales information for insurance companies</td>
</tr>
<tr>
<td></td>
<td><strong>Novelty</strong></td>
</tr>
<tr>
<td></td>
<td>New business model and way of working for agents (but selected); new use of traditional arrangement (with no ICT required) for insurance companies</td>
</tr>
<tr>
<td><strong>Interests</strong></td>
<td><strong>Customers</strong></td>
</tr>
<tr>
<td></td>
<td>Positive for agents working with multiple insurance companies (easier, faster) and their customers (advice, online); selection of agents willing and able to work electronically; less beneficial if direct cooperation with insurance companies is still needed</td>
</tr>
<tr>
<td></td>
<td><strong>Suppliers</strong></td>
</tr>
<tr>
<td></td>
<td>Positive for insurance companies for increasing premium income and reducing cost; but no agent relationship and cost advantage can disappear; potential competition for attractive agents</td>
</tr>
<tr>
<td></td>
<td><strong>Intermediary</strong></td>
</tr>
<tr>
<td></td>
<td>For Voogd &amp; Voogd, Klik &amp; Sluit enhances their own independent position and enables growth; a risk because of the high effort and cost; cooperation and competition with insurance companies</td>
</tr>
<tr>
<td><strong>Acceptance</strong></td>
<td><strong>Customers</strong></td>
</tr>
<tr>
<td></td>
<td>Well accepted by insurance agents: reasonable number of Voogd &amp; Voogd agents; high use of Klik &amp; Sluit by Voogd &amp; Voogd agents</td>
</tr>
<tr>
<td></td>
<td><strong>Suppliers</strong></td>
</tr>
<tr>
<td></td>
<td>Well accepted by insurance companies: sufficient market coverage and all larger insurance companies</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Table 7-3: Brief overview of the Voogd &amp; Voogd case</th>
<th></th>
</tr>
</thead>
</table>
provide them across multiple insurance companies. Voogd & Voogd’s
electronic marketplace includes and integrates commercial and
administrative activities. Voogd & Voogd also offers agents other new
electronic services via its extranet, for example, portfolio analysis.
Moreover, Voogd & Voogd supports agents in offering these services to
their customers via their own website and increasing their service level to
end customers (better, faster).

VV2. Supply chain integration can be a threat to the intermediary [R]

Voogd & Voogd’s opportunities as a back-office firm for insurance agents
and companies are a direct result of the inefficient administrative processes
in the agency channel. Voogd & Voogd could create value for both agents
(better performance) and insurance companies (lower costs).

The objective of administrative channel integration is to enhance the
efficiency of administrative processes in the agent channel, which may
threaten the added value of Voogd & Voogd as a back-office firm. It may
also mean that insurance companies become less willing to cooperate via an
authorised brokerage relationship.

However, administrative channel integration is directed at sharing
administrative information and not at processing and administration. In
addition, Voogd & Voogd is moving more towards commercial services for
agents via its electronic marketplace.

VV3. Preparatory investments in business processes and ICT by the intermediary [R]

Voogd & Voogd has the business processes and ICT in place for an
extensive role because it possesses the domain knowledge and has invested
in its business processes and ICT. It has arranged its business processes and
IT in such a way that it is able to offer innovative (electronic) services, its
quality of service is high, and its costs are kept under control. Nevertheless,
a prerequisite is sufficient growth so that it can also invest in the future.

VV4. The intermediary selects its customers [L,N]

Voogd & Voogd selects customers that are willing and able to work
electronically via an intermediary. This means Voogd & Voogd can offer
(innovative) services that match the extensive role it wishes to occupy and
that make maximum use of the opportunities that ICT offers.
VV5. The intermediary leverages a traditional arrangement with suppliers [R,L,T,N]

Voogd & Voogd has a traditional, authorised brokerage relationship with insurance companies. This means it is in control of the activities and does not have to integrate with insurance companies. Insurance companies do not have to invest any effort or cost into the electronic business initiative and are preserved from changes in the way they work and in their use of advanced ICT.

The drawback of an authorised brokerage relationship is that it is normally only used for non-life insurances and not all insurance companies wish to cooperate in this way because of the risks and costs involved. A material question is also the extent to which insurance companies continue to view Voogd & Voogd as a ‘normal’ authorised broker and as complementary to their own business.

VV6. Have customers share in the benefits for the intermediary

Voogd & Voogd not only uses the electronic services for agents to improve the efficiency of its own business processes but it also improves its services and service level for agents. For example, Voogd & Voogd enables agents to benefit from online self-service by end customers. Another example is that electronic applications in the front end are guaranteed same-day processing in the back end.

VV7. The intermediary cooperates and competes with suppliers

Voogd & Voogd cooperates with insurance companies on the one hand – it depends on them for insurance products and an authorised brokerage relationship – while competing with them on the other. Both Voogd & Voogd and insurance companies want to cooperate with the (most) attractive insurance agents. Moreover, Voogd & Voogd stimulates competition between insurance companies by making it easier for agents to work with multiple insurance companies and by supporting the comparison of insurance products.
Exchange design patterns

The exchange design patterns are based on trade-offs with respect to one or more exchange design themes relating to balancing the interests for one or more actors. The patterns are developed by means of cross-case analysis. Each pattern is presented as the combination of a design problem and solution. Initial theoretical support for the patterns is also presented, based on theories on exchange design.

8.1 Cross-case findings

This section presents a cross-case overview and describes the identification of the exchange design patterns. The next section elaborates the exchange design patterns and the final section compares these patterns with theories on exchange design. Table 8-1 provides an overview of the four case studies. As discussed in the case selection (section 2.3), the case studies show a broad range of exchange design choices. The interests and acceptance are also quite different for all cases. Thus it should be possible to identify interesting exchange design patterns based on the findings from the case studies.

An exchange design pattern describes an exchange design problem and solution, as outlined in the research contribution (section 1.4). The patterns are based on trade-offs with respect to one or more themes from the exchange design model relating to balancing the interests for one or more actors. The patterns were identified by clustering the specific findings of the within-case analysis. Table 8-2 describes the result of the clustering process, with a final list of six patterns and their relationship to the findings. Table 8-3 in the following section provides an overview of the exchange design patterns. Next we will exemplify the identification of the patterns.

---

* The table contains the numbers of the case findings (with prefixes TP, SQ, MP and VV) and the exchange design patterns (P1-P6).
<table>
<thead>
<tr>
<th>Exchange design</th>
<th>Interests</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tapestria</strong></td>
<td>Benefits for designers less important than expected (service, price), problems larger than expected (change way of working); for producers, it is a new sales channel, relatively easy way of doing international trade via electronic business, expect sales volume Tapestria’s short-term, operational interests (order volume, cash flow) vs. long-term interests (strategic position, brand, expand scope)</td>
<td>Large number of designers became member but website use and ordering of fabrics was too low; producers participated and offered fabrics, large producers used drop-ship logistics; Tapestria ceased operations in 2004</td>
</tr>
<tr>
<td><strong>SeaQuipment</strong></td>
<td>Positive for maritime buyers (find new maritime firms and products more easily) but benefits for purchasers are also limited; mostly positive for maritime sellers (reach (new) customers) but requires some effort and cost and results unclear; for VNOVL, practicable solution for using electronic business to advance maritime industry</td>
<td>SeaQuipment is used for searching firm and product information and use is growing; purchasers that are aware of SeaQuipment are moderately positive but are currently not the main buy-side users; salespeople who are aware of SeaQuipment are moderately positive and see it as accepted marketing &amp; sales tool</td>
</tr>
<tr>
<td><strong>Meetingpoint</strong></td>
<td>Net effect for insurance agents can be positive (easier and faster service) but they have to contribute, also depends upon how they deploy Meetingpoint (work-electronically); electronic transaction services in general are positive for insurance companies (improve service, save costs), participation in Meetingpoint depends upon strategic (dependence, competition) and/or practical issues (cheaper, faster); Meetingpoint has to find the common interests of participating insurance companies, limited interests as independent party (industry-wide platform)</td>
<td>Moderately accepted by insurance agents; number of agents that joined is high but fewer actually use it; portal use is limited; limited acceptance by insurance companies; limited number of participants and lacking some of the key firms</td>
</tr>
<tr>
<td><strong>Voogd &amp; Voogd</strong></td>
<td>Positive for agents working with multiple insurance companies (easier, faster) and their customers (advice, online), selection of agents willing and able to work electronically, less beneficial if direct cooperation with insurance companies is still needed; positive for insurance companies for increasing premium income and reducing cost but no agent relationship and cost advantage can disappear, potential competition for attractive agents; for Voogd &amp; Voogd, Klik &amp; Sluit enhances own independent position and enables growth, a risk because of the high effort and cost, cooperation and competition with insurance companies</td>
<td>Well accepted by insurance agents; reasonable number of Voogd &amp; Voogd agents; high use of Klik &amp; Sluit by Voogd &amp; Voogd agents; well accepted by insurance companies; sufficient market coverage and all larger insurance companies</td>
</tr>
</tbody>
</table>

**Table 8-1 Cross-case overview**
As an example we discuss the identification of the role size pattern (P1). This pattern supports designers in selecting either an extensive role with a larger potential for value creation or a limited role with lower implementation effort and cost. It follows on directly from the contrast between Tapestria and Voogd & Voogd’s extensive role and SeaQuipment’s limited role. Voogd & Voogd in particular make us aware of the many opportunities for value creation of an extensive role (VV1), while Tapestria points towards the risks of such a role with respect to implementation effort and cost (TP3). While SeaQuipment shows that a limited role can also be suitable, it reveals the danger of becoming too marginal (SQ1). After identifying the pattern using these findings, we checked the other findings for their relevance to the pattern. This revealed, for example, the possibilities of reducing implementation effort and cost for an extensive role through outsourcing (TP4) and the need for additional services in the case of a limited role (MP4).

An example of the combination of findings relating to two themes is the customer service innovation pattern (P6). The Tapestria case taught us that opting for so many new or traditional service elements results in a trade-off between relative advantage and compatibility (TP7). This was confirmed by the Meetingpoint case, which also showed the importance of customers being willing and able to use an electronic service (MP1). The Voogd & Voogd case added to this pattern the possibility of selecting innovative customers who are already willing and able to use such services (VV4). For each pattern we reviewed all exchange design choices of all the cases to check whether there were choices relevant to the pattern that were not included in the specific findings. For example, for the working-across-suppliers pattern (P2), the Tapestria case suggests that predefined product descriptions create uniformity for customers but make it more difficult for suppliers to differentiate themselves.

The patterns provide insight into trade-offs with respect to one or more themes from the exchange design model. In particular, P1, P2 and P3 relate to the ‘role’ theme, P2, P3 and P6 to the ‘linkage’ theme, P4 and P5 to the ‘transparency’ theme, and P3 and P6 to the ‘novelty’ theme. The cross-case analysis ended here because these six patterns show sufficient coverage of the exchange design themes and relate to most case findings. This does not mean that the final list is the only possible list, nor that it is a complete list of exchange design patterns that can be identified from the case material. The case findings not covered by the patterns (TP1, MP8, VV6 and VV7) relate more to the balancing of interests and acceptance in general than to specific design choices.
<table>
<thead>
<tr>
<th>Within-case findings</th>
<th>Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P1: Role size of intermediary</td>
</tr>
<tr>
<td>TP1. Different kinds of (electronic) services for customers and suppliers [R,N]</td>
<td>X</td>
</tr>
<tr>
<td>TP2. Complete, advanced service (to customers), including logistics [R,N]</td>
<td>X</td>
</tr>
<tr>
<td>TP3. Managed marketplace and logistics require effort and cost [R]</td>
<td>X</td>
</tr>
<tr>
<td>TP4. Outsourcing can make managed marketplace and logistics feasible [R]</td>
<td>X</td>
</tr>
<tr>
<td>TP5. Standardisation prevents Tapestria becoming too large and complex [L]</td>
<td>X</td>
</tr>
<tr>
<td>TP6. Tapestria creates non-transparency about customers and suppliers [T]</td>
<td>X</td>
</tr>
<tr>
<td>TP7. Combining new and traditional elements [N]</td>
<td>X</td>
</tr>
<tr>
<td>SQ1. Limited role, transparency, and novelty suitable but little value [R,T,N]</td>
<td>X</td>
</tr>
<tr>
<td>SQ2. Specialised information provider, no move to transaction model [R,T,N]</td>
<td>X</td>
</tr>
<tr>
<td>SQ3. Openness benefits customers, harms intermediary and suppliers [L,T]</td>
<td>X</td>
</tr>
<tr>
<td>SQ4. A product structure matters and can add value [R,T]</td>
<td>X</td>
</tr>
<tr>
<td>SQ5. Selection of sellers has to balance quantity and quality [L]</td>
<td>X</td>
</tr>
<tr>
<td>MP1. Customers need motivation and ability to optimally benefit [R,N]</td>
<td>X</td>
</tr>
<tr>
<td>MP2. Platform with options offers customers and suppliers flexibility [R,N]</td>
<td>X</td>
</tr>
<tr>
<td>MP4. Limited role is possible because of complementary services [R]</td>
<td>X</td>
</tr>
<tr>
<td>MP5. Industry standards both opportunity and threat for intermediary [L]</td>
<td>X</td>
</tr>
<tr>
<td>MP6. Limited transparency for customers and suppliers as hygiene factor [T]</td>
<td>X</td>
</tr>
<tr>
<td>MP7. Building on existing customer-supplier relationships [L,N]</td>
<td>X</td>
</tr>
<tr>
<td>MP8. Cooperation between suppliers possible but difficult</td>
<td></td>
</tr>
<tr>
<td>VV1. Extensive role provides opportunities to add value for customers [R,T,N]</td>
<td>X</td>
</tr>
<tr>
<td>VV2. Supply chain integration can be a threat to the intermediary [R]</td>
<td>X</td>
</tr>
<tr>
<td>VV3. Preparatory investment of intermediary in processes and ICT [R]</td>
<td>X</td>
</tr>
<tr>
<td>VV4. Selection of customers by intermediary [L,N]</td>
<td>X</td>
</tr>
<tr>
<td>VV5. Intermediary leverages traditional arrangement with suppliers [R,L,T,N]</td>
<td>X</td>
</tr>
<tr>
<td>VV6. Have customers share in the benefits for the intermediary</td>
<td></td>
</tr>
<tr>
<td>VV7. Intermediary cooperates and competes with suppliers</td>
<td></td>
</tr>
</tbody>
</table>
8.2 Exchange design patterns

This section will elaborate on the identified exchange design patterns as follows: context, problem, solution and consequences (see also section 1.4). The exchange design patterns are structured as the intermediary’s exchange design options with trade-offs for one or more actors. Table 8-3 provides an overview of the patterns and presents the relationship to the design themes, the within-case findings, and between the patterns themselves. Next, each pattern will be discussed individually in terms of the generalised problem, solution and consequences in combination with the case evidence. The following presents an initial theoretical support for the patterns based on the theories of exchange design.

Because the context is similar for each pattern, we will present a brief description of the context here instead of repeating it for every pattern. The context is an intermediary introducing an electronic service in a business network with customer and supplier acceptance of the electronic service as its main concern. An exchange design that balances the interests of customers, intermediary and suppliers can contribute to acceptance by customers and suppliers. Exchange design involves design choices relating to the role, linkage, transparency and novelty of the intermediary in the business network. A requirement is that there is an opportunity for an intermediary in the business network. The focus is upon intermediaries that are independent actors with many-to-many, business-to-business exchange directed at the primary activities of customers and suppliers. There also has to be a sufficient level of trust in the business network, and acceptance by buyers and sellers should be voluntary.

<table>
<thead>
<tr>
<th>Exchange design option</th>
<th>Interests trade-off</th>
<th>Design themes</th>
<th>Within-case findings</th>
<th>Related patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1. Role size of intermediary:</td>
<td>Value-creation potential vs.</td>
<td>R</td>
<td>TP2, TP3, TP4, SQ1, SQ2, MP4, W1, W3, VV5</td>
<td>P2, P3, P6</td>
</tr>
<tr>
<td>extensive or limited</td>
<td>implementation effort &amp; costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2. Working across suppliers:</td>
<td>Customer value vs. supplier/customer relation</td>
<td>L</td>
<td>TP2, SQ1, SQ4, MP2, MP3, MP5, W1</td>
<td>P1, P2, P3, P4, P6</td>
</tr>
<tr>
<td>much or little</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3. Supply chain structure:</td>
<td>Supplier involvement vs. integration</td>
<td>L, N</td>
<td>TP2, TP4, TP5, MP5, VV1</td>
<td>P1, P2, P3, P4, P5</td>
</tr>
<tr>
<td>centralised or distributed</td>
<td>requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P4. Supply transparency:</td>
<td>Customer value vs. intermediary/supplier value</td>
<td>L, N</td>
<td>TP2, TP4, TP5, MP5, VV1</td>
<td>P1, P2, P3, P4, P5</td>
</tr>
<tr>
<td>high or low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P5. Demand transparency:</td>
<td>Supplier value vs. intermediary/customer value</td>
<td>L, N</td>
<td>TP2, TP4, MP5, W5</td>
<td>P1, P2, P3, P4, P5</td>
</tr>
<tr>
<td>high or low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P6. Customer service innovation:</td>
<td>Customer advantage vs. customer compatibility</td>
<td>R, N</td>
<td>TP7, SQ1, SQ5, MP1, MP2, MP7, W1, VV1</td>
<td>P1, P2, P4</td>
</tr>
<tr>
<td>new or traditional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.2.1 **Pattern 1: role size of intermediary**

An intermediary can choose between an extensive role with greater opportunities to add value for customers and/or suppliers or a limited role with less implementation effort and cost for the intermediary.

The role size pattern relates to an exchange design choice with respect to the role theme. This pattern was identified based upon the specific findings of the within-case analysis presented in Table 8-4. To gather additional evidence all exchange design choices of all the cases were reviewed after the identification. Most empirical evidence is included in the pattern description below.

<table>
<thead>
<tr>
<th>Role Size Pattern</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP2. Complete, advanced service (to customers), including logistics</td>
<td>X</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>TP3. Managed marketplace and logistics require effort and cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP4. Outsourcing can make managed marketplace and logistics feasible</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ1. Limited role, transparency, and novelty suitable but little value</td>
<td>X</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>SQ2. Specialised information provider, no move to transaction model</td>
<td>X</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>MP4. Limited role is possible because of complementary services</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VV1. Extensive role provides opportunities to add value for customers</td>
<td>X</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>VV3. Preparatory investment of intermediary in processes and ICT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VV5. Intermediary leverages traditional arrangement with suppliers</td>
<td>X</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Both Tapestria and Voogd & Voogd have an extensive role that offers them large potential for value creation. However, they also face high implementation effort and cost. SeaQuipment has a limited role with relatively low implementation effort and cost; the risk it faces is being too marginal. Meetingpoint focuses on an administrative role, leaving other support to the insurance companies and other service providers.

An intermediary can select an extensive role with a broad functional scope and activity focus or a limited role with a small functional scope and activity focus. This role choice involves a trade-off between opportunities for value creation by the intermediary and the implementation effort and cost of the intermediary (Figure 8-1). An extensive role means greater opportunities for creating value for customers and/or suppliers by the intermediary but also more implementation effort and cost for the intermediary. A limited role means fewer possibilities for creating value for customers and/or suppliers but also less implementation effort and cost for the intermediary.
If an intermediary wishes to have many opportunities to add value for customers and/or suppliers, it should opt for an extensive role. Such a role gives the intermediary more value activities and the intermediary can integrate activities to create value. An extensive role enables the intermediary to offer a complete service to customers (one-stop shopping). For example, Voogd & Voogd makes it easy for customers to compare and order products directly, while SeaQuipment can only support customers in finding suppliers and products. However, customers and/or suppliers do not always need an intermediary with an extensive role. SeaQuipment’s customers and suppliers were not interested in transaction support.

An intermediary should choose a limited role if it wants to restrict its own implementation effort and cost. For example, SeaQuipment’s web catalogue required far fewer capabilities and resources than Voogd & Voogd’s electronic marketplace. A limited role requires additional services to be available from service providers and/or suppliers. This also means that customers themselves have to integrate the services of the intermediary and the other actors. For example, Meetingpoint’s customers can use a separate tool from a software company to compare insurance policies and the insurance companies’ extranet for financial information.

An intermediary may go beyond this trade-off by looking for opportunities for creating value with limited implementation effort and cost. This can be done by adopting an extensive role but outsourcing as much as possible to third parties or suppliers (see also the ‘supply chain structure’ pattern). Tapestria countered some of their costs and risks by means of a partnership with a warehousing firm and cooperation with suppliers for logistics. Another option is to adopt a limited but specialised role that offers a unique opportunity for value creation. For example, SeaQuipment’s customers and suppliers were interested in deepening the specialised role as an information provider for maritime products and suppliers.

The consequences of too little value creation is that acceptance may be low because customers and/or suppliers are not motivated to use the service and/or put in the effort and cost to use it. Moreover, a low value-creation
potential can have implications for the intermediary with respect to occupying a prominent position in the business network and competition with other intermediaries and direct business between customers and suppliers. For example, SeaQuipment runs the risk of being too marginal and faces competition from generic search engines like Google.

The consequences of too much implementation effort and cost for the intermediary are the substantial capabilities and resources required. For the intermediary’s financial position, it can mean that the intermediary becomes very dependent on the rapid generation of revenue. Tapestria shows that this can be risky for a new intermediary without a customer base. Voogd & Voogd benefited from their traditional position as intermediary.

If an intermediary opts for an extensive role, the scope of capabilities and resources required can also increase substantially. For example, if the intermediary is involved in exchanging physical products, it must also take account of warehousing and logistics. Tapestria had to arrange warehousing for rolls of fabrics and samples and logistics for transporting pieces of fabric to customers.

8.2.2 Pattern 2: working across suppliers for customers

An intermediary can choose between much working across suppliers for customers with greater opportunities to add value for customers or much working across suppliers for customers with greater opportunities for suppliers to establish and maintain relationships with customers.

The working across suppliers for customers pattern relates to an exchange design choice with respect to the role and linkage themes. This pattern was identified based upon the specific findings of the within-case analysis presented in Table 8-5. To gather additional evidence all exchange design choices of all the cases were reviewed after the identification. Most empirical evidence is included in the pattern description below.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Description</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP2</td>
<td>Complete, advanced service (to customers), including logistics [R,N]</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ1</td>
<td>Limited role, transparency, and novelty suitable but little value [R,T,N]</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ4</td>
<td>A product structure matters and can add value [R,T]</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MP2</td>
<td>Platform with options offers customers and suppliers flexibility [R,N]</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MP3</td>
<td>Portal requires working across suppliers for customers [R,L,T]</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP5</td>
<td>Industry standards both opportunity and threat for intermediary [L]</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>VV1</td>
<td>Extensive role provides opportunities to add value for customers [R,T,N]</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Meetingpoint and Voogd & Voogd both enable customers to apply electronically for insurance policies from different suppliers. Voogd & Voogd’s customers, however, unlike those of Meetingpoint, require only one agency agreement, can apply for different offers on one form, and receive the same way of working and service level for every supplier. Tapestria was very similar to Voogd & Voogd in this respect; it had ‘one face to the customer’ and took care of all interaction with customers, electronically and physically. Tapestria went further than Voogd & Voogd in the sense that customers did not even know whether they were ordering from different suppliers because everything was branded ‘Tapestria.’ For suppliers, this means that they can only differentiate themselves through their products. SeaQuipment cannot support cross working because of its limited role, with working across suppliers being less relevant. SeaQuipment’s customers are looking for direct contact with a supplier and SeaQuipment supports them by making it easier to find new suppliers or products.

An intermediary can offer customers much or little cross-supplier functionality and uniformity in supporting them to work with multiple suppliers. This choice involves a trade-off between value creation by the intermediary for customers and opportunities for suppliers to establish and maintain relationships with customers via the intermediary (Figure 8-2). Much cross-functionality and uniformity means greater opportunities for value creation by the intermediary for customers but weak supplier relationships with customers via the intermediary. Little cross-functionality and uniformity means fewer possibilities for value creation by the intermediary for customers but stronger customer-supplier relationships with customers via the intermediary.

An intermediary should offer as much cross-supplier functionality and uniformity as possible where acceptance by customers is the main concern. Tapestria and Voogd & Voogd make it easier for customers to work with more suppliers, compare different products and/or suppliers, and switch between suppliers. Voogd & Voogd offers customers one form for obtaining
quotes from multiple insurance companies, while Meetingpoint’s customers have to submit a separate form for each individual company. For Meetingpoint’s customers, there is little advantage in working via the Meetingpoint portal compared to using the extranet of Meetingpoint suppliers.

If acceptance by suppliers is the primary concern, an intermediary should offer less cross-supplier functionality. Less cross-functionality makes it easier for suppliers to establish and maintain relationships with customers via the intermediary. Suppliers have more opportunities to differentiate themselves from other suppliers and create a vendor lock-in. Through Meetingpoint, customers select a supplier first and then a product, while through Voogd & Voogd they begin by selecting a product and obtain an overview of suppliers later. Meetingpoint’s suppliers determine the extent to which electronic processing of a quote or application occurs, while for Voogd & Voogd this is the same for each product. Thus Meetingpoint’s suppliers can still differentiate themselves to some extent via their administrative service, while those of Voogd & Voogd cannot. The product descriptions at SeaQuipment are free text and are the responsibility of the suppliers, while those of Tapestria are predefined and taken care of by Tapestria in conjunction with the supplier. SeaQuipment’s suppliers can differentiate themselves through their product descriptions, while the suppliers of Tapestria cannot.

An intermediary can go beyond this trade-off by combining cross-functionality and uniformity with opportunities for differentiation and vendor lock-in. To do so, the intermediary must identify the competitive and non-competitive elements of its electronic service. It can create customer value and facilitate customer-supplier relationships by offering as much cross-functionality and uniformity for the non-competitive elements and as little cross-functionality and uniformity for the competitive elements. This is the case with Meetingpoint, which creates uniformity for administrative forms without product harmonisation. Meetingpoint also offers the same services for all suppliers but leaves the selection of products and functions and the administrative processing to the suppliers. Another strategy is to make use of industry standardisation, as Meetingpoint did. Industry standards offer the intermediary a chance to introduce uniformity without harming the interests of suppliers too much because they have agreed to the standards. The intermediary may be an early adopter and promoter. It can reinforce industry standardisation because it performs a single implementation for multiple suppliers.

Working across suppliers and uniformity makes an intermediary attractive for customers who want to work with multiple suppliers. This can be particularly important for strengthening an intermediary’s position in the
business network and competing with direct business between customers and suppliers. If the intermediary is more a service provider for suppliers, the choice of less cross-working makes it more attractive to suppliers. In this case, the intermediary can serve the suppliers’ customers and obtain its revenue from suppliers.

While going beyond the trade-off is possible by combining cross-working with opportunities for supplier differentiation and lock-in or through industry standardisation, these strategies are not without risk. Such a combined strategy runs the risk of becoming stuck in the middle. For customers it may offer too little cross-working and uniformity, while for suppliers it may offer too few possibilities for differentiation and vendor lock-in. The standardisation strategy may be beneficial for the intermediary in the short term but may harm the intermediary in the long term. Industry standards are also a threat for the intermediary because once they have been widely adopted by suppliers, they limit the intermediary’s opportunities for creating customer value versus direct business between customers and suppliers.

### 8.2.3 Pattern 3: supply chain structure

An intermediary can choose between a centralised supply chain with lower involvement and integration for intermediary and suppliers or a distributed supply chain with higher involvement and integration for intermediary and suppliers.

The supply chain structure pattern relates to an exchange design choice with respect to the role, linkage and novelty themes. This pattern was identified based upon the specific findings of the within-case analysis presented in Table 8-6. To gather additional evidence all exchange design choices of all the cases were reviewed after the identification. Most empirical evidence is included in the pattern description below.

<table>
<thead>
<tr>
<th>Supply chain structure pattern and within-case findings with themes</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP2. Complete, advanced service (to customers), including logistics</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TP4. Outsourcing can make managed marketplace and logistics feasible</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TP5. Standardisation prevents Tapestria becoming too large and complex</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MF5. Industry standards both opportunity and threat for intermediary</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>VV2. Supply chain integration can be a threat to the intermediary</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>VV5. Intermediary leverages traditional arrangement with suppliers</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Customers can obtain quotes and apply for insurance policies via Meetingpoint and Voogd & Voogd. Meetingpoint has its suppliers take care of the processing, which requires Meetingpoint and suppliers to integrate
their business processes and ICT, whereas Voogd & Voogd takes care of the processing itself. Voogd & Voogd cooperates with its suppliers by means of an authorised brokerage arrangement requiring little integration of business processes and ICT. Tapestria handled orders for pieces of fabrics in two different ways: it took care of all activities in the on-consignment scenario, while suppliers were involved in the drop-ship scenario. For the latter scenario, Tapestria had to integrate its own order handling with that of suppliers and communicate with suppliers on current inventory levels at suppliers.

An intermediary can choose either a centralised or a distributed supply chain, which involves a trade-off between the involvement of suppliers and business integration (Figure 8-3). A centralised structure means low supplier involvement and low integration of business processes and ICT between intermediary and suppliers. A distributed structure means high supplier involvement and high integration of business processes between intermediary and suppliers.

An intermediary should opt for a centralised structure if it wishes to have full control over every activity within its functional scope and activity focus. Tapestria (on-consignment scenario) and Voogd & Voogd perform all activities relating to an order themselves. Voogd & Voogd is able to give quotes for insurance policies and approve applications itself. Tapestria could guarantee its customers a high level of service because it implemented its own warehouse. In addition, an intermediary does not have to integrate its processes and ICT with suppliers. However, it also has to bear all the effort and cost of these activities. Tapestria had its own warehouse and Voogd & Voogd its own back office. With a centralised structure, suppliers are relatively unaffected by the intermediary because they are not involved in these activities and do not have to integrate with the intermediary. Voogd & Voogd could leverage its existing, traditional authorised brokerage relationship with suppliers to move toward an electronic marketplace without any change in their cooperation with suppliers.
An intermediary should choose a distributed structure if it cannot bear the operational effort and cost of doing it itself or if it wishes to leverage the capabilities and resources of its suppliers. A distributed structure is also required if suppliers wish to have control over some of the activities or resources. Meetingpoint’s suppliers have control over giving quotes for insurance policies and approving applications, which requires integrating the intermediary’s business processes and ICT systems with those of suppliers. This increases integration effort and cost, particularly for an intermediary with many suppliers. It also means suppliers have to be willing and able to perform those activities and to integrate them with the intermediary. The suppliers have to put in operational and integration effort and costs, which may alter the way they work. Tapestria’s drop-ship suppliers had to communicate inventory levels daily to Tapestria and had to be able to handle orders for pieces as opposed to rolls of fabric.

One way to go beyond the involvement and integration trade-off is to follow a hybrid strategy. The intermediary can use a centralised structure for some suppliers and a distributed one for others. In addition to its authorised brokerage arrangements (centralised) with some insurance companies, Voogd & Voogd has agency arrangements (distributed) with others. Tapestria used drop-ship logistics (distributed) for its larger suppliers and on-consignment logistics (centralised) for smaller suppliers. However, while Voogd & Voogd can only provide products from its authorised brokerage arrangements on its marketplace, Tapestria could provide products from both logistics scenarios.

Another strategy is to lower the requirements for coordination and communication between intermediary and suppliers. SeaQuipment has a simple integration with its suppliers via a web form, in which suppliers enter information manually, and a deeplink to product information on the supplier website. Tapestria received real-time information on inventory levels from its own warehouse but only once a day from suppliers. While lowering the integration effort and cost with suppliers, it also meant that Tapestria had less accurate inventory information available, which could harm its service to customers. An alternative for involving suppliers is cooperating with a third party (see also outsourcing in the ‘role size’ pattern). In this way, the intermediary has to integrate with only one third party instead of many suppliers. For its on-consignment logistics, Tapestria used a warehouse partner. Tapestria received real-time inventory information from the warehouse via an EDI coupling.

The intermediary can also standardise cooperation with suppliers. For example, Meetingpoint and Tapestria (drop-ship scenario) work with all their suppliers in the same way, preventing their own organisation from becoming too large and complex. For standardisation, the intermediary can use industry standards, which can substantially lower integration effort and
cost for the intermediary and suppliers, especially if the intermediary has many suppliers and suppliers need to integrate with (many) other actors than one particular intermediary.

With a centralised structure, the intermediary should be aware of an increase in role size (see also the ‘role size’ pattern). Moreover, suppliers may not wish to cooperate in a centralised manner. Tapestria’s larger fabric producers did not want to place their fabrics rolls on consignment and Voogd & Voogd’s insurance companies may become less willing to cooperate via an authorised brokerage relationship because of the risks and cost considerations.

With a distributed structure, the intermediary is dependent upon suppliers. The intermediary and suppliers need to agree on the details of their cooperation arrangement and the supplier service level. The intermediary may also want to select suppliers according to their capabilities and resources and to check suppliers regularly in order to guarantee the quality of customer service. A distributed structure may also affect customers negatively because responsibilities are less clear and the kind of service and service level may differ for each supplier. Tapestria’s interior designers get less accurate available-to-promise functionality for drop-ship logistics. Meetingpoint’s agents receive different products and functions per insurance company.

The intermediary and suppliers should also consider the effects of a centralised or distributed structure on their own economies of scale and scope. They may reconsider the choice of a centralised or distributed structure if their business changes. For insurance companies, administrative channel integration can make their own administrative processing much more cost efficient than paying a brokerage commission to Voogd & Voogd. For this reason, insurance companies may want to change authorised brokerage agreements into agency agreements. This would make a centralised structure impossible for Voogd & Voogd.

8.2.4 Pattern 4: supply transparency for customers

An intermediary can choose between much transparency about suppliers and the supply of products with greater opportunities to create value for customers or little transparency about suppliers and the supply of products with greater opportunities to capture value for intermediary and/or suppliers.

The supply transparency for customers pattern relates to an exchange design choice with respect to the transparency theme. This pattern was identified based upon the specific findings of the within-case analysis presented in Table 8-7. To gather additional evidence all exchange design
choices of all the cases were reviewed after the identification. Most empirical evidence is included in the pattern description below.

<table>
<thead>
<tr>
<th>Pattern problem</th>
<th>Introduction by case examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 8-7: Supply transparency for customers pattern and with-in case findings with themes</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pattern problem</th>
<th>Introduction by case examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP6. Tapestria creates non-transparency about customers and suppliers</td>
<td>X</td>
</tr>
<tr>
<td>SQ1. Limited role, transparency, and novelty suitable but little value</td>
<td>x X x</td>
</tr>
<tr>
<td>SQ2. Specialised information provider, no move to transaction model</td>
<td>x X x</td>
</tr>
<tr>
<td>SQ4. A product structure matters and can add value</td>
<td>x X</td>
</tr>
<tr>
<td>MP3. Portal requires working across suppliers for customers</td>
<td>x X x</td>
</tr>
<tr>
<td>VV1. Extensive role provides opportunities to add value for customers</td>
<td>x X x</td>
</tr>
</tbody>
</table>

Tapestria and Voogd & Voogd increase supply transparency via an electronic marketplace with product and price information. Tapestria increased transparency for customers about products by means of uniform product descriptions, product visualisation and providing samples. Voogd & Voogd's marketplace makes it easier for customers to request and compare offers from multiple insurance companies. However, whereas Voogd & Voogd's customers know who supplies the products, those of Tapestria do not. The marketplaces of Voogd & Voogd and Tapestria can place pressure on product prices for suppliers. Meetingpoint provides the same product and price information as Voogd & Voogd but does not offer marketplace functionality. SeaQuipment increases supply transparency via their product-centred catalogue and product structure. While SeaQuipment provides information about suppliers and products, it does not provide information about prices. In this way, it leaves the negotiation about prices fully to customers and suppliers.

An intermediary has to provide the minimum necessary supply information to its customers via its services. If it wishes to sell products, it has to provide information about prices. An intermediary can go beyond this level of supply transparency by making it easier for customers to gather additional information and to compare information about different products and suppliers. An intermediary can also prevent supply information reaching customers via its services (that is, create non-transparency).

An intermediary can choose to create either much or little supply transparency about suppliers and the supply of products for its customers. Creating transparency for customers involves a trade-off between value creation for customers (information services) and value capture by the intermediary (position, revenues) and/or suppliers (information advantage) (Figure 8-4). More transparency means more opportunities for value creation for customers but also fewer possibilities for value capture by
intermediary and/or suppliers. Less transparency means fewer possibilities for value creation for customers but also more for value capture by intermediary and/or suppliers.

![Supply transparency trade-off](image)

If acceptance by customers is the chief concern, an intermediary should create as much supply transparency as possible for customers. Voogd & Voogd makes it easy for customers to gather and compare information about products and prices from multiple suppliers. The Meetingpoint portal has little added value for customers compared to the extranets (direct business) because it does not utilise opportunities for creating supply transparency. However, this does not always have to take the form of providing price information, as the SeaQuipment case shows. In this case, both customers and suppliers were more interested in additional firm and (technical) product information. Here direct interaction between customers and suppliers was more desirable for price and purchasing information as part of the negotiations.

If acceptance by suppliers or its own interests are the main concern, an intermediary should create as little supply transparency as possible for customers. Providing supply information to customers reduces the opportunities for the intermediary and/or suppliers to capture value from this information. Insurance agents can select more easily on the basis of price and can take more insurance companies into account because Voogd & Voogd supports product comparison. Tapestria’s product information was supplied by means of a structured and complete product description, while that of SeaQuipment is free text and has a deeplink to the supplier website.

The intermediary itself can also benefit from strategic choices for supply (non-)transparency for customers. Tapestria did not provide information about suppliers to customers, thus preventing customers from approaching suppliers directly and establishing its own product brand. For suppliers, this meant they could not use their own brand, but it also avoided channel conflict.

One way to go beyond the customer-supplier value trade-off is to emphasise the positive effects for the industry or distribution channel. An
intermediary can make suppliers more competitive in the current market or enable them to enter new markets. For example, Voogd & Voogd can make the agent channel more competitive than the direct channel. A way to limit possible disadvantages for suppliers is to provide more supply transparency to a targeted group of customers and less to other users of the intermediary’s website. Tapestria had guest and trade accounts: only trade accounts showed prices and they were only available to professional interior designers.

Supply transparency for customers can negatively affect the interests of suppliers. However, this represents a negative effect for suppliers in general and not for an individual supplier per se. A supplier capable of offering the right product for an attractive price can also achieve additional sales because of positive comparison results. Moreover, supply transparency may be less of a concern for suppliers if the intermediary is perceived as an additional sales channel (for example, Voogd & Voogd).

For the intermediary, supply transparency may require a strategic choice between value capture from more demand-side users and use or value capture from supply information. Transparency is beneficial for the intermediary if value creation for customers via information services results in more users and use. Supply transparency also increases opportunities for the intermediary to differentiate itself from direct business between customers and suppliers. While Voogd & Voogd’s agents appreciate the marketplace, those of Meetingpoint do not use the portal. But supply transparency can also harm the intermediary’s position because it provides opportunities for direct business between customers and suppliers. Creating non-transparency can also be a risky strategy, however. Tapestria had to establish a new brand and could not leverage the brands of suppliers.

If an intermediary wishes to provide information about products and prices, it has to consider which suppliers and products it wants to offer to customers and how to collect and present that information. If the intermediary makes suppliers responsible for product and price information, it is advantageous for the suppliers in that they are in control, but disadvantageous in that they have to put in the effort and cost.

### 8.2.5 Pattern 5: demand transparency for suppliers

An intermediary can choose between much transparency about customers and demand for products with greater opportunities to create value for suppliers or little transparency about customers and demand for products with greater opportunities to capture value for intermediary and/or customers.
The demand transparency for suppliers pattern relates to an exchange design choice with respect to the transparency theme. This pattern was identified based upon the specific findings of the within-case analysis presented in Table 8-8. To gather additional evidence all exchange design choices of all the cases were reviewed after the identification. Most empirical evidence is included in the pattern description below.

| Table 8-8 Demand transparency for suppliers pattern and with-in case findings with themes |
|---------------------------------|-----|-----|-----|-----|
| Introduction by case examples   |     |     |     |     |
| Pattern problem                 |     |     |     |     |

SeaQuipment and its suppliers know little about the customers and their use of the catalogue. Voogd & Voogd and Tapestria collect information about their customers and their purchases but only periodically share aggregated sales information with their suppliers. Meetingpoint forwards all information about insurance policies to suppliers but does not share the customers’ end-customer information with suppliers.

An intermediary has to provide the minimum necessary demand information via its services to its suppliers. An intermediary that sells products on behalf of suppliers has to provide supplier sales information. It can go beyond this level of demand transparency by making it easier for suppliers to gather additional information on customers and their behaviour. It can also prevent demand information from reaching suppliers via its services (that is, create non-transparency).

An intermediary can choose to create either much or little demand transparency about customers and demand for products. Creating transparency for suppliers involves a trade-off between value creation for suppliers (information services) and value capture by the intermediary (position, revenues) and/or customers (information advantage, ease of use) (Figure 8-5). More transparency means more opportunities for value creation for suppliers but also fewer possibilities for value capture by the intermediary and/or customers. Less transparency means fewer opportunities for value creation for suppliers but also more for value capture by the intermediary and/or customers.
If acceptance by customers is the primary concern, an intermediary should create as little demand transparency as possible for suppliers. Demand transparency can reduce the opportunities for customers to leverage information. Meetingpoint does not share customers’ end-customer information with suppliers, which means customers are protected from suppliers influencing them or approaching end customers directly. Demand transparency can also introduce use barriers for customers. Because searching the SeaQuipment catalogue is freely accessible to anyone, customers can use it easily and anonymously. Customers wishing to use Tapestria first have to register and log in.

An intermediary can also create as little demand transparency as possible for suppliers if the intermediary takes its own interests into account. Strategic choices for demand (non-)transparency can protect the intermediary’s position and enable it to capture value itself. Although Tapestria had information about customers and their purchases, it did not provide this information to suppliers because of the risk of suppliers approaching customers directly. Tapestria also considered selling market information to suppliers based on their overall demand information in the future.

If acceptance by suppliers is the principal concern, an intermediary should create as much demand transparency as possible for suppliers. Demand transparency offers the intermediary opportunities for creating value for the suppliers by providing them with information about customers and their behaviour. In addition to giving suppliers information about the demand for their firm and their products, an intermediary can provide market information across all suppliers and products. However, none of our cases really exploited these opportunities. Voogd & Voogd’s suppliers have no information about the end customers who buy their products, while SeaQuipment’s suppliers do not know how effective and efficient their marketing is.

An intermediary can go beyond this trade-off if the intermediary or suppliers create value for customers in return for more demand transparency. The intermediary or suppliers can use information about end customers to support customers in their contact with end customers. In
this way, both customers and suppliers benefit from additional sales. For example, Voogd & Voogd has information about the end customers and their policies with multiple insurance companies. It supports agents with portfolio analysis.

If use barriers for customers are a main concern for gathering demand information, an intermediary may select a solution with more open access to some of its services and more restricted access to others. For example, Tapestria had easy-to-obtain guest accounts and trade accounts that were more difficult to obtain. A trade account has more privileges than a guest account. Designers who used a trade account were better known to Tapestria because a trade account requires verification. Similarly, SeaQuipment could encourage users to register by giving them the opportunity to save search results.

Demand transparency for suppliers can negatively affect the interests of customers. However, this negative effect may be less of a concern for customers if they receive something in return. Even if this is possible, however, the intermediary should show restraint because of privacy concerns and possible damage to its reputation.

For the intermediary, demand transparency may require a strategic choice between value capture from more supply-side users and use or value capture from demand information. If value creation for suppliers by means of information services results in more supply-side users and use, transparency is beneficial for the intermediary. Demand transparency also increases the intermediary’s chances of differentiating itself from direct business between customers and suppliers. But demand transparency can also harm the intermediary’s position in that it provides opportunities for direct business between customers and suppliers.

### 8.2.6 Pattern 6: customer service innovation

An intermediary can choose between introducing an electronic service with as many new service elements in its customer (self-)service with greater opportunities for relative advantage or as many traditional service elements in its customer (self-)service with greater opportunities for compatibility.

The customer service innovation pattern relates to an exchange design choice with respect to the role, linkage and novelty themes. This pattern was identified based upon the specific findings of the within-case analysis presented in Table 8-9. To gather additional evidence all exchange design choices of all the cases were reviewed after the identification. Most empirical evidence is included in the pattern description below.
Tapestria sought to create value with new services and processes via its online model. Customers could use an online catalogue instead of a paper one and a sample service instead of a sample book. Later Tapestria introduced more traditional elements (for example, a paper catalogue) and placed human interaction (for example, sales agents and a customer desk) more centrally. SeaQuipment gives customers an opportunity to contact suppliers and obtain additional product information through various channels (traditional mail, telephone, fax, electronic mail and website). Customers can use deeplinking to go directly to the relevant product page. It is left to suppliers to decide which options to offer and how different from or similar to the traditional way of working these should be. Meetingpoint also adapts to the traditional way of working by enabling customers to work from their own administrative software or via the extranet from their supplier. Although Voogd & Voogd is a traditional intermediary, it is leading in the introduction of new electronic services. It ensures that customers accept these services by selecting customers who are willing and able to use them.

An intermediary can choose to introduce an electronic service with as many new and/or as many traditional service elements as possible in customer (self-)service. This choice between new or traditional elements involves a trade-off between relative advantage (innovation and efficiency) and compatibility for customers (Figure 8-6). New elements mean more opportunities for relative advantage but fewer for compatibility, while traditional elements mean fewer opportunities for relative advantage but more for compatibility.
The intermediary should select a mix of new and traditional elements offering enough relative advantage, while the compatibility should not hamper acceptance. If an intermediary has innovative customers, it can emphasise relative advantage through new elements, whereas an intermediary with traditional customers can emphasise it through traditional elements. Most of Meetingpoint’s suppliers can be accessed via the Meetingpoint portal and their own extranet. Working via the extranet is more compatible with the traditional, direct interaction between customers and suppliers. This also means, however, that some of the advantages of working via a single online portal with many suppliers disappear. Tapestria had to introduce traditional elements to match the traditional way its customers worked, which meant that it lost some of its uniqueness and its cost advantages diminished.

It may sometimes be possible to introduce a new electronic service that offers both a relative advantage and compatibility. This is especially possible if the way of working is already (partly) electronic. Meetingpoint takes advantage of the fact that its customers use administrative software. By means of coupling with this software, Meetingpoint can increase compatibility with the way these customers work. An intermediary may not be willing or able to offer traditional service elements to customers, in which case it can select customers who are willing and able to work with new electronic services. This is what Voogd & Voogd does. However, this may not always be possible. Meetingpoint has to offer its services to the insurance companies’ existing agents.

The intermediary should bear in mind that the less traditional the elements it offers, the slower the acceptance of the new, electronic service. When selecting customers, the intermediary should be aware that the target group of users is much smaller. The intermediary has to determine selection criteria that balance quality and quantity. A smaller user group can be problematic if the intermediary has to invest substantial effort and cost (see also the ‘role size’ pattern).

In addition to the customers, the intermediary may also consider (potential) competitors. If the intermediary wishes to be an innovator, it...
may opt for more new elements. Tapestria began by focusing on an online model and being as innovative as possible. However, the intermediary should be aware of what this means for acceptance by (potential) customers.

The intermediary may offer traditional elements alongside new elements and only during a transition period. It can promote the use of new elements via traditional elements. For example, Tapestria referred to its website in its sample book. The intermediary should ensure that it has the financial resources to offer traditional elements and to take this investment into account when calculating its business case. Offering and integrating both new and traditional elements can make business processes and ICT much more complex.

8.3 Theoretical support for the patterns

After developing the exchange design patterns based on our empirical research in the previous sections, this section will provide additional support based on exchange design theory (see also section 3.3). Theoretical support for the exchange design patterns improves their quality as general repeatable solutions to commonly-occurring problems. In this way the patterns are not only tested, but also grounded technological rules (see also section 2.1). Thus the theoretical support is intended to strengthen the empirical patterns with theoretical knowledge. It is not intended as the development or testing of theory in itself.

There is a growing body of knowledge on the (new) roles of electronic intermediaries (for example, Anderson & Anderson, 2002; Bailey & Bakos, 1997; Kambil & van Heck, 2002). In general, this literature takes as its explicit starting point or implicit assumption that an intermediary should fulfil a role as extensively as possible and that this is beneficial for the intermediary. On the one hand, the ‘role size’ pattern follows a similar logic for value creation by the intermediary. This is in line with the value configuration approach (Stabell & Fjeldstad, 1998), of which Porter’s value chain (Porter, 2001; Porter & Millar, 1985) is the most well-known application for traditional manufacturing companies. In a value configuration, value can be created by means of value activities and the linkages between these activities. In other words, the more value activities an intermediary covers in the exchange between customers and suppliers, the more opportunities the intermediary has for creating value. On the other hand, the ‘role size’ pattern also emphasises the drawbacks of an extensive role for the electronic intermediary: the more extensive the role, the higher the implementation effort and cost.
Kambil and van Heck (2002) warn that for auctions the devil is in the detail. This also applies to intermediaries in general. The ‘working across suppliers’ and ‘supply chain structure’ patterns illustrate that high-level form and role choices (for example, a managed marketplace) may still result in different kinds of service and process for customers and/or suppliers (for example, on-consignment and drop-ship logistics). High-level form and role choices can cause misunderstanding about what exchange services an intermediary is actually offering to customers and/or suppliers and what the effects are on the interests of customers, intermediary and suppliers. Although Meetingpoint and Voogd & Voogd initially seem very similar, they differ substantially in their services for customers and suppliers.

The ‘role size’ and ‘supply chain structure’ patterns can be viewed as an insourcing or outsourcing decision if the transfer of a significant amount of operations and control is involved. Singh (2000) refers to intermediation as a special case of outsourcing to specialists. Outsourcing is a business decision to have activities inside or outside a firm because of opportunities for saving resources (service level versus costs) and/or acquiring capabilities, allowing a firm to focus on core competencies (Smith, Mitra, & Narasimhan, 1998). Involving suppliers can be viewed as insourcing and outsourcing choices between intermediary and suppliers. Both intermediary and suppliers can be viewed as outsourcing client and outsourcing provider. Electronic intermediaries can insource and suppliers can outsource all or part of their marketing & sales, logistics and/or ICT compared to direct (electronic) business for suppliers with customers. Voogd & Voogd, rather than the insurance companies, takes care of quotes and approvals for insurance policies. Intermediaries can also outsource, and suppliers insource, all or part of their marketing & sales, logistics and ICT compared to traditional wholesalers. Meetingpoint leaves quotes and approvals for insurance policies to the insurance companies.

Making an outsourcing decision involves a careful analysis of outsourcing client’s goals and outsourcing provider’s capabilities with respect to delivery competency for day-to-day operational services, transformation competency for service improvement, and relationship competency for alignment with client needs and goals over time (Feeny, Lacity, & Willcocks, 2005). While the involvement of suppliers offers insourcing and outsourcing options for the intermediary and suppliers, this is a decision that should not be taken lightly. It requires a clear understanding of the benefits and costs of involving suppliers and of the consequences for the business processes and ICT. In the case of Tapestria, it resulted in the intermediary insourcing the warehousing from the suppliers on the one hand, and outsourcing it to a third party on the other.

The ‘working across suppliers’ and ‘supply chain structure’ patterns also pay attention to the fact that ICT standards are both an opportunity and a
threat for the intermediary. Dai and Kauffmann (2002b) also discuss the intermediary as a technology adapter that can advocate and implement standards to create value for its customers and suppliers. Christianse and Rodon (2005) discuss how electronic intermediaries can enhance the adoption of standards in an industry. However, these authors emphasise the positive effects for the intermediary or the industry. They do not address the potential negative impact of standards on the interests of the intermediary relating to differentiating itself from direct business between customers and suppliers. It is not clear how standardisation affects the value creation of the intermediary. This may depend on the kind of industry standard. According to Markus, Steinfield and Wigand (2003), there is a need to distinguish between horizontal ICT standards for ICT products and general standards and vertical ICT standards for industry-specific data and process standards. Horizontal standards are driven more by IT and telecommunication firms and apply to many industries (for example, XML and SOAP), whereas vertical industry standards are driven more by industry participants. Vertical standards integrate technical features with legal and business elements, making them industry-specific (for example, the SIVI standards in the Dutch insurance industry).

The ‘supply transparency’ and ‘demand transparency’ patterns relate to customers’ and suppliers’ opportunities for leveraging information and the function of the intermediary. Asymmetries in small amounts of critical information often determine which players will win and which will lose (Kambil & van Heck, 2002). On the one hand, intermediaries can undermine opportunities for leveraging information by reducing information asymmetry, while on the other creating new opportunities because of their position and the ICT capabilities. The visibility of information is a key issue in electronic markets as shown, for example, by Kambil and van Heck’s (2002) particular attention to product presentation. Sharing of information is also an important issue in supply chain management, in relation to competitive advantage and business value (Dai & Kauffman, 2002a).

The ‘supply transparency’ and ‘demand transparency’ patterns emphasise that transparency is a strategic choice for the intermediary, requiring well-considered design choices. These patterns discuss specific options for transparency towards customers and suppliers. In general, the expectation is that intermediaries are needed less for facilitating supply transparency because electronic business makes it easier for customers to collect this information directly from suppliers (Anderson & Anderson, 2002). However, the ‘supply transparency’ pattern emphasises the fact that an intermediary can still add value for customers by means of, for instance,
single application forms (for example, Voogd & Voogd) and uniform product structures and descriptions (for example, Tapestria).

The trade-off between customer and supplier interests for supply transparency is well-known. Price transparency is often quoted as a reason for the failure of intermediaries (for example, Wise & Morrison, 2000). However, the 'supply transparency' pattern points out ways of going beyond this trade-off. Price transparency can be implemented in different ways, for example, only for trade members or without revealing the supplier (for example, Tapestria). Price transparency can also improve the competitiveness of a distribution channel over other channels, which is particularly relevant to suppliers bound to a particular channel. For example, Voogd & Voogd and the insurance companies are bound to the agent channel.

The 'customer service innovation' pattern is based on the 'relative advantage' and 'compatibility' characteristics of innovations of Rogers (1995). According to Rogers, both relative advantage and compatibility should be increased to increase acceptance. This pattern adds to Rogers the trade-off between relative advantage and compatibility for exchange design. The pattern is in keeping with Kambil and van Heck (2002), who argue that electronic markets should be better than what now exists but should also fit existing processes. Dai & Kauffman (2002b) refer to the possibilities of business-to-business intermediaries for business process innovation and the need for technological compatibility.

The 'customer service innovation' pattern also relates to the research of Day, Fein and Ruppersberger (Day et al., 2003), who distinguish between breakthrough and reformed market opportunities for technology. Most B2B exchanges reform existing ways of doing business as opposed to being a breakthrough. While breakthrough applications create new offerings that would not have been possible without the new technology, reformed applications are characterised by a low ability to capture value from internet technology. Their research suggests that selectively introducing new elements into existing business models is most often the right option for B2B exchanges. This corresponds to Voogd & Voogd, a traditional intermediary introducing an electronic service, and to Tapestria, a new intermediary introducing traditional service elements after an initial focus on new elements. Electronic intermediaries introducing new service elements can also concentrate exclusively on those industry segments where an internet model offers real advantages, even if it is only a modest proportion of the overall industry (Porter, 2001). However, the relationship between the 'customer service innovation' pattern and the 'role size' pattern is important here. The intermediary should be aware of its role
size because a more extensive role comes with greater effort and cost, which may not suit a smaller industry segment.

Another perspective on combining electronic business with the traditional way of working is provided by the ‘supply chain structure’ pattern, which discusses the option of using traditional cooperation models for suppliers. This pattern shows how innovation of the customer service can be combined with compatibility for suppliers, with the intermediary as the adapter between them. However, while the ‘customer service innovation’ and ‘supply chain structure’ patterns suggest that electronic intermediaries may need to integrate traditional service elements in their customer service or cooperate with suppliers in a more traditional manner, this does not mean that electronic intermediaries should stay or become a traditional intermediary. Electronic intermediaries can create strategies that involve new, hybrid models (Porter, 2001; Steinfield, 2002). Meetingpoint introduces new electronic services that are compatible with agents’ existing way of working by means of an ICT coupling with the agents’ administrative software.

In conclusion, this section showed that the exchange design patterns get additional support from theories on exchange design from three perspectives: electronic intermediaries, acceptance, and business design. As a side effect the patterns provide insights that can enhance theoretical understanding, for example the possible negative effects of standards. The theoretical support for the patterns in this section, however, provides only an initial grounding. Our study of theories on exchange design was primarily directed at the exchange design model. A theory study per pattern is required for further support. We provided a starting point by discussing value creation, outsourcing and standardisation a little more in-depth. Furthermore, we focused on indications for the patterns. More attention for contra-indications in different theories is necessary to learn about the scope and quality of the exchange design patterns.
Conclusions and further research

In this final chapter we return to the research problem and questions and discuss how they were addressed by our study. We then discuss in more depth the exchange design model and patterns as the main contributions and discuss their application as starting point for an exchange design approach. Finally, we point out some of the limitations of our research and suggest some interesting topics for further research.

9.1 Addressing the research problem and questions

Our research was triggered by the success and failure of electronic business in general and electronic intermediaries in particular. The contribution of exchange design to the acceptance of an electronic intermediary was identified as the focus of the research. Developing the right exchange design is a complex undertaking due to the many design options on the one hand, and the need to consider the interests of multiple actors on the other. Our study has focused on designing for acceptance: the critical exchange design choices that require trade-offs relating to balancing the interests of customers, suppliers and the intermediary.

This research interest resulted in the definition of the following research problem: how can an electronic intermediary successfully balance the interests of customers, intermediary and suppliers in the exchange design? Successful was defined as the voluntary acceptance by buyers and sellers. We restricted the research domain to intermediaries for which the business network offered opportunities and which are independent actors with many-to-many, business-to-business exchange directed at the primary activities of customers and suppliers. Moreover, there had to be a sufficient level of trust in the business network to ensure that trust is not becoming a dominant issue.

Our research addressed the research problem by providing constructive support for balancing interests in exchange design beyond simple
prescriptions like ‘creating win-win situations.’ The resulting exchange design model offers a systematic insight into generic themes that are relevant to the interests of customers, intermediary and suppliers. The resulting exchange design patterns discuss specific trade-offs with respect to one or more themes. The themes and patterns are based upon empirical evidence from four case studies and are supported by insights from theories on electronic intermediaries, acceptance and business design. The application of the model and patterns should result in exchange designs that are well thought-out and can prevent unexpected side effects with respect to acceptance.

The research problem was broken down into three research questions, each of which we will now briefly address. We will then discuss in more depth the main contributions of our research, the exchange design model and patterns.

The first research question was: what are the major exchange design choices that affect the interests of customers, intermediary and suppliers? This question was addressed by developing an exchange design model with four exchange design themes: role, linkage, transparency and novelty, based on design issues identified in the Tapestria pilot case. In addition, we examined three theoretical perspectives on exchange design: intermediaries, acceptance and business design. The empirical exchange design model was theoretically evaluated by comparing it to potential theoretical themes. It showed good coverage of the theoretical themes, making it unnecessary to adapt the model. The model was also empirically evaluated by applying it to the SeaQuipment, Meetingpoint and Voogd & Voogd cases. The model was useful for these cases and did not show major shortcomings.

The second research question was: how do these exchange design choices affect the interests of customers, intermediary and suppliers? This question was addressed by identifying the exchange design choices and the interests of the actors for each case. The exchange design choices were identified based on the exchange design model. These design choices and interests were included in the case findings used to specify six design patterns. Each pattern consists of an exchange design choice, with a trade-off relating to the interests of one or more actors, as presented in the introduction and the ‘problem’ part of each pattern.

The third research question was: how do these exchange design choices and interests contribute to voluntary acceptance of the electronic intermediary? We addressed this question by comparing the exchange design choices and the interests of actors with the acceptance of the actors. This was also included in the case findings used to further specify six design patterns. Each exchange design pattern discusses the possible contribution of different design options to acceptance by customers and/or suppliers, as
9.2 The exchange design model and patterns

The exchange design model and patterns are this study’s principal contribution to developing design theory for electronic intermediaries. The model helps us understand exchange design in general, while the patterns help to make specific exchange design choices. As results from design research, the exchange design model and patterns are tested and grounded in technological rules in the form of design constructs and models. These rules are prescriptions of a heuristic nature that need to be translated by the professional to the specific problem at hand.

The exchange design model provides insights into exchange design themes and their aspects that are relevant to the interests of customers, intermediary and suppliers. The model consists of four exchange design themes and a specification of each theme by different aspects. The themes are:

1. **Role**: the position of the intermediary in relation to the other actors in the business network with respect to the business activities
2. **Linkage**: the way the exchange interactions between the actors in a business network are arranged
3. **Transparency**: the visibility of information in the business network; the extent to which information is made available
4. **Novelty**: the newness and compatibility of the electronic service introduced by the intermediary compared with the traditional situation in the business network.

The exchange design model can be used in a generic way to create and analyse electronic intermediary services by practitioners and to study electronic intermediaries by researchers. The design themes and their aspects enable a systematic design of electronic intermediaries by making important design parameters explicit. The design model could be further improved by also making explicit the relationships between the design themes.

The four exchange design themes bring together different viewpoints on the design of electronic intermediaries. While much of the literature on electronic intermediaries focuses on the role of the intermediary, our exchange design model also emphasises other design themes, such as novelty, which affect the interests of customers, intermediary and suppliers. As such, it is a comprehensive model for analysing exchange design for...
intermediaries targeting voluntary acceptance. In addition, the theoretical evaluation suggested that, although complexity, trust and technology are covered by the model, it may be useful in some situations to treat them as separate themes.

The application of the design model is dependent on the condition that there is an opportunity for an intermediary in the business network. Although we separated this concern from our focus on designing for acceptance, this separation is not as clear-cut as we have treated it in our research. It seems obvious that it is much easier to balance interests if there is greater opportunity for an intermediary. Moreover, context factors such as power and trust can also interfere with designing for acceptance.

The exchange design patterns describe an exchange design problem and a solution to that problem. The patterns are based on trade-offs with respect to one or more exchange design themes relating to balancing the interests of one or more actors. The six patterns we identified are:

1. The design choice of an extensive or limited intermediary role size, with a trade-off between the value-creation potential and the implementation effort and costs of the intermediary
2. The design choice of much or little working across suppliers, with a trade-off between value creation for customers and the relationship of suppliers with customers
3. The design choice of a centralised or distributed supply chain structure, with a trade-off between the involvement of suppliers and the business integration of intermediary and suppliers
4. The design choice for a high or low supply transparency with a trade-off between value creation for customers and value capture by the intermediary and/or suppliers
5. The design choice of a high or low demand transparency, with a trade-off between value creation for suppliers and value capture by the intermediary and/or customers
6. The design choice of new or traditional elements for customer service innovation, with a trade-off between relative advantage and compatibility for customers.

These patterns provide more specific guidance for exchange design for practitioners and contribute to the development of design theory for researchers. The six patterns help make specific design choices in relation to the four themes of the exchange design model. The patterns are based empirically on four case studies and theoretically supported by exchange design theory. We therefore propose that these patterns address important, commonly-occurring problems and provide suitable, general repeatable solutions.
An exception is the ‘demand transparency’ pattern, which has less empirical evidence in our cases. It was included in the final list of patterns because of its similarities to and complementarity with the ‘supply transparency’ pattern. However, these six patterns do not form a complete list. There are more possibilities for exchange design patterns, in particular if additional themes become relevant, as discussed for the exchange design model. More detailed exchange design patterns can also complement our patterns, for example, a pattern dealing specifically with price transparency.

9.3 Towards an approach for exchange design

The case studies and the developed exchange design model and patterns confirmed the starting point of our research. Developing the right exchange design is problematic because of the many design options and the interests of multiple actors that need to be considered. Balancing interests is far more difficult than suggested by simple prescriptions like ‘creating a win-win situation’ or ‘everyone must benefit’. The exchange design model and patterns draw attention to the trade-offs per actor and between actors.

The model and patterns are convenient instruments for developing a vague electronic business idea into a more concrete service concept. This should result in exchange designs that are well thought-out and can prevent unexpected side effects with respect to acceptance. For example, maritime sellers had little information about maritime buyers because of the openness of SeaQuipment. In such a case, the intermediary can consider altering the exchange design or taking compensating measures if necessary. For example, Tapestria tried to close the gap with designers by incorporating more traditional elements.

Building on the exchange design model and patterns, we discuss some elements that can be used in an approach that deals with the trade-offs in exchange design: extreme, hybrid and actor-centred designs. In the section on further research we continue on the topic of a design approach.

Each design pattern presents extreme options, such as the limited versus extensive role for the role size pattern. These extremes can be perceived as designs that are useful for a critical evaluation or stretching of the exchange designs. For SeaQuipment, it was meaningful to explore a transaction model as extensive role in order to make a more well-founded choice of the role as information specialist as limited role. For extreme designs, the intermediary should carefully consider the balancing of interests because such a design maximises both the positive and negative effects. For example, Tapestria’s initial focus on an online model made an innovative service possible but also created incompatibility with the way designers traditionally work.
Each design pattern also contains suggestions for hybrid designs that combine both sides of the trade-off. For example, the ‘customer service innovation’ pattern discusses combining new and traditional elements. For hybrid designs, the intermediary should carefully consider balancing the interests because a hybrid design can neutralise positive and negative effects, resulting in a ‘stuck-in-the-middle’ solution. However, it may also be possible to develop hybrid designs that create synergy. For example, Voogd & Voogd leveraged a traditional authorised brokerage relationship with insurance companies to provide innovative electronic services to insurance agents.

The exchange design patterns can provide even greater insights if they are used together. A way to do this while keeping things manageable is to focus on the perspective of a single actor (Table 9-1). In this way, the designer can extrapolate from the needs of one party across multiple patterns, resulting in a design that places the interests of that actor at the centre. This actor-centred design can be compared with the potential or current exchange design to suggest design alternatives.

<table>
<thead>
<tr>
<th>Exchange design pattern</th>
<th>Customer Perspective</th>
<th>Intermediary perspective</th>
<th>Supplier perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1. Role size of intermediary</td>
<td>Extensive role for high value-creation potential (inasmuch as there is a customer need)</td>
<td>Extensive role for strategic position, limited role for low implementation effort &amp; costs</td>
<td>Extensive role for high value-creation potential (inasmuch as there is a supplier need)</td>
</tr>
<tr>
<td>P2. Working across suppliers</td>
<td>Much cross working for customer value</td>
<td>Much cross working for differentiation from direct business between customers and suppliers</td>
<td>Little cross working for supplier/customer relationship</td>
</tr>
<tr>
<td>P3. Supply chain structure</td>
<td>Working with intermediary (one party) and/or working directly with suppliers</td>
<td>Centralised for control or distributed for outsourcing, possible leverage traditional structure</td>
<td>Centralised for low effort &amp; costs or distributed for control, traditional structure preserves from change</td>
</tr>
<tr>
<td>P4. Supply transparency</td>
<td>High supply transparency for customer value</td>
<td>Strategic supply transparency</td>
<td>Low supply transparency for supplier value</td>
</tr>
<tr>
<td>P5. Demand transparency</td>
<td>Low demand transparency for customer value</td>
<td>Strategic demand transparency</td>
<td>High demand transparency for supplier value</td>
</tr>
<tr>
<td>P6. Customer service innovation</td>
<td>New elements for relative advantage and/or traditional elements for compatibility</td>
<td>New elements for differentiation and/or cost advantages</td>
<td>Involved and/or preserved from customer service innovation</td>
</tr>
</tbody>
</table>

We illustrate actor-centred design, taking Meetingpoint as an example. Because Meetingpoint has a supplier bias, we take the insurance agents’ customer perspective as our starting point. Meetingpoint could offer a more complete service by ensuring that all insurance companies offer as many products and functions as possible and have fully automated processing (P1
and P3). Agents should be able to work with a single application form for different insurance companies (P2) and compare policies on prices, conditions, and clauses (P4). Moreover, Meetingpoint could support the renewal of policies by automatically checking whether a better offer is available (P2, P4, and P6). Thus when we take the perspective of the insurance agents, the Meetingpoint exchange design would be much closer to that of Voogd & Voogd.

9.4 Limitations of the research

We have developed an exchange design model and patterns that are empirically and theoretically based. We also took several measures to guarantee the quality of our research, as described in the research approach (see section 2.4). Nevertheless, the research has some limitations, which we would like to discuss.

Studying electronic intermediaries in their business networks is a difficult and time-consuming process. It requires access to and data collection not only at the intermediary, but also at customers and suppliers. For the Tapestria case, no data was collected at the customers and suppliers because of the focus on the intermediary and because of the difficulty of gaining access to them. Obtaining information on acceptance from the intermediary (for example, total number of users) can also be difficult because of its commercial nature. And sometimes the intermediary does not have this information itself, as was the case with SeaQuipment.

Using the intermediary’s electronic service oneself is the best way to get to know the service. An electronic service is always available, which means a researcher can always gather additional information if something is not clear or more detail is required. We were able to study SeaQuipment’s catalogue very well because we could use it as both buyer and seller. To some extent, we could also study Tapestria’s purchasing service and Voogd & Voogd’s marketplace. For Tapestria, we were able to obtain a guest account, and we used Klik & Sluit as an end customer via the website of one of its agents. The Meetingpoint service was much harder to investigate because we were unable to use it at all, resulting in less understanding of the service; interviews and demonstrations cannot make up for a real user experience.

For the case analysis, we related exchange design choices to the interests of the actors. For some choices, it was relatively simple to collect data at customers and suppliers. For example, customers and suppliers often have a clear opinion about the possibility of comparing prices. For others, however, it is much harder to collect data at customers and suppliers because they are unaware of the design choice or the design choice means nothing to them. For example, Meetingpoint’s agents generally have (or
desire) little knowledge about the distribution of administrative processing between Meetingpoint and insurance companies.

We studied four different kinds of intermediaries: a managed marketplace, web catalogue, administrative platform and an authorised broker with an electronic marketplace. However, there are many very different intermediaries that we did not cover, for example, electronic auctions. Also, none of the intermediaries we studied asked their customers to pay to use the electronic service. This may have resulted in different findings for exchange design and interests. There was also a gap of over two years between the Tapestria case and those of Meetingpoint and Voogd & Voogd. This may influence some of the findings because of, for example, increased computer and internet use and capabilities.

The intermediaries we studied were from three different industries: interior fabrics, maritime products and insurance. These industries differed in many ways, such as physical versus information products. Because we did not study the relationship between industry characteristics and exchange design, interests and acceptance, we are unable to make pronouncements on the application of the exchange design model and patterns to different industries. The Meetingpoint and Voogd & Voogd cases gave us an opportunity to study two electronic intermediaries in the same industry. While not specifically selected for that reason, they offered us a valuable opportunity to compare two different exchange designs in the same industry context.

9.5 Topics for further research

For further research we wish to draw attention to five topics. First of all, more research on the exchange design model and patterns is desirable. Further research on the model could evaluate it for other kinds of intermediary and in other industries, which could result in additional themes. Moreover, further research could study the relationships between the design themes and the situations in which some themes are more important than others. Further research on the exchange design patterns could evaluate our patterns and develop new ones. This evaluation could be both theoretical and empirical. A larger-scale empirical study is useful for demonstrating the quality and application scope. Finally, applying the exchange design model and patterns to the development of an electronic service by an electronic intermediary and researching the acceptance of that service would provide an opportunity to check whether the model and patterns can actually support the intermediary as the designer of the exchange.
Secondly, for interests and acceptance we differentiate between the customers, intermediary and suppliers as actors, based on our view of the business network. However, it may be necessary to pay greater attention to additional actors and to subgroups of the different types of actor. Meetingpoint has to cooperate not only with customers and suppliers but also with the providers of administrative software responsible for implementing and testing its GIM coupling. Customers and suppliers are not homogeneous groups. The SeaQuipment survey showed that their acceptance and interests differ in some respects, depending on, for example, the specific market they operate in or the size of their firm. The selection of insurance agents by Voogd & Voogd is an example of making use of this heterogeneity.

Thirdly, the dynamics of intermediaries is a relevant topic that has been omitted from our research. Intermediaries change, causing their exchange designs to change also. It would be interesting to study the extent to which the exchange design model and patterns can contribute to the continuous development of intermediaries. An obvious approach would be to start with a limited role and extend this role over time. But is this really the best approach and will it always work? And what role should an intermediary start with, what should be added later, and in which order? This research can result in dynamic patterns that address the development of exchange designs.

Fourthly, to support the exchange design process, the exchange design model and patterns should be embedded in a design approach. In this chapter we discussed extreme, hybrid and actor-centred designs as possible elements for such an approach. Furthermore, an initial step was made in the first chapter, where we sketched a design process to position our research, and in the third chapter, where we suggested a step-by-step refinement by relating exchange design to the more generic design of business models and networks and the more specific design of particular kinds of intermediaries and components, such as the market mechanism. An intermediary can also take advantage of customer and supplier participation in the design process. The concrete problems and needs of innovative and successful customers and suppliers can direct an intermediary towards interesting exchange designs. Techniques such as prototyping and small-scale pilots can also be useful for evaluating different exchange designs. This makes it possible, in different stages in the design and implementation process, to better assess what the relationships are between the exchange design and the interests of the actors and what this means for acceptance.

The last topic for further research we wish to draw attention to is the relationship between designing for acceptance and the intermediary’s utilisation of marketing and power. An intermediary can, for example, put
the interests of one or two actors above those of others in the exchange design. Subsequently, the intermediary can motivate the neglected actor to participate by pricing and promotion strategies or by putting pressure on that actor. Gaining insight into the qualitative and quantitative relationships would be extremely interesting. For example, how much extra would a promotional campaign cost to convince customers that a service satisfies their needs if working across suppliers receives less support than it could?

9.6 Concluding remarks

The focus of our research was designing for acceptance: the critical exchange design choices that require trade-offs relating to balancing the interests of customers, suppliers and the intermediary. Together, the exchange design model and patterns plug the gap between knowledge about the design of electronic intermediaries on the one hand, and knowledge about their acceptance on the other. In particular, the design of electronic intermediaries was an underdeveloped area, with most design knowledge focusing on either more generic business models and networks or specific types of intermediaries and market mechanisms. In addition, acceptance knowledge lacked a connection with a constructive approach. Most elements of acceptance theory are suitable for specifying desirable outcomes but do not identify design themes or aspects.

Viewing our research in relation to the broader perspective of the success and failure of electronic intermediaries and electronic business, it became clear that introducing new electronic services in business networks is a difficult undertaking. Success is only possible if electronic services offer a clear relative advantage for all actors because of new ICT capabilities or a lack of effectiveness or efficiency in the traditional business network. But even in these situations, assessment errors are easily made, as the Tapestria case shows. Some of the unsuccessful electronic intermediaries may be given a second chance if ICT and its application mature and there is a growing readiness on the part of firms and industries.

In general, the design of electronic services is a complex undertaking requiring specific attention and support. Success is never self-evident, even if the introduction of electronic services is obvious – as is the case, for example, in the insurance industry, with its information-intensive products and activities. While electronic business is increasingly a matter of 'business as usual', the penetration of ICT into all activities of the firm makes a design approach for new business initiatives essential. However, while design models and patterns can offer valuable support, it is ultimately the entrepreneurs who have to experiment with new business initiatives and take the risk of introducing new services.
References


Summary

**Exchange design for electronic intermediaries**

The promises of electronic business have caused a boom in business-to-business initiatives by new internet start-ups and traditional firms. The disappointing growth of electronic business in general and the lack of success of specific firms have resulted in a less optimistic and positive outlook. It is interesting, therefore, to research the success and failure of electronic business. For this purpose intermediaries are a suitable application domain. On the one hand, electronic business offers intermediaries opportunities to reinvent their value logic by offering new services or providing existing services in new ways. On the other hand, intermediaries are threatened by the opportunities that electronic business offers to customers and suppliers for doing business directly. Our focus is upon business-to-business intermediaries that are independent actors with many-to-many exchange.

Why do some electronic intermediaries succeed where others fail? There is a lively debate in the electronic intermediary literature on intermediation, disintermediation and reintermediation. The general conclusion is that intermediaries are still needed but that their role is changing. This changing role raises the issue of acceptance of a specific kind of intermediary. In some cases, a marketplace with registration may be more acceptable for customers or suppliers, while in others a catalogue with open access may be more acceptable. The kind of intermediary and its contribution to acceptance are still largely unaddressed. Acceptance literature only provides a limited understanding of design choices (for example, compatibility), while business design theory is either too general (for example, business models) or specific (for example, auction mechanisms).

Our research on successful kinds of intermediaries has focused on the services that an electronic intermediary provides to customers and suppliers. We did this by studying exchange designs. In our study, exchange design refers to the way an intermediary coordinates activities and resources in the vertical business network by structuring all or part of the exchange between customers and suppliers. Developing the right exchange design is a complex undertaking due to the many design options on the one hand, and
the interests of multiple actors to be considered on the other. This is far more difficult than simple prescriptions like ‘creating a win-win situation’ would suggest.

The focus is on designing for acceptance: the critical exchange design choices that require trade-offs relating to balancing the interests of customers, suppliers and the intermediary. Acceptance in our research refers to voluntary acceptance by customers and suppliers through the actual use of and satisfaction with the electronic service. The actors have common and individual interests that can relate to improving the cost structure (efficiency), increasing return on assets (effectiveness), creating customer value, and enabling revenue opportunities.

This research interest resulted in the following research problem: ‘How can an electronic intermediary successfully balance the interests of customers, intermediary and suppliers in the exchange design?’ The objective of our research was to further develop design theory in the areas of Management and Information Systems for electronic business in vertical business networks in general and electronic intermediaries in particular. Design research focuses upon (technological) artefacts, which are practical or useful, rather than ends in themselves. A design perspective values creation and improvement more than truth or understanding as in the positivist or interpretive perspective.

Extracting exchange design knowledge
Our contribution to design science is captured in an exchange design model and patterns. The model helps to understand exchange design in general, while the patterns help to make specific exchange design choices. This study employed a multiple case study to produce empirical evidence for the exchange design model and patterns. In addition, we reviewed the literature on electronic intermediaries, acceptance and business design in order to evaluate the model and provide theoretical support for the patterns.

The empirical research consisted of a multiple case study: a pilot study as a revelatory case for the exchange design model and three other studies involving variety across the exchange design themes. These cases were described by means of the business network and analysed with respect to the exchange design choices, interests and acceptance. The case analysis resulted in specific findings that were used to develop the exchange design patterns.

The pilot case study involved Tapestria, and the other case studies involved SeaQuipment, Meetingpoint and Voogd & Voogd. Only Tapestria does not exist anymore; it ceased operations in 2004. Tapestria, an electronic intermediary in the soft furnishing industry, offered a web purchasing service for interior fabrics to professional interior designers in the United States and a sales service to European producers. It was a new
initiative by Hunter Douglas, a large firm active in the adjoining markets of window coverings and architectural products. An interesting finding is that Tapestria combines new and traditional elements in its customer service to increase the acceptance of interior designers, for example, a paper catalogue with online ordering.

SeaQuipment is an electronic intermediary in the maritime industry, offering a web catalogue to shipowners, shipyards and maritime suppliers. Although it has a Dutch focus, it can be used worldwide. SeaQuipment is a new initiative of the VNSI, the Netherlands’ Shipbuilding Industry Association. An interesting finding is that SeaQuipment can specialise more in providing information (for example, more product information) and does not have to move to a transaction model (for example, no product prices) to increase its value for maritime buyers and sellers.

Meetingpoint and Voogd & Voogd are intermediaries in the Dutch insurance industry, serving insurance agents and insurance firms in the agent channel. Meetingpoint offers insurance agents and insurance firms a platform for administrative transactions. It is a new initiative by a number of insurance firms. An interesting finding for Meetingpoint is that industry standards can be both an opportunity and a threat for an electronic intermediary. Voogd & Voogd offers an electronic marketplace to insurance agents and is an authorised broker for insurance firms. A family firm, it is already active as an intermediary in the agent channel. An interesting finding is that Voogd & Voogd selects insurance agents according to their motivation and ability to work electronically.

The exchange design model for electronic intermediaries

The exchange design model provides systematic insights into exchange design issues that are relevant to the interests of customers, intermediary and suppliers. The exchange design model was developed from the Tapestria pilot case study. The exchange design model consists of four exchange design themes and a specification of each theme by different aspects. These themes and their aspects are:

1. **Role**: the position of the intermediary in relation to the other actors in the business network with respect to the business activities, with the following aspects: functional scope, activity focus, and level of involvement

2. **Linkage**: the way in which the exchange interactions between the actors in a business network are arranged, with the following aspects: access, standardisation and coupling

3. **Transparency**: the visibility of information in the business network; the extent to which information is made available, with the following aspects: kind of information, information flows and processing, and information rules
4. **Novelty**: the newness and compatibility of the electronic service introduced by the intermediary compared with the traditional situation in the business network, with the following aspects: network structure, way of working and ICT sophistication.

The four exchange design themes bring together different viewpoints on the design of electronic intermediaries. As such, it is a comprehensive model for analysing exchange design for intermediaries that target voluntary acceptance. This is confirmed by a comparison with theories on electronic intermediaries, acceptance and business design. The theoretical evaluation also suggested that while complexity, trust and technology are covered by the model, in some situations it may be useful to treat them as separate themes.

**The exchange design patterns for electronic intermediaries**

The exchange design patterns are based on trade-offs with respect to one or more themes from the exchange design model relating to balancing the interests of one or more actors. While the exchange design model is useful for identifying exchange design options, it does not guide the design choices. This is why the exchange design patterns have been developed. Design patterns capture the essence of general repeatable solutions to commonly-occurring problems. The patterns were identified using a cross-case analysis, which clustered the specific findings of the within-case analysis. The patterns are:

1. **Role size of intermediary**: the design choice of an extensive or limited intermediary role size with a trade-off between the value-creation potential and the implementation effort and cost of the intermediary
2. **Working across suppliers**: the design choice of much or little working across suppliers with a trade-off between value creation for customers and the suppliers’ relationship with customers
3. **Supply chain structure**: the design choice of a centralised or distributed supply chain structure with a trade-off between the involvement of suppliers and the business integration of intermediary and suppliers
4. **Supply transparency**: the design choice of a high or low supply transparency with a trade-off between value creation for customers and value capture by the intermediary and/or suppliers
5. **Demand transparency**: the design choice of a high or low demand transparency with a trade-off between value creation for suppliers and value capture by the intermediary and/or customers
6. **Customer service innovation**: the design choice of new or traditional elements for customer service innovation with a trade-off between relative advantage and compatibility for customers.

For example, the role size pattern suggests that an intermediary wanting more value-creation opportunities should opt for an extensive role. For
instance, Voogd & Voogd makes it easy to compare insurances and apply directly for an insurance policy. However, an intermediary needing to restrict its effort and cost should opt for a limited role. For example, SeaQuipment’s web catalogue required far fewer resources and capabilities than Tapestría’s managed marketplace. An intermediary may go beyond this trade-off by searching for opportunities to create value while keeping effort and cost down. For example, Tapestría made use of a partnership with a warehousing firm.

The exchange design patterns address specific exchange design trade-offs and provide guidance for dealing with these trade-offs. The exchange design patterns can be applied in different ways. They can be used to discuss extreme options or to identify hybrid solutions that combine both sides of the trade-off. Another approach is to focus on the perspective of one actor. In this way, an actor-centred design can be compared with the potential or current design. These six patterns address important exchange design choices but do not form a complete list. Additional research can provide complementary patterns such as a pattern dealing particularly with price transparency.

Conclusion

The case studies and the developed exchange design model and patterns confirmed the starting point of our research. Developing the right exchange design is problematic because of the many design options and the interests of multiple actors that need to be considered. Balancing interests is far more difficult than suggested by simple prescriptions like ‘everyone must benefit’.

Our research resulted in an exchange design model and associated patterns that can help an electronic intermediary with designing for acceptance. While the model offers more generic support for exchange design, the patterns provide specific guidance. The model and patterns can support exchange design by practitioners and also contribute to the development of design theory for researchers.

The exchange design model and patterns draw attention to the trade-offs per actor and between actors. They are convenient instruments for developing a vague electronic business idea into a more concrete service concept. This should result in exchange designs that are well thought-out and can prevent unexpected side effects with respect to acceptance.

Further research can evaluate the model and patterns for other cases, providing a more empirical support and a better definition of their application scope. Opportunities for further contributions are embedding the model and patterns in a design approach and taking the dynamics of exchange design into account.
**Samenvatting**

*Elektronische intermediairs*


Waarom zijn sommige elektronische intermediairs succesvol en andere niet? De literatuur laat een levendig debat over intermediaitie, disintermediaitie en reintermediaitie. Een veelgehoorde conclusie is dat intermediairs noodzakelijk blijven maar dat hun rol verandert. Deze veranderende rol vestigt de aandacht op de *acceptatie* van specifieke vormen van intermediairs door afnemers en leveranciers. In sommige gevallen zal een marktplaats met een toegangsbeleid als meest geschikte vorm worden ervaren terwijl in andere gevallen de voorkeur uitgaat naar een open catalogus. Er is nog weinig aandacht voor de bijdrage die geschikte inrichtingskeuzes kunnen leveren aan acceptatie. Zo levert de literatuur over acceptatie slechts een beperkt begrip op van inrichtingskeuzes (comptabiliteit bijvoorbeeld) terwijl literatuur over bedrijfsontwerp veelal te algemeen (bedrijfsmodellen bijvoorbeeld) of te specifiek (veilingmechanismen bijvoorbeeld) is.

Ons onderzoek naar succesvolle vormen van intermediairs richt zich op de diensten die een elektronische intermediair levert aan zijn afnemers en leveranciers. We hebben dit onderzocht aan de hand van het ‘exchange design’. Onder *exchange design* verstaan wij de manier waarop de intermediair, door het geheel of gedeeltelijk structureren van de
uitwisseling tussen afnemers en leveranciers, de activiteiten en middelen in het bedrijfsnetwerk coördineert. Het maken van de juiste exchange design keuzes kent een grote complexiteit ten gevolge van de vele inrichtingsmogelijkheden en de belangen van de verschillende partijen waarmee rekening moet worden gehouden. Dit is veel ingewikkelder dan eenvoudige voorschriften als “creëer een ‘win-win’ situatie” suggereren.

De focus van het onderzoek is het ontwerpen voor acceptatie: de kritische exchange design keuzes die om afwegingen vragen gerelateerd aan het balanceren van de belangen van afnemers, intermediair en leveranciers. Voor ons onderzoek richten wij ons op vrijwillige acceptatie door afnemers en leveranciers. Hiervoor kijken we naar het werkelijke gebruik van en de tevredenheid met de elektronische dienst van de intermediair. Afnemers, intermediair en leveranciers hebben zowel overeenkomstige, als tegengestelde belangen. Deze belangen kunnen betrekking hebben op kosten (efficiency), middelen (effectiviteit), klantwaarde en nieuwe inkomstenbronnen.

Deze onderzoeksinteresses resulteerden in de volgende onderzoeks vraag: ‘Hoe kan een intermediair, door het maken van exchange design keuzes, succesvol de belangen van afnemers, intermediair en leveranciers balanceren?’ Wij richten ons op zakelijke intermediairs die als onafhankelijke partij vele afnemers en leveranciers samenbrengen. Het doel van ons onderzoek is het verder ontwikkelen van ontwerpkenis voor elektronisch zakendoen en intermediairs op de onderzoeksgebieden Management en Informatiesystemen. Ontwerpstudies richten zich op artefacten, die vooral nuttig en praktisch moeten zijn en geen doel op zichzelf vormen. Ontwerpgericht onderzoek waardeert creatie en verbetering boven waarheid of begrip, de primaire drijfveren van positivistisch en interpretatief onderzoek.

**Het verkrijgen van kennis over exchange design**

Onze bijdrage aan ontwerpkenis wordt vastgelegd in een exchange design model en patronen. Het model helpt bij het verkrijgen van inzicht in het exchange design in het algemeen terwijl de patronen helpen bij het maken van specifieke inrichtingskeuzes. Ons onderzoek maakt gebruik van een meervoudige gevalstudie om tot een empirische onderbouwing van het model en de patronen te komen. Daarnaast maken we gebruik van een literatuurstudie naar theorieën voor exchange design op de gebieden van elektronische intermediairs, acceptatie, en bedrijfsontwerp. Hiermee wordt het exchange design model geëvalueerd en wordt naar theoretisch ondersteuning voor de exchange design patronen gezocht.

Het empirische onderzoek bestaat uit een meervoudige gevalsstudie: een voorstudie als onthullende studie voor het exchange design model en drie verdere studies gebaseerd op variaties over de thema’s van het model. Deze
gevalsstudies bestaan uit een beschrijving van de intermediair in zijn bedrijfsnetwerk en een analyse van de inrichtingskeuzes, belangen en acceptatie. De exchange design patronen zijn gebaseerd op een analyse over de vier gevalsstudies heen.

De eerste gevalsstudie (en voorstudie) was Tapestria. De verdere gevalsstudies waren SeaQuipment, Meetingpoint en Voogd & Voogd. Van deze intermediairs is alleen Tapestria momenteel niet meer actief. Tapestria was een elektronische intermediair in de woningtextielindustrie die een inkoopdienst voor interieurstoffen aanbood aan binnenhuisarchitecten in de Verenigde Staten en een verkoopdienst aan, voornamelijk Europese, producenten. Tapestria was een nieuw initiatief van Hunter Douglas, een groot bedrijf dat actief is op aangrenzende markten met producten zoals luxaflex. Een interessante bevinding was dat Tapestria probeerde om nieuwe en traditionele elementen in hun dienstverlening aan afnemers te combineren om de acceptatie te bevorderen, een papieren catalogus met online bestellen bijvoorbeeld.

SeaQuipment is een elektronische intermediair in de maritieme industrie die een webcatalogus aanbiedt aan scheepseigenaren, scheepswerven en maritieme leveranciers. Hoewel het accent op Nederland ligt is het bereik internationaal. SeaQuipment is een nieuwe speler opgericht door de Vereniging Nederlandse Scheepsbouw Industrie (VNSI). SeaQuipment leverde onder andere het inzicht op dat ze zich vooral moet specialiseren als leverancier van informatie en niet moet overgaan naar een transactiemodel om van toegevoegde waarde te zijn voor inkopers en verkopers.

Meetingpoint en Voogd & Voogd zijn beiden elektronische intermediairs in de verzekeringenbranche met assurantietussenpersonen en verzekerders als gebruikers. Meetingpoint is nieuw opgericht door een aantal verzekeringsondernemingen en verzekerders een platform voor administratieve transacties. Eén van de lessen was dat industriestandaarden zowel een kans als een bedreiging voor Meetingpoint vormen. Voogd & Voogd is een al bestaand familiebedrijf en biedt tussenpersonen een elektronische marktplaats aan terwijl het als volmacht voor verzekerders functioneert. Interessant aan Voogd & Voogd was onder meer dat ze tussenpersonen selecteren op basis van hun motivatie en capaciteiten om elektronisch te werken.

Het exchange design model

Het exchange design model geeft systematisch inzicht in inrichtingskeuzes die relevant zijn voor de belangen van afnemers, intermediair en leveranciers. Het is ontwikkeld aan de hand van de Tapestria gevalsstudie. Het exchange design model bestaat uit vier thema's en een nadere uitwerking van de aspecten per thema:
1. *Rol*: de positie van de of intermediair in relatie tot de andere actoren in het bedrijfsmoment met betrekking tot de bedrijfsactiviteiten, waarbij de volgende aspecten horen: functionele bereik, activiteitenfocus, en betrokkenheidniveau

2. *Verbinding*: de manier waarop de uitwisselingsinteracties tussen actoren in het bedrijfsmoment zijn ingericht, waarbij de volgende aspecten horen: toegang, standaardisatie and koppeling

3. *Transparantie*: de zichtbaarheid van informatie in het bedrijfsmoment en de mate waarin informatie beschikbaar wordt gemaakt, waarbij de volgende aspecten horen: informatiesoorten, informatiestromen and – verwerking, and informatieregels


Deze vier exchange design thema’s brengen verschillende gezichtspunten op het gebied van elektronische intermediairs bijeen. Op deze manier vormt het een veelomvattend model voor het analyseren van een exchange design gericht op vrijwillige acceptatie. Een vergelijking met theorieën voor exchange design op de gebieden van elektronische intermediairs, acceptatie, en bedrijfsonderwerp bevestigen dit. Deze vergelijking geeft ook aan dat het in sommige situaties zinvol kan zijn additionele thema’s op te nemen specifieke gerelateerd aan complexiteit, vertrouwen of technologie.

**De exchange design patronen**

De exchange design patronen zijn gebaseerd op afwegingen met betrekking tot de exchange design thema’s uit het model. Deze afwegingen relateren aan het balanceren van de belangen van één of meerdere actoren. Het exchange design model is bruikbaar voor het identificeren van inrichtingskeuzes maar begeleid niet bij het maken van deze keuzes. Daarvoor zijn de exchange design patronen ontwikkeld. Ontwerppatronen leggen de essentie van algemene, herhaalbare oplossingen voor veelvoorkomende problemen vast. De patronen zijn gebaseerd op een analyse over de gevalstudie heen waarbij de verschillende bevindingen van de vier gevalstudie zijn gecombineerd. De volgende patronen zijn ontwikkeld:

1. *Omvang van de intermediairrol*: de inrichtingskeuze tussen een uitgebreide of beperkte omvang van de intermediairrol met een afweging tussen het potentieel voor waardecreatie enerzijds en de implementatiekosten en – inspanning voor de intermediair anderzijds

2. *Werken over leveranciers heen*: de inrichtingskeuze tussen veel of weinig over leveranciers heen werken met een afweging tussen waardecreatie voor aannemers en de afnemerrelaties van leveranciers
3. **Structuur van de toeleveringsketen:** de inrichtingskeuze tussen een
gecentraliseerde of gedistribueerde structuur van de toeleveringsketen
met een afweging tussen de betrokkenheid van leveranciers en de
bedrijfsintegratie tussen intermediair en leveranciers

4. **Transparantie over aanbod:** de inrichtingskeuze tussen veel of weinig
transparantie over aanbod met een afweging tussen waardecreatie voor
afnemers en waardebemachtiging door intermediair en/of leveranciers

5. **Transparantie over vraag:** de inrichtingskeuze tussen veel of weinig
transparantie over vraag met een afweging tussen waardecreatie voor
leveranciers en waardebemachtiging door intermediair en/of afnemers

6. **Innovatie van de afnemersdienst:** de inrichtingskeuze tussen nieuwe of
traditionele elementen voor innovatie van de afnemersdienst met een
afweging tussen het relatieve voordeel en de compatibiliteit voor
afnemers.

We zullen als voorbeeld het patroon ‘omvang van de intermediairrol’
toelichten. Wanneer de intermediair meer mogelijkheden wil hebben voor
waardecreatie zal deze in principe voor een uitgebreidere rol moeten
kiezen. Voogd & Voogd maakt het bijvoorbeeld gemakkelijker verzekeringen
met elkaar te vergelijken en direct aan te vragen. Wanneer de intermediair
echter sterk op de implementatiekosten en –inspanning moet letten dan is
het beter een beperkte rol te vervullen. SeaQuipment kost het bouwen en
onderhouden van de webcatalogus bijvoorbeeld relatief weinig geld en
moeite. De intermediair kan ook proberen om deze afweging te overkomen
door naar mogelijkheden te zoeken voor waardecreatie tegen lage
implementatiekosten en –inspanning. Door gebruik te maken van een
partner voor het stoffenmagazijn kan Tapestra bijvoorbeeld de
implementatiekosten en –inspanning verlagen zonder dat dit ten koste ging
van de dienstverlening aan de binnenhuisarchitecten.

De ontwikkelde exchange design patronen richten zich op specifieke
afwegingen voor inrichtingskeuzes en begeleiden bij met omgaan met deze
afwegingen. De patronen kunnen op diverse manieren worden toegepast.
Ze kunnen worden gebruikt om de extremen voor een exchange design te
analyseren of om op zoek te gaan naar hybride vormen die beide kanten van
da afweging combineren. Ze kunnen ook worden gebruikt om de inrichting
vanuit het perspectief van één specifieke partij te analyseren om te kijken
naar mogelijkheden om een dienst meer afnemer of leverancier gericht te
maken. Deze patronen richten zich op belangrijke exchange design keuzes
maar ze vormen geen uitputtende lijst. Er zullen ook andere patronen uit
onze gevalsstudies zijn af te leiden en nieuwe gevalsstudies kunnen nieuwe
patronen opleveren.
Conclusie

De gevalsstudies, het ontwikkelde exchange design model en de ontwikkelde exchange design patronen bevestigen het uitgangspunt van ons onderzoek. Het maken van de juiste exchange design keuzes is niet eenvoudig omdat er vele keuzemogelijkheden zijn en er rekening moet worden gehouden met de belangen van verschillende partijen. Dit is veel complexer dan simpele voorschriften als ‘iedereen moet ervan profiteren’ suggereren.

Ons onderzoek heeft geresulteerd in een exchange design model en patronen die een elektronische intermediair kunnen ondersteunen met het ontwerpen voor acceptatie. Het model helpt bij het verkrijgen van inzicht in exchange design in het algemeen terwijl de patronen helpen bij het maken van specifieke inrichtingskeuzes. Samen bieden ze ondersteuning voor het maken van exchange design keuzes in de praktijk. Tevens dragen ze bij aan het verder ontwikkelen van ontwerptheorie voor elektronisch zakendoen en intermediairs op de onderzoeksgebieden Management en Informatiesystemen.

Het exchange design model en de exchange design patronen vestigen de aandacht op de afwegingen voor inrichtingskeuzes en de gevolgen voor het balanceren van de belangen per partij en tussen partijen. Het zijn passende instrumenten voor het doorontwikkelen van een vaag idee voor elektronisch zakendoen naar een meer concrete dienstconcept. Dit moet resulteren in een exchange design die goed doordacht zijn en ongewenste gevolgen voor de acceptatie tegengaan.

Verder onderzoek kan bijvoorbeeld het model en de patronen evalueren voor andere intermediairs. Dit kan resulteren in meer empirische onderbouwing en uitspraken over de toepasbaarheid. Verdere mogelijkheden voor bijdragen liggen op het terrein van het opnemen van het model en de patronen in een ontwerpaanpak voor elektronische intermediairs en het rekening houden met de dynamiek van inrichtingskeuzes.