ABSTRACT

The purpose of this article is to present a framework for analysing gaps in the relationship between a buyer and a seller as perceived by them in a rapidly changing high-technology environment. This article reviews dyadic buyer-seller relationships in the Telecommunication industry. By buyer in this context we mean a network or a service operator. By seller we mean a system supplier supplying hardware, software or services to a buyer. This article brings the concept of gap to the interaction and network approaches.

Four approaches are used for constructing the framework for the analysis of the gaps. These are an interaction and network approaches, a relationship marketing approach, a project marketing approach and a service marketing and management approach.
1. INTRODUCTION TO THE RESEARCH AREA

1.1. Description of the research area

Business relationships are more complex and more dynamic in today's environment, an environment which itself is more complex, fast changing, and dynamic. There are pressures on a high technology industry from new competitors, changing technology and legislation (Slater 1993, Dowling et al. 1994, Hernesniemi et al. 1995, Chakravarthy 1997). Buyer-seller relationships in the business-to-business sector of high-technology industry offer a challenging study arena. The research focus can be found in the telecommunications industry. Dowling et al. (1994) describe forces affecting the telecommunications industry as market demand and technological change affect each other. The technological change and market demand in turn affect to deregulation and liberalisation. The deregulation and the liberalisation affect to the globalization of the telecommunications market.

Buyer-seller relationships frameworks and models (e.g. in Gummesson 1977, Grönnroos 1982, Håkansson 1982, Parasuraman et al. 1985, Håkansson 1987, Liljegren 1988, Möller and Wilson 1988, Kock 1991, Ahmed 1993, Halinen 1994, Alajoutsijärvi 1996, Holmlund 1996, Kotsalo-Mustonen 1996) are not used because existing frameworks and models do not describe in sufficient detail buyer-seller relationships in the particular environment chosen by the writer of this article. When considering gaps in buyer-seller relationships in particular, lack of research knowledge stands out even more clearly. In the industry sector and in the high-technology sector in particular, lack of empirical research and theoretical models focusing on the development of gaps in buyer-seller relationships is striking. First, there are steep changes in the regulatory environment and steep changes in the techno-economic basis in telecommunication industry (Autio et al. 1996). Next, there exists only limited research on buyer-seller relationships such as Kotsalo-Mustonen (1995 and 1996) studies system sales in information technology industry. Finally, Håkansson (1982) states that a fuller understanding of industrial markets can only be achieved by studying simultaneously buyer and seller.

While any of the above mentioned frameworks and models are not used in their entirety, elements of these frameworks and models will be used for analysing gaps in the relationships between a buyer and a seller as perceived by them in a rapidly changing high-technology environment. A new framework is constructed because first, the environment is highly dynamic and changing, and second, existing frameworks and models do not describe in sufficient detail the selected research area of this article, namely gaps in buyer-seller relationships.

1.2. Research problem

Buyer-seller relationships can be analysed (i) inside a company, (ii) between companies (relationships), and in (iii) a network (Håkansson, Snehota 1995).
This study concentrates on relationships between (and inside) companies, of which the area highlighted inside the bold dotted line presented in figure 1.1. Figure 1.1 describes only part of an entire network. This research concentrates on studying dyadic buyer-seller relationships in limited time perspectives. These relationships are called projects. There are different definitions of a project (e.g. in Holstius 1989, Ahmed 1994, Meredith and Mantel 1995). This research defines a project as

"A project is a time limited perspective of buyer-seller relationships with a well-defined set of desired end results to create or expand a facility or a service at a given time and a place and is non-recurrent."

Earlier literature concerning interaction and network approaches, a relationship marketing approach, a project marketing approach, and a service marketing and management approach do not recognise nor describe gaps in enough detail for the purposes of this research. That is why more detail is needed illustration of the gaps. Parasuraman et al. (1985) and Zeithaml et al. (1988) describe gaps as a difference between expected and perceived experiences of a service. In this research expected means all different reference points or comparison standards. Comparison standard or reference point is described e.g. in Liljander (1995). Rajala et al. (1997) describe gaps as an interorganizational and an intraorganizational interfaces.

This research defines the gap differently than in previous studies (e.g. in Parasuraman et al. 1985, and Zeithaml et al. 1988). This research widens the interpretations of gaps in three different interpretations of gaps as follows: A first interpretation of gaps describes as one or several actors perceive a gap but the other actors do not recognise it all. A second
interpretation of gaps as at least two actors give contradictory perceptions to the phenomena of gap. A third interpretation of gaps as the researcher interprets gaps based on indirect indicating the phenomena of gap by the actors. Actors can be between the companies as well as within the companies. The different interpretations of gaps are illustrated by circled, bold numbers in figure 1.2.

The first interpretation of gaps, one or several actors perceive the same phenomena of gap, but the other persons do not. An example of the gap is that actor(s) indicate a gap as "There has been difficulty to get the necessary information during this phase." An actor(s) indicates an information gap. A bold, circled number one describes the first type of gap in figure 1.2. This research defines the gaps as in the first interpretation of gaps as follows:

"A gap means that one or several actors perceive a difference between the expected and perceived experience in the intraorganizational or interorganizational interfaces."

The second interpretation of gaps, two actors give a contradictory perceptions of phenomena. A perception is that an actor perceives phenomena based on expected and perceived experiences. An example of this type of gap is that one actor describes that "more proper planning should have been done in this phase" but another actor would indicate "more proper planning would not have helped at all." There exists a planning gap between these actors. A bold, circled number two describes second type of gap in figure 1.2. This research defines the gaps as in the second interpretation of gaps as follows:

"A gap means difference between the experiences as perceived by actors in the intraorganizational or interorganizational interfaces."

The third interpretation of gap, the researcher interprets gaps based on indirectly indicating the phenomena of gap. A gap might exist even if an actor does not recognise it all. This means that either of the actors has not recognised nor indicated a gap before the interpretation of the researcher. An example of this kind of gap is that the researcher indicates that during that phase it is planned to do the specific things but they have not been done. A researcher interprets a planning gap in this situation. A bold, circled number three describes third type of gap in figure 1.2. This research defines the gaps as in the third interpretation of gaps as follows:

"A gap means difference between the perceived experiences by actors in the intraorganizational or interorganizational interfaces as perceived by researcher."
Gaps can be located between a buyer and a seller as well as inside a company. Based on above, the four key research questions can be presented as follows. The first research question is the main research question of which three subresearch questions are specified. To understand more deeply the nature of gaps in relationship and evaluate empirically the gaps in relationships main research question is:

Are there perceived gaps in the interaction between the buyer and the seller in the telecommunications industry?

Håkansson and Snehota (1995 pp. 22) point out that: We need a language that helps to assess the mechanism of relationship development in a better way. In order to analyse development of relationships the first subresearch question is:

a) How gaps are developing between companies?

Essentially the concept of relationships is wide and loose, ranging from the strategic to the operational levels (e.g. Dwyer et al. 1987, Håkansson and Snehota 1995 as well as Möller and Wilson 1995). What is needed is a more detailed presentation of gaps in buyer-seller
relationship levels than in conventional presentation (e.g. in Parasuraman et al. 1985 and Zeithaml et al. 1988), when it is studied a rapidly changing high-technology industry. To facilitate a deeper understanding of the nature of the gap, the second subresearch question is:

b) On which levels of the relationships within the companies do gaps exist?

To understand more deeply the nature of gaps in relationships in a rapidly changing high-technology industry and evaluate empirically the factors affecting gaps between companies our third research question is:

c) Which factors are related to gaps in relationships between the companies?

2. DEVELOPMENT OF THE FRAMEWORK

Interaction and network approach, relationship marketing approach, project marketing approach, and service marketing and management approach are needed, because first, each of them describes the problem domain area partly, and second, to have different perspectives into buyer-seller relationships i.e. levels, time, factor groups, factors in different levels and aspects of buyer-seller relationships.

An interaction will be closer, when it is moved from transaction marketing to relationship marketing. Positions of different approaches are summarised in figure 2.1. The relevant approaches describe relationships from various aspects. These aspects are first, the main buyer-seller relationship levels; second, the gaps between and inside companies, third, the time; fourth the operation mode; fifth, the actor, the activity, and the resource; sixth, the detail levels of relationship, and seventh, the factor groups. Each of these aspects are described below in more detail.
2.1. Main buyer-seller relationship levels

Main buyer-seller relationship levels as is described in figure 1.1 of this study concentrates on relationships between (and inside) companies, because expanding the analysis to a total network would make the research too demanding to handle and it is felt that this should be the basis of a separate study in the future. The interaction and network approaches describe main buyer-seller relationship levels.

2.2. Gaps between and inside companies

Gaps are described first in the relationship level between companies (e.g. Miettilä and Möller 1990, Morgan and Hunt 1994, Rajala et al. 1997) second in the project and episode levels communication problems inside a company (e.g. Hamburger 1982) and third in the act level (e.g. Parasuraman et al. 1985, Zeithaml et al. 1988). The gaps between and inside companies are illustrated in figure 2.2 which combines a buyer, a seller, levels, gaps between a buyer and a seller as well as gaps inside a company and time together. The quadrangle located on the left side of the figure illustrates a seller and the quadrangle located on the right side of the figure illustrates a buyer.
A buyer and a seller are divided on the levels namely: the relationship level, the project level, the episode level, the operation flow level, and the act level. The environment level surrounds all other levels. The division is based on table 2.1 Classification of buyer-seller relationship levels. The gaps are located first, between the companies and second, inside of companies. First, the gaps between the companies are shown by horizontal bold arrows in figure 2.2. The gaps exist between companies on the relationship level, on the project level, on the episode level, on the operation flow level, and on the actor level. Second, gaps inside companies are shown by vertical arrows in figure 2.2. The gaps exist inside the companies on the relationship level, on the project level, on the episode level, on the operation flow level, and on the actor level. Movement of time is described by the arrow on the bottom of figure 2.2. The gaps can be understood by understanding the remaining aspects of buyer-seller relationships.
2.3. Time

Time is included in studying relationships. The four described approaches include two dimensions. The time dimension and the relationship levels describe the buyer-seller relationships from different points of view namely horizontally and vertically. The time, the phase or the stage, and the process describe the time dimension of buyer-seller relationships. The time dimension is widely discussed in all four approaches. Ahmed and Törnroos (1995) argue that "most theoretical frameworks in marketing implicitly recognise the time element." The time dimension of buyer-seller relationships is described for the first, time (e.g. in Miettilä and Törnroos 1991 and 1993, Halinen and Törnroos 1995); second, phases or stages (e.g. in Gummesson 1977, Ford 1980, Ghauri 1982, Dwyer et al. 1987) and third, process (e.g. in Ford 1980, Gummesson 1987, Wilson and Mummalaneni 1986) in this research in the described four approaches.

2.4. Operation mode

An operation mode means the different ways of completing project delivery, service delivery, and packaged product delivery to a buyer. The three types of operation modes are a project delivery, a service delivery, and a packaged product delivery. A packaged product delivery means delivery of a packaged product. A packaged product delivery is one (delivery) of the three operation flows. Mäkelin and Vepsäläinen (1989) as well as Apte and Vepsäläinen (1993) present a service-strategy model in which there is a combination of a service and a strategy matrix. The operation mode is implicitly discussed in the four approaches. This means that the interaction and network approaches describe a project delivery (e.g. in Håkansson 1982, Alajoutsijärvi 1996), and a packaged product delivery (e.g. in Håkansson 1982, Turnbull and Valla 1989). The relationship marketing approach describes mainly a service delivery and a packaged product delivery (e.g. in Grönroos 1990b). The project marketing approach describes mainly a project delivery (e.g. in Mattsson 1983, Bansard et al. 1990, Cova et al. 1993a and 1994b, and Ahmed 1993). The service marketing and management approach describes a service delivery (e.g. in Gummesson 1977, Grönroos 1979, Grönroos 1990a, Halinen 1994, Strandvik 1994 and Liljander 1995) and a packaged product delivery (e.g. in Apte and Vepsäläinen 1993). Companies may have several ongoing product deliveries with a buyer at the same time. Connections between a project, a service, and a packaged product deliveries are described in figure 2.3. Figure 2.3 describes the operation modes on the relationship level and the actor level. The other levels are not illustrated in order to clarify figure 2.3. A buyer sees a seller as an entire company not the separated operation modes inside a seller's company.
2.5. Actor, activity, and resource

Companies interact through the actors, the activities and the resources (Håkansson and Snehota 1995). Interactions between two companies are illustrated in figure 2.4, which combines at the first sight separate elements into the same figure (Leminen 1997b). These issues are an actor, an activity, a resource, a competence, an organisation, an episode (=phase), a project, a process, and time. The actor, the activity, and the resource are selected issues to describe interactions between a buyer and a seller from figure 2.4. The area inside of the bold line illustrates interactions between a buyer and a seller during a project. This means that actor 1, a buyer and actor 2, a seller, work together inside the bold line in a project. A vertical dotted line separates the actors. There are competencies behind each actor. The direction of an arrow between parties indicates, whether tangible and intangible elements of resources are brought to a project or to either party. A project is divided in episodes. The episodes of the project are described by the horizontal dotted lines in figure 2.4. Episodes are formed on groups of activities. Actors perform activities in order to carry out episodes. A sequential order of acts (= a process) or episodes describe direction of time in the bottom of figure 2.4.
2.6. Detail levels of relationships

Each approach describes relationship levels only from a partial point of view. Leminen (1996a) proposes a conceptual interaction model between a buyer, a seller, and a competitor. An interaction model consists of first actors, second levels, third gaps, fourth time. Figure 2.5 consists of three actors namely: a buyer, a seller, and a competitor. A chain of circles describes an actor. The area inside of the bold dotted line describes dyadic buyer-seller relationships.

First, interaction takes place between a buyer, a seller, and a competitor on each level. An interaction also takes place between different levels within each actor. The levels are described by circles in figure 2.5. The levels are described as a first level, a second level, a third level, a fourth level, a fifth level, and a sixth level.

Second, there exists a two-way interaction between levels inside companies. The interaction takes place between levels either from top to bottom or from bottom to top.

Third, a model consists of two kinds of gaps. The first ones are gaps between a buyer and a seller on same level. An example of this is a gap between buyer-seller relationship levels. The second ones are gaps between different levels inside a company. An example of this is a gap between a relationship and a project level.
Fourth, a model consists of time. A bold two-way arrow describes movement in position between a buyer and a seller. It is described as time such as presented in Holmlund (1996) by combining longitudinally different buyer-seller relationship levels together between a buyer and a seller i.e. moved position between a buyer and a seller.

![Diagram of buyer, seller, and competitor relationship levels]

**Figure 2.5 Buyer, seller, and competitor (Leminen 1996a)**

Figure 2.6 combines different buyer-seller relationship levels and time perspectives together. The area inside the bold dotted line describes the scope of this research in figure 2.6. This research concentrates on studying dyadic buyer-seller relationships in a limited time perspective i.e. a project. Figure 2.6 simplifies reality the of different buyer-seller relationship levels, because there can be several ongoing projects and connections between projects at the same time. McKenna (1991) points out that there is need for feedback and customer contacts on every level. There are two-way influences between different levels of buyer-seller relationships. Upper levels influence to lower levels and vice versa. An upper level combines group of phenomena described in a lower level.

Time perspective means that phenomena on the different levels take place after each other. The previous taking place on the upper level (e.g. project level) affects to the lower level
Prior episodes can also affect a present project. Detail levels of relationships describe sets of relationship levels between a buyer and a seller namely an environment, a relationship, a project, an episode, an operation flow, and an act levels. This research elaborates a classification of buyer-seller relationships levels somewhat differently than in the interaction and network approaches (Leminen 1997b). This is due to the fact that it uses a phase and an episode in the different meanings in the interaction and network approaches. The division of detail levels of relationships are based on summary of interaction and network approaches in table 2.1. Column, levels in interaction and network approaches describe existing categorisation of levels in those approaches. Column, classification of selected levels presents defined categorisation. In addition there exists operation flow level (e.g. in Shostack 1984, Gummesson 1987, Kingman-Brundage 1991, Honert 1992, Norlig and Olsen 1995) between the episode level, and the act level. A period level is not used in this research because this research concentrates on studying a buyer-seller relationships during a single project.

<table>
<thead>
<tr>
<th>Classification of selected levels</th>
<th>Levels in interaction and network approaches</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phase</td>
<td>Alajoutsijärvi 1996</td>
</tr>
<tr>
<td>Episode</td>
<td>Episode</td>
<td>Cova and Salle 1992</td>
</tr>
<tr>
<td>Act level</td>
<td></td>
<td>Dwyer et al. 1987, Halinen 1994</td>
</tr>
</tbody>
</table>

Table 2.1 Classification of buyer-seller relationships levels (Leminen 1997b)

The levels of buyer-seller relationships are first, the environment level; second, the relationship level; third, the project level; fourth, the episode level; fifth, the operation flow level, and sixth, the act level.
The first level of buyer-seller relationships presents the environment level. The bold line describes an interface between an environment level and other levels in figure 2.6. The surrounding environment affects to each other described level in a buyer-seller relationship. Other described levels affect also to environment. These are illustrated by two-way arrows between the environment level and the remaining levels. The surrounding environment describes phenomena, which take place outside of dyadic buyer-seller relationships. An example of this is competitors and a change of legislation.
Second level of buyer-seller relationships describes the relationship level. The relationship level describes relationships between a buyer and a seller. A group of projects form a relationship level.

Third level of buyer-seller relationships describes the project level. The project level describes a single project or a single time period where a buyer and a seller have agreed on terms of a delivered project or products. A group of episodes forms a project. The depth of interaction between a buyer and a seller depends on the project types, which are a pilot and a traditional projects.

Fourth level of buyer-seller relationships describes the episode level. A relationship is formed on single episodes, which might succeed or fail. The episode level describes single episodes in a project. A group of operational flows and acts form episodes.

Fifth level of buyer-seller relationships describes the operational flow level. The operational flow level means a flow between a buyer and a seller. The operational flow level is seen on each of project types. The operational flow level can also be seen in a delivery of service and packaged products. A group of acts form the operational flow.

Sixth level of buyer-seller relationships describes the act level. Acts are single activities like telephone calls and project meetings between a buyer and a seller. The actor level is seen in each of the operation modes.

2.7. Factor group

Based on Dwyer et al. (1987), Möller and Wilson (1988), Möller and Wilson (1995) this research categorises factors by economic, informational, legal, planning, procedural, social, technological, and contextual factor groups. A factor group categorises all factors by its type. For instance all economic factors are combined in an economic factor group. The influencing factors from the approaches are collected in Appendix 1.

Figure 2.7 combines different levels, factors groups and time perspectives in buyer-seller relationships together (Leminen 1997a). Different factor groups influence different levels. There are two-way influences in the factor groups between the levels. An arrow through the levels describes the influence of that specific factor group. A two-way arrow means that there exists a high influence to the two directions of the arrow through different levels.

The environment and its condition are taken for granted in studied theoretical approaches. Most of the literature does not describe, in which kind of environment the research is performed. The results of studies may be difficult to repeat if its limitation is difficult to understand. This research is done in area, in which there are rapid changes in the techno-economic base and change in the regulatory environment of high-technology industry.
2.8. Framework

A framework for analysing buyer-seller relationships describes various aspects of buyer-seller relationship. These aspects, presented in figure 2.8 are first, the buyer-seller relationships' levels (1); second, the gaps between and inside companies (2), third, the time (3), fourth, the operation mode (4); fifth, the actor, the activity and the resource (5); sixth, the detail levels of relationship (6), and seventh, the factor groups (7). Figure 2.8 combines different aspects of relationships to the framework for analysing buyer-seller relationships from the approaches. The area inside the dotted lines describes dyadic buyer-seller relationship in figure 2.8.

In the first aspect, the buyer-seller relationship levels describe that this study concentrates dyadic buyer-seller relationships. The second aspect, the gaps between and inside companies describes the main research question of this study. Third, fourth, and fifth aspects; time, the operation mode as well as the actor, the activity, and the resource describe the first subresearch question. The sixth aspect, the detail levels of relationships
describes the second subresearch question. The seventh aspect, the factor groups describes the third and last subresearch question.

Figure 2.8 Framework for analysing buyer-seller relationships (Leminen 1996b)

3. SUMMARY

This article describes the development of a framework for analysing gaps in the relationships between a buyer and a seller as perceived by them in a rapidly changing high-
technology environment. The contribution of this research lies first in arranging these familiar issues of gaps into a useful and manageable framework, second pointing out the variety of aspects connected to the gaps. Third and finally the constructed framework is synthesis of the studied four theoretical approaches and that way construct bridges between the approaches. The developed framework is used successfully for analysing three cases in Leminen (1997c). The cases are conducted in the business-to-business market in Finland. The results of the cases demonstrate that this framework can be used for analysing gaps in buyer-seller relationships.

**APPENDIX**

**Appendix 1**

**contextual factor group** A contextual factor describes a situation and its environment, where relationships take place. An example of a contextual factor is an external environment.

**economic factor group** An economic factor consists of the factors, which is by nature economic. An example of an economic factor is an economic bond.

**informational factor group** An informational factor consists of the factors, which is by nature informational. An example of an informational factor is knowledge.

**legal factor group** A legal factor consists of the factors, which is by nature legal. An example of a legal factor is a contract.

**planning factor group** A planning factor consists of the factors, which is by nature planning. An example of a planning factor is a project plan.

**procedural factor group** A procedural factor consists of the factors, which is by nature procedural. An example of a procedural factor is a project process.

**project delivery** A project delivery means a delivery of a project. A project delivery is one of the three operation flows.

**service (delivery)** A service delivery means a delivery of a service. A service delivery is one of the three operation flows.

**social factor group** A social factor consists of the factors, which is by nature social. An example of a social factor is a trust.
A technological factor consists of the factors, which is by nature technological. An example of a technological factor is a process and a production technologies.

<table>
<thead>
<tr>
<th>Factor groups</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economical</td>
<td>attraction, economic bond, economical quality dimension, financial bond</td>
</tr>
<tr>
<td>Informational</td>
<td>knowledge bond, knowledge, communication, information, advice, know-how, individual attention</td>
</tr>
<tr>
<td>Legal</td>
<td>contract, legal bond, legal ties</td>
</tr>
<tr>
<td>Planning</td>
<td>planning bond, project plan, project schedule/plan, decision making barrier</td>
</tr>
<tr>
<td>Procedural</td>
<td>co-ordination, exchange, adaptation, co-ordination across functions, departments and tasks, business-wide process, project process, functional i.e. process-related dimension</td>
</tr>
<tr>
<td>Social</td>
<td>attraction, trust, commitment, conflict, social bond, social relations, social distance, cultural and social gap, manager related barriers</td>
</tr>
<tr>
<td>Technological</td>
<td>technological bond, technology, process and product technology, technological distance, administrative routines and systems, problem of technological evaluation and complexity in producing the equipment, technical tasks, technical quality dimension, technical bond, service management system</td>
</tr>
<tr>
<td>Contextual</td>
<td>contextual property, power-dependence, loyalty, strength, external environment i.e. economic, climatic, social, technological, cultural, legal, political, social and technological environment, government competition, the Partnership itself, geographic bond, cultural bond, psychological bond, motivational barriers, organisational barrier</td>
</tr>
</tbody>
</table>
REFERENCES


Leminen S. 1996a. "Core competencies of company". Unpublished seminar paper in Swedish School of Economics and Business Administration, Department of Marketing and Corporate Geography


