Consumers in Industrial Networks

A study of the Norwegian-Portuguese bacalhau network

by

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Consumers in Industrial Networks: a study of the Norwegian-Portuguese bacalhau network

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Abstract

”The way in which industrial activities are organised among firms has been a fundamental theoretical concern for a long time” (Dubois, 1994). Typical studies do not include the division of work between consumers and firms. In practice, there are various examples of business actors’ ignorance of consumers’ participation in networks of activities. The aim of this thesis is to consider consumers in business networks by making use of the activity layer from the Industrial Network literature. This represents a reinterpretation of the ‘activity links’ concept.

The current Industrial Network literature takes a business-to-business perspective. It limits the study of activity links to business actors’ activities performed in sequence. Clarifying the role of the overlooked consumers requires the utilisation of a business-to-consumer perspective. The Consumer Behaviour literature’s established activity link between business actors and consumers will be used in order to integrate consumers’ activities with the Industrial Network literature. Together they constitute a business-to-business-to-consumer perspective.

The empirical part of the thesis consists of a single case study of the Norwegian-Portuguese bacalhau network. Firstly, the directness of business actors’ *attempts* to link activities is investigated. Examples of sequential chains of business actors’ attempted direct and indirect activity links with consumers are provided. Secondly, these attempts are considered as sequential chains of *probable* activity links between business actors and consumers. Consumers’ activities are based on five theoretically founded activity categories and business actors’ experiences of them.

The reinterpretation of the ‘activity links’ concept will identify and define weak / strong and direct / indirect as four characteristic aspects of activity links, which in different combinations constitute four distinct categories of transformation. The framework of the categories of transformation can be applied as a tool to analyse past, present or potential future activity links. A three-step process of categorizing activity links is introduced for this purpose.

Keywords: activity links, sequential activity chains, activity networks, business actors, consumers, product transformation.

Foreword

When I'm dead and everybody who knew me is gone with me, my personality will not be remembered any more. Left will be my name, my dates of birth and death, a photo, and this Ph.D. thesis. This thesis will be found by descendants and others who will look at it and think it represents who I was. Yes, it did take one tenth of a lifetime to complete it. No, it does not represent more than one tenth of who I am.

Fulfilling dreams or, as in this case, fulfilling things you postulate your mind to, has its costs. It is hard to do it alone, though "none of us lives to himself alone" (Romans 14: 7). Half the job is finding those who can support you. It may not be the same all the way, as amicus versus rara avis. I held the pen, but those who helped holding my arm steady must not be forgotten.

During this project "the wheat" in my life has been shown to be my beloved family Gudrun Jenny Haugnes, Kjellrun Strand Haugnes and Per Haugnes – you continuously remind me of who I am not; John Egil Harveland – your support and pep-talks I will never forget; Silje E. Lund and Ingvild Kobberstad – you are rocks in a rough sea; David John Boakes – TSR-talks (sigh) and carefully performed language corrections; Leif-Magnus Jensen – you should consider starting a company; Kjersti Øverbø Schulte and Kai Victor Hansen – supportive friends and fellow scholars.

The professionals involved in this thesis have been my main supervisor professor Håkan Håkansson, former co-supervisor professor Karin M. Ekström, co-supervisor professor Lars Huemer, former main supervisor dr Inge Jan Henjesand and the rest of the NewMark project. There are a number of others who have contributed in various ways. I know who you are, and you know who you are. To name you all here would take up too much space, but I value your contribution dearly. Furthermore, I would like to thank the members of the committee - chairman professor Debbie Harrison, 1st opponent professor Peter Naudé, and 2nd opponent professor Lars-Erik Gadde – for their time and effort in putting this thesis ashore.

Dear Norwegian Research Council,
Thank you, for financing this project. I hope you like what you have paid for.

Dear Bacalhau Industry,
It has been interesting and a pleasure working with you. I would like to thank all the participating companies, organisations and interviewees. If I

were to draw attention to one of you in particular, it must be the truly amazing Sr. Miguel Antonio Esteves. If I were to highlight just one more that would have to be the very patient Mr. Knut Haagensen. If I were to mention a third it must be the obliging . . . . and so I could go on and on. Without you, there would be no bacalhau case.

"If we live, we live to the Lord; and if we die, we die to the Lord. So, whether we live or die, we belong to the Lord" (Romans 14: 8). Thank you, God! You helped me find my ability and way to accomplish this. On this journey you have shown me strength I knew not of. I have been so far down I was not even able to envision the top. You guided me. Not in a straight line, but the way I needed to go. You are an unpredictable and fascinating director of life! This process has taught me a lesson, and changed me forever.

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Chapter 1

Introduction

”Yes, thinking it; wishing it; w a n t i n g it too; - - but doing it! No; that I do not understand!”
Henrik Ibsen (1867) ”Peer Gynt”

1.1 Introduction

Bacalhau is a salted and dried codfish. For several centuries, bacalhau has been traded between Norway and Portugal. The Norwegian authorities (i.e. the cod stock manager) regulate and control the cod fishing. Norwegian fishermen (i.e. the primary processors) defy the forces of the elements to catch the cod. The land-based industry (i.e. the secondary processors) in either Norway and / or Portugal, salt and dry the cod. The Portuguese retailers make the bacalhau accessible to the consumers. The Portuguese consumers take it home, desalt and cook it for themselves and their guests. The occasions could be anything from a Christmas dinner to an everyday supper, as bacalhau has a central position in Portuguese culture. The average Portuguese eats approximately 13 kilos[1] of bacalhau annually. That is the equivalent of eating bacalhau for dinner for a whole month!

What the cod stock manager, the primary processors, the secondary processors, the retailers, the consumers and all the intermediaries do, constitutes a well connected network of activities transforming cod into the perfect bacalhau meal. It is an industry with an annual turnover of half a billion Euros. Or at least it was.

Something has happened during the last decade or two. Consumers purchase less bacalhau than they used to. While bacalhau had 93 per cent of the consumer market in 2001, it had only 75 per cent in 2006 (Jensen, 2008:6). Furthermore, while 47 per cent of consumers indicated that bacalhau was their favourite fish meal in 2001, the figure fell to 22 per cent in 2006 (Jensen, 2008:5). The Portuguese consumers' demand for bacalhau is declining, but why? And how can this trend be stopped, and preferably reversed?

There could be various reasons behind this downward development. It could, for example, be due to the current global economic crises and Portugal's relatively high level of unemployment. After all, bacalhau is a rather expensive meal, costing the same as good quality beefsteak. However, the economic crisis is only a couple of years old, much less than the length of time of declining bacalhau demand. Another cause could be the present generation's level of knowledge. Young adults of today may not know how to distinguish a good bacalhau from a less good one (e.g. Østli and Heide, 2004). In addition, it has become normal for Portuguese women

[1] Calculated from 70,000 tonnes of bacalhau (Mikkelsen jr, 2006:32) divided by a population of 10,707,924 (CIA, 2009), bearing in mind that the bacalhau's weight is approximately doubled during the desalting carried out by the consumers.

to work outside the home, which leaves less time to plan and cook more advanced meals. If the declining demand is a consequence of the consumers' lack of time and information, what can be done about it? Both frozen desalted bacalhau and ready-to-heat bacalhau have been introduced, but neither have reversed nor stopped the general trend.

However, the downturn is not necessarily ascribable to the consumers, or at least not necessarily caused only by the consumers. Over the years there have been both minor and more major changes in the business actors' activities as well. For instance, a major change took place around 1990. At that time the iron containers in which the bacalhau was transported from Norway to Portugal, were replaced with refrigerated containers. The introduction of this new technology was in itself a relatively minor, but nevertheless welcome change. The new refrigerated containers took better care of the bacalhau and reduced losses, as keeping the bacalhau cool slows down the process of deterioration that starts the minute the cod dies.

However, the new development had a perhaps unforeseen domino effect in the network, which made it the instigator of a major change. The refrigerated containers made it possible to increase the water content of the bacalhau, as a lower temperature can be balanced against a higher water content. As bacalhau is sold by weight, this presented an opportunity for increased profits. Some producers used this opportunity to sell bacalhau with a higher water content than others, which created a rather higher temperature between the producers. This culminated in 2005 when Decreto-Lei n.˚25/2005 came into force. The purpose of the legislation was to "raise the criteria of quality, secure the interests and rights of the consumers, make sure free competition is maintained and increase the visibility in the markets" (Decreto-Lei n.˚25/2005, my translation). The legislation represented a compromise in its detailed regulation of the water and salt content. Before the refrigerated containers were introduced, bacalhau contained 41 – 43 per cent water (known as 'Dried for Shipment', Appendix VI). After the introduction of the containers and the legislation, the standard water content had risen to 44 – 47 per cent (known as '7/8 Cure', Appendix VI).

At first glance the 'water content' problem has been solved. However, between the retailers and the secondary processors it is common knowledge that the 'new' bacalhau, with its increased water content, should be stored at 4°C to maintain its quality. There are, however, indications that consumers are unaware that they can no longer store the bacalhau at any temperature, as had been done over the centuries. For example, some business actors do consider the most common cause of complaint to be due to the consumers keeping the bacalhau under the wrong temperature conditions. The retail

chains hold an 80 per cent market share in Portugal, yet they do not inform the consumers specifically about the necessary storage conditions. The primary and secondary processors could potentially do this, as they print instructions regarding temperature during transport and storage on the cod's or bacalhau's transportation cartons. Only the secondary processors' transportation cartons reach the supermarkets, but the sticker on which the information is printed is small and in general the carton is not even used at the point of display.

The above example is one illustration of producers' lack of knowledge about the consumers' participation in the previously mentioned 'network of activities'. The better the linking between the various activities of the business actors and the consumers is, the better the bacalhau meal will be. To be able to change and create demand by linking activities, I argue that business actors have to acknowledge this interdependence. The next issue is to act on this knowledge by becoming more aware of and being more methodical about linking activities with consumers. That is the only way that the consumers' declining demand for bacalhau can be stopped or reversed.

1.2 Industrial Networks and Consumers

Industrial networks can be viewed as "a number of nodes … related to each other by specific threads" (Håkansson and Ford, 2002:133). Section 1.1 suggests how these nodes are represented by actors, while the threads linking them are their activities. Actors transform products through their activities within industrial networks; from conglomerate resources to a meaningful product in the hands of the consumers, various activities have to be performed by different actors.

In the relatively short-term time perspective of a product's transformation, the various everyday activities performed by the different actors are somehow linked with each other. In the industrial network "[t]he efficient undertaking of an individual activity is … dependent on its linkages to other activities and the coordination of these linkages" (Håkansson et al., 2009:99). For instance, producers make cold ice cream, which the consumers use to cool themselves down on hot summer days. The consumers' use of what is sold to them by the producers indicates a certain link between what the producers do and what the consumers do. The producers and the consumers involved base their transformation on the previous actors' transformation. Alternatively, or in addition, they base their transformation on the following actors' transformation (Dubois, 1995).

Consequently, an actor's performance is influenced by and adjusted to the activities of its counterparts (Dubois, 1994). The actors' activities are linked through influencing and adjusting to the performances of each other. The various business actors' activities might, for example, be influenced by and adjusted to environmental factors, laws and legislation, use of machinery, the qualifications of their employees, their suppliers, customers and competitors. Likewise, the consumers' activities might be influenced by and adjusted to, among other things, their family, occupation, friends, suppliers, organizations and their interests. Based on this, activities link when "[a] product [is] adapted to the process in which it will be used as a input" (Dubois, 1995:55) or the process is "adapted in order to use input products" (ibid.). In other words, in the Norwegian-Portuguese bacalhau network, we are faced with a quite intricate web of linked activities.

Including all business actors from the government regulating and controlling the raw material, the primary processors hunting, growing or extracting the raw material, the secondary processors which modify it, to the retailers, the consumers and their intermediaries, the types of influence these actors have on adjusting each other's activities in a product's transformation can broadly be divided into four, as illustrated by Figure 1.2.1.

		ADJUSTMENT	
		Consumers' Activities	**Business Actors' Activities**
INFLUENCE	**Consumers' Activities**	(4) Consumers adjust to influence of activities of each other.	(1) Business actors' activities adjust to influence by consumers' activities.
	Business Actors' Activities	(2) Consumers' activities adjust to influence by business actors' activities.	(3) Business actors adjust to influence by each other's activities.

Figure 1.2.1: Four types of influence and adjustment in a product's transformation.

In the network of activities involved in the transformation of a product, these four types of influence and adjustment cover all the possible activity links. For instance, secondary processors' activities may 'horizontally' influence the activities of other secondary processors. In addition, consumers may 'horizontally' adjust their activities to those of other consumers. Consumers may also adjust their activities 'vertically' to primary processors' activities. The four types of influence and adjustment are exemplified by Figure 1.2.2. The activities of each business actor and consumer are represented by a circle. Examples of the four types are marked by arrows with the arrowhead pointing at the adjusting actor. The numbers refer to those of Figure 1.2.1.

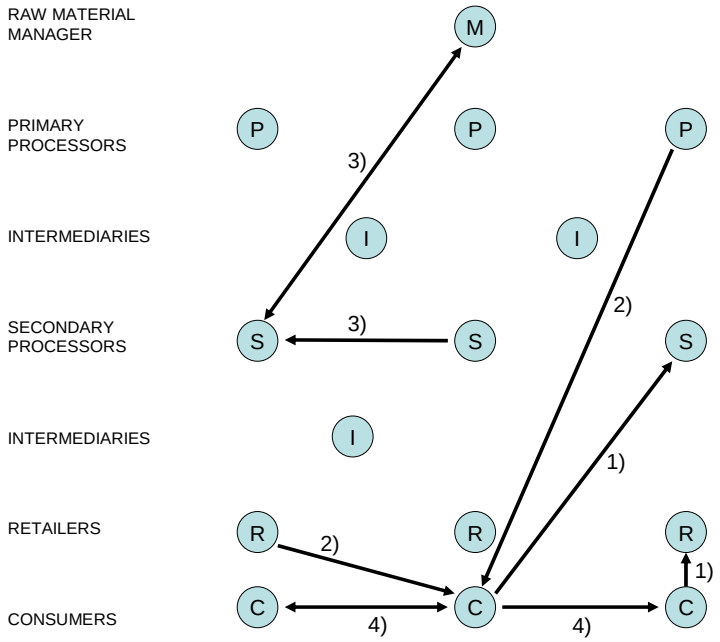


Figure 1.2.2: Types of influence and adjustment between actors' activities when transforming a product.

In general, it can be argued that activity links are researched within a range of fields of theory. Of the many theoretical fields, including among others Sociology, Anthropology and Finance, I have chosen the field of Marketing and its Industrial Network literature. The Industrial Network literature takes a business-to-business perspective, with very limited research on consumers. When studying networks, the approach involves three interdependent layers; activity links, resource ties and actor bonds. Looking into the definitions, not only business actors but also consumers *could* be considered actors in an

industrial network. Furthermore, consumers *could* also be considered to control resources, which actors of industrial networks use to control and transform the activities they perform. Concerning their activities' linking, however, the literature distinguishes between dyadic, serial and joint activity links among business actors. An activity link is dyadic "when two activities are adjusted in relation to each other. [This could for example be] the adjustments between the outbound logistics activities of a supplier and the inbound activities of a customer" (Håkansson et al., 2009:105). Put differently, all the business actors link their activities with those of the others closest to them in the network. The serial links are "characteristic of most industrial activities, implying a predetermined order of activities, e.g. that activity A has to be completed before activity B can be started" (Håkansson et al., 2009:105). This implies that the dyadic activity links create various combinations of sequential chains of activities. Furthermore, joint activity links are defined as "when two activities become dependent because both are related to a third activity, such as the physical delivery activities of two suppliers in relation to the same buyer" (Håkansson et al., 2009:105). Put differently, competitors or other business actors performing similar activities link their activities via a third party. Consequently, the Industrial Network literature covers 'vertical' direct activity links, 'horizontal' direct activity links and 'horizontal' indirect activity links. Here, direct activity links are defined as when the actors linking their activities are present together in time and space. Likewise, indirect activity links are defined as when the actors linking their activities are not present together in time and space, i.e. when at least one intermediary is involved.

In this thesis I argue that consumers are neglected actors in the Industrial Network literature. Therefore, the literature has only studied parts of the third type of influence and adjustment shown in Figure 1.2.1. It has not performed research on how business actors' activities and consumers' activities link (i.e. types 1 and 2 in Figure 1.2.1) or how activities link between consumers (i.e. type 4 in Figure 1.2.1). Consequently, it has not researched 'vertical' direct activity links between business actors' activities and consumers' activities. Neither has it researched 'vertical' indirect activity links at all. Opening this black box of the 'left out' consumers requires the utilisation of the Consumer Behaviour literature.

From a business-to-consumer perspective, the Consumer Behaviour literature has very much studied the fourth type of influence and adjustment (see Figure 1.2.1). That is, when 'consumers adjust to influence of activities of each other'. In addition, it has studied parts of the first and second types, but not studied at all the activity links among business actors (type 3). In this thesis the focus is on the partly researched types of influence and adjustment (types 1 and 2), a subject that is insufficiently by the Industrial

Network literature. These are 'business actors' activities adjust to influence by consumers' activities' (type 1) and 'consumers' activities adjust to influence by business actors' activities' (type 2). The current Consumer Behaviour literature is limited to activity links between consumers and the business actors in physical contact with them, which are primarily at the retail level (e.g. Lovelock and Young, 1979; Bateson, 1985; Fodness, Pitegoff and Sautter, 1993). Consequently, the first and second types are only covered by direct activity links between the consumers and the business actors. In addition, it is primarily transformation of service that is studied by the research community.

A review of the two literatures reveals how the fourth type of influence and adjustment is well covered, while the first, second and the third do not cover 'vertical' indirect activity links well. On the one hand, the Industrial Network literature does not include consumers' activities or 'vertical' indirect activity links. On the other hand, the Consumer Behaviour literature does not include 'vertical' indirect activity links. The next section will discuss which of these gaps are of interest and how this thesis can relate to these.

1.3 Business Actors' and Consumers' Linked Activities

"The interdependencies between activities are perhaps the most significant feature of the business landscape. These interdependencies affect how single activities are designed and also the total configuration of activity patterns stretching across the boundaries of many [actors]" (Håkansson et al., 2009:63). This quotation underlines the importance of research on activity links in general. To further research the identified gaps in the four types of influence and adjustment is considered to be of particular importance, in light of this assessment of the number of actors' activities involved. The gaps cannot, however, all be investigated by one thesis. This thesis limits its focus to the first of the four listed types of influence and adjustment: 'business actors' activities are adjusted to consumers' activities'[2]. Furthermore, the focus will be on the transformation of a product, rather than on a service, but this will include both the product's tangible and intangible dimensions. In other words, this thesis limits its focus to the adjustments of all business actors' activities involved in a product's transformation, to consumers' activities.

[2] All the figures in this thesis begin with the consumers or the consumers' activities, on the left. This is contrary to common practice, but is done here as a reminder that the consumers are anything but passive receivers.

Investigating how the retailers and the retailers' suppliers, the suppliers' suppliers and so on, adjust to consumers' activities in the transformation of a product, can be approached in various ways. In this thesis, a business-to-business-to-consumer perspective is taken. The established activity link between business actors and consumers in the Consumer Behaviour literature will be used to include consumers' activities, and direct and indirect activity links between them and business actors in industrial networks. Furthermore, the research on 'horizontal' indirect activity links (Håkansson et al., 2009) will be used to include 'vertical' indirect activity links. The network created by the combination of these literatures opens up for reinterpretation the 'activity links' concept in the Industrial Network literature.

The definition of activity links mentioned above makes activity links sound very general, and not at all complex. Examining the business actors' activities' adjustments to consumers' activities in the transformation of a product, all the way from conglomerate resources until it becomes a meaningful product in the hands of the consumers might, however, reveal considerable complexity. The activity links between business actors may even be fundamentally different to those between business actors and consumers. For example, at what level of detail can those fishing for cod adjust to consumers' cooking of a bacalhau? Do the primary processors adjust at all to consumers' behaviour? What if a business actor does not want to adjust its activities to consumers' activities? What if a business actor denies the existence of adjustments to consumers' activities? This illustrates how a product's transformation can involve the linking activities of a number of actors, including consumers.

The linked activities transforming a product are based on a certain division of labour between the involved business actors and consumers. This division of work can vary a great deal. If business actors do a lot, consumers can do less, and vice versa. Activity links between business actors and consumers can vary in the degree of linking, which will be represented in this thesis by the terms 'weak' and 'strong'. Whether an activity link is weak or strong depends on the involved number of actors (e.g. Czepiel, 1990; Snehota, 1990; Dabholkar, 1990), the involved number of activities (e.g. Håkansson et al., 2009; Richardson 1972) and / or its level of integration (e.g. Håkansson et al., 2009).

It is therefore possible to categorize the transformation of a product into four, based on the involved activity links. The division illustrated by Figure 1.3.1 is based on the activity links' directness and strength. Whether strong or weak, direct or indirect, every activity link is an intersection of the activity structure in a network. Based on their division of work, the business

actors and consumers involved in every activity link of a product's transformation have developed an activity structure, and thereby built a network consisting of a number of chains of linked activities. None of the four categories of transformation are objectively 'better' than the others. Attempts to change these would often stem from subjective dissatisfaction with the existing situation. As the categories can be actively changed, awareness of them enables the involved actors to apply them as a tool. This thesis will provide a more detailed description of these four categories of transformation and their use, in order to investigate the first type of influence and adjustment. A clearer description would make it possible to discuss how adjustments can bring about the creation, elimination or alteration of activity links. Indeed, changes in established activities can change the activity links (Dubois, 1995), which in turn can change the whole network structure (Håkansson and Snehota, 1989). As a consequence, by including consumers' activities the concept of 'activity link' within the Industrial Network literature is reinterpreted.

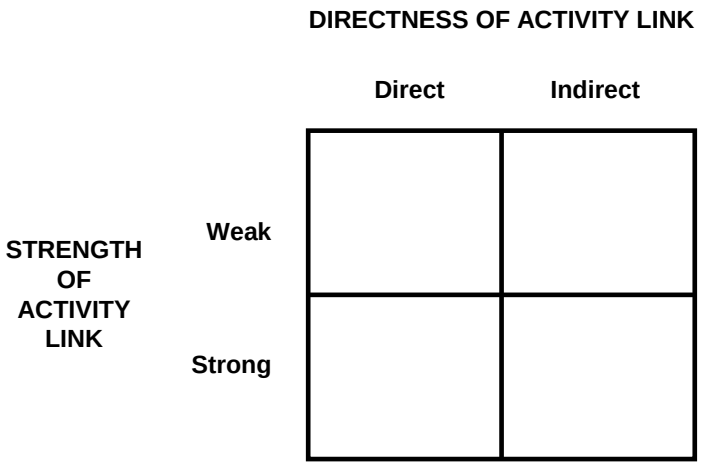


Figure 1.3.1: Four categories of transformation.

The overall research problem will guide the study of this thesis:

> *How can consumers be considered in the Industrial Network literature via the activity layer?*

The final two sections of this chapter will give an overview of the way in which the thesis is structured, along with a discussion of the main findings and contributions of the study.

1.4 Structure of the Thesis

Based on the following presentation the structure of this thesis can be outlined as illustrated by Figure 1.4.1.

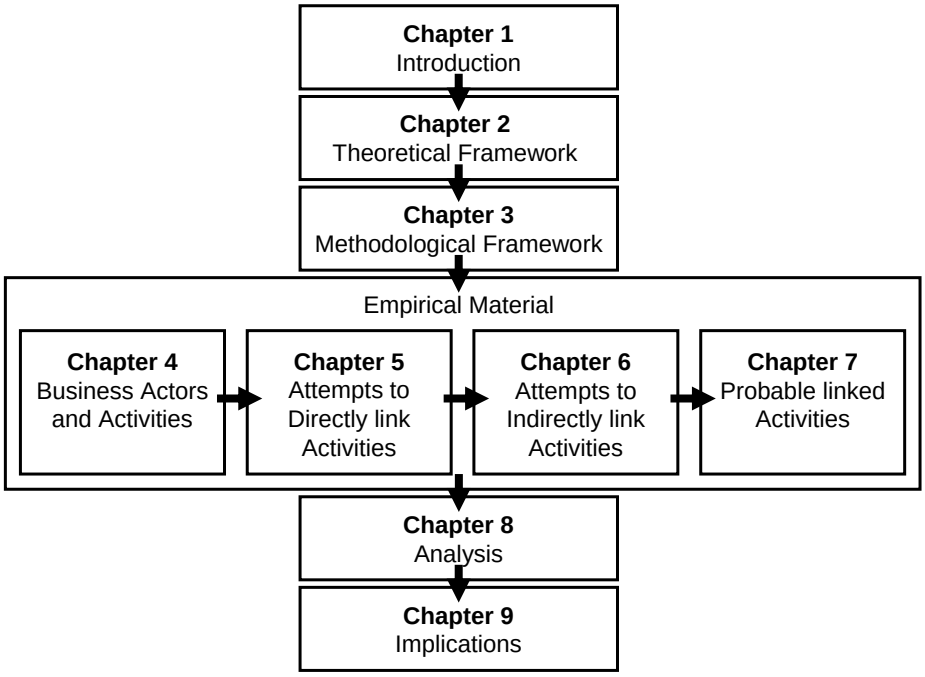


Figure 1.4.1: Structure of the thesis.

Chapter 2 provides an outline of the relevant literature. Chapter 3 presents and discusses the methodological choices and issues involved. Due to monetary and time strains, only the business actors were interviewed. Consequently, an interface is used to structure the analysis, which is performed in two stages.

The empirical material is presented within Chapters 4 – 7. In Chapter 4, an outline of the important actors in the Norwegian-Portuguese bacalhau

network is provided. Here, the various business actors involved in the bacalhau network and their activities are categorised. Chapters 5 and 6 discuss the business actors' and the consumers' activity linking. The distinction between the two chapters is in terms of the directness of the business actors' attempts to link activities and is structured by the interface elements. Chapter 6 concludes with examples of sequential chains of business actors' attempted direct and indirect activity links with consumers. Chapter 7 describes the consumers' activities based on five theoretically founded categories and the business actors' experiences of the consumers' activities. Then, the examples of sequential chains of business actors' *attempts* to link activities with the consumers are considered as sequential chains of *probable* activity links between business actors and the consumers.

An adequate illumination of the research problem requires analysis of the activity links' directness and strength. Chapter 8 analyses the findings of Chapters 5 – 7. The theoretical and empirical implications of the thesis are summarized in Chapter 9. That chapter finishes with suggestions for further research.

Before elaborating on the thesis' methodological and empirical frameworks, the next chapter will introduce the theoretical framework. An outline is given of the mixed theoretical context within the field of Marketing that is used in the research. Chapter 2 ends with the presentation of an empirical research model.

1.5 Main Findings

The aim of this study is to include consumers in the activity layer in the Industrial Network literature. Answering 'how consumers can be considered in the Industrial Network literature via the activity layer' represents a reinterpretation of the 'activity links' concept.

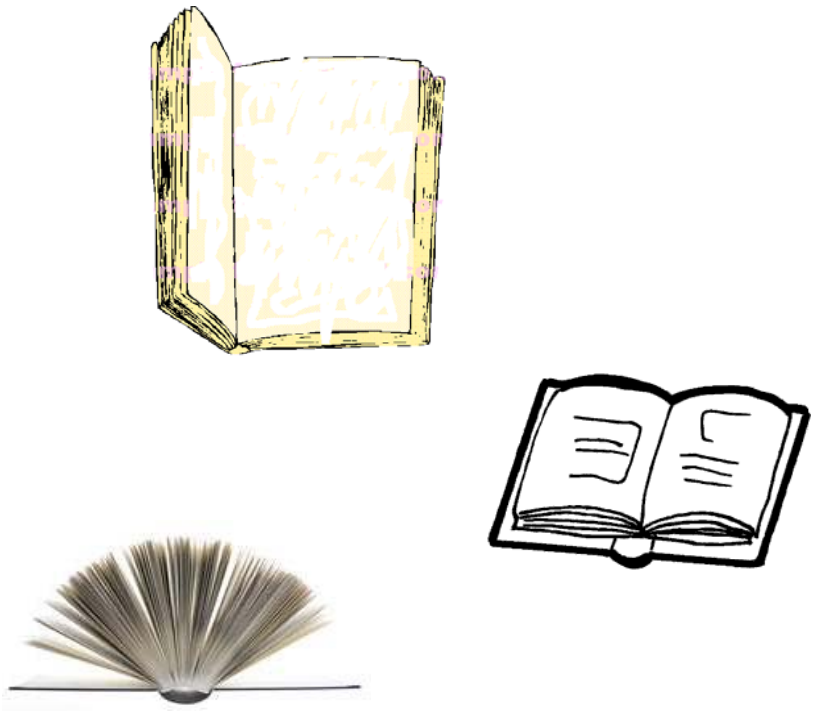
This reinterpretation will identify and define weak / strong and direct / indirect as four aspects of activity links, which in a matrix constitute the four categories of transformation. Product transformation is performed through activity links.

The framework of the categories of transformation can be applied as a tool to analyse existing activity links, as well as past links, or optional future changes in the division of work between consumers and business actors. A three-step process of categorizing activity links is introduced for this purpose.

This study will contribute to an understanding of the complexity of the activity links of networks in which the involved business actors and consumers are interdependent because of their activity links. The main findings, the theoretical and the managerial contributions will be discussed further in Chapter 9.

Chapter 2

Literature Review



”It ain’t what you don’t know that gets you into trouble. It’s what you know for sure that just ain’t so.”
Mark Twain.

2.1 Introduction

The main purpose of this literature review is to investigate current research into the activity layer. This chapter starts out with a presentation of the history and development of the Industrial Network literature. It is followed by an outline of how consumers have been researched in this literature.

Next, a business-to-consumer perspective is introduced via the Consumer Behaviour literature. The intention is to include consumers' activities and their links with producers' activities in the industrial network. In the field of Marketing, the Consumer Behaviour literature is one of the bodies of literatures which have studied activity links between consumers and business actors. It illustrates how consumers link activities with business actors they come into physical contact with, and how the degree of this type of linking varies. As empirical data is collected only from the business actors (see Chapter 3), a theoretical categorization of consumers' activities is also developed and presented.

To apply the consumers' activities from another body of literature within the field of Marketing, a mediator is needed. I have chosen 'transformation', as a product's transformation connects producers' activities and consumers' activities logically, all the way from conglomerate resources until the product is considered meaningful by consumers. This is the case even in situations where the producers and the consumers are not present together in time and space. However, there still remain an almost infinite number of alternative variables with which to categorize and identify the activity links. This chapter will identify certain elements of transformation that can categorize and systemize the search for links. In a review of Alderson's transformation, three types of transformation are identified and explained. Both business actors' activities and consumers' activities can be divided by Time, Space and Form. The overview of the Industrial Network literature's activity layer also identified Information and Cost as two central activities. Together these will be considered as the five elements of transformation.

Finally, a business-to-business-to-consumer perspective is discussed. The intention is to investigate the contributions and gaps of interest that arise when the activity link between business actors and consumers (established in the Consumer Behaviour literature) is used to include consumers' activities and activity links in the Industrial Network literature's industrial network. This chapter concludes with an empirical research model that will guide the empirical material presented in Chapters 4 – 7.

2.2 The Industrial Network literature

The term 'Industrial Network literature' is used in this thesis as a reference to the work of the Industrial Marketing and Purchasing (IMP) group. These researchers view industrial markets as networks of connected inter-firm relationships, and are dissatisfied with the traditional micro-economic view of industrial exchange. Their research is based on the "discussion of how to articulate the phenomenon of business interaction" (Håkansson et al., 2009:ix).

The initial research within the Industrial Network literature developed in line with two main inter-twined projects referred to as IMP 1 and IMP 2 (Håkansson and Snehota, 2000). The next sub-section outlines the large-scale empirical IMP 1 project, which started in 1976 and culminated in the interaction approach (Håkansson, 1982). The following sub-section outlines IMP 2, which building on IMP 1 developed the industrial network approach and the first generation network model (Håkansson, 1987). The third sub-section presents the latest generation network model, which is a further development of the first (Håkansson and Snehota, 1995). Finally, the history and development of the Industrial Network literature is summarized in relation to this thesis' research problem.

2.2.1 The Interaction Approach

IMP 1 was inspired by empirical findings of long-lasting exchange relationships between companies "that could not be explained by the prevailing theoretical approaches" (Ford and Håkansson, 2006b:249; Håkansson and Snehota, 2000). The project was "initiated in 1976 and carried out until about 1982" (Håkansson and Snehota, 2000:70). The aim was to understand exchange relationships. Empirical, descriptive data was collected by more than 20 researchers. More than 1,000 customer-supplier relationships in industrial markets in France, Italy, Sweden, West-Germany and the UK were used as the unit for analysis. The project revealed many shortcomings in the marketing theory, which these researchers were critical of. The results were published (Håkansson, 1982) and an interaction model was developed, as illustrated by Figure 2.2.1.

The IMP 1 project represented both "a challenge to ideas on the structure of business and … a challenge to ideas on the process of business" (Ford and Håkansson, 2006a:5). The interaction model describes the main variables and the short-term and long-term aspects of the interaction process between buying and selling companies, as these elements influence the relationship.

Single episodes constitute the short-term aspects of an interaction process. Thereby, a relationship is both dynamic in terms of its short-term aspects and stable in terms of its long-term aspects. The model divides this process into four variables in order to analyse and describe it (Håkansson, 1982).

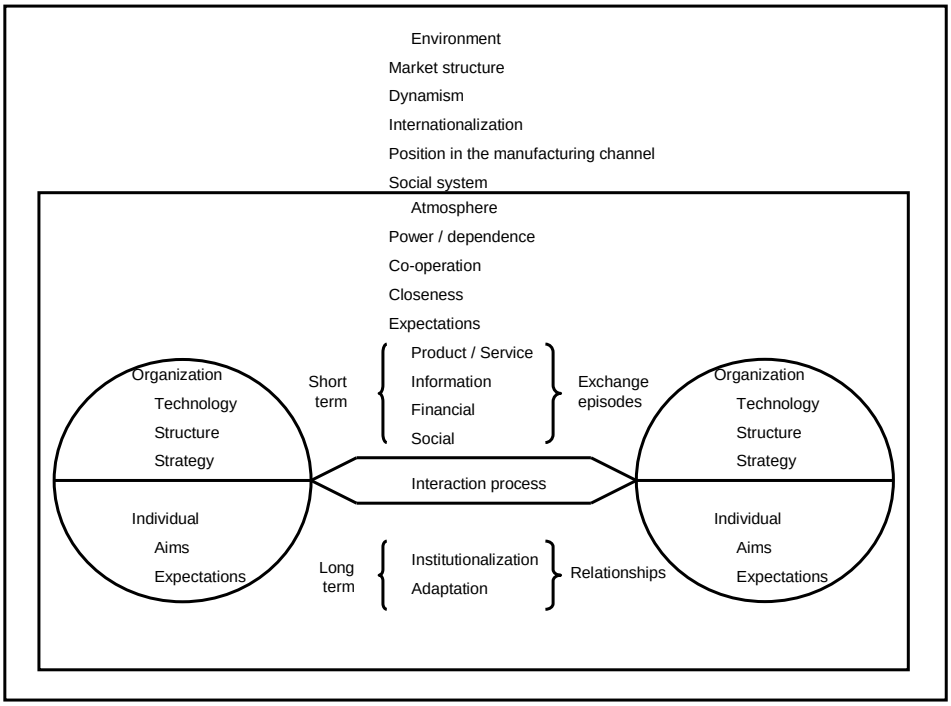


Figure 2.2.1: The Interaction Model (Håkansson 1982)

Putting interaction at the centre makes it impossible to make sense of what happens between business companies by looking at just one of them (Ford and Håkansson, 2006a:14). The Industrial Network literature "emphasises that the processes that occur between organizations are beyond the complete control of any individual actor. Interaction is not the outcome of the factors that drive a single action by a single actor. [Neither of the companies involved owns, directs or manages it]. Instead, it is a process in which the effects of any action are affected by how that action is perceived and reacted to by the counterparts. This reaction then triggers re-reactions from the initiating actor and so on" (Ford and Håkansson, 2006b:250). The different actors "are likely to make different interpretations of both history and future and this in turn leads to ambiguity in the assessment of the current" (Håkansson et al., 2009:35). These differences, however, will be less the

longer a history is, as the history's influence and the future's influence on the actors' current activities become more stable and thereby more common (e.g. Håkansson et al., 2009; Rosson and Ford, 1982). All the actors involved in the short-term interaction, "link the current issues to their experience of previous interaction and the adaptations that have been made. This history will impact on their options, attitudes and behaviour. [The] parties will also have expectations about their future interactions which will colour the current" (Håkansson et al., 2009:35).

The relationships "are built from interaction processes in which technical, social, and economic issues are dealt with. Relationships are organized patterns of interaction and interdependence with their own substance. They are an important phenomenon in the business landscape and have to be recognized and handled by management both as problems in themselves and as marketing or purchasing means. They are as often problems as they are solutions." (Håkansson and Snehota, 2000:75).

This "research model formed the basis for investigating how short- and long-term interaction affects the human and technological resource structure of the dyad. Thus the basic assumption in the interaction model is that resources are heterogeneous. Their features and economic values are assumed to be dependent on the interaction processes that they are exposed to. This basic assumption is also embedded in the ARA [model]" (Håkansson et al., 2009:66-7). The ARA model builds on the results of IMP 2, which is discussed in the next sub-section.

2.2.2 The Industrial Network Approach

The IMP 2 project began in 1986 and "was inspired by indications of interdependencies in and between buyer-seller relationships and the resulting concept" (Håkansson and Senhota, 2000:72). It originated in the empirical findings and conceptual achievements of IMP 1, but brought in researchers from Australia, Japan and the United States along with most of the researchers from IMP 1 (Håkansson and Senhota, 2000). With a similar focus on exchange relationships, IMP 2 was widened to include companies outside the focal relationships.

IMP 2 gave "[m]ore extensive empirical descriptions and interpretative schemes of the interaction processes in buyer-seller relationships" (Håkansson and Senhota, 2000:73). While IMP 1 revealed that business markets consist of relationships between interaction companies, IMP 2 showed that a key feature of such relationships is connectedness. Business

relationships are connected, which "makes them elements of a wider economic organization that takes a network form. Companies are embedded in multidimensional ways into their counterparts – into their counterparts' contexts. This embeddedness affects companies' discretion in contradictory ways. First, it provides serious limitations; any company can only pursue things that are accepted by a number of its counterparts. However, it also offers a company the opportunity to influence its counterparts, and that can be done in a number of dimensions both directly and indirectly" (Håkansson and Senhota, 2000:79). Phrased differently: Companies in a network either adjust to the influence of other companies or influence other companies to adjust to them.

As reflected by Figure 2.2.2, in the network approach business relationships are connected through three layers; actors that bond, activities that link and resources that tie (Håkansson et al., 2009; Håkansson and Snehota 1995). These three layers, representing identity and power structures, productivity and efficiency, and innovation and technological development respectively, form the network model.

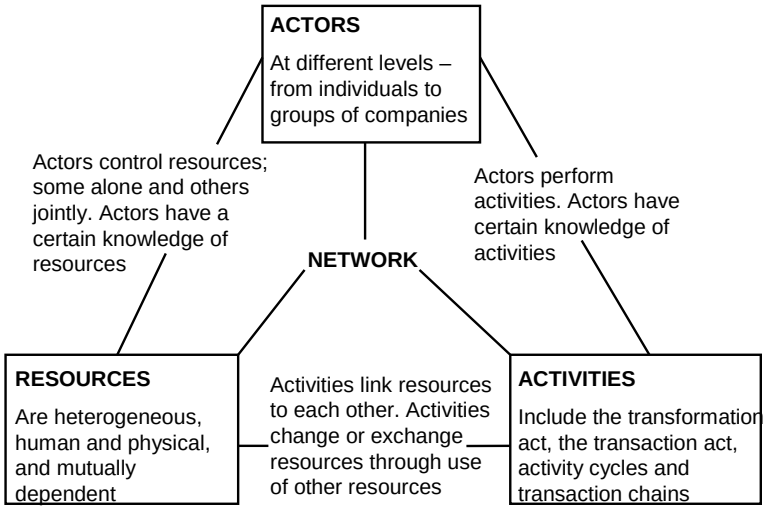


Figure 2.2.2: The Network Model (Håkansson, 1987).

As a result of the IMP 2 project, the interaction model of IMP 1 inspired the network model (Håkansson, 1987; Håkansson and Johanson, 1992) of Figure 2.2.2. Revealing the concept of industrial networks represented a new conceptualisation of the market. With the industrial network, however, came also the question of the network's core and boarders. Objectively, there is

no single network, core and boarders, nor a correct or complete description of it. Actors in business relationships are like people in general; most of us perceive ourselves as the centre of our own perspective and world. Consequently, any boarders of a network are artificial or chosen for a specific purpose. As the purpose of this thesis is an empirical study of an industrial network, it is an analytical necessity to define such borders.

2.2.3 The ARA Model

The network model of the IMP 2 project was of the first generation of network models. The ARA model, which is an abbreviation of Activity-Resource-Actor model, developed it further (Håkansson and Snehota, 1995). While IMP 2 examined the three layers of business interaction: activity links, actor bonds and resource ties, the ARA model highlights the importance of the interplay between the interaction taking place in each layer. Of course, all relationships based on, for example, actor bonds do not automatically lead to activity links and resource ties and so on, but they create a context in which this potential exists (Håkansson and Snehota, 2000). The ARA model, however, sees these three layers as equally important in the network, and seeks to describe how they are affected by business relationships. To do so, the layers are further divided into three levels through which they are described: the company level, the relationship level, and the network level. The ARA model is illustrated by Figure 2.2.3.

The actor layer in Figure 2.2.3 can be described in terms of organizational structures within an actor (i.e. company), bonds between actors, and a network of actors. Next, the activity layer is described in terms of activity structures, activity links, and activity pattern. As each company relates to several other companies, their chains[3] of linked activities constitute an activity web. Because of this interconnectedness, changes in a company's activity structure will influence the pattern of the activity links in its business relationships, which again will influence the whole activity network. Finally, the resource layer illustrated by Figure 2.2.3 is described in terms of resource collections, resource ties and resource constellations. That is, companies' resource ties influence the outcome of their relationship.

[3] Not the approach of the channel literature (i.e. concentrated on intercompany conflict), but the industrial network literature (i.e. emphasizes cooperation, complementariness and coordination) (Easton, 1992; Gadde and Ford, 2008).

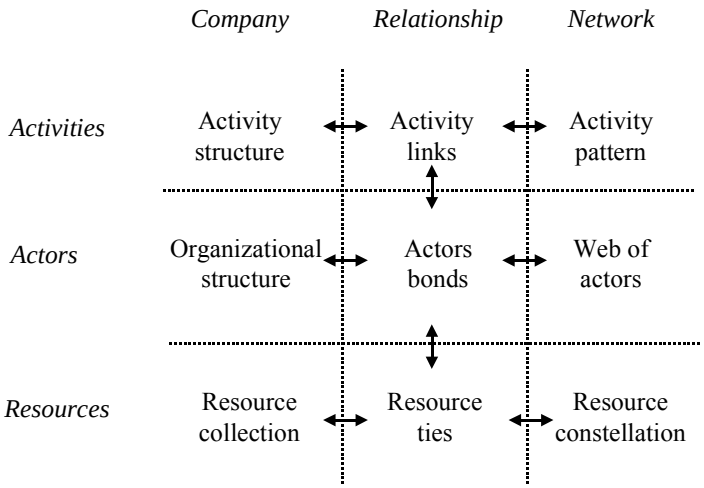


Figure 2.2.3: The ARA Model (Håkansson and Snehota, 1995).

The ARA model can be used in at least two ways (Håkansson and Snehota, 1995). Firstly, it can work as a conceptual framework for analysing the influences or adjustments of change in a relationship. The three layers of activities, actors and resources in a business relationship are both different and interrelated, as illustrated by Figures 2.2.2 and 2.2.3. The interplay between the three layers and their characteristics underpin the functions, dynamics and development of companies, business relationships and networks.

Secondly, the ARA model can be used to identify the factors that influence or are adjusted to the possibilities of a relationship. This relates to the function of a business relationship, which is to adjust or to influence (Håkansson and Senhota, 1995). The two involved actors can perform activities and use resources, which would not have been possible for one alone. Furthermore, business relationships depend on how developed the three layers are, as that illuminates whether a relationship is close and co-operative or more transactional.

2.2.4 Summary

This section has outlined the main steps in the Industrial Network literature's history and development. Its first large-scale project, IMP 1, lasted from 1976 until 1982. IMP 1 revealed how an interaction process may contain both short-term aspects of the everyday activities and long-term aspects where influences and adjustments are made. IMP 2, the Industrial Network literature's second large project, began in 1986 and built on IMP 1. A business relationship is the result of an interaction process between two companies. IMP 2 included companies outside the focal business relationship and revealed the industrial network approach. This approach connects and describes the business relationships through the three layers of actors, activities and resources. These layers are different, but interdependent. Finally, the last sub-section outlined the most recent generation of the industrial network model, building on the findings of IMP 2. The ARA model highlights the interaction within each layer. The dimensions of companies, relationships and network were added in each of the three layers.

As mentioned previously, the industrial network approach can be used to study business relationships as well as changes in them. The Industrial Network literature, however, as the overview illustrates, takes a business-to-business perspective where the actors spoken of are organizations, companies and the like. This study will concern business relationships resulting from interaction between business actors and consumers. It is, however, the activities and their linking and not interaction as such, that are the focus of this thesis. Therefore, the next section outlines how consumers have been researched and considered by the Industrial Network literature.

2.3 Consumers in the Industrial Network literature

The previous section mentioned that the Industrial Network literature considers networks to have no objective boarders or core. The literature seems, however, to place its own boundaries that exclude consumers. The following citation is a good example of how much more important business actors are considered in comparison to the consumers: "Understanding the market context requires focusing the analysis on the customer / buyer (the one who pays for performance) rather than simply on the customer / end user (who often is the customer of the customer). Although understanding the latter remains important, understanding the former is crucial" (Håkansson and Snehota, 2000:87).

Pels (1999:19) performed a study with the "[a]ims at understanding if the work of the Industrial Marketing and Purchasing (IMP) can be applied to end-user consumer markets". Her study showed that it can. Still, as illustrated by the quote of Håkansson and Snehota above, consumers' participation in business relationships, and thereby the industrial network, has not been considered particularly important or interesting by the researchers of the IMP group. It is, however, acknowledged that consumers are the overall purpose of what is going on elsewhere in the industrial network. Without consumers there would have been no business relationships or interaction at all (e.g. Håkansson et al, 2009; Sörhammar, 2008). Håkansson, Ford, Gadde, Snehota and Waluszewski state that the consumers "underlie all of the interactions between business actors and without them there would be no network" (Håkansson et al., 2009:270). Similarly, in his doctoral dissertation, Sörhammar concludes that "Firms cannot exist without consumers and in today's society; no single person can exist without firms" (Sörhammar, 2008:38).

The following sub-sections will give an overview of theoretical and empirical studies within the Industrial Network literature that include consumers. The overview is divided by the three layers of the ARA model.

2.3.1 The Actor Layer

Johanson and Mattsson (1985:185) analysed marketing activities within an investment process framework. They claimed some of their "arguments are certainly also valid for consumer goods marketing (especially for distribution channels), but [they] refrain in this article from a discussion about the applicability of the network approach to consumer goods markets". Axelsson and Easton (1992:xiv) suggest that an industrial network consists of "a model or metaphor which describes a number, usually a large number, of entities, which are connected. In the case of industrial as opposed to, say, social, communication or electrical networks, the entities are actors (or even relationships) involved in the economic process which convert resources to finished goods and services for consumption by end users". Sörhammar (2008:38) states that "no consumer is an island", as firms cannot exist without consumers and vice versa. In line with this, Hadjikhani and Bengtson state that consumers act as a business unit and behave like one (Hadjikhani and Bengtson, 2006). These are examples of the very few studies which have included consumers in the business network.

"Why should organizations be the exclusive actor of exchange relationships?" (Pels, 1999:26). As a product "begins with conglomerate resources in the natural state and ends with meaningful assortment in the hands of consumers" (Alderson, 1965:26), "consumers (households) and firms are part of the same system" (Sörhammar, 2008:38). Pels points out three inconsistencies in the Industrial Network literature. Firstly, the idea that relationships can only be applied to business actors, not to individual buyers. Pels counterpoints that "relationships are not actor specific" (Pels, 1999:31). Secondly, both the relating actors (consumer and business actor) need to be active. Here Pels argues that the experienced "passiveness of consumers was more related to the lack of possibility to interact than to a natural desire to be passive" (Pels, 1999:31), at least in the past (see also Sharma and Sheth, 2004; Sheth, 2002). Thirdly, relationships do not apply to atomistic markets. To this final point, Pels claims "it is fundamental for the firm to seek to include consumers in their network analysis in order to avoid network myopia" (Pels, 1999:31). Related to Pels' analysis, the IMP group's 2009 book claims that "Consumers have two connected roles in the business landscape: They are involved as individuals in both direct and indirect interactions with particular business actors and they may also participate in interaction in the business landscape as part of an organized collective" (Håkansson et al.,2009:270).

2.3.2 The Resource Layer

Håkansson and his colleagues believe in complete asymmetry in business relationships between consumers and producers. "We discussed asymmetry in business relationships … and pointed out that it is unlikely to extend over the entirety of a relationship in favour of one of the counterparts. This is clearly the case in business-consumer interaction. The economic strength of the [producer] is almost always greater than that of the individual consumer. But the situation of interdependence is reversed in the case of information. The [individual] consumer knows far more about the interactions with the [producer] than does the [producer]" (Håkansson et al., 2009:270-1). The producers need to invest in order to obtain information from consumers, but that does not mean that consumers necessarily contain more useful information. The information misbalance can go both ways. It does not help if the producers have absolutely all attainable information about the consumers, and make the perfect product according to this information, if the consumers lack knowledge of, for example, how to use the product. So, the consumers need information from the producers as well.

2.3.3 The Activity Layer

Sharma and Sheth (2004:696) argue that in the agricultural era and in developing countries products were adapted to the individual consumer's needs, and that "This mode shifted with the advent of mass manufacturing". With the internet, however, "marketing is [again] similar to agricultural-age marketing, with direct recurring relationships between consumer and producer" (ibid.). This indicates that, when performing their activities, business actors are influenced by the activities of the consumers.

Sörhammar (2008:27) aimed at generating "a deeper understanding of what induces consumers' conduct their exchanges with firms on the Internet, and what induces most consumers still carry out exchanges in "traditional" stores". The study focuses on three types of actors; consumer, firm and connected actors, where there is assumed "interdependency between … consumer and firm, which is influenced by connected actors" (ibid.:38). Sörhammar seems to include indirect activity links as he studies suppliers' suppliers' influence on an activity link between supplier and consumer, however, delimiting against the suppliers' suppliers' suppliers etc.

In 2000, Eriksson and Hadjikhani published a study clarifying "how consumers' beliefs about one product affect their beliefs about other products, the producers of the products, and their own purchasing behaviour" (p.301). "Any change in the attributes of product A will influence customers, resulting in a change in their beliefs and behaviour, not only with reference to Product *A*, but also to product *B*. This will affect not only the producer of *A*, but also the producer of *B*, as consumers change their buying behaviour" (ibid.:306). This refers to the previous discussion of how an interaction process may contain both short-term and long-term aspects, where influences and adjustments are made in the latter.

"Consumers are not passive in their interactions with [business actors]. Like other actors, consumers are very much the outcome of their interaction with others" (Håkansson et al., 2009:271). "There is another non-trivial point on the relationship between a [business actor] and an individual consumer: The consumer has the power to walk away from the [business actor] but the [business actor] can't walk away from the consumer" (Håkansson et al., 2009:271). The latter is, however, not necessarily true, either in the case of an individual consumer or a consumer segment. "A seller has the power to sell and the buyer to buy and what is exchanged has power to affect both the buyer and seller" (Easton, 2010:125). Very few producers aim at or are even able to generalise their product to be preferred by all consumers. On the one hand, consumers "can easily become victims of" the industrial network, but

they can also use the structure "to effect change even against apparently powerful [business actors]. Consumers can [for example] organize themselves into larger groups through networking as we saw in the election of President Obama" (Håkansson et al., 2009:271).

2.3.4 Summary

This section has outlined how consumers have been researched by the Industrial Network literature. Very few empirical studies have included consumers as actors. Nevertheless, there seems to be a general understanding among the researchers within IMP that consumers are actors of the industrial network, even if not the most important ones. Among the few studies of the activity layer, at least two include (in different ways) indirect activity links with the suppliers' suppliers, and thereby to a certain extent how this influences the consumers' activities. Both Sörhammar (2008) and Eriksson and Hadjikhani (2000) are interesting in relation to this study's focus on how business actors' activities adjust to consumers' activities.

The above overview of the limited studies of consumers in the Industrial Network literature indicates their important, yet somehow neglected position in industrial networks. In Pels' (1999) opinion, and remaining the situation a decade later, the business-to-consumer perspective is the 'black box' of the Industrial Network literature.

2.4 Why Consumers

The previous section presented an overview of the very limited research in the Industrial Network literature concerning consumers. There may be a very good reason for such studies being thin on the ground. Håkansson and Snehota (2000) might be right when claiming that business actors, not consumers, are the crucial actors of the industrial network. One advantage of including consumers is that doing so falls in line with how recent literature upgrades the consumers from important to crucial actors of the industrial network. That is at least what can be read from the previously presented quotes of Håkansson and colleagues (2009) and Sörhammar (2008), which exemplify the IMP researchers' new view on the consumers' position. They state that there would be no business relationships or interaction at all without consumers. This is supported by observations of how consumers both act and behave like a business unit (Hadjikhani and Bengtson, 2006).

Consumers have a focal position as purchasers of the product that has been transformed through business actors' activities. If consumers do not want a product, there is no point in the producers making an effort to offer it. This makes it important to study the consumers' position to get a complete picture of a network's development and strategies (Johanson and Mattsson, 1985). It is through such considerations that the producers can discern their own opportunities. Actors' "network positions are the result of investments in exchange relationships" (Johanson and Mattsson, 1985). Håkansson et al. (2009:274) state that "Other actors change and the network changes: For example, the role of politician and consumer is likely to expand, at least for the next few years". It is, however, not necessarily the network that changes. There is a very limited amount of research on the consumers' position in industrial networks. Pels (1999) claims the Industrial Network literature has a lot to offer when seeking to understand the consumers' position. Consequently, it might be just the perspectives of the researchers that broaden, rather than the networks that change. Most likely, however, there will be a combination of the two.

2.5 Activity Links in Business-to-Business

This section will give an overview of where the activity layer of the Industrial Network literature is currently centred, viewing activity links all the way from the sea to the plate. In the Industrial Network literature, "business interaction can be interpreted as a process that occurs *between* companies and which *changes* and *transforms* aspects of the resources and activities of the companies involved in it and the companies themselves" (Håkansson, et al., 2009:27). Consequently, in a product's transformation, business actors and consumers perform and control a wide range of activities. They also control resources of knowledge and skills, equipment and facilities, and relationships that at least partly differ. In their activities they use resources to transform the product. Single activities of various actors are linked to form activity chains through the network. The activity layer concerns all of the activities performed in the network and how these activities link to each other. Due to the layers' interdependence, this section will, however, start with a short presentation of the business actors and the consumers as actors in the industrial network.

2.5.1 Actors

An actor of an industrial network "can be an individual, a department in a company, a business unit in a company, a whole company, or even a group of companies" (Håkansson and Johanson, 1993:214). "It is important to notice that Håkansson [and Johanson] refers to individuals within an organization" (Pels, 1999:26). A "literature review on network boundaries show[ed] that academics researching how extended an actor's view of the network should be have limited their analysis to exclusively [business actors]" (Pels, 1999:39). When analysing the literature, however, Pels concluded that "exchange relationships may develop in consumer markets" (Pels, 1999:39) as well, when using a network perspective.

Pels concludes that delimiting towards the consumers "has clearly been the blind spot of the network approach" (Pels, 1999:39). Thereby the actor definition must be considered to include both business actors (i.e. all actors from the raw material managing authorities and the primary processor to the retailer) and consumers (e.g. Sörhammar, 2008; Hadjikhani and Bengtson, 2006). Håkansson and Johanson's types of actors "control certain resources / activities" and "are purposeful in their action" (Håkansson and Johanson, 1993:214). The actors' independent purposes and overall aims of either selling or using were discussed in a previous section. However, their aims also overlap as both the business actors and the consumers "conduct[ ] activities in order to enhance [their] own interest" (Hadjikhani and Bengtson, 2006:8).

Furthermore, actors "have bounded knowledge and they are well aware of this. Thus, much of their action and interaction aims at gaining knowledge" (Håkansson and Johanson, 1993:214). "[N]o matter if they are firms or consumers, … knowledge … is of a progressive nature" (Hadjikhani and Bengtson, 2006:8). The involved actors can gain knowledge from each other or from external sources. The existing competence is a function of knowledge available in the whole network of producers, suppliers, manufacturers, partners, investors and consumers (Prahalad and Ramaswamy, 2000).

Business actors and consumers are not always aware of how their activities link with those of others, or that they control resources or participate in an industrial network. Business actors are always aware of suppliers, customers, competitors, the source of raw material, the government's regulations and so on, though not necessarily the whole network. As for consumers, they are similar to private individuals in general who are not

necessarily aware of their own network. The consumers' participation in the industrial network is exemplified by Example 2.5.1. The network of resources that the actors control when performing their activities is the subject of the next sub-section.

Example 2.5.1 A Consumer in an Industrial Network

Ms Smith is in an industrial network with IKEA. Ms Smith does not think of it like that. Just as Ms Smith does not think of being in a private network with her cousins, old school mates she has not seen for years, different kinds of friends etc. In Ms Smith's consumer world, IKEA is IKEA and Ms Smith is Ms Smith and that is the relationship – or lack of such. Ms Smith reads their catalogue and ads in the newspapers (i.e. gaining knowledge), goes there (i.e. controlled activities), buys things (i.e. controlled resources), and that is it. That is, until Ms Smith has a need or a problem. Maybe Ms Smith wants some information, maybe she wonders if they have something that she has been looking for, or maybe there is something wrong with the drawer she bought. Ms Smith has to go back there to complain about the drawer. Then Ms Smith becomes aware that IKEA and she are actors in the same industrial network. Similarly Ms Smith would become aware of being an actor in a larger private network if, for example, she or someone close to her were to get seriously ill. Then Ms Smith would become aware as others step forward and become visible to her by showing their support (i.e. controlled resources) and by helping out (i.e. controlled activities). It is possible that even some people that her friends know, but she does not, would also make an effort to help her. It is just the same with the IKEA example. The service employee tells Ms Smith that she will contact the supplier and to some degree Ms Smith realises the service employee does that to link with her request (i.e. purposeful in action). Ms Smith also becomes aware of the supplier being an actor in the same network as her and that they actually link their activities with her, based on their contact with IKEA. The service employee continues, saying that the material comes from Indonesia, and Ms Smith becomes aware of the Indonesian forestry also being an actor in the same network as her, and that they surprisingly enough also link their activities with her, through linking their activities with those of their customer. The service employee also tells Ms Smith about her rights (i.e. controlled resources) and she realises that the government is a part of her network through their regulations and that they link with her needs by making rules to her advantage. In a situation where a need, want or problem arises, Ms Smith becomes more or less aware of being a consumer actor in an industrial network. Until that point, Ms Smith may be totally unaware of it, just as she is regarding the other networks she is an actor in as well.

2.5.2 Resources

When business actors' and consumers' activities link, at least one activity performed by a business actor and one performed by a consumer is involved, along with one or both of their resources, or someone else's resources that they control. The business actors and the consumers bring the resources they control with them into a product's transformation. For instance, "[t]he goods that a producer has for sale are the expression of his … resources" (Alderson, 1954:11) and his activities. There are intangible resources and tangible resources.

The intangible resources are of a social origin, such as the skills and knowledge of individuals or groups, and their relationships (Håkansson and Waluszewski, 2002:33). The actors' knowledge and skills are, for example,

how to access and leverage a broad competence base, drawing on the resources of companies and communities (e.g. Prahalad and Ramaswamy, 2004; Håkansson and Johnson, 1993), and how to handle their relationships (e.g. Håkansson and Waluszewski, 2002; Medlin, 2003). In relation to the consumers we are talking about formal and informal knowledge about cultural rules and norms, skills in cooking, judging product value, how to access required information and so on. Concerning access to information, it is a challenge that "[t]he information passing through channels becomes less reliable as the channels grows longer. … A channel is rendered noisy for marketing purposes by conflicting motivations which can enter at various points" (Alderson, 1965:92). Therefore, relationships are also important intangible resources in themselves. Within a network business actors will have relationships with other business actors, consumers will have relationships with other consumers, and consumers and business actors will have relationships with each other. "[R]elationships are one of the most essential resources within networks" (Håkansson and Waluszewski, 2002:33), if not *the* most essential. To quote Martin Buber: "I become through my relation to the *Thou*; as I become *I*, I say *Thou*" (Buber, 1944:11).

The tangible resources of products, processing facilities and equipment have received by far the most attention in the literature, and are also essential resources. This thesis focuses on a product, or more precisely products, originating from the same raw material, and these final products are experienced by outsiders to be homogeneous. An established resource can exhibit new features, however, by being embedded into other resources in a new way, or by being activated in a new way (Håkansson and Waluszewski, 2002:32). In short, "heterogeneous buyers face heterogeneous problems, seek to fill heterogeneous wants and needs, from heterogeneous sets of resources, available from heterogeneous sources" (Snehota, 1990:97). Intangible and tangible resources will nearly always be used in combination to some extent.

2.5.3 Activities

Actors perform various activities, for example, developing products, distributing and processing information, purchasing and selling. "The main characteristic of activities and activity configurations in the business landscape is that they exist in a much larger context than a single business" (Håkansson et al., 2009:128). Every activity links with a number of other activities, as the transformation of a product is always performed by more than one party. The current literature distinguishes between dyadic and

serial activity links. An activity link is dyadic "when two activities are adjusted in relation to each other. [This could for example be] the adjustments between the outbound logistics activities of a supplier and the inbound activities of a customer" (Håkansson et al., 2009:105). Put differently, "[t]he output from the activities of one of the actors serves as the input for the activities of the other and vice versa". According to the literature, a dyadic link is thereby "always present when two activities are specifically adjusted to each other "(Håkansson et al., 2009:106). This makes the activities in a network combine to form chains. Broadly speaking, activities can be defined "as a sequence of acts directed towards a purpose" (Dubois, 1995:52), which is *use*, in the case of the consumers, and *profit and sale*, in the case of the producers. Consequently, in the chains of a network of linked activities, the activities are directed towards a purpose in which the aims of the consumers and the involved business actors have a certain overlap.

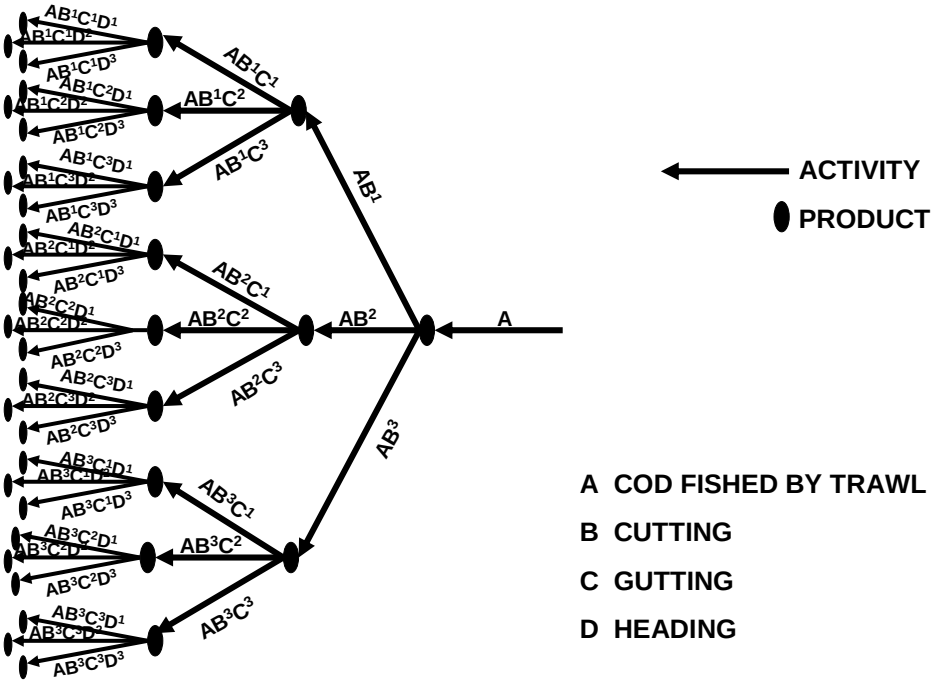


Figure 2.5.1: A sub-section of chains of activities.

As an activity is not restricted to only link with one or two other activities, "any activity is part of many activity chains" (Håkansson et al., 2009:97).

Figure 2.5.1 shows a sub-section of a network of linked activities with many different chains arising from various ways of performing the cutting, gutting and heading of cod. The arrows point in the direction of the transformation towards an end-product. Different actors may have particular ways to perform 'the same' activities, which creates even an even larger number of activity chains.

The serial links are "characteristic of most industrial activities, implying a predetermined order of activities, e.g. that activity A has to be completed before activity B can be started" (Håkansson et al., 2009:105). Consequently, we are talking about "situations where a specific activity cannot be performed until another one has been completed" (Håkansson et al., 2009:105). Business actors link their activities with those of others closest to them in the network, for example both the activities of their suppliers and customers. These direct activity links build various combinations of serial activity chains in an activity network, as exemplified by Figure 2.5.2.

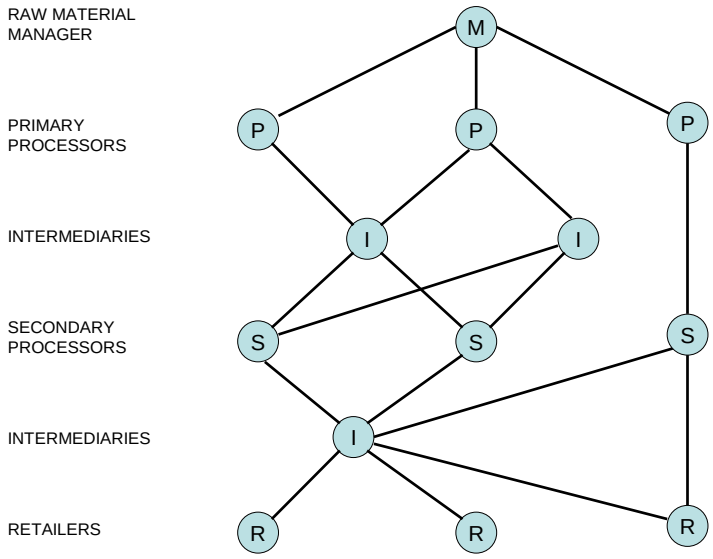


Figure 2.5.2: Dyadic and Serial activity links between producers in a network.

Each of the business actors and consumers has a number of optional links they can perform with their activities. There are also optional changes they

can make in their activities and thereby the links they are joining at that time. For example, limits in knowledge can restrict the utilization of resources. It is a "fact that many new products have relatively severe requirements for their installation and successful use. Thus increased amounts of technical information and service must be transmitted through marketing channels. [The information resource held by the involved actors affects who undertakes what in a product's transformation.] Under these circumstances the [information] … performs a large function for both the consumer and the producer" (Alderson, 1954:26). Information activities can even make a seemingly homogeneous product fill heterogeneous wants and needs, due to the "parallels between the movement of goods and the flows and stocks of information" (Alderson & Martin, 1965:125). No matter what, "[t]he consumer must know that the appropriate segment of supply is precisely what he specified. Confusion of signals in the market place would result in mismatching" (Alderson, 1965:30). This example illustrates how central information activities are. Bridging the gap between the offered and the requested product information is the essence of information utility.

Deciding which activities to link with those of another depends on the costs involved. The "efficiency for one company is related not only to what it does itself, but also to the extent others are basing their actions on the focal company's activities and resources" (Gadde and Håkansson, 2006:181). The "benefits from [linking activities] are more substantial than the costs in many situations, and that is the reason for the increasing interest in developing" (Gadde and Håkansson, 2006:180) an efficient activity network. Therefore, when producers' and consumers' activities do not link, "one or the other [or both] must take the initiative [and] … assume the cost of" (Alderson, 1954:9) closing the gap. When the cost is low, "The consumer may be deliberately opportunistic and take risk" (Eriksson and Hadjikhani, 2000:306). "Correspondingly, in an exchange built on low risk, a consumer builds his or her confidence on quality attributes or producers, and is not willing to take the risk of buying cheaply" (Eriksson and Hadjikhani, 2000:306). "The risk is factored into the price" (Eriksson and Hadjikhani, 2000:306). For instance, "information is not free. The cost of perfect information would be prohibitive. Since information has a cost, it is always pertinent to ask, "How much information is enough?"" (Alderson, 1965:30). Another example is "[i]ntermediary traders [whom] are said to create … utility because transactions can be carried out at lower cost through them than through direct exchange" (Alderson, 1954:14). These examples illustrate how central cost activities are.

2.5.4 Summary

This section has argued that both consumers and business actors are actors of the industrial network. They control certain resources and activities, are purposeful in action and have aims of gaining knowledge. The Industrial Network literature has not performed research on how business actors' and consumers' activities link. It does, however, distinguish between dyadic and serial activity links among business actors. In brief, all business actors link their activities with those of others closest to them in the network, which creates various combinations of sequential chains of activities. Gaps in Information and Cost are bridged through activity links, which creates utility to the involved actors. The next section will make the argument for this study's including of the consumers in the Industrial Network literature via the activity layer.

2.6 Why the Activity Layer

Through the activity layer's network dimension, illustrated by the ARA model (Figure 2.2.3), the activities of the producers and the consumers can be linked all the way from the sea to the consumers' plates. "The interdependencies between activities are perhaps the most significant feature of the business landscape. These interdependencies affect how single activities are designed and also the total configuration of activity patterns stretching across the boundaries of many [actors]" (Håkansson et al., 2009:63). The actors influence and adjust to each other's activities. Considering that the consumers are the ones who purchase and use what the producers want to make a profit on, this quote underlines the general importance of research into activities and activity links between business actors and consumers. It underlines how important it is for the business actors to take account of consumers and their activities when, for example, deciding their strategy and direction of development. The activity layer is useful for considering consumers in the Industrial Network literature, as it is concerned with the activities performed in the network and the way that these activities link, and thereby the actors' position in relation to one another.

Furthermore, only a very limited number of studies within the Industrial Network literature involve the consumers' activities. Sörhammar (2008) and Sörhammar and Hadjikhani (2008) represent rare examples, studying customers' exchange of information "either directly with a firm or through two types of connected actors" (Sörhammar and Hadjikhani, 2008:7). At

present, there is little research performed on how business actors' and consumers' activities in general link.

2.7 Activity Links in Transformation

Transformation is used here as a mediator in the study of how business actors' activities are adjusted to consumers' activities. It can be defined as "a change in the physical form of a product or in its location in time and space which is calculated to increase its value for the ultimate consumer who adds the product to his assortment" (Alderson, 1965:93). Transformation represents a logical connection between business actors' activities and consumers' activities, and thereby a good starting point for further research. In addition, the definition identifies three types of transformation: Form, Time and Space. These types of transformation are explained further in the next sub-section. Transformation is performed through activities, which together constitute chains in a network of activities. These activities can be divided by the types of transformation. The second sub-section discusses, therefore, activity links. It elaborates on the different aims of the business actors' and consumers' activities when they influence and adjust to one another through their linking.

2.7.1 Types of Transformation

Using a product's transformation as a mediator in this study is an advantage, as it logically connects all business actors' activities and consumers' activities into a product considered meaningful by the consumers. In the process, the product can have "a very different meaning for its producer and for the ultimate consumer buyer" (Alderson, 1954:10). Despite these differences, the consumers and the business actors are interdependent. If they are not willing to be influenced by each other throughout the product's transformation, none of them will succeed in their aims. In such a scenario, "[a] buyer with a particular need [would start] looking for a product with the desired specifications with no assurance that a product of this precise character exists" (Alderson, 1954:15) and she / he would not find it. On its way through the transformation from raw material to meaningful product, a product transforms within Form, Time and Space (Alderson, 1965). Bridging gaps in the Form, Time and / or Space types of transformation creates utility for both the business actors and the consumers.

Concerning Form, a product's physical form is altered step by step through the transformation. The form a product is transformed into by the business

actors must correspond with the consumers' "use requirements" (Alderson, 1954:11) for their activities to link and form utility to be created. A product's size is an example of an aspect of form. If a pullover is offered only in medium size, then the consumers must fit the medium size. If some consumers are not medium size, i.e. if there is a gap between their activities, there are two alternative ways to bridge that gap. Either, "[i]f the product [requested by the consumers is] not currently available, it may be provided by [the producers through] innovation in production. [Or, i]f the product [offered by the producers is] not currently demanded, [the consumers] demand may be made effective through innovation in marketing" (Alderson, 1965:28). Bridging the gap between the offered and the requested product form is the essence of Form utility.

With regard to Time, business actors and consumers may "be separated widely in time. [For instance, t]he wheat crop which is harvested [by the business actors] in June is destined to be [requested by the consumers] as bread or other foodstuffs over a period of a year or more thereafter. To bridge this gap in time is to create utility for both producer and consumer" (Alderson, 1954:10). An alternative way to bridge such a gap is for "[r]etailers and wholesalers [to] create time utility simply by holding stocks of goods available to be drawn upon by buyers. Without these facilities the only course open to the buyer would be to place an order with the producer and wait until the article could be produced and delivered. To be able to obtain the article at once instead of waiting is the essence of time utility" (Alderson, 1954:10; Alderson, 1957:215).

Concerning transformation within Space "[t]he activities may take place in different geographical locations; they may arise from different problems; be for specific or wide application; be more or less extensive or involve different types of costs and benefits. Even if some of these activities may appear to be independent, they are always connected to others in a variety of ways" (Håkansson et al., 2009:42). When business actors and consumers, for example "are hundreds or even thousands of miles apart …, one [side] or the other must take the initiative in closing the gap; one of them must call on the other if they are to negotiate face to face. One side or the other must assume the cost of moving the goods; transportation and communication systems arise to bridge the distance" (Alderson, 1957:214; Alderson, 1954:9). As with the Form and Time types of transformation, either the business actors and / or the consumers must change their activities to bridge a gap in Space. For instance, the consumers must reduce their quality demands, and / or the business actors must move their location.

To summarize, transformation as a mediator connects business actors' and consumers' activities in a logical way. "Transformations relate to aspects of

utility such as form, place and time" (Alderson, 1965:27) as far as both business actors and consumers are concerned. Form, Space and Time are identified as three types of transformation, by which the performed transforming activities and their linking can be divided. In the presentation of the Industrial Network literature's current activity layer, however, Cost and Information were identified as central. Gaps in Cost and Information were (like gaps in the transformation types) bridged through activity links, which creates utility for the involved actors.

Information and Cost complement the transformation types of Time, Space and Form. Transformation in general is based on how the performing actors use the Information they have. Similarly, Cost affects the product transformation, influencing which actors perform what activities. Together, Form, Space, Time, Information and Cost can be considered the five elements of transformation. Information and Cost, however, are on a different level to Time, Space and Form. The performed transforming activities and their linking can be divided by these five elements of transformation.

2.7.2 Activity Links

Transformation is performed through activities. The various activities performed by business actors and consumers adjust to the influence of each other. This is how the bridging of gaps in the types of transformation is performed. It should be noted that in a classic perspective business actors' and consumers' activities are not considered equal. They are termed production and consumption. Consumption is the activity performed by a consumer; "the action of consuming or destroying" (Oxford, 2002), while a producer "produces (grows, digs or manufactures) an article of consumption" (Oxford, 2002). The Latin roots of the word consume "imply that … at the least, two contradictory senses of 'consume' came to be accepted in English" (Ramírez, 1999:51) in the year 1541. Cōnsummō meant to make complete or finish abstract as well as concrete things (Oxford, 1968), while Cōnsumō meant to destroy a material object or to reduce immaterial things to nothing (Oxford, 1968). Referring to the original terminology, consumers could perform both consumption and production. How to define consumption and production has been, and still is, an ongoing discussion (e.g. Illich, 1981; Fine, 1995; Saren et al., 2005). As far as the study of this thesis is concerned, a discussion of how to name and define the activities of the business actors versus those of the consumers is not fruitful. Rather, in this thesis I will refer to and focus on the activities actually performed by business actors and consumers.

Looking at the actual activities, the actors distinguished as the consumers perform activities for use, while the business actors perform activities "to exchange … for sale and profit in the market" (Ekström et al., 2001b:28). What is interesting here is to note how business actors perform activities "in the expectation that" (Richardson, 1972:886) their consumers "will continue to put business in [their] way. The [consumers give] no formal assurance but [their] past behaviour provides [producers] with reason to expect that they can normally rely on getting further orders on acceptable terms" (Richardson, 1972:886). This reflects a certain influence and adjustment between the activities performed by business actors and consumers. It might be a two-way influence, where both the involved parties adjust their activities, or it could be that only one influences the other to adjust. Either way, the business actors' and the consumers' activities link and they will remain linked as long as both their aims are fulfilled. Based on this definition, a network transforming a product might look as illustrated by Figure 2.7.1. The circles represent the various business actors' and consumers' activities, while the lines represent links between their activities.

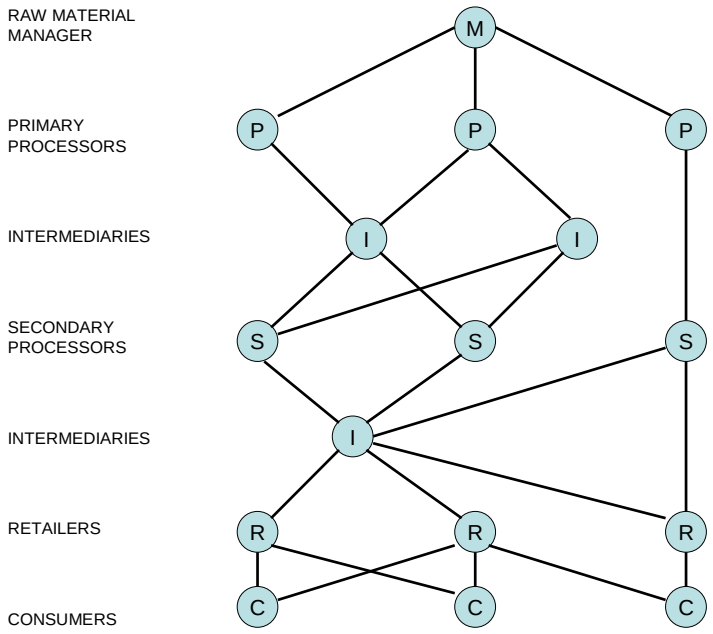


Figure 2.7.1: A network of activity links.

A network of activity links consists of a number of chains of linked activities. In a transformation from raw material to meaningful product, as exemplified by Figure 2.7.1, the length of these chains may vary. They vary in the number of actors that perform activities within the chain that constitutes the transformation of a product. It might be just one, if "the members of the household" (Alderson, 1954:6) choose to transform the raw material themselves. However, "[a]t an early stage in the development of economic activities it [was] found that some of the needs of a household or tribe [could] be met more efficiently by exchange than by production" (Alderson, 1954:6; Alderson, 1957:211). Today, it is most common for there to be intermediaries between the producer(s) transforming the raw material and the consumers. "[I]ntermediaries arise in the process of exchange because they can increase the efficiency of the process. The justification of the middleman rests on specialized skill in a variety of activities" (Alderson, 1954:14).

This division of work may concern transformation within Form, as the activities of intermediaries can transform a product's physical form. Alternatively, it may concern the Time type of transformation, as for example "grain elevators and warehouses [can] enter the picture and help to create time utility through storage" (Alderson, 1954:10). Likewise, these activities can also link a gap within Space. "The railroad and trucking companies are, in effect, new types of specialized intermediaries serving buyer and seller more cheaply than they could serve themselves" (Alderson, 1957:214; Alderson, 1954:9).

"The opportunity for a firm to specialize in marketing activities obviously depends on the existence of other firms. The development of one type of intermediary changes the marketing structure and may prepare the way for still another type" (Alderson, 1954:18). An actor's specialism makes it easier for non-specialists to survive, and the existence of non-specialists likewise makes it easier for specialists to survive, both in quality and quantity. "Two firms are complementary when the existence of each increases the likelihood of the survival and success of the other" (Alderson, 1954:18). It would be impossible, or at least difficult to survive by differentiating with a higher quality product if nobody made an average or lower quality product. When large sellers sell at a low price to large buyers, it makes it possible for smaller sellers to sell at their higher price to smaller buyers. "The survival and prosperity of every firm in the channel is dependent upon the success of the others" (Alderson, 1954:19). If the consumers want the retailers to run large sales campaigns with a lower price, they are dependent on efficient factories, efficient catchers of the raw material and efficient management of the resource by the government. To purchase efficiently, buyers are dependent on an efficient supply, just as

sellers are dependent on efficient buyers in order to maintain efficiency. "In general it may be anticipated that the success of one firm or type of firm creates opportunity for others" (Alderson, 1954:21), just like the different needs of their buying consumers makes them complementary.

To summarize, transformation is performed through activities, which together constitute sequential chains in a network of activities. These chains are based on varying division of work between different numbers of involved business actors and consumers. Their activities can be distinguished as the business actors aim for sale and profit, while the consumers aim for use. Products are transformed and chains created as their activities link. Their activities link as one or both parties influence and adjust to the activities of the other.

2.7.3 Summary

This section has looked at activity links in transformation, as transformation is used here as a mediator. A product is transformed by activities all the way from conglomerate resources until it is considered meaningful by the consumers.

Transformation is performed through activities constituting chains in a network of activities. Products are transformed and chains created as the activities link. These chains are based on varying divisions of work between differing numbers of involved business actors and consumers whom perform these activities.

There are three types of transformation; Form, Space and Time. These are complemented by Cost and Information. Together they constitute the five elements of transformation. All the business actors' and consumers' activities and their activities' linking can be categorized by these elements. Gaps in any of these elements of transformation are bridged through activity links. Bridging of gaps in Form, Space, Time, Cost or Information creates utility for the involved parties. (They will only link activities as long as their aims are fulfilled).

To understand how opportunities may be taken through business actors' activities' adjustment to consumers' activities, we have to understand how their activities currently link. Here, a product's transformation acts as a mediator to enable the use of consumers' activities from the Consumer Behaviour literature in the Industrial Network literature. The next section will attempt to include consumers' activities and their links with business

actors' activities by outlining relevant studies with a business-to-consumer perspective.

2.8 Activity Links in Business-to-Consumer

The previous section introduced transformation as a mediator in this study, as it represents a logical connection between business actors' and consumers' activities. Activity links were initially defined in Chapter 1, as when "[a] product [is] adapted to the process in which it will be used as a input" (Dubois, 1995:55) or the process is "adapted in order to use input products" (ibid.). Therefore, this section takes a business-to-consumer perspective. An attempt will be made to include consumers' activities and their links with business actors' activities in the industrial network. The Consumer Behaviour literature is one body of literature among those in the field of Marketing, which has studied activity links between consumers and business actors.

The aim of this section is to join Figure 2.8.1 with Figure 2.5.2 in order to cover the transformation of a product all the way from sea to the plate, as illustrated by Figure 2.7.1. To do this, firstly, the business actors' and the consumers' division of work is discussed, as this influences the way and degree to which their activities link. Secondly, a theoretical categorization of consumers' activities is presented. This is necessary due to empirical data being collected only from the business actors (see Chapter 3).

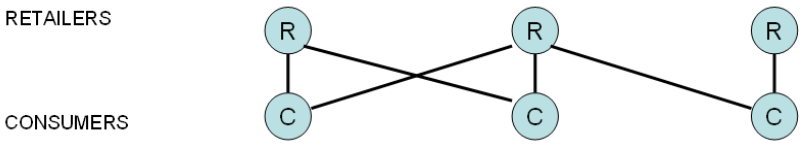


Figure 2.8.1: Activity links between retailers and consumers in a network.

2.8.1 Division of Work

Whether the actors and their linked activities are few or many, there is a certain division of work between the business actors and consumers. In a network transforming a product, the activities can be performed by either

business actors, consumers, or by both of them (Meuter and Bitner, 1998) through their activities' linking.

Firstly, the business actors can perform their activities, independent of consumers' activities. Business actors do have some degree of intended purpose for their product (e.g. Oudshoorn and Pinch, 2003:1-2); a picture of why, how and when the consumers will use it. In pure business actors' activities "the [consumers do] not participate in the creation" (Meuter and Bitner, 1998:14). Rather, such product transformation is characterized by the participation of several business actors, who could be positioned both further up and down the activity chain.

Secondly, the consumers are free to choose their type of involvement independent of the business actors' intentions (Cermak and File, 1994). They have a free will despite being members of a society, and thereby also a culture, that has established different norms and rules about how to perform activities; what type of raw material to use, and how and where to transform it (e.g. Ekström and Askegaard, 2000; Thompson et al., 1994). Pure consumers' activities do not involve any participation from business actors (Meuter & Bitner, 1998:14). Rather, they are characterized by the participation of several consumers (e.g. Thompson & Coskuner-Balli, 2007; c.f. Meuter & Bitner, 1998). Consumers' activities are not limited to physical or visible transformation only, but may also include the consumers' transformation of their identity and selves (e.g. Firat and Venkatesh, 1993; 1995; Firat, Dholakia and Venkatesh, 1995).

In summary, both business actors and consumers are free to perform their activities however they like, independently of the other. This freedom has certain limitations, however, if their activities are to be linked. A third situation arises, therefore, when "both the contact employees and the [consumers] participate" (Meuter & Bitner, 1998:14) with their linking activities. Still, to what degree they link their activities and how the work is divided between them in the transformation of the product, may vary a lot.

In some cases, business actors and consumers may be equally involved, meaning that they perform close to the same degree of activities, and / or that none of them decide more than another what the object will be like. An example is when "tailoring the service to meet the exact needs of the client … [which] … requires … that the client 'opens up' to the firm concerning his or her problems and goals" (Czepiel, 1990:16). Alternatively, either the consumers or the business actors can be in charge or managing the transformation (e.g. Dabholkar, 1990:484). The consumers can participate a little, for example by adjusting "the timing of their demand to match the availability of service" (Fitzsimmons, 1985:62), while the business actors

decide everything else about what the service will be like, the price and so on. At the other end of the scale, the consumers can perform "complex activities in the rendering of [their] own services" (Mills and Morris, 1986:62), or even dominate the process completely by performing self-service (e.g. Bateson, 1985), leaving the producers to just supply the raw material.

All the listed categories of division of work are represented in the transformation of a product. It entails pure business actors' activities, pure consumers' activities, and business actors' and consumers' activities that link. The previous paragraph showed how the activity links can vary in degree. Clearly, depending on the product in question and the actors involved, the amount of linked business actors' and consumers' activities can vary considerably. Consequently, activity chains in which products are transformed can have various degrees of activity links. Figure 2.8.2 illustrates a product transformation where quite a large degree of the performed consumers' and business actors' activities link compared to the amount of pure consumers' activities and pure business actors' activities.

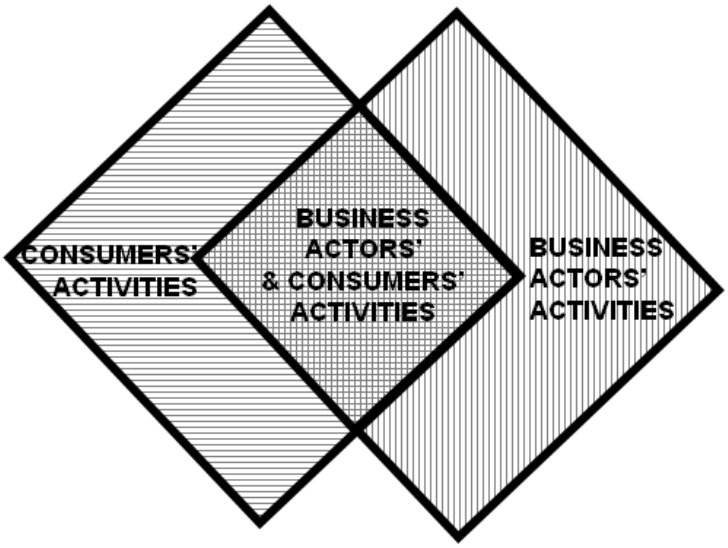


Figure 2.8.2: Some chains of activities contain a lot of linked business actors' and consumers' activities[4].

[4] The equal sizes of the actors' pure activities are not intentional, but are meant for illustration only.

To summarize, the above has discussed how activity links among business actors, activity links among consumers, and activity links between business actors and consumers can be distinguished. In the following section, the term 'activity links' refers to links between business actors and consumers. Furthermore, it was illustrated how business actors' and consumers' activity links can vary in degree, dependent on the number of linked activities involved. The next sub-section will review research on activity links within the Consumer Behaviour literature. Based on this a theoretical categorization of consumers' activities is presented.

2.8.2 Activities

Within the Consumer Behaviour literature, research on the link between business actors' and consumers' activities has a long history. It was not, however, firmly identified as a phenomenon in the earliest works. In more recent years the phenomenon has been called by name, first by Alvin Toffler and Ivan Illich. Toffler (1981) named it 'prosumption', and defined 'prosumers' as "people who are beginning to perform for themselves services hitherto performed for them" (ibid, p.267). Illich (1981) named the phenomenon 'shadow work', and defined it as a "form of unpaid work which an industrial society demands as a necessary complement to the production of goods and services" (Illich, 1981:100).

Appendix I includes a wide range of examples of the Consumer Behaviour literature's definitions of and statements about the consumers' participation in the chain of activities. Kotler (1986:510) and his colleagues Bowers, Martin and Luker (1990:61) defined consumers' participation as when they transform goods and services entering their own use. Similarly, de Certeau (1984) claims that consumers perform activities in order to adapt an object to their own interests and their own rules. Through these definitions, they indicate that undertaking activities with a purpose other than to please oneself would make one a producer, and not a consumer. Other researchers build on Toffler (1981) by considering consumers' activities to link with producers' activities when the consumers undertake activities that have previously been performed for them (Lovelock and Young, 1979; Bateson, 1985; Fodness, Pitegoff and Sautter, 1993). From these researchers' point of view, it is not by definition an activity link, unless producers have previously performed the activity now performed by the consumers. Related to this point of view is to the definition of consumers' activities as linking with producers' activities whenever consumers perform activities with a professional's level of complexity (Langeard, Bateson and Lovelock, 1981; Mills and Moberg, 1982; Goodwin, 1988; Kelley, Donnelly and Skinner,

1990), but without the activities having to have been performed by business actors earlier. The producers' can also simply treat the consumers as employees (Mills and Moberg, 1986; Bowers et al., 1990), instead of having employees to perform the job.

In the Consumer Behaviour literature, the phenomenon has expanded to involve all parts of an object's life circle, for example delivery, development, creation, learning, information, effort, transaction, reproduction and specification. However, the references of Appendix I are primarily limited to involve only service employees and consumers. Wind and Rangaswamy (2001) are an exception, as they take it a step further by also including the link between activities of the consumers and the retail-level's suppliers. In addition, only a handful of the related Consumer Behaviour studies I found are empirically based. The empirical studies of Appendix I are based on either mail surveys or in-depth interviews with consumers or business actors, focusing on the consumers' participation. Langeard et al. (1981) is a rare exception that examines both sides, but unfortunately is limited to business actors in physical contact with the consumers.

To study links between business actors' and consumers' activities requires certain knowledge of both parties' activities. The methodology chapter will show and explain why and how empirical data was collected only from the business actors. As a result of that, generic consumers' activities are used, based on three suitable presentations in existing literature. Ekström (2004) distinguishes between longing for an object, purchasing, owning, using, transforming, categorizing, exchanging and reconstructing. (Ekström's transforming activity is preparation related and thereby on a micro level compared to that of Alderson). Wilk distinguishes between desire, shopping, buying, using and discarding (2004:19), while Arnould et al. (2004:9) divide consumers' activities into acquiring activities, consuming activities and disposing activities. Arnould et al.'s acquiring activities include receiving, finding, inheriting, producing and purchasing, their consuming activities consist of collecting, nurturing, cleaning, preparing, evaluating, serving, displaying, storing, wearing, sharing and devouring, while their disposing activities are giving, throwing away, recycling and depleting.

This thesis' focus on how the business actors' and consumers' activities link does not include discarding and disposing activities. I have tried to reduce and categorize the different variations of generic consumers' activities into a logical and more manageable number as illustrated by Table 2.8.1. Using the previous three examples of classifications as a starting point, I have searched for a general classification that covers the different basic activities of the consumers, from the point where the product enters the consumers'

part of the activity chain, until it leaves. Longing for an object, desire and finding are all planning related activities, here referred to by the collective term planning activities. Shopping, buying, receiving and inheriting are likewise purchase related activities. Owning, collecting and displaying are related to possession and storing of an object. Transforming, reconstructing, using and producing, cleaning, categorizing and evaluating are given the collective term preparing. The way that 'using' is presented by Ekström (2004) and Wilk (2004) means that it can also be classified as a devouring related activity together with exchanging, nurturing, serving, wearing and sharing. Obviously these activities can overlap, but to simplify matters they are viewed here as mutually exclusive categories.

Table 2.8.1: Categorizing of generic consumers' activities.

Generic Consumers' Activities			
My Classification	Ekström, 2004	Wilk, 2004	Arnould et al.,2004
Planning	Longing for an object	Desire	Finding
Purchasing	Purchasing	Shopping Buying	Receiving Inheriting Purchasing
Storing	Owning		Collecting Displaying Storing
Preparing	Transforming Categorizing Reconstructing Using	 Using	Producing Cleaning Preparing Evaluating
Devouring	Using Exchanging	Using	Nurturing Serving Wearing Sharing Devouring

To summarize, this sub-section distinguishes business actors from consumers as the latter undertake activities to 'please themselves'. Furthermore, the review revealed how studies within the Consumer Behaviour literature focus on activity links between consumers and business actors in physical contact with the consumers - primarily those operating on a retail-level. Finally, generic consumers' activities were categorized for use in the study, as empirical data will only be collected from the business actors.

2.8.3 Summary

This section has reviewed the Consumer Behaviour literature from a business-to-consumer perspective in an attempt to include its established consumers' activities and their links with business actors' activities in the Industrial Network literature. This is due to the business-to-business perspective of a previous section, which reviewed the Industrial Network literature and revealed a neglect of research into activity links between business actors and consumers.

The division of work between the business actors and consumers influences the way and degree to which their activities link. In a network of activities concerned with a single product transformation, it is possible to distinguish between activity links among business actors, activity links among consumers and activity links between business actors and consumers. The latter are the focus of this thesis.

A review of the Consumer Behaviour literature revealed a limitation in current research to activity links between consumers and business actors in physical contact with them - primarily retailers. On the basis of the review, a theoretical categorization of consumers' activities was established and presented. These generic consumers' activity categories will be used throughout this study, as empirical data will be collected only from the business actors.

The aim of this section was to join Figure 2.8.1 with Figure 2.5.2 and so cover the transformation of a product all the way from sea to the plate as illustrated by Figure 2.7.1. The next section will combine the business-to-consumer perspective and the previous business-to-business perspective to provide an overall business-to-business-to-consumer perspective. The aim is to investigate the contributions and gaps of interest that arise when the activity link between business actors and consumers (established in the Consumer Behaviour literature) is used to include consumers' activities and activity links in the Industrial Network literature's industrial network.

2.9 Activity Links in Business-to-Business-to-Consumer

Earlier sections started from a business-to-business perspective, as the Industrial Network literature was reviewed. At present, research has only been carried out on activity links between business actors. In order to make

use of the consumers' activities from the Consumer Behaviour literature, transformation was introduced as a mediator. Using transformation as a mediator is logical, as products are transformed by activities all the way from conglomerate resources until they are considered meaningful by the consumers. Therefore, the previous section took a business-to-consumer perspective, using the Consumer Behaviour literature.

This section will combine the business-to-business perspective and the business-to-consumer perspective to give an overall business-to-business-to-consumer perspective. The aim is to investigate what contributions and gaps of interest this creates. To do this, the previous two perspectives are held together to outline the contribution created when the established activity link between business actors and consumers (from the Consumer Behaviour literature) is used to include consumers' activities and activity links in the industrial network (from the Industrial Network literature). Moreover, after discussing the types of activity links, the degree of linking of activities will be considered.

2.9.1 Direct Activity Links

The distinction between the business actors and the consumers is largely decided by the aims of their activities. This study will focus on the activities actors actually perform. When it comes to the consumers' activities, however, these will be referred to by the Consumer Behaviour literature-founded generic classifications of Planning, Purchasing, Storing, Preparing and Devouring.

Transformation is performed through activities and activity links. Considered together, the two previously presented initial definitions of activity links from the Transformation and the Industrial Network literatures may be judged to overlap. Firstly, based on the presented Transformation literature, activities link when one or both (all) of the involved parties' activities influence those of the other to adjust. It is a one-way or a two-way influence and adjustment. In other words, only one of the (minimum two) involved actors needs to be influenced and adjust his / her activities to those of the other(s). Suppliers' activities are, for example, influenced by customers' activities when "[a] product [is] adapted to the [processing] process in which it will be used as a input" (Dubois, 1995:55).

Secondly, when defining dyadic links, the Industrial Network literature requires both actors' activities to be "adjusted in relation to each other" (Håkansson et al., 2009:105). So in this case it is a two-way influence and

adjustment. Customers' activities are, for example, influenced by suppliers' activities when "a [processing] process may … be adapted in order to use input products" (Dubois, 1995:55). There might, however, be situations where one of the actors is, for example, large enough to do what they prefer to do, or where there simply is no need or room for a two-way influence and adjustment. In such situations actors affect others without being affected themselves. For their activities to link, however, the performance of both (all) the actors' activities is necessary. Therefore, a general definition of activity links between business actors and consumers can be divided into three parts. Firstly, at least one business actor must perform an activity. Secondly, at least one consumer must perform an activity. Thirdly, at least one of these actors' performances is in addition to being "affected by its own activities … also [affected] by the activities of its counterparts" (Dubois, 1994:25).

According to the Transformation literature, when a product is transformed, activities link to form chains in a network of activities. The review of the Industrial Network literature specifies this further. The activity links (dyadic) are between business actors positioned as suppliers and customers. Their activities are performed in a sequential order (serial). Through these sequential activities, activity links and activity chains are created. As an activity may link with more than one other, it can be part of more than one chain. An activity network consists of numerous sequential chains of linked activities. The review of the Consumer Behaviour literature adds to this, as it links activities between consumers and business actors who are in physical contact.

Despite their differences, both the business-to-business and the business-to-consumer perspectives delimit activity links to actors situated next to each other in the network. As a result, despite sequential activity chains requiring a particular order, the activity linking actors are contemporary to a certain degree when it comes to Time and Space. Firstly, an activity link is time-dependent. For example, at a specific point in time, the activity linking actors of both the perspectives will link planning activities, while they will link storing activities at another point in time. As the actors are in physical contact with each other, without intermediaries, they can be said to perform and thereby link these activities at the same time. Secondly, just like Time, position in Space affects the activities that are performed. Each activity link "follows its own logic; it involves specific actors, it deals with particular aspects of business and takes place in a particular context" (Håkansson et al., 2009:35). When it comes to the definition of existing activity links, the geographical aspect of Space seems to have a central position. The linking actors see each other, physically meet, negotiate on the phone, transfer money and products to each other, and so on. Consequently, when the

activity linking actors are present together in time and space, their activities can be said to link directly.

Thereby, it is concluded that actors' activities "build on activities undertaken by others and enter in those of some others" (Dubois, 1995:56). Figure 2.9.1 illustrates the progression from one activity-performing actor to another, along a sequential chain of linked activities in an industrial network. The striped squares represent various pure consumers' or pure business actors' activities, while the cross-ruled squares represent directly linked activities.

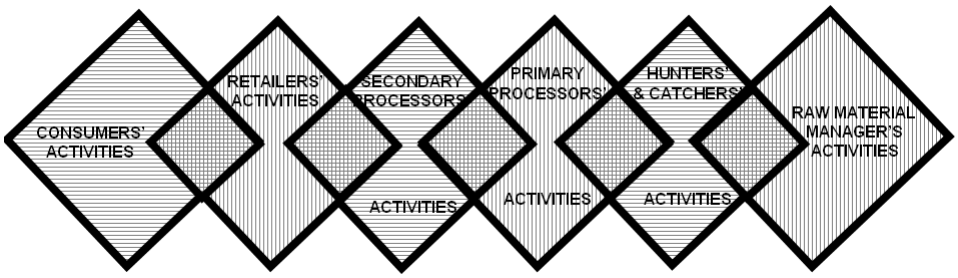


Figure 2.9.1: A sequential chain of linked activities in an industrial network.

The actors in an industrial network link their activities with those of a varying number of other actors in a network of activities. However, Figure 2.9.1 illustrates only direct activity links, i.e. the actors' activities' links with those of their immediate suppliers and their immediate customers. This thesis concentrates on each of the business actors' activities' link with those of their customers. More precisely, the focus of this thesis is the various business actors' activities' link with consumers' activities. Such links may occur whether the business actors' customers are the consumers, or the customers' activities link with those of the consumers, or with somebody else's activities that link with the consumers' activities, etc. Therefore, the next section will consider the theoretical possibility of actors linking their activities with others than those present together with them in time and space.

2.9.2 Indirect Activity Links

Håkansson et al. (2009:103) state that "the most important features of activity patterns are the sequential effects that occur because no single activity is independent of others or completely stable over time". The lack

of independence they are referring to is not limited to direct activity links only. The Industrial Network literature defines joint activity links as "when two activities become dependent because both are related to a third activity, such as the physical delivery activities of two suppliers in relation to the same buyer" (Håkansson et al., 2009:105). They are consequently talking about activity links between actors who are not present together in time and space. There is at least one intermediary involved, whose activities they depend upon for this particular activity link to take place (Håkansson et al., 2009:107). In the following, when the activity linking actors are not present together in time and space (i.e. when at least one intermediary is involved), the activity links will be referred to as indirect. With regard to indirect activity links between business actors and consumers, the involved parties are not present together in time and space, and are divided by at least one other business actor's activities.

Indirect activity links are the result of influence by direct activity links. "[T]he behavior of actors with respect to the third parties has been stressed repeatedly" in the Industrial Network literature (Snehota, 1990:126; Håkansson, 1989; Johanson and Mattsson, 1985). The current research, however, has certain limitations of which two will be emphasised here. Firstly, indirect activity links are not considered to include all kinds of indirect activity links in the day-to-day transformation of products. Rather, indirect activity links are considered "a way for ideas, solutions and technologies to travel across several actor boundaries" (Håkansson et al., 2009:39). Secondly, the third party is limited to those in "the classic role of distributors, such as wholesalers and export-import agents, and financial intermediaries, such as brokers" (Håkansson et al., 2009:39). This means that the indirect activity links referred to in the Industrial Network literature are limited to 'horizontal' indirect activity links only, as opposed to the literature's similar delimiting of direct activity links to 'vertical' direct activity links in sequential activity chains. The direct (lines) and indirect (broken lines) activity links referred to in the current Industrial Network literature, as well as this thesis' addition from the Consumer Behaviour literature, are illustrated by Figure 2.9.2.

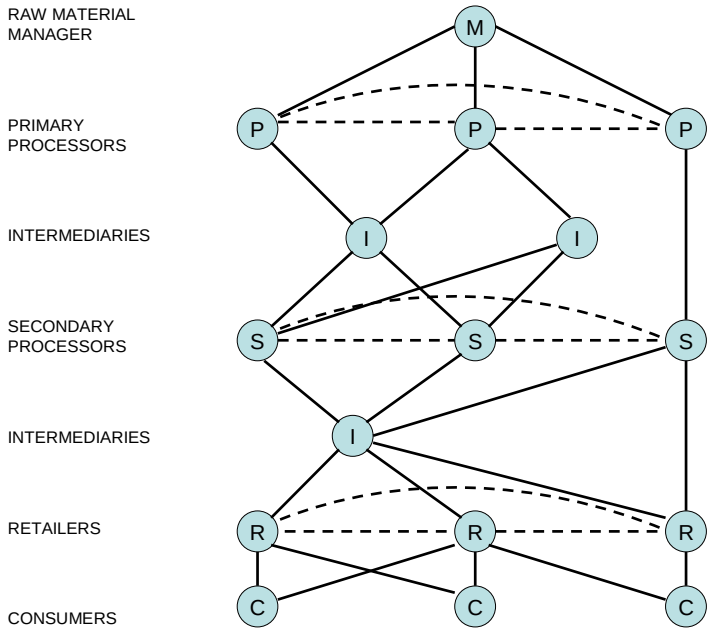


Figure 2.9.2: Direct and indirect (horizontally) linked activities in a network.

Despites its limitation, the Industrial Network literature does state that actors' direct activity links "with a specific counterpart indirectly but systematically relates [them] to a whole set of other actors" (Håkansson et al.,2009:39). By this, the literature emphasises that actors link their activities with various numbers of other actors' activities. Referring to the research problem of this thesis; the differing numbers of actors' activities linked to may include activity links between consumers and all the business actors involved in a product's transformation. Figure 2.9.1 illustrated a sequential chain of direct activity links. This sequential chain, however, may also include indirect activity links. The linking of the different business actors' activities in Figure 2.9.1 began with the business actors' activities' link with activities of their customers, of which a part also may link with an activity of the customers' customers and so on, until finally they also link with activities of the consumers. Figure 2.9.3 uses cross-ruled squares to illustrate how various business actors' and consumers' activities link, either directly or indirectly.

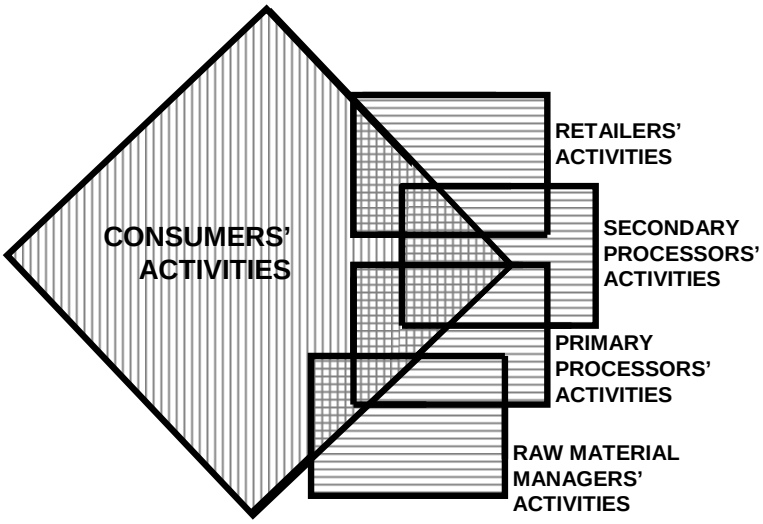


Figure 2.9.3: Links between business actors' activities and consumers' activities[5].

Current research is limited to horizontal indirect activity links with distributors as third parties, and bright ideas or new technical solutions as activities. However, a direct activity link may also "indirectly but systematically" (Håkansson et al., 2009:39) cause vertical activity links. These potential indirect activity links include links between everyday activities of equals such as primary processors and retailers, where secondary processors function as the intermediary.

There is no limit to how many intermediaries' activities there can be between the indirectly linked activities. This may cause the actors' to be unaware of their activities' links' existence. "Even those activities that appear to be carried out entirely within a single company and out of sight, or without the knowledge of others, are dependent on their interaction with other activities in other companies or organizations" (Håkansson et al., 2009:99). As an outmost consequence, this can cause unwanted or unintentional activity links when actors' activities "become[ ] related to a set of many others about which they may know little or nothing" (Håkansson et al., 2009:30). The actors might just do what they prefer to do, or might adjust to other actors' activities, while third parties' activities may also be influenced, even though neither are necessarily aware of or want the links.

[5] The proportions of Figures 2.9.3 are unintentional and meant as illustration only.

Of course, this is not all positive. "If some activities are standardized with positive effects on directly related activities, this may have detrimental effects elsewhere because of indirect effects" (Håkansson et al., 2009:112). These unintentional, unknown or even unwanted indirect activity links can reduce the benefits of other activity links. Consequently, "a critical issue in the organizing of activities is the 'balancing' of activity patterns with regard to time and place" (Håkansson et al., 2009:112).

Together with the previous sub-section, this sub-section has outlined different types of vertical and horizontal activity links among business actors, among consumers and between business actors and consumers. "[E]very actor is connected to other actors, vertically, horizontally, diagonally and in all other possible directions" (Gadde and Ford, 2008:47). As diagonally is a combination of vertically and horizontally, in order to simplify matters this presentation is delimited to vertical and horizontal activity links. When transforming a product, the actors' activities are influenced by many other actors' activities, which is a situation that they handle by making adjustments.

Overall, the actors' influence on and adjustment to each other's activities can be divided into four types. Firstly, business actors' activities adjust to influence by consumers' activities. Secondly, consumers' activities adjust to influence by business actors' activities. Thirdly, business actors adjust to influence by each other's activities. Fourthly, consumers adjust to influence by the activities of each other. Therefore, one cannot explain a single activity link "in isolation from others to which it is connected" (Håkansson et al., 2009:39; Johanson and Mattsson 1992). Nevertheless, that is to a certain extent what this study will do when looking into how the business actors' activities adjust to the consumers' activities. It will perform an empirical study of vertical direct activity links, sequential activity chains and vertical indirect activity links between business actors and consumers, as illustrated by Figure 2.9.4.

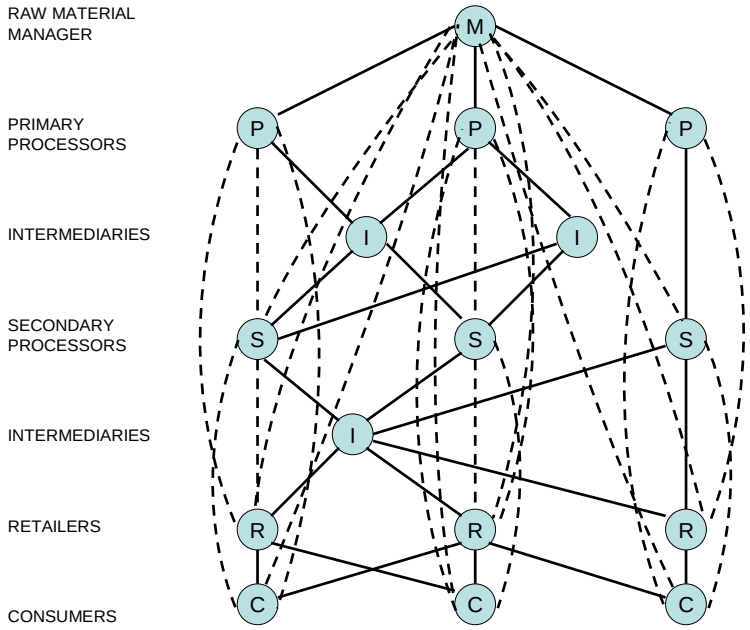


Figure 2.9.4: Direct and indirect (vertically) linked activities in a network.

2.9.3 Strong and Weak Activity Links

The previous two sub-sections have illustrated how activity links' directness, or type, is an important aspect when illuminating how actors' activities are adjusted to each other. The presented theoretical framework, however, repeatedly refers to an additional aspect; the degree to which the activities are linked. The actors' activities can influence adjustments to each other to a varying extent. As the degree to which activities links can vary, so can the activity chains built by those activity links and thereby the whole network in which the product is transformed. The complexity of this degree of linking gives rise to the distinction between weak and strong activity links. An outline of the various views on this aspect of linking is the subject of this sub-section.

One approach to understanding the activity links' strength is to measure it by how the work is divided between the consumers and the business actors. According to the Consumer Behaviour literature, an equal participation makes the activities link strongly. The involved actors' equal participation refers to them performing close to the same amount of linked activities, and /

or the fact that none of them decide more than the other what the product will become like (e.g. Czepiel, 1990). A parallel in the Industrial Network literature would be to consider activity links as strong "when [at least] two activities are adjusted in relation to each other" (Håkansson et al., 2009:105). Opposed to this - and still interpreted from the strong versus weak perspective, activity links based on one-way influence and adjustment would be considered weak (apart from the fact that the Industrial Network literature does not consider one-way influence and adjustment as full activity linking, and so the two-way would have to cover both strong and weak activity links). It would, in any case, come down to the "relative strength of the ties, that is their impact on the behaviour of the single actor" (Snehota, 1990:123). To the Consumer Behaviour literature, activity links are weak when one actor participates more than the other, in other words when one takes charge or manages the transformation (e.g. Dabholkar, 1990; Fitzsimmons, 1985; Mills and Morris, 1986; Bateson, 1985). To summarize, the more pure consumers' activities or pure business actors' activities that are performed, the more unbalanced the participation, and the weaker the activities' linking becomes.

Based on the above discussion a first initial definition of the strength of activity links can be formulated. Activity links are strong when both (all) the involved actors' activities create influence and are adjusted. The more dominant one of the actors' activities are through their influence, the weaker the corresponding activity links.

Another way of viewing the activity links' strength is to measure the total number of performed activities that link. Depending on the product in question, the number of linked activities involved can vary considerably. Likewise, the length of the chains that constitute the network transforming a product can vary. The number of actors involved in an activity chain varies, and so do their number of linked activities. There could be many business actors, or there could be just one, in addition to the consumers. Moreover, they can participate in everything from one to many activities each. It is consequently of interest to establish the number of involved actors' activities when evaluating the activity links' strength. It is the total amount of linked activities in an activity chain that is decisive to its strength. If the involved actors only link one activity each, then whether there is potential for more or not makes no difference to the strength of the activity link. "Companies can[, however,] exploit the division of labour in a more extensive way through seeking and accepting dependence on others" (Håkansson et al., 2009:42).

Based on the above discussion, a second initial definition of the strength of activity links can be formulated. An area of activity links can be considered

strong when each of the involved actors links activities from two or more of their activity categories, while it is weak when only one or two of the actors' activity categories are involved. Accordingly, the more activities that are linked in a chain in an industrial network, the stronger it is.

A third way of viewing the activity links' strength is to measure it by its level of integration. The number of involved actors and activities might give an indication of the activity links' strength. It does not necessarily prove correct, however, if the level of integration is considered. According to the Industrial Network literature, "[t]he more a single activity is fine-tuned in relation to another activity in order to function effectively" (Håkansson et al., 2009:115) the stronger it is (Johanson and Mattsson 1992). The activities transforming a product "may be more or less integrated and linked together. In this way, the two [actors'] activity structures can become more or less systematically and tightly linked" (Håkansson et al., 2009:33; Richardson 1972; Gadde and Snehota, 2000; Gadde and Ford, 2008). Whether activity links are highly integrated or not is measured by the outcome of the product transformation. Strong activity links have "shown to have substantial economic effects on the actors involved" (Håkansson et al., 2009:33; Gadde and Snehota, 2000), and they have "a particular direction in [their] linkages to other activities" (Håkansson et al., 2009:113). The latter makes it only possible for these activities to link "with other individualized activities" (Håkansson et al., 2009:113). In the long run, this interdependence will also increase the degree to which these actors link their activities "as well as the relative importance of their interaction" (Håkansson et al., 2009:42).

Based on the above discussion, a third initial definition of strength of activity links can be formulated. The outcome of strong activity links, unlike that of weak activity links, stands out in comparison to other actors' comparable activity links. Strongly linked activities cannot be general, but must be specialized to some extent.

The three presented definitions of activity links' strength have certain overlaps. To use the first and the third definitions as examples, the "mutual adjustments between two activities improve their functionality in relation to each other" (Håkansson et al., 2009:97). At the same time, the definitions differ. To exemplify with the second and the third definitions, "[t]he justification of the middleman rests on specialized skill in a variety of activities" (Alderson, 1954:14), which indicates that a large number of involved business actors' activities does not necessarily strengthen the activity links. It could just as well be an indication of the involved actors' deficiencies, when they need to add more actors' activities without that making the transformation stand out from comparable product

transformations. On the other hand, depending on the product in question, the involvement of extra business actors' activities may, depending on what these are, be an indication of an increased specialization of the product. To summarize, there is no single type of activity link that can be generally considered the best (Gadde and Snehota, 2000). In a network of linked activities, actors may be involved in activity links which are both strengthened and weakened by other of their activities' links (Hadjikhani and Thilenius, 2009).

Suggesting one overall definition of activity links' strength will be one of the tasks of this thesis. This might be one or a combination of two or all, of the three outlined varieties, as an actor linking or considering whether to link activities "must limit its commitments, both *to whom* it wants to be related to and how *strong* that commitment should be" (Mattsson, 2000:157). Both the type and degree of activity links have to be considered in combination in the study of this thesis' research problem. How these aspects combine to form four categories of transformation is the subject of the next sub-section.

2.9.4 Four Categories of Transformation

The previous sections and sub-sections have searched the field of Marketing for established terminologies to define business actors' activities, consumers' activities and their activities' linking, in order to design the theoretical framework of this study. This sub-section will illustrate how four categories of transformation, based on the previous discussions of activity links' type and degree, will be used in the illumination of the research problem. First, however, a short summary is given of the uncovered terminologies.

Consumers are defined as those aiming for personal use of a product (e.g. Kotler, 1986; Bowers et al., 1990; de Certeau, 1984), while business actors are defined as those aiming "to exchange … for sale and profit in the market" (Ekström et al., 2001b:28). The transformation of a product, rather than that of a service, is in focus. Hence, both its tangible and intangible dimensions are included. Furthermore, activities are defined as what the business actors and consumers perform to transform the product. As far as the consumers' activities are concerned, as empirical data will be collected from business actors only, this study refers to the Consumer Behaviour literature-founded generic classification of Planning, Purchasing, Storing, Preparing and Devouring. For business actors' and consumers' activities to link, at least one business actor must perform an activity, at least one

consumer must perform an activity, and at least one of these activities must be influenced to adjust to the performance of the other.

Activity links can be either direct or indirect (in terms of type), and moreover either strong or weak (in terms of degree). Business actors' and consumers' activities link indirectly when the actors are not present together in time and space, and are divided by at least one other business actor's activities. Their activities link directly when the actors are present together in time and space. Concerning degree of linking, no uniform definition can be drawn from the existing literature. Three initial definitions were made, based on the number of involved actors, the number of linked activities and the activity links' level of integration. Firstly, activity links are strong when both (all) the involved actors' activities influence and are adjusted. The more dominant one of the actors' activities is through its influence, the weaker the activity links is. Secondly, a selected activity link can be considered strong when each of the involved actors links two or more of their activities, while it is considered weak when only one or two of the actors' activities are linked. Accordingly, the more activities that are linked in a chain in an industrial network, the stronger it is. Thirdly, the outcome of strong activity links, unlike that of weak activity links, stands out in comparison to other actors' comparable activity links. Strongly linked activities cannot be general, but must be specialized to some extent.

Activities are either directly or indirectly linked, and the links themselves are either strong or weak. These different aspects give rise to four categories of transformation, as illustrated by Figure 2.9.5. Therefore, activity links' type and degree are considered in combination when illuminating the research problem.

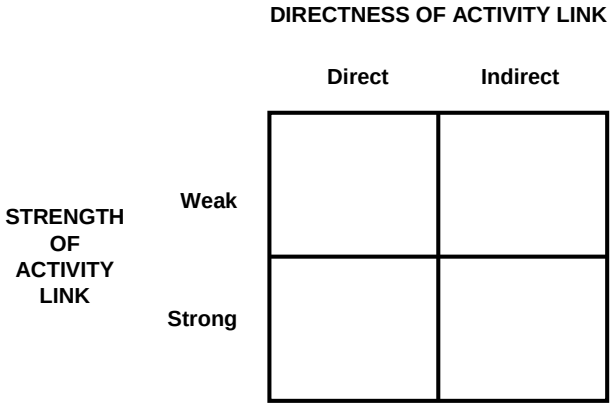


Figure 2.9.5: Four categories of transformation.

To understand how to use the opportunities in a particular actor's activities or the activity links between two or more actors, we have to understand the links in which these activities are currently involved. This is achieved via a three-step process:

1) It must be uncovered which activities are linked in the transformation of a particular product.
2) It must be looked into which actor is performing each of these activities.
3) It must be revealed how the resources of the involved actors are utilized in the product transformation.

After deciding how a product is currently transformed through linking activities, it can be investigated how, and by whom these links may be eliminated or changed and how new links may be established. This is done through a similar three-step process, based on the previous one. Together, these steps will illuminate the research problem of this study:

1) It must be "determine[d] what activities are needed to create a particular outcome, such as an end product" (Håkansson et al., 2009:100). That concerns the activity links' strength.
2) "Even if the activity [links] of an end product is more or less a given, there is a crucial issue concerning the allocation of these activities between various actors. This means that who is going to undertake the activity has to be determined, thus bringing issues related to division of labour to the forefront" (Håkansson et al., 2009:100-1). Thereby, optional changes in the activity links' directness are considered as well.
3) The efficiency and effectiveness of activity links depend on how the resource layers are utilized in the transformation of a product (Håkansson et al., 2009:101).

What activities to carry out, by which actors and how utilized cannot, however, be decided by an actor in isolation. It requires the participation of all the actors involved with linking activities in the chain, section of the network or the network. Changes in the established activities "are likely to require adjustments in the activity links" (Dubois, 1995:61), which can alter the category of transformation, and even the whole network (Håkansson and Snehota, 1989). Chain reactions are in the nature of activity networks. Activities that are neither directly nor indirectly linked will not, however, be influenced and as a result will not need adjustments. They are part of a different activity chain, a different network or are pure business actors' or pure consumers' activities. No activity or activity link is an island.

The literature distinguishes between established, changing, eliminating or establishing new activity links on the one hand, and long-term development processes building on history or planning for the future, on the other. This study is cross-sectional and focuses on the everyday activities, as considerations of directness and strength of activity links are on a short-term time level. Therefore, this study is limited not to involve the long-term time level. The long-term time level is, however, important to take account of when selecting an empirical context, as discussed in Chapter 3.

To summarize, the nature of the activity links' directness and strength leads to the development of the four categories of transformation. The typology will be used to illuminate the research problem. Firstly, the business actors' current attempts to adjust their activities to the consumers' activities will be outlined, before looking at the potential change, elimination or establishment of new activity links. The aim is to understand how the business actors attempt to adjust their activities, by looking at how they can or have used opportunities. This will be carried out within the frame of a short-term time perspective. The five identified elements of transformation will categorize and systemize the search for the business actors' current attempts to adjust their activities to those of the consumers. The next section presents the interface consisting of these elements of transformation, through which the research problem will be studied and structured.

2.10 Interface

The previous sections have searched the field of Marketing for established terminologies to define business actors' activities, consumers' activities and their activities' linking, in order to design the theoretical framework of this study. Even so, there are close to an endless number of ways to categorize and identify links between business actors' activities and consumers' activities. Transformation is used as a mediator.

Transformation has been chosen as a mediator in the research of this thesis' problem. More precisely, the five identified elements of transformation will constitute an interface to structure and reduce the search for and identification of activity links. Both business actors' activities and consumers' activities can be divided by these five elements. Bridging gaps in Form, Space, Time, Information and / or Cost through linking their activities creates utility for both the business actors and the consumers. While the previous sections have introduced the elements of transformation, the following will summarize their positions as part of the interface.

Form is one of the three types of transformation introduced by Alderson (1954; 1965), as the transformation can be a step-by-step "change in the physical form of a product" (Alderson, 1965:93). The Form element concerns the transformation of a product's features, which gives the product new qualities. From here on, Form will be referred to as Product Feature. A change in the product's features "is calculated to increase its value for the ultimate consumer" (Alderson, 1965:93). There may, for example, be a gap between the size processed by the producers and the size requested by the consumers. For their activities to link, the producers must change their activities and / or the consumers must change their activities. Bridging the gap between the offered and the requested Product Feature creates utility to the involved business actors and consumers.

Interaction can be "difficult to delimit in time[, as i]t has no easily identifiable beginning or end" (Ford and Håkansson, 2006a:7). Time is, however, another of Alderson's (1954; 1965) three types of transformation. The transformation can be "a change in … a product['s] … location in time" (Alderson, 1965:93), "calculated to increase its value for the ultimate consumer" (Alderson, 1965:93). The Time element concerns when the transformation takes place, which can vary among the involved business actors and consumers. "[W]hat is right in the short run may be wrong in the long run and what is perceived in a positive way by one counterpart may later be viewed negatively by the same actor" (Håkansson et al., 2009:40). There may, for example, be a gap between the producers' seasonally dependent harvest and the consumers' all year round request. Traditionally, producers have "set the times of transaction or exchange. [Consumers] want more flexibility in their ability to interact with [producers]. Typical areas where [consumers] have changed marketing practices have been by banks through ATMs, catalogue sales (through 24-h telephone access)" (Sharma and Sheth, 2004:700). Bridging the gap in the counterparts' preferred time creates utility to the involved business actors and consumers.

Space is the third of the three types of transformation listed by Alderson (1954; 1965), as the transformation can be "a change in … a product['s] … location in … space" (Alderson, 1965:93). Like the other two, this change also "is calculated to increase [a product's] value for the ultimate consumer" (Alderson, 1965:93). The Space element concerns where the transformation takes place, which can vary between the involved business actors and consumers. "What is good at one point in space may not work in another. What is right for one company given its positioning place may be wrong for another" (Håkansson et al., 2009:39). For instance, the distance between a processing plant and a private kitchen represents a gap, which can be bridged through transportation in various ways. Bridging the gap between the

counterparts' positions in space creates utility to the involved business actors and consumers.

For the purpose of this study, the identification of gaps in Time and Space are especially important in relation to the directness of activity links. Both the Time and Space elements "position[ ] each single interaction in relation to others and provides the focal interaction with an extended context" (Håkansson et al., 2009:38). Time and Space concern dimensions related to geography, position in the market, market share, economy and so on. When referring to Time or Space in this study, geography-related dimensions will be the most central and are those focused upon. This is due to the directness of activity links being a reference to the actors' presence together in time and space. Consequently, the other dimensions of these two elements become of secondary importance.

The Product Feature, Time and Space elements are types of transformation a product can go through. The performance of these types of transformation is based on what information the different actors have or obtain. When linking activities, they have "the opportunity to confront and use [information] from quite different sources in order to find new solutions … [as their combined information] is often developed in the border zone between established knowledge areas" (Håkansson and Senhota, 2000:82). The Information element complements the three others described above. For example, it expands the Product Feature element by also including changes in intangible parts of a product. It encompasses activities that communicate the merits of a product. "Since the utilization of resources is knowledge dependent it is affected by the knowledge limits of the individuals. The use of resources by an individual can be made more effective if the individual can draw on the knowledge of others. It requires however that what others know has to be made available to him" (Snehota, 1990:131). It could, for example, be the business actors giving different types of guidance to clarify how the consumers should prepare a product. When a product, for example a car, "is extremely dependent on continuous interaction to secure that the [product is used appropriately in relation to the specifications, it] requires efficient exchange of information between the car assembler, the module suppliers and other suppliers. This information exchange involved detailed planning and scheduling of activities, but must allow for rescheduling to handle revisions of plans and priorities concerning the specific cars to assemble" (Håkansson et al., 2009:123). Alternatively, "[t]he use of others knowledge without learning what they know can be achieved either (1) by taking direction, or (2) by exchange of resources in the form usable without the knowledge necessary for making these available and accessible" (Snehota, 1990:131). Bridging the gap between the information held by the business actors and that held by the consumers creates utility to both parties.

The Product Feature, Time and Space elements are also based on the costs that come with the transformation of a product. Just like Information, the Cost element complements these three types of transformation. For instance, concerning the Product Feature element, "[t]he greater [the product's] variety the more difficult it is to benefit from economies of scale in carrying out an activity" (Håkansson et al., 2009:115). On the other hand, "increasing the similarity in a pattern of activities provides cost advantages" (Håkansson, 2009:115). The Cost element encompasses cost related activities that affect the transformation and who does what within it. An example is the price per kilogram that a customer must pay to obtain a product. There may be a gap between a product's price as set by the business actors and the price the consumers are willing to pay. "[A]djustments to activities are always costly and those costs will bear differently on the parties involved, in both their amount and timing. Therefore, monitoring and considering the effects of one's own adjustments and those of others is a central issue in the organizing of activities" (Håkansson et al., 2009:112). "For example, [the consumer] may wish to prioritise in the short term and act on the price attribute, no matter what the risk contained in the purchase. The risk is factored into the price. In such a case, the consumer is a "price buyer" and disregards information about the … product" (Eriksson and Hadjikhani, 2000:306) features. "Correspondingly, in an exchange built on low risk, a consumer builds his or her confidence on quality attributes or producers, and is not willing to take the risk of buying cheaply" (Eriksson and Hadjikhani, 2000:306). Weak activity links "can be handled with limited coordination, adaptation and interaction costs" (Gadde and Snehota, 2000:310), while they "may lead to higher direct procurement costs and transaction costs" (Gadde and Snehota, 2000:310). Establishing or strengthening an activity link can increase the efficiency and "reduce search costs, lower the frequency of decisions for [the actors] and increase the predictability in their operations" (Ford and Håkansson, 2006b:252). In short, establishing or strengthening an activity link makes sense only when the costs are lower than the advantages that come with it (Gadde and Snehota, 2000). Bridging the gap in the costs that comes with a product transformation creates cost utility to both the consumers and the business actors.

To summarize, the Product Feature, Time, Space, Information and Cost are five elements of transformation that together constitute the interface. The Information and Cost elements were identified as complementary to the other three, affecting the performance of the Time, Space and Product Feature types of transformation. In short, linked activities are performed at certain times, in certain spaces, they transform certain product features, which brings about certain costs, and it must all be some how communicated

between the involved parties when there is a difference in the information each holds. Uncovering which activities are linked to fill what gaps is a way to illuminate the research problem. This implies that the thesis' research will be structured and reduced by the five identified elements of transformation.

2.11 Empirical Research Model

The identified gap in the current research on activity links - vertical direct activity links, sequential activity chains and vertical indirect activity links between business actors and consumers - was illustrated by Figure 2.9.4. Figure 2.9.5 illustrated the four categories of transformation in which business actors' and consumers' activities can link in a product's transformation. The five elements of transformation will categorize and systemize the search for the business actors' current attempts to adjust their activities to those of the consumers. Based on this and the study's research problem, together with the terminologies presented in this chapter, an empirical research model can be drawn. An explanation of the empirical research model as depicted in Figure 2.11.1 follows.

This thesis' research problem can be divided into three parts; 1) business actors' activities, 2) consumers' activities, and 3) their linking. The empirical analysis is performed in two steps. Firstly, box (1) in Figure 2.11.1 represents a description of the involved business actors and their activities.

As empirical data is collected only from the business actors, the business actors' *attempts* to adjust their activities to consumers' activities in the bacalhau's transformation are identified and analysed. The analysis of the business actors' attempts will be divided by the directness of the attempted activity links, and structured by the Space, Time, Product Feature, Information and Cost elements of transformation. The interface elements are quite broadly defined, so studying the importance of various dimensions of each of these is central. A dimension is a component part of an element of transformation in which two or more activities link. Figure 2.11.1 illustrates how at least one business actor's (i.e. Actor $_n$) activities attempt to link directly with the consumers' activities. In Figure 2.11.1, attempts to link their activities with consumers' activities directly are represented by arrow (2) pointing in the direction of the actors attempting to adjust. The dimensions of the attempted direct links identified within each interface element are used as the starting point in the search for the business actors' attempts at indirect activity links with consumers' activities. The argument is that an attempted direct activity link may mean that there are attempts for

indirect activity links within the same dimension. Thereby, the search for attempted indirect links is structured and reduced to a discussion of these business actors' activities in the light of the previously identified dimensions within the five interface elements. In Figure 2.11.1 the business actors' attempts to link their activities indirectly with the consumers' activities are represented by arrow (3) pointing in the direction of the actors attempting to adjust.

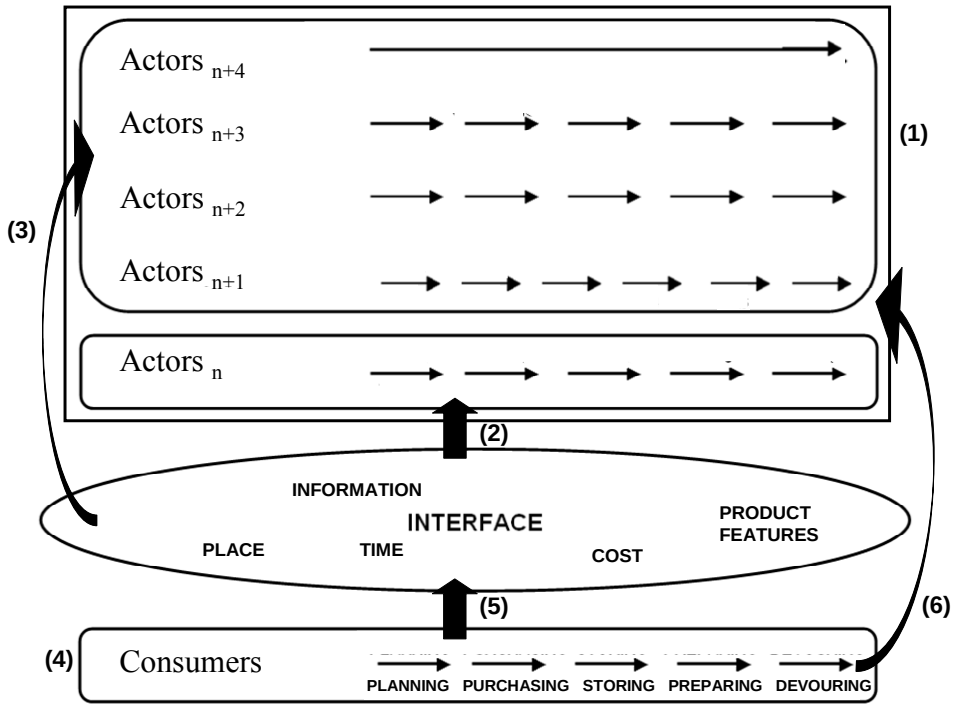


Figure 2.11.1: Empirical research model.

The empirical research will come up with certain illustrations of sequential chains of business actors' attempted direct and indirect activity links with consumers, structured by the interface's five elements of transformation. However, the thesis' focus on the first of the four types of influence and adjustment (see Figure 1.2.1) concerns the adjustments of all business actors' activities involved in a product's transformation to influence by consumers' activities, rather than their attempted adjustments. To complement this, the empirical analysis' second step investigates activity links between business actors of the whole industrial network and the

consumers without the use of an interface. To do that, firstly, the consumers' activity categories of planning, purchasing, storing, preparing and devouring, illustrated by box (4) in Figure 2.11.1, must be described in more detail. So far, they have only been presented as generic consumers' activities (Table 2.8.1). One way to make a more detailed description is by looking at how central each of the interface elements is to each of the consumers' activity categories. In Figure 2.11.1, this is represented by arrow (5) that points at the adjusting actors. The description is based on the theoretically founded consumers' activity categories and the business actors' experience of the consumers' activities. The latter is a result of the centuries of linked and attempts to link activities of the Norwegian and Portuguese business actors and the Portuguese consumers.

Business actors probably attempt to link their activities under the influence of consumers' activities. Thereby, the previously revealed examples of sequential chains of business actors' *attempts* to link activities with the consumers can be considered sequential chains of *probable* activity links between business actors and consumers. These illustrate variations in the directness of probable sequential chains of activity links, represented by arrow (6) in Figure 2.11.1.

Chapter 3

Methodology

"Your thinking does not take you anywhere. It is what you do that takes you to places."
Jan Erik Vold (2008)

3.1 Introduction

This chapter addresses the methodological issues of the research process. A research process consists of six steps: the initial idea, transforming the idea into a research problem, deciding what strategy and design to use, collecting primary and secondary data, analysing the data, and finally writing a report (e.g. Ringdal, 2001).

This chapter is structured as follows. Firstly, the origin of the initial idea and the research context are discussed. Then the chosen research strategy and design are outlined. Next, the central details of the data collection method are discussed, before more general issues concerning the analysis are covered. The section regarding analysis outlines the search for, and identification of, business actors' attempts to adjust their activities to consumers' activities. This is followed by an examination of the main methodological problems that result from not including empirical data collected from consumers. The focus is on the identification of probable activity links and the use of an interface. Finally, the trustworthiness of the data collection and analysis is deliberated upon.

3.2 Idea and Research Context

The idea that led to this study's research problem arose from two main origins. Firstly, the study is a part of the NewMark (i.e. Toward a New Understanding of Marketing) research project, which was undertaken at the Department of Marketing of the Norwegian School of Management BI, lead by Professor Håkan Håkansson. Due to Professor Håkansson's field of research, the NewMark project applied an Industrial Network approach. In addition, the project was financed by the Norwegian Research Council on the condition that the research focused on fish or a fish related subject. NewMark performed a pilot study of the fish network in Ålesund (e.g. Håkansson and Jahre, 2003; Fougner and Jahre, 2004), which is the centre of Norway's bacalhau industry. Bacalhau is salted dried codfish. Norway is one of the world's richest and most expensive countries, yet makes and sells bacalhau on a large scale to some of the poorest countries around the world. It was through this pilot study that the context of bacalhau first attracted attention.

I chose the Norwegian-Portuguese bacalhau network as the empirical context for the following five reasons. Firstly, this network is of great importance to both Norway and Portugal. This is illustrated by the fact that on average

each Portuguese eats approximately 13 kg of bacalhau annually (calculated from 70,000 tonnes of bacalhau (Mikkelsen jr., 2006:32) divided by a population of 10,707,924 (CIA, 2009), bearing in mind that the bacalhau's weight is about doubled during desalting). In 2007, Norway exported seafood worth 2.2 billion NOK to Portugal (www.seafood.no; www.noruega.org.pt). This makes Portugal Norway's sixth largest export market for seafood in general, and the largest for bacalhau (www.noruega.org.pt). The size of these numbers means that learning more about business actors' and consumers' activities' linking in the transformation of bacalhau is of interest to both Norway and Portugal in general, and the Norwegian–Portuguese bacalhau network in particular.

Bacalhau is transformed through a number of activities on its way from the cod stock in the Norwegian sea areas to the Portuguese consumers' plates. The core actors in the Norwegian–Portuguese bacalhau network are the Norwegian cod stock manager, the Norwegian primary processors, the Norwegian and Portuguese secondary processors, the Portuguese retailers and the Portuguese consumers. In addition, there are a widely varying number of involved intermediaries.

Another argument for using this particular network as the empirical context is the consumers' importance as actors in the transformation of bacalhau. Their participation is visible through activities such as transporting, desalting and cooking the bacalhau. A third argument for using the Norwegian–Portuguese bacalhau network is that there are many strong indications of activity links taking place within it. For instance, the seasonal mismatch in supply and demand generates an interesting and very visible indication of some kind of activity linking. The main fishing season occurs in Lofoten from February until March / April, whilst the consumers' main devouring season is Christmas time and the months leading up to it. As the transformation from live cod to bacalhau can take just a couple of weeks, it is necessary that something is done to bridge this time gap.

A fourth argument for using the Norwegian–Portuguese bacalhau network to study activity links is to avoid the danger of mistaking something quick and short-lived for something that is firmly established. The Norwegian-Portuguese bacalhau network is firmly established as the current configuration of activities and activity links is the outcome of previous and future activities and activity links. An activity influences and adjusts to other activities, and these influences and adjustments create the long-term history and expectations for the future. For instance, a specialization can have "evolved over hundreds of years and [be] strongly embedded in [the] history" (Håkansson et al., 2009:109). Seeing as how the present transformation of a product through linking activities is a reflection of the

past, the empirical context must be chosen with care. Consequently, it is advantageous to choose an empirical context with a long history, as it makes it easier to distinguish short-lived activity links from those which are firmly established.

A unique empirical context for limiting such possible mistakes is food culture, or "a culinary order whose traits are prevalent among a certain group of people" (Askegaard and Madsen, 1998:550). It has a basic inertia or "a relative stability that characterizes eating patterns in different societies which continues to play a role defining *what* to eat and *with what*, *how* it is to be cooked, *when* it is to be eaten and under *what social circumstances*" (Ekström and Askegaard, 2000:237). The complex network of cultural meanings, handed down by traditions, can be modified and transformed but never really escaped (Thompson et al., 1994; c.f. Arnold and Fischer, 1994; Bristor and Fischer, 1993; Hirschman, 1990; Mick and Buhl, 1992), as it becomes an integrated part of the food culture's members. Things continue to evolve, trends and fashions come and go, but deeply rooted cultural traditions and meanings remain as cornerstones in a food culture. In short, it is particularly interesting to study the intimated research problem with a traditional food product, as food habits and preferences are among those that change most slowly (Mennell et al., 1992; Douglas, 1982).

Bacalhau is one such traditional food product. It was probably invented by the Basques[6] in the Middle Ages (Kurlansky, 1999; c.f. Svendsen, 2003:9). Salted and dried cod provided a preserved and nutritious food supply, which could be consumed when they travelled to unknown distant waters to hunt whales off the coast of Newfoundland, and later to fish for cod (Kurlansky, 1999). "By the year 1000, the Basques had greatly expanded the cod market to a truly international trade" (Kurlansky, 1999:22). The medieval church participated by imposing fast days on which the eating of meat was forbidden, while eating 'cold' foods was permitted. "In total, meat was forbidden for almost half the days of the year, and those lean days eventually became salt cod days" (Kurlansky, 1999:24). In this way the bacalhau culture established firm roots in catholic Portugal.

Today the wild north-Atlantic cod (i.e. Gadus Morhua) is by far the most dominant fish species used in Portugal, and is therefore the species in focus here. As for Norway, for centuries a lack of salt forced the Norwegian producers to preserve fish by drying only. Around 1300-1400 Norway began to trade salt with Italy and Spain, although this trade did not really expand until the first half of the 1600s (Vollan, 1956:59). Even then,

[6] The Basques' land includes provinces of both Spain and France, north and south of the Pyrenees (Wikstrøm, 2001).

Norway's first large-scale transformation of bacalhau was not established until the middle of the 1700s (Vollan, 1956:58). From then on Norway soon became, and remains, the world's largest producer and exporter of bacalhau. Today, Norway's four main export markets are Portugal, Brazil, the Dominican Republic and Italy, respectively (EFF, 2002).

The bacalhau culture in Portugal has roots that stretch back a thousand years. The bacalhau culture in Norway and the trade between the two countries goes back three hundred years. There is a theoretical advantage to using activity links in the bacalhau transformation within the Norwegian–Portuguese bacalhau network as the empirical context of this study. The consumers' visible participation in the transformation, the strong indications of activity links, and that the network has developed over an especially long period of time, has already been mentioned. In addition, this context is of current managerial interest as the Portuguese consumers' demand for bacalhau is altering. As outlined in Chapter 1, of the various bacalhau products on offer, the traditional whole bacalhau had 93 per cent of the consumer market in 2001, but only 75 per cent in 2006 (Jensen, 2008:6). In 2001, 47 per cent of consumers indicated that bacalhau was their favourite fish meal, a figure that fell to 22 per cent in 2006 (Jensen, 2008:5). In addition, between 1965 and 2004 the number of fishermen in Norway fell by 33,060 and the number of fishing vessels by 3,529 (www.ssb.no, 2006). Considering these figures, it is advantageous for the actors of the Norwegian–Portuguese bacalhau network to become more aware of and more methodical about their activities' linking. This could, for example, help the business actors stabilize or reverse current developments.

The consideration of the reasons outlined above and the subsequent decision to use the bacalhau context led to the second origin of this study. I have a keen interest in consumer food cultures, particularly organic food and local food. This interest has evolved during my upbringing and education (e.g. Haugnes, 2002). My theoretical background and interest in Consumer Behaviour and food culture, combined with the Industrial Network approach and the introduction to the intriguing Norwegian bacalhau industry, resulted in the choice of empirical context. The next section will discuss the third step of the research process, that is deciding what strategy and design to use.

3.3 Strategy and Design

Broadly speaking, there are two alternative research strategies - qualitative and quantitative. The choice between a qualitative and a quantitative

research strategy depends on the research problem. The question motivating this thesis is:

> *How can consumers be considered in the Industrial Network literature via the activity layer?*

In this case the research problem starts with the term 'how can'. Consequently, this study does not aim at measuring known variations. Rather, it takes the qualitative approach and provides a descriptive explanation in order to comprehend, understand and illuminate a particular phenomenon (Easton, 1995). The research problem's exploratory nature presents a potential for theory generation. The qualitative strategy has a unique ability to generate new theory (Dubois and Gadde, 2002), as it facilitates the study of issues in depth and detail (Patton, 2002). The listed circumstances also indicate that a qualitative strategy is suitable. In addition, the qualitative strategy is regularly used within Industrial Network research (e.g. Dubois and Araujo, 2004; 2007; Easton, 1995). The fact that it has been extensively applied within the NewMark project has also influenced this choice. The strategy resulted in the use of a limited sample of informants, which provided rich and in-depth information. Details of how this data was collected are presented in the next section (3.4).

There are different types of research designs to choose between. The research problem, however, argues strongly for one particular design. 'How' (and 'why') questions are best addressed by designs such as case studies (Yin, 1989; 2003). The strength of this design "is that it is highly flexible" (Easton, 2010:124). Case studies are well suited for exploratory studies where the researcher has little control over the actual events occurring during the research process (Yin, 2003:1), as is the situation in this thesis. In addition, the case study design is a common design when a qualitative strategy is used within Industrial Network research (e.g. Dubois and Gadde, 2002; Dubois and Araujo, 2004; 2007; Easton, 1995; 2010). A case study design "focuses on the dynamics present within single settings" (Eisenhardt, 1989). As a result, there is an almost endless variety of possible case studies, as there are no ready-made ways to analyse the social world (Dubois and Araujo, 2007). A case study does, however, provide for rich and complex descriptions including nuances. Two powerful aspects of case-based research within industrial networks are "(i) time and the temporal frames within which we conduct network studies and (ii) the delineation of boundaries in network studies" (Dubois and Araujo, 2004:207).

Concerning the time aspect, the research problem focuses on a certain point in time, rather than for example the development over a time period or a comparison between different points in time. Furthermore, the bulk of the

interviews with managers and owners representing the different business actors of the Norwegian–Portuguese bacalhau network were performed between October 2005 and March 2006 (Appendix II). Despite the data collection occurring over a period of five months, the study has a cross-sectional design. "[T]he term *cross-section* indicates a wide sample of people of different ages, education levels, religions, and so on" (Ruspini, 2008:440).

Concerning the boundary aspect, "[t]he starting point could be one or more specific firms, a specific geographical area, a specific technology, a specific function in a value added chain a specific project, a specific product or service from the user's point of view or a combination of such criteria" (Mattsson, 2000:155). "Even if it is apparent that the whole world is connected we need, for analytical reasons, to consider productions system boundaries" (Johanson and Mattson, 1992:210), as the boundaries represent the frame that depicts what the case is a case of. "What constitutes the phenomenon of interest and its boundaries is often the outcome of the study rather than a decision that can be firmed up prior to conducting the study" (Dubois and Araujo, 2004:225). As my understanding gradually developed, it became apparent that a study of how consumers can be considered in the Industrial Network literature via the activity layer, involved an investigation of activity links between all the actors of (what I have here defined as) the Norwegian-Portuguese bacalhau network. Drawing the boundaries of a case of this extensive size, making only certain features relevant, is, however, possible. Firstly, what is central in case studies is the homogeneity and ability to detect some kind of constant conjunction and seeking a credible casual mechanism (Easton, 2010:127). A casing operation should make only "certain features relevant" (Ragin, 1992:220). Secondly, the researcher must know (and be able to communicate) what the case is an example of. In this thesis, the case is an example of how consumers can be considered in industrial networks, through activity links with business actors. Despite the amount and variety of the involved activities within the network defined here, this study is a "single setting" (Eisenhardt, 1989) limiting its focus to "certain features" (Ragin, 1992; Easton, 2010), which this thesis aims to communicate. Consequently, this study's research design is a 'big' single case study (e.g. Awaleh, 2008).

3.4 Data Collection

The study's foundation is closely connected to the way in which data was collected. This section describes and puts the argument for this cross-sectional study's main source of data: qualitative in-depth interviews with 45

business actors. Thereafter, examples are presented of the interview techniques used. Finally, the use of observation and existing documents as two complementary sources of data is described and justified.

3.4.1 Qualitative in-depth interviews

This study involves 45 different business actors at different geographical locations in Norway and Portugal. As a result, the in-depth interviews were conducted in different rounds.

A pilot study was performed in Ålesund, Norway. All members of the NewMark project, whether professors, post-doctoral students or doctoral students, carried out the pilot study together. That became this study's 'first round' of data collection and the only one in which I built on research initiated by other members of NewMark. From this first round of interviews, one interview is included because a central Norwegian secondary processor was, unfortunately, unable to participate in the main study. As this actor did participate in the pilot study, however, I decided to include that interview in order to get as complete a picture as possible.

The in-depth interviews were not tape-recorded, as that can prevent the interviewees from relaxing and speaking as freely as they otherwise would. Based on my previous experience of using tape-recorders and my growing knowledge of the bacalhau network, only handwritten notes were made. When more than one interviewer was present during the interview both made notes. These notes included, to some degree, "the visual information of the situation as well as the social atmosphere and personal interactions which to a large extent is lost in the audiotape recording" (Kvale, 1996:161).

The 'second round' of data collection was also carried out by NewMark members collectively. In Portugal in October 2005, 20 owners and managers representing importers and wholesalers, an agent, secondary processors and retailers were interviewed (Appendix II). The interviews lasted anything from half an hour to four hours. Some of the Portuguese business actors had little or no knowledge of the English language, as Portuguese is their working language even when doing business with Norwegians. Professor Carlos Brito at the University of Porto asked students at the university to act as interpreters for the research project. Of the twenty-six students who expressed an interest in doing so, three were used. They were asked to interpret back and forth between the interviewer and the interviewee and to correct potential misunderstandings caused by the language barrier.

A ‘snowball sampling’ method was used, which entails “picking some subjects who feature the necessary characteristics and, through their recommendations, finding other subjects with the same characteristics” (Gobo, 2004:449). A key issue was finding ‘gate-keepers’, as the Norwegian–Portuguese bacalhau network represents a closed community to outsiders. This is an informant “positioned inside the system, who can introduce the researcher to the organization’s inner life or culture and in general be a gate-keeper” (Ryen, 2002:90, my translation). Through a friend of a NewMark colleague I was introduced to Senior Miguel Esteves who operates as bacalhau agent in Portugal for a Norwegian secondary processor. Choosing Senior Miguel Esteves as the principal gate-keeper was really in order to “Go to the meatiest, most study-relevant source” (Miles and Huberman, 1984:42). His business circle contains an extensive number of business actors within the Portuguese part of the Norwegian-Portuguese bacalhau network. In addition to Senior Esteves, I used a couple of Norwegian secondary processors as gate-keepers in Portugal to provide the desired access to three or four business actors.

The ‘third round’ of interviews took place in Ålesund in December 2005. Ten owners and managers representing primary processors, secondary processors, an exporter and organizations were interviewed (Appendix II). Each of the interviews’ duration was approximately two hours. I telephoned the secondary processors and booked meetings with them in advance. Some of these had been contacted beforehand by friends of a NewMark colleague, while others had not. During this round of interviews I also interviewed the fishermen’s sales organization SUROFI, represented by Sales Manager Jon J. Grimstad. In addition, Mr Grimstad made arrangements for me to interview the skippers of three longliners who had docked the same day. However, I considered three primary processors to be too few. I expected “the variance of the phenomenon under … study” to be high, meaning that more informants were required “in order to include in [the] sample each [possible] category or class of [the] phenomenon” (Gobo, 2004:444). Furthermore, there were secondary processors I was unable to interview in the ‘third round’, due to the informants’ fully booked schedules, or in some cases the lack of gate-keeper.

In March 2006, I returned to Ålesund for a ‘fourth round’ of interviewing to include an additional nine owners and managers representing primary processors, secondary processors and a broker (Appendix II). In this ‘fourth round’, Mr Grimstad introduced me to two additional skippers. After one of these interviews, the interviewee telephoned colleagues who had just docked, for me to interview them as well. He drove me to the dock, introduced me to them and became my guide for the day. My meeting with

him therefore lasted seven hours, compared with one to three hours for the other fourth round interviews.

The 'fifth round' of interviews was back in Portugal. In March 2006 I interviewed three actors representing an agent and two secondary processors (Appendix II). The interviews lasted three hours, four hours and one hour respectively. This time I did not need an interpreter due to the interviewees' fluent English. I obtained access to these interviewees as during the previous rounds of interviews I had managed to find a suitable gate-keeper to provide an introduction.

The performance of these five rounds of interviews illustrates how the use of a snowball technique and gate-keepers do not necessarily reduce the trustworthiness of the study. They are simply techniques to access the sample. However, it was a time consuming approach. The interviews were all performed during a time period of five months, with the exception of one interview that was originally part of the pilot study in December 2002 and one telephone interview performed in December 2006 (Appendix II). That one telephone interview with the Norwegian Fishermen's Sales Organisation was included in order to get as complete a picture as possible.

The Norwegian-Portuguese bacalhau network as defined here contains a limited number of business actors. A major proportion of these were interviewed. Cod stock manager, primary processors, secondary processors and retailers are the different business actors in focus. Only 0.1 per cent of the Norwegian fishing vessels were included in the sample. Not all of the approximately 6,700 fishing vessels / primary processors supply Portugal, however, and in any case their activities are standardized to a great extent with little deviation. The Norwegian secondary processors who were interviewed are responsible for more than 90 per cent of the bacalhau exported to Portugal, and together with the interviewed Portuguese secondary processors account for approximately 80 per cent of the total market share. Finally, retailers covering 60-70 per cent of the bacalhau market share were interviewed. Both large and small business actors were included in the sample.

Table 3.4.1 lists those interviewed, while a more detailed presentation of the interviews is given in Appendix II. I stopped collecting data when I felt that I had sufficient material to illustrate what I perceived to be the main variations in the business actors' activities (Gobo, 2004:444). Before reaching that stage I also interviewed organizations working closely with the different categories of business actors such as, for example, the Sales manager of SUROFI, the Department Head (among others) of FHL (i.e. the Norwegian Seafood Federation) and a Marketing Manager of EFF (i.e. the

Norwegian Seafood Export Council) (Appendix II). These were included to ensure that I gained the clearest possible picture of the business actors' activities, by developing "an understanding that encompasses all instances of the process or case under investigation" (Denzin and Lincoln, 2005:378).

Table 3.4.1: Overview of the in-depth interviews.

Actor	Country	Number of Interviewees
Primary Processors	Norway	Seven
Secondary Processors	Norway	Nine
Secondary Processors	Portugal	Eight
Retailers	Portugal	Six
Broker	Norway	One
Agents	Portugal	Two
Exporter	Norway	One
Importers and Wholesalers	Portugal	Six
Organizations	Norway	Five

Looking at the more detailed list of the conducted in-depth interviews (Appendix II), it can be seen that the interviewees are managers and business owners. The idea was that these people would be able to give a better overview than their employees of the different activities, and in addition would be knowledgeable about the linked activities.

3.4.2 Interview Techniques

The interviews were semi-structured (Kvale, 1996). The NewMark interview guide (Appendix III) contains "a sequence of themes to be covered, as well as suggested questions" (Kvale, 1996:124). It prepares for open-ended interviews. There was "openness to changes of sequence and forms of questions in order to follow up the answers given and the stories told by the subjects" (Kvale, 1996:124). The interview guide contained a list of common questions to start the interview. These included questions about the interviewee, his position, the company's size and main tasks. Data gathered collectively by all members of the project group was intended to match the requirements of the whole interview guide, so as to be accessible and useful to all project members. However, when other NewMark members performed interviews in the 'second round' of data collection without me being present, I eagerly reminded them both before and after the interviews to make sure they also asked the questions specific to my interests. This effort to secure the trustworthiness of the data collection was

a result of a discouraging experience from the pilot study (i.e. the 'first round' of data collection). At that point I was the only project member interested in consumer related issues, and consequently ended up being the only one to cover the relevant questions in the interview guide.

The interview guide was not the only help in structuring the interview. All but one of the interviews was carried out face to face – a method that allows a richer communication. The scheme in Figure 3.4.1 was used to help both the interviewer and the interviewee gain an overview of the interviewee's part and perspective of the network. This Network Map functioned as an 'autodriver', which means the "respondent is asked to comment on a picture, video, or some other stimulus, and to provide his or her own account of what they see there" (McCracken, 1988:36). To a certain extent it allowed the interviewees "to interview themselves, to provide a perspective of action …, and to raise issues that are significant to them" (Heisley and Levy, 1991:260). The circle in the middle represents the interviewee's company. The three circles to the left represents their suppliers and those to the right their customers. Of course, there could be more or less than three, but the circles are only meant as a starting point. Likewise, the central circle above the focal company represents organizations, competitors, and legislation etc. that also affect the activities of the interviewee's company. Whilst filling names, numbers and percentages into the scheme, the interviewee talks about activities and other themes covered by the interview guide.

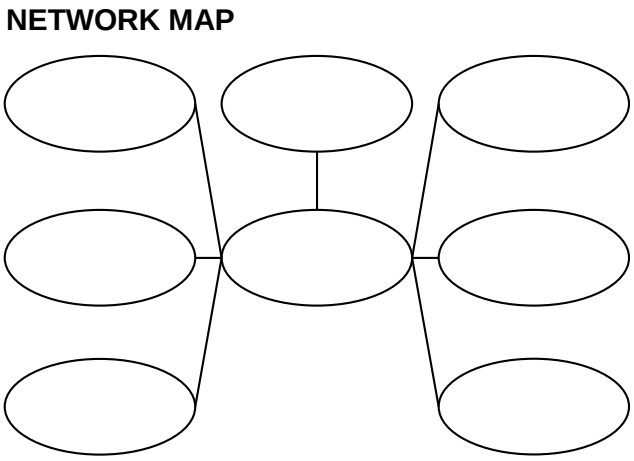


Figure 3.4.1: Scheme used to visualize the interviewee's network.

In the third and fourth rounds of interviews, all of which took place in Ålesund, I worked alone as the interviewer and most of the companies were represented by a single interviewee (Appendix II). However, the previous sub-section mentioned the skipper who acted as a gate-keeper and consequently remained present during certain interviews. He occasionally became involved in the on-going discussion. At a handful of the other interviews non-participants sat nearby in silence and listened.

In Portugal the circumstances were different, with about half of the interviews carried out by more than one interviewer. Most of the interviewees in Portugal were alone though, as in Norway. It may be an advantage to have more than one interviewer, as two can think about good follow-up questions etc. better than one. Having a second interviewer also makes it easier to take comprehensive notes, which limit misunderstandings and secure a more complete picture of the interview. Likewise, when there is more than one interviewee they can fill in for each other with additional questions, comments and so on. However, an extra interviewee, or the presence of a third party, can be a potential threat to the data's trustworthiness. If two interviewees or a third party are present, they may be either colleagues / partners or friends working for competing companies. They tend to adapt their answers and opinions in the light of the other's presence. It is as if they do not want to be caught saying something that is not mainstream or politically correct, or caught revealing wrong information. If one leaves the room or the situation, the conversation becomes more intimate; details of the company and the industry emerge, together with the (more or less) honest opinions of the interviewee.

Part of my interview strategy was to always start out with 'blank sheets', and hence not reveal pictures given in previous interviews. This was done as a way of avoiding answers being prejudiced by previous responses and to obtain as rich and diverse a set of data as possible. I was in search of variety, in addition to confirmation of data collected earlier. Another strategy used with the same purpose was to work hard at building a friendly atmosphere of trust and confidence. "Whether or not people have knowledge of social research, they are often more concerned with what kind of *person* the researcher is than with the research itself. They will try to gauge how far he or she can be trusted" (Hammersley and Atkinson, 1983:78). Therefore, building "[t]rust is the traditional magic key to building good field relations, a challenge constantly unfolding during the research process" (Ryen, 2004:234).

3.4.3 Additional sources of data

Firstly, "[c]ase studies typically combine data collection methods such as archives, interviews, questionnaires, and observation" (Eisenhardt, 1989:534). Secondly, one should always treat with caution what any interviewee says, and search for support or contradiction elsewhere. Thirdly, using multiple sources of data gives the researcher a better insight into the research problem. It also increases the probability of revealing aspects of the subject that otherwise would not come to light (Dubois and Gadde, 2002). Using multiple sources strengthens the quality and increases the trustworthiness of the study by giving complementary and contradicting perspectives.

One additional data source was to observe business actors' activities. "[T]o gather firsthand information about social processes in a 'naturally occurring' context" (Silverman, 2006:21), I accepted whenever interviewees offered to take me on guided tours. Skippers of both longliners and trawlers guided me through details of their activities. They showed me how they use the instruments on the bridge, where the fish enters the ship, how the fishing equipment works and the fishes' way through the processing equipment. Finally we watched and felt the catch being unloading as the crane swung the fish across the ship's side and it rocked with the weight of the load. The secondary processors likewise provided supplementary information through guided tours of their facilities. One showed me where the vessels docked and how the fish entered the factory and was controlled. At another I watched the weighing of recently arrived green (i.e. salted but yet not dried) fish. The majority walked me through the factory to let me see the processes of salting, drying, sorting, storing and finally, packaging. Similarly, some of the retailers showed me their chilled rooms and the way in which the bacalhau was sorted and priced differently on their display counters.

The other additional source of data I chose was analysis of documents. In order to verify and expand the information obtained from primary sources, I made use of existing documentation. Interviewees among the main categories of business actors, and organizations working closely with these actors, gave me access to their documents. The primary processors made drawings and showed me lists of their catches. Their sales organizations, the Norwegian Fishermen's Sales Organisation and SUROFI, gave me price tables for catches, divided according to the fishing equipment used and size. SUROFI did not have the lists I wanted already prepared, but spent time and effort on making one of the two, which I really appreciated. The sales organizations also sent me books, copies of legislation and reports from research projects.

With regard to documents, the secondary processors and organizations working with them were also very helpful. The secondary processors gave me examples of stickers used on their transportation cartons, bacalhau tags that they translated for me from Portuguese, and price lists divided according to size, dryness, colour, freshness and quality of the fish. The Norwegian Seafood Federation (i.e. FHL) and the Norwegian Seafood Export Council (i.e. EFF) supplemented this by giving me access to relevant research project reports, and copies of legislation and ethics of the industry.

Unfortunately, Associação dos Industriais do Bacalhau (i.e. AIB) were unable to allow me to access their documents. They do publish reports for their members on a regular basis, however, which contain market research and figures illustrating the current situation within the industry. As one of the Portuguese secondary processors let my colleagues and myself spend some time reading through such a report, I know that it undoubtedly would have been an interesting and valuable supplement. Like the AIB, the retailers were also very careful about giving out documentation. They monitor each other on a daily basis and are involved in what they refer to as a 'price war' with their competitors. Nonetheless, by indirect means I eventually managed to get access to an example of a price list divided by size, freshness and colour. Within certain limits, however, the retailers were helpful and gave me access to documents used in marketing.

I completed the analysis of documents through extensive use of the internet to find out about relevant laws, legislation and international agreements. The internet, together with the documents sent to me by the interviewees, represent the sources used with regard to the cod stock manager. Of all the involved main categories of business actors in the network of this study, the only one I did not interview was the cod stock manager. As a result of this actor's wide ranging and dispersed nature I found it more efficient to pinpoint its relevant activities indirectly, believing it likely that only those activities which are visible to the producers could be linked to in any case.

These two chosen additional data sources of observing and document analysis have complemented and corrected my understanding and description of the Norwegian–Portuguese industrial bacalhau network based on the in-depth interviews.

3.5 Data Analysis

The fifth step in the research process was to analyse the collected data. The notes from the interviews were typed up immediately afterwards. Unclear

elements were discussed between the interviewers, or with the interpreter. The interviewees were contacted again in the case of any ambiguities. Finally, reports were made. The analysing had already started with the writing of reports immediately after each interview. Analysing the data both during and after the rounds of data collection gave me the advantage of having an opportunity to follow up on insights before the data collection was completed, in addition to drawing insights from the entire body of data (e.g. Easton, 2010; Mick and Fournier, 1998).

I saw the advantage of taking the opportunity to photograph observed examples of attempted activity adjustments intended to link to the consumers' activities during guided tours at the retailers, the secondary processors' plants and onboard fishing vessels. I also requested and received some photographs from the interviewees. This visual material is not used as a method of data collection or analysis, but for illustrations of examples only (e.g. Ekström et al., 2001). "Often, photographs are used [like this,] as captioned illustrations of examples referred to in the written text [, which] provide limited knowledge and understanding beyond being visual 'evidence' of the examples described in the written text" (Pink, 2004:402).

After the data collection I spent several months writing up a summary of the raw data. It described the activity network from the cod stock manager to the retailers, based on the interview reports, my observations and the collected documents. However, I realised that such a summary was of little benefit to myself or to the readers of the thesis. Another structure would be more suitable to the research problem. Therefore, this descriptive text instead became the starting point of a somewhat chaotic and unstructured analysis. It was chaotic and unstructured insofar as I could not use a solution like a computer program, as that would require me to firstly produce a 'truth table'. Such a table would list "the various combinations of independent variable that appear in a data set along with their corresponding values on the dependent variable. Configurations appear only once in a truth table, regardless of their frequency of occurrence in the data" (Drass, 1992 in Lee and Fielding, 2004:541). Linked activities, however, are by nature impossible to structure and simplify into a 'truth table' before analysing.

This lack of a straightforward solution and structure made it especially important for me to let the text determine the way to proceed, rather than forcing it; referred to in the literature as "the issue of how to theorize from data rather than from the armchair" (Glaser and Strauss, 1968:14). Therefore, I manually went through the summary repeatedly, looking for the business actors' attempts to link by comparing their various activities. I searched for patterns in the bacalhau's transformation throughout the network, from the cod stock manager to the retailers. In addition, following

the activities performed on the product also enabled a lack of linking to be identified. For example, attempted links could be identified between some business actors' activities and consumers' activities, while other business actors might not participate in that particular activity chain of the network. It was a laborious search. However, the search for the perfect implementation and presentation has been just as central to me as the order and structure of the thesis' elements. As a researcher I am "facing the same situation as a company struggling with technological development – namely, [that] the value of a certain solution depends on the extent to which others can relate to it" (Håkansson and Waluszewski, 2002:18-19).

3.6 Identifying Links

This section looks specifically at the use of an interface, and in doing so also illustrates the structure of the empirical chapters that follow.

The identification of activity links in the collected data and the uncovering of their potential inner structure, requires certain knowledge of both business actors' activities and consumers' activities. "Putting interaction at the centre makes it impossible to make sense of what happens between business companies by looking at just one of them" (Ford and Håkansson, 2006a:14). In the light of this thesis' research problem, this quote indicates that collecting data from only the business actors is not enough to make sense of the business actors' and the consumers' activities' linking. Consequently, 'something' is needed which represents the view of the counterpart, i.e. the consumers' activities. I have only collected empirical data from business actors[7] (Table 3.3.1, Appendix II). In this study, that 'something', is represented by the theoretical categories of consumers' activities (outlined in Chapter 2, see Table 2.8.1) and the business actors' perceptions of these. When questioning the business actors about their activities, their answers revealed a great deal about the way in which they experienced the consumers and their activities. The business actors talked about how they acted upon this. These empirical data are used to fill in the theoretically founded categories, and are hereby referred to as 'empirically founded perceptions' or similar. This use of empirical data about business actors' activities and data based on the business actors' experience of consumers' activities, has led to the analysis of the empirical material being performed in two steps.

In the first step, an interface consisting of five transformation elements (as outlined in Chapter 2) is used. The interface functions as a tool in the search

[7] Interviewing only the business actors was not the study's original proposal, but a limitation imposed by NewMark's economic and time constraints.

for and structuring of data, as both business actors' and consumers' activities can be categorized by these five elements. The first step begins in Chapter 4, by giving a short presentation of the involved business actors and their activities in general, in order to provide an overview of the network. Then it progresses towards illuminating the links between business actors' and consumers' activities. In Chapter 5, a search is made for retailers' attempts to adjust their activities to consumers' activities, via the five elements of the interface.

The dimensions of these attempted direct links identified within each interface element are used as the starting point in the search for business actors' attempted indirect activity links with the consumers (Chapter 6). By using the interface this way, it both structures and reduces the search for attempted links. The alternative would be to search the cod stock manager's attempts to adjust to each of the five consumers' activities, each of the hunters' and catchers' attempts to adjust each of their five activities with each of the five consumers' activities, and so on. This would be a far more complicated and less structured search.

The interface is not necessary for Chapter 7, the second step in the data presentation, as the business actors' activities have already been identified and the consumers' activities will be described from the business actors' experience of them. Firstly, the empirical data is used to describe the generic consumers' activities (Table 2.8.1). Secondly, probable activity links are pointed out between each of the five consumers' activities and the activities of business actors throughout the network. The argument is that the business actors probably attempt to link their activities under the influence of consumers' activities. Due to the business actors' - and particularly the retailer's - long-term first-hand knowledge and perception of consumer activities, the previously uncovered attempts to link are here considered to be probable activity links.

3.7 Evaluation of Trustworthiness

Through the discussion of the research process' six steps, the most relevant methodological issues and aspects concerning the study's quality have been touched upon. This last section comprises a short discussion about the study's quality based on its trustworthiness. Trustworthiness can be divided into four components: credibility, dependability, confirmability and transferability (Lincoln and Guba, 1985).

'Credibility' refers to the interpretations and concepts used, and whether these are appropriate or make sense in the setting. There are five "activities that make it more likely that credible findings and interpretations will be produced" (Lincoln and Guba, 1985:301). Firstly, gate-keepers were used to reduce the negative influence on the data collection's credibility caused by the lack of *prolonged engagement*. *Prolonged engagement* means spending enough time with the individual informants and within the empirical context to learn the codes and to gain familiarity with it. The gate-keepers secured access to a large share of the business actors in the Norwegian–Portuguese bacalhau network who spoke quite openly. Furthermore, a fairly *persistent observation* was performed. The main share of the data was collected during a period of five months. Combined with the other credibility-strengthening techniques listed, it enabled me to recognise the atypical. As a consequence, I continued to collect data for as long as variation was gained. A third credibility-strengthening technique is *triangulation of investigators*. It helped this study overcome some of the single investigator's inevitable bias. Particularly in the frame setting first round of data collection, professors, post-doctoral students and PhD students collected data together. Then all or both interviewers made notes and any unclear elements were discussed. This was taken one step further through *member checking*. The data collection and possible findings were not only discussed between researchers. Analysing data along the way gave me the opportunity to follow up inconsistencies in the next interviews. In some cases interviewees were contacted again for additional comments and details. The informants' answers were also cross-checked through *triangulation of sources*. Throughout the 'snowball sampling', my strategy was to start every interview with blank sheets. Not giving away any of the previously collected potential findings made cross-checking easier. This was supported by *triangulation of methods*, i.e. collecting different types of data through different means. Combining interviews, observation and secondary data gave complementing and contradicting perspectives. The final technique used to strengthen the credibility was *triangulation of theories*. In this case, the Consumer Behaviour literature was used in combination with the Industrial Network literature.

"[C]ase studies, like experiments, are generalisable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a 'sample', and the investigator's goal is to expand and generalise theories (analytical generalization) and not to enumerate frequencies (statistical generalization)" (Yin, 1989:21). In other words, conducting a qualitative case study means that transferability rather than generalisation is sought. 'Transferability' refers to the possibility of using the findings of this study in other contexts. This study is context specific within the Norwegian-Portuguese bacalhau

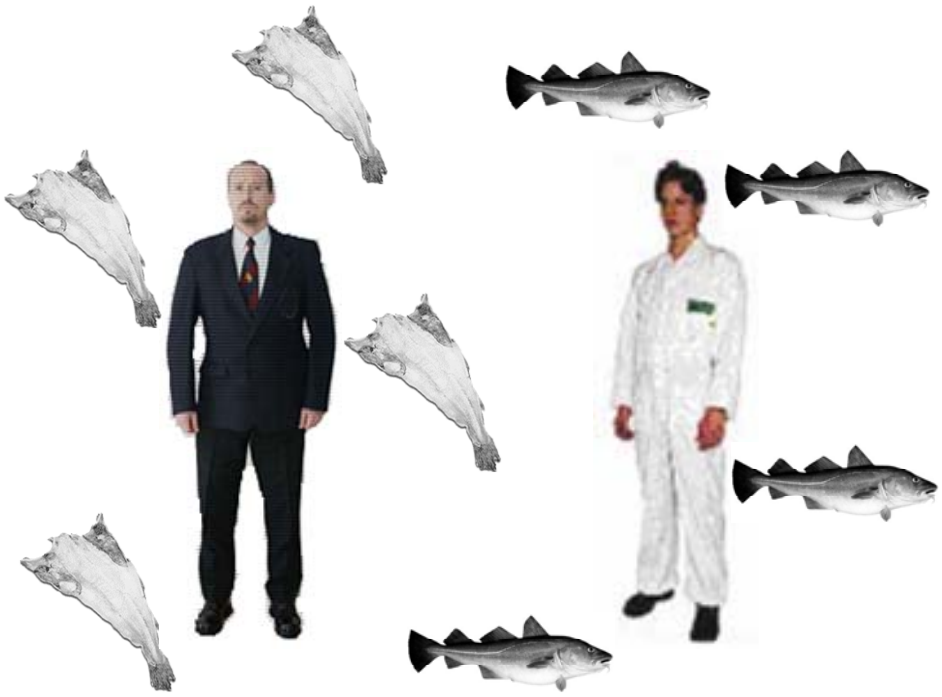
network. By being interpretative, the study's findings cannot be generalised to a population. Rather, they can be transferred to an existing body of literature. The findings can, however, be seen to be of managerial interest to every actor involved in any object's transformation.

'Dependability' refers to the quality of the measuring tools used. It is a weakness that I could not use a computer program, as that would have made it easier to both track and verify what I have done. As mentioned, however, linked activities cannot be structured or simplified into a 'truth table' before analysing. Therefore, to compensate, two actions were taken. Firstly, a major proportion of the business actors in the studied network were interviewed, as listed in Appendix II. Secondly, five interface elements were used to structure and reduce the search for activity links. As a result, the analysis attained a clearer structure and guidance, and became easier to keep track of.

'Confirmability' is the fourth trustworthiness component. It pertains to whether "the findings are grounded in the data" (Lincoln and Guba, 1985:323), or primarily reflect the opinions of the researcher. In order to capture as many varieties of probable activity links as possible and due to the fact that the interview guide covered the interests of all NewMark's members, the interviews of particularly the 'first round' (i.e. the collective pilot study in Ålesund) and the 'second round' (i.e. NewMark's collective data collection in Portugal) were very broad ranging. This broad ranging data was then repeatedly searched through manually, whilst actively looking for varieties in the business actors' attempts to adjust their activities to those of the consumers. The search was a laborious attempt to let the data "determine the way". This summarising evaluation gives examples of actions that have been taken which are advantageous to a qualitative study's trustworthiness. The next chapter introduces the involved business actors and their activities in the Norwegian-Portuguese bacalhau network.

Chapter 4

The Norwegian-Portuguese Bacalhau Business Network and their Bacalhau-related Activities



”In the mother’s body man knows the universe, in birth he forgets it.”
Mythical saying of the Jews

4.1 Introduction

The empirical material is built up throughout the next four chapters. They will shed light on the research problem's three parts: consumers' activities, business actors' activities and their linking. Based on the actors presented in sub-section 3.4.1, the empirical research model looks as illustrated by Figure 4.1.1. Referring to the four types of influence and adjustment in products' transformation (Figure 1.2.1), the arrowheads point in the direction of the actors attempting to adjust their activities. An explanation of the empirical research model and the two-step empirical analysis follow below.

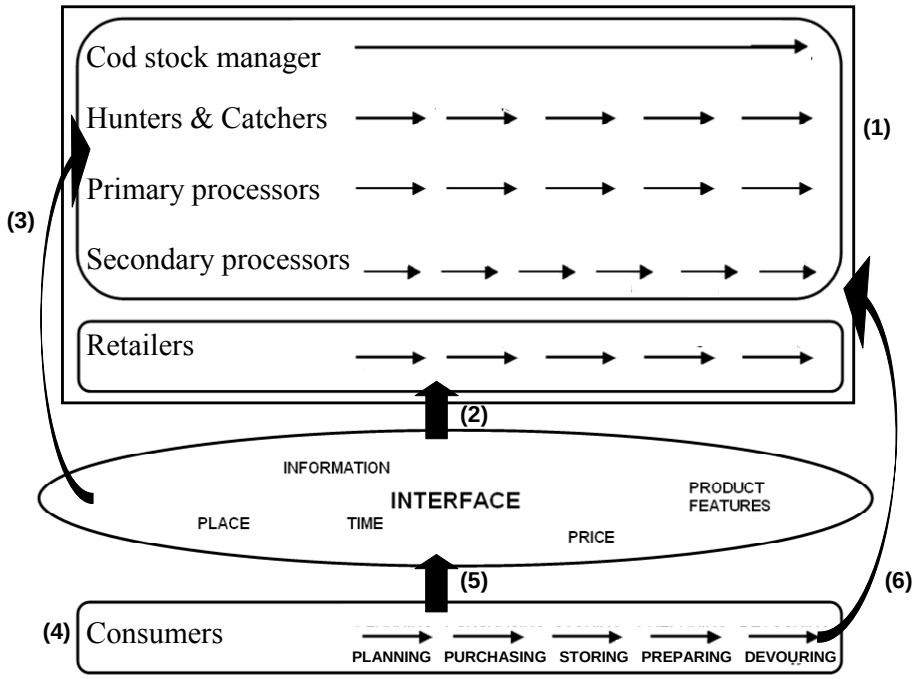


Figure 4.1.1: Empirical research model.

The empirical data is collected only from the business actors. Therefore, in the first step of the analysis the business actors' *attempts* to adjust their activities with consumers' activities in the bacalhau's transformation will be identified and analysed. Chapters 5 and 6 will identify and analyse the business actors' attempts to adjust their activities to the consumers' activities, both directly and indirectly. These will be divided by the

directness of the attempted activity links, and structured by the interface consisting of the Time, Place, Product Feature, Cost and Information elements. The interface elements are quite broadly defined, so looking into the importance of various dimensions of each is central. Chapter 5 deals with the attempted direct links represented by arrow (2) in Figure 4.1.1. The identified dimensions are used as the starting point in the search for the business actors' attempted indirect activity links with consumers' activities. In this way the search is structured and reduced to a discussion in the light of the previously identified dimensions within each of the five interface elements. These indirect links are represented by arrow (3) in Figure 4.1.1. This first step of the analysis concludes with business-to-business-to-consumer sequential chains of *attempted* activity links, structured by the interface.

Chapter 7 constitutes the second step of this two-step analysis. It describes the consumers' activities and analyses activity links without the use of an interface. Interviews were not performed with consumers. Therefore, consumers' activity categories were instead identified via the appropriate Consumer Behaviour literature (Table 2.8.1). One way to describe the consumers' activities is by looking at how central each of the interface elements are to each of the consumers' activity categories. This is represented by box (4) and arrow (5) in Figure 4.1.1.

Finally, to complete the second part of the two-step analysis, the *probable* (not empirically founded) activity links are analysed. This part of the analysis is represented by arrow (6) in Figure 4.1.1. The argument is that the business actors probably attempt to link their activities under the influence of consumers' activities. Examples of sequential chains of probable direct and indirect activity links are based on the illumination of the consumers' activities and the business actors' activities in the first step. Thereby, the previously revealed examples of sequential chains of business actors' *attempts* to link activities with the consumers can be considered business-to-business-to-consumer sequential chains of *probable* activity links between the business actors and the consumers.

One necessary part of the first step is to identify and describe the business actors that are involved and their activities, as represented by box (1) in Figure 4.1.1.

This current chapter expands on the actor presentation given in Chapter 3, by providing a short description of the involved Norwegian and Portuguese business actors and a general categorization of their activities. These actors will be divided into Portuguese retailers, Portuguese and Norwegian secondary processors, Norwegian primary processors, Norwegian hunters

and catchers, and Norwegian cod stock manager. In the following section these actors and their activities are presented.

4.2 Business Actors and Activities

Annually, Portugal imports approximately 70,000 tonnes of bacalhau, as illustrated by Figure 4.2.1. Norway accounts for about half of this, as highlighted by the black line.

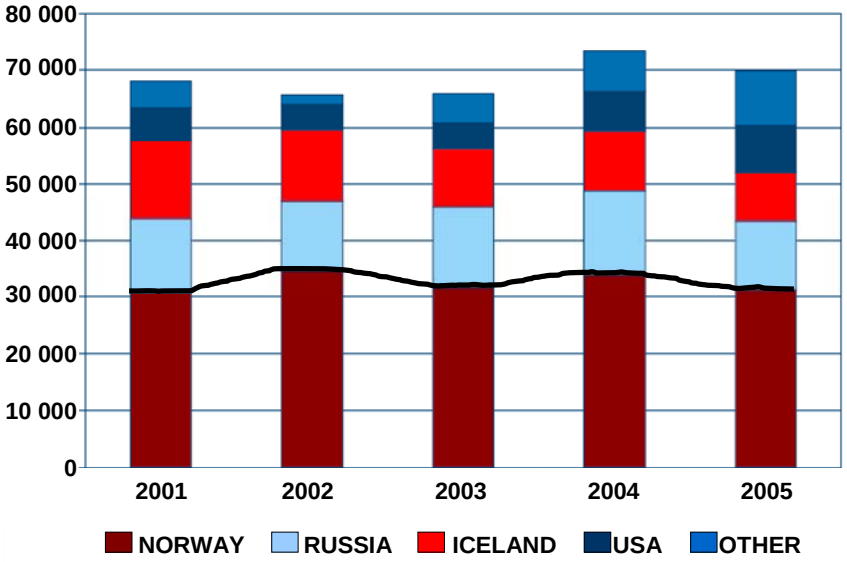


Figure 4.2.1: Import of cod, green (i.e. salted, not yet dried) fish and bacalhau to Portugal 2001-05, here converted into bacalhau weight in tonnes (source: Mikkelsen jr., 2006:32, my translation).

The annual bacalhau import can be divided into three product categories; dry bacalhau, desalted frozen bacalhau and frozen ready-meals of bacalhau. In 2004 dry bacalhau had 90.6 per cent of the market share, while frozen ready-meals had 6.2 per cent and desalted frozen bacalhau the remaining 3.2 per cent (TNS, 2005b). The industrial networks of the three product categories are different. Dry bacalhau is the oldest and the traditional bacalhau product category and is the only one of the three that is transformed by secondary processors in both Portugal and Norway. Within the dry bacalhau product category, the linked activities of the transformation will necessarily have developed variations, which of course at first sight are less visible than the

variations that have developed into the additional two product categories. This presentation will be limited to the dry bacalhau, henceforth referred to simply as bacalhau.

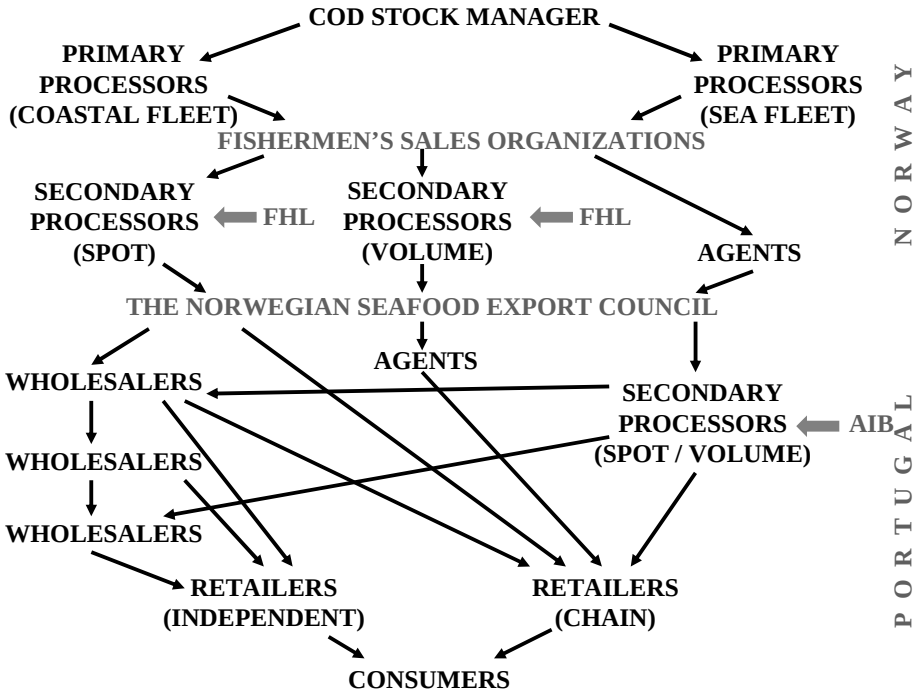


Figure 4.2.2: Norwegian-Portuguese industrial bacalhau network.

The Norwegian–Portuguese industrial bacalhau network is roughly illustrated by Figure 4.2.2. The arrows point in the direction of the product's transformation. The network involves five types, or main categories, of business actors whose activities can link with consumers' activities. The business actors closest to the consumers in time and place are the retailers. The retailers' activities are performed by independent supermarkets and retail chains. Those supplying the retailers, directly or via intermediaries, are secondary processors. The secondary processors' activities are performed by spot processors and volume processors. Primary processors supply these secondary processors, although some Portuguese uses an agent as intermediary. The activities of the primary processors are carried out by the coastal fleet and the sea fleet. Their hunters' and catchers' activities are here considered as a separate category in their own right, due to the large difference between these and their other activities. As it is the same actors

performing them, they are, however, not drawn separately in Figure 4.2.2. The last main category of the network (as defined here) contains the activities of the cod stock manager. In addition, there are organizations such as the Norwegian Seafood Export Council (EFF), the Norwegian Seafood Federation (FHL), Associação dos Industriais do Bacalhau (AIB), the fishermen's sales organizations (e.g. SUROFI (Sunnmøre og Romsdal Fiskesalslag), the Norwegian Fishermen's Sales Organisation) and others who also perform activities within the network. I have chosen not to include brokers in Figure 4.2.2 even though they too are a part of the network.

The five categories of business actors will be presented in the following sub-sections, starting with those closest to the consumers; retailers.

4.2.1 Retailers' Activities

The retailers can be roughly divided into two groups: retail chains and independent supermarkets. Since Portugal's first hypermarket opened in 1985 (www.sonae.pt) the retail chains have moved into a dominant position. Today, the retail chains have approximately 80 per cent market share for bacalhau products (TNS, 2005a). Sonae Distribuição with the chains Continente and Modelo, and Jeronimo Martins with Pingo Doce and Feira Nova, are two of the largest actors. Casa Oriental, cha café e chocolate in Porto is an example of the remaining independent supermarkets, which now are most commonly found in villages and smaller towns.

The retail chains have three types of stores, which in the following are referred to by the general terms supermarkets or stores. To use Sonae Distribuição as an example; they have Continente, which is a hypermarket sized over 4,000 square meters, Modelo, which is a kind of mini-hypermarket sized 2,000 – 3,000 square meters, and Modelo Bonjour, which is a small supermarket of less than 1,000 square meters. The differing sizes and locations of the retailers influence their supplies and prices. It may also influence their strategies concerning the three main categories of bacalhau quality: average, high and low. What all the retailers have in common, though, is the consumers' peak devouring season during the months leading up to Christmas. In addition, their activities can be divided as illustrated by Figure 4.2.3, regardless of their sizes and locations.

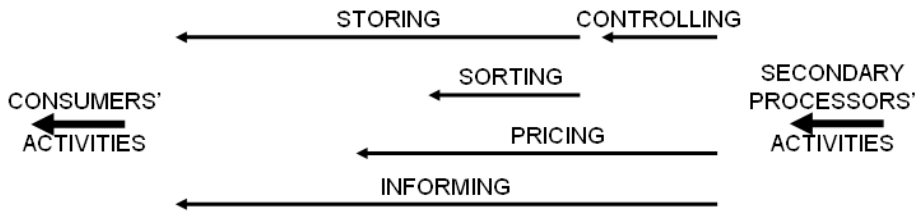


Figure 4.2.3: The retailers' five activity categories.

The retailer's five activity categories are a result of the empirical analysis, which will be explained further in the following chapters. The arrows of Figure 4.2.3 point in the direction of the product's transformation. The secondary processors supply the product that the retailers process, while the consumers process the output. Of all the business actors, the retailers are the ones that the consumers are closest to in time and space. Other business actors may never meet the consumers face-to-face, or may meet them only on rare occasions, for example if they were to have a promotional stand at the retailers' premises.

4.2.2 Secondary Processors' Activities

The secondary processors are land-based processing plants. In Portugal they are mainly gathered in Gafanha da Nazaré (a village outside Aveiro) and in Norway mainly around Ålesund. They can be roughly divided into two groups: volume processors and spot processors. Compared to volume processors, spot processors are unable to make long-term purchase and supply plans. Their limited economy, processing facilities and access to raw material makes them unable to supply a steady volume at a set price. Since both the export monopoly of Norway and the import monopoly of Portugal ended in 1990, volume processors have moved into a dominant position. The three largest Norwegian volume processors, Fjordlaks AS, Jangaard Export AS and Møre Codfish Company AS estimate their annual transformation of bacalhau to be approximately 10-12,000 tonnes each (Tande jr., 2005:54). In Portugal these three account for approximately 90 per cent of the Norwegian transformed bacalhau accessible to the consumers (Tande jr., 2005; Figure 4.2.1). Rui Costa e Sousa & Irmão, S.A. is the largest of the Portuguese volume processors with an annual transformation capacity of 18,000 tonnes (Costa, undated).

Whether they are spot processors or volume processors, the secondary processors distribute their output to retailers after salting and drying the bacalhau. A distinction can be made between the secondary processors, however, as some end their activities with the salting, while others start out with green fish (i.e. salted fish, not yet dried) as their raw material. Concerning their input from primary processors, they can be divided by the raw material supplied, which may be either fresh or frozen. Secondary processors who only process fresh cod are much more dependent on the fishing season, which affects all their activities. Regardless of their types of input and output, their activities can in general be identified as illustrated in Figure 4.2.4. Each of the six activity categories will be explained in the empirical examples that follow.

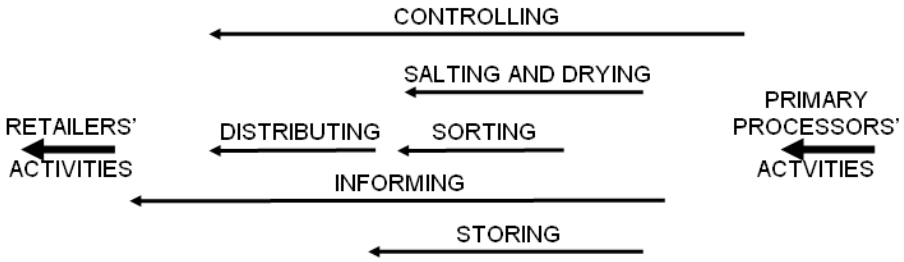


Figure 4.2.4: The secondary processors' six activity categories.

The arrows of Figure 4.2.4 point in the direction of the product's transformation. The primary processors supply the product that the secondary processors process, while the retailers process the output. There are, however, intermediaries involved, as illustrated by Figure 4.2.2. For instance, two of the Norwegian volume processors use agents, while others use wholesalers to supply retail chains. The agents are externally hired Portuguese, stationed in Portugal. The agents' main tasks are described as translating language and culture and being present in Portugal.

Another actor central to the secondary processors is EFF, the task and purpose of which is "to increase the value creation in fishery and fish farming industries through increased request for and knowledge of seafood both at home and abroad" (odin.dep.no, 2006, my translation). EFF is the Norwegian alternative to leaving all the marketing activities to each of the Norwegian secondary processors and exporters. All Norwegian exporters pay 1.05 per cent of the F.O.B.-value[8] in tax of which 0.75 per cent goes to

[8] Free on board: business clause concerning the seller's responsibility for risks and expenses until the product is loaded onto the freighter taking it to its destination.

support EFF's activities. Due to their narrow margins, this expenditure limits the Norwegian secondary processors' own marketing activities. In Portugal, EFF spent approximately 5.9 million NOK in 2006 (Enge, 2006:8) on different sales-promoting activities. Unlike the Norwegians, the Portuguese secondary processors create all their advertising material themselves.

A third actor close to the secondary processors is FHL, which is an employer's association of secondary processors based on voluntary membership. Tasks performed by FHL include lobbying politicians and negotiating international business agreements. Similarly, AIB is a Portuguese organization of secondary processors also based on voluntary membership. AIB's role includes negotiating as a single voice with the authorities or third parties on matters of its members' common interest. The organization also buys research about bacalhau consumers and the industry, which is distributed to members.

4.2.3 Primary Processors' Activities

Primary processors' activities are performed on board fishing vessels. From 1945 to 2006, the number of fishermen in Norway decreased from 112,404 to 13,932 and the number of fishing vessels from 12,021 to 7,305 in Norway (www.ssb.no, 2006; 2008a; 2008b). Generally speaking, short vessels (i.e. 21 meters or less) belong to the coastal fleet, while longer vessels constitute the sea fleet. The coastal fleet land their catch on a day-by-day basis, while the sea fleet may spend up to 7-8 weeks at sea before landing. The difference in time at sea causes some differences in their activities. For instance, the coastal fleet is dependent on the fishing season from January until March, which does not coincide with the bacalhau consumers' devouring season. The sea fleet has more flexibility to go with the fish. Whether the primary processors are part of the coastal fleet or the sea fleet, their activities can be identified as illustrated by Figure 4.2.5. Each of these will be explained in the empirical examples that follow.

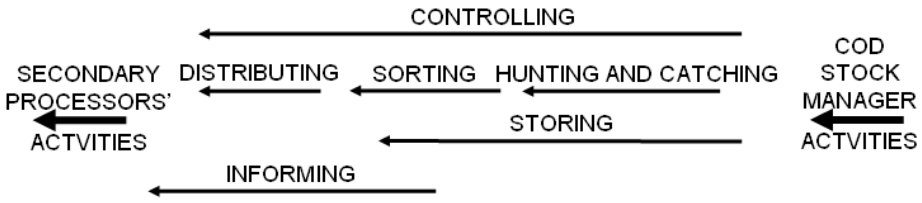


Figure 4.2.5: The primary processors' six activity categories.

The cod stock manager (see sub-section 4.2.5 below) supplies the product that the primary processors process. The secondary processors process the primary processors' output. All first-hand trade of fish in Norway is arranged or controlled by one of the fishermen's registered sales organizations (Law of raw fish trading, 1951:§2(1)1st and 2nd line). There are five such sales organizations in Norway that handle cod, divided geographical by region: The Norwegian Fishermen's Sales Organisation (www.rafisklaget.no), SUROFI (www.surofi.no), Vestnorges Fiskesalgslag, Rogaland Fiskesalgslag (www.rogfisk.no), and Skagerakfisk (www.skagerakfisk.no). The purpose of the sales organizations is to secure the fishermen's income and contribute to the profitability and value of the fish trade through good and stable fish prices (e.g. The Norwegian Fishermen's Sales Organisation §2, www.rafisklaget.no; Law of raw fish trading, 1951). They arrange auctions and control agreements made in advance between the primary processors and the purchasing secondary processors. At auction a species or the whole catch of a vessel goes under the hammer. An agreement made in advance might, for instance, be a set price per kg for a particular size and species made X number of weeks before landing. The sales organizations work as a security net controlling payment and quotas (i.e. size, weight, species etc.).

4.2.4 Hunters' and Catchers' Activities

Hunting and catching constitute one of the primary processors' activity categories listed in Figure 4.2.5. The category is given further attention here, as it is decisive to the primary processors' activities in general. The hunters' and catchers' activities can be further sub-divided as shown in Figure 4.2.6. These are explained in the empirical examples that follow.

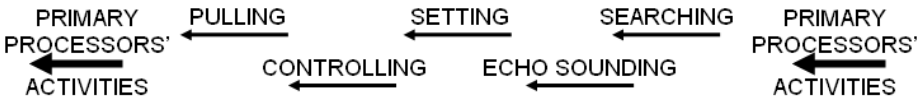


Figure 4.2.6: The main hunters' and catchers' activities.

A wide range of fishing gear exists, which together with the type of vessel divides the hunters and catchers into different categories. The most important types of fishing gear are fishing lines, longlines, fishing nets, trawls and different kinds of fish traps (see Table 5.5.4; Henriksen et al., 1997:374). Lines, nets and traps are mostly used by the coastal fleet. Commercial use of longlines and fishing nets are categorized as

conventional fishing methods. Trawlers are considered a category by themselves. "In a typical year the Norwegian catch is made up of about 30 percent from bottom trawl, 30 percent from gill net, 15 % from longline, 15 % from Danish sine and 10 percent from hand line" (www.fisheries.no, 2007a).

4.2.5 Cod Stock Manager Activities

Access to the wild cod in the ocean is not free and unrestricted. Cod stock managers are mostly governments that control different parts of the sea territories and manage fish stocks through various activities. They regulate fishing through quotas, controls and by making annual agreements of quotas in each other's territories (www.fisheries.no, 2006a). In the following I will focus on the Norwegian government and therefore refer to cod stock manager in the singular. Furthermore, I will refer to the various control and regulation activities that constitute 'cod stock managing' as the cod stock manager activity category, or similar. Together with consumers' activities, cod stock manager activities are the defined ends of the Norwegian–Portuguese industrial bacalhau network. For this reason no input-arrow is drawn in Figure 4.2.7. As in the previous sub-sections, the arrows of the figure point in the direction of the product's transformation.

Figure 4.2.7: The cod stock manager activity category.

Salted dried codfish, known worldwide as bacalhau, is most commonly based on the species cod, ling, tusk / brosme or saithe (UNIDOS, 2001:25). The North-Atlantic cod (i.e. Gadus Morhua) that is the dominating bacalhau base consumed in Portugal, can be either wild or farmed. The Norwegian forecast for 2006 was approximately 10,500-11,500 tonnes of farmed cod (www.satspatorsk.no). Farmed cod remains too expensive for the bacalhau industry compared to wild catch, according to a Norwegian secondary processor. Therefore, the focus here will be on the wild cod.

The Norwegian government controls and regulates "one of the few remaining cod stocks in a reasonably good condition" (www.fisheries.no, 2007a). The wild cod catch in Norway in 2006 amounted to 220,000 tonnes

(www.ssb.no, 2007:Table 1). In 2008, the Norwegian coastal fleet was allotted a quota of 21,000 tonnes of cod and the sea fleet a quota of 170,650 tonnes of cod (Protocol, 2007). Ninety per cent of the fish stocks managed by Norway, however, travel between Norwegian, foreign or international sea territories (Ot.prp. nr.98 (2005-2006):no. 2.1). Approximately 20 per cent of the final catch (Ot.prp. nr.98 (2005-2006):no. 2.1) is illegal, unreported or unregulated (i.e. IUU, which is defined in more detail in Appendix IV; www.fisheries.no, 2006b). Aiming to stop IUU fishing, the Norwegian government seeks to work with countries where the IUU-catch might potentially be landed, in the field of monitoring, control and surveillance of fisheries. To this end, Norway has signed agreements with the European Union (Agreed Record, 2006) and Portugal (Protocol, 2006) among others.

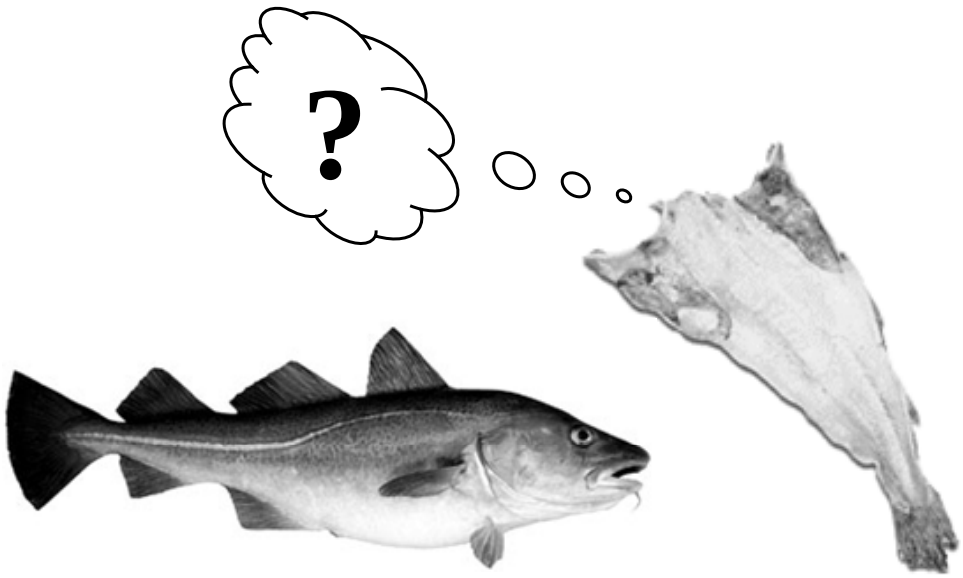
4.3 Summarizing Remarks

This chapter has described the Portuguese retailers, the Norwegian and Portuguese secondary processors, the Norwegian primary processors and the Norwegian cod stock manager, which in the methodology chapter were identified as the network's four main types of business actors. It has also identified their main activity categories. In case of the primary processors' activities, the hunting and catching activity category was separated out and given particular emphasis as the hunters' and catchers' activities are considered decisive to the primary processors' activities in general.

Referring to the research problem, Chapter 4 has illuminated the business actors' activities. Based on this presentation, Chapter 5 will analyse the business actors' attempts to directly link their activities with consumers' activities in a product's transformation. The business actors' activities are represented here by the retailers' activities, as the retailers are the business actors closest to the consumers in time and place. Together with Chapter 6, Chapter 5 takes a step towards revealing the linking of the business actors' and consumers' activities.

Chapter 5

The Retailers' attempts to directly link Bacalhau Activities with the Consumers



"As much money and life as you could want! The two things most human beings would choose above all – the trouble is, humans do have a knack of choosing precisely those things which are worst for them."
Joanne K. Rowling (1997) "Harry Potter and the Philosopher's Stone"

5.1 Introduction

This chapter and Chapter 6 discuss activity links between business actors and consumers. More specifically, the empirical data is concerned with (i) the ways in which the Norwegian and Portuguese business actors attempt to adjust to the consumers' activities through the interface elements, and (ii) what the features of these attempted activity adjustments are in the transformation of bacalhau in the Norwegian-Portuguese bacalhau network.

This chapter addresses the retailers' activities, and their attempts to directly link bacalhau activities with the consumers. Firstly, as empirical data is collected only from the retailers, and not the consumers, examples of their *attempts* to link activities with consumers will be analysed within the interface elements. Secondly, as the retailers are the actors which are physically present together with the consumers in time and place, it is likely that attempts by retailers to *directly* link activities with consumers will most easily stand out. On the same basis, it is also easiest for the different dimensions of the various elements to stand out between the retailers' and consumers' activities. This analysis is represented by arrow (2) in Figure 4.1.1.

The interface elements of Time, Place, Product Feature, Cost and Information are each given one section. The retailers' attempts to directly link activities of their five activity categories to consumers' activities within different dimensions of the respective element are identified and analysed. Each section ends with a summary.

5.2 Time Element

The business actors' access to bacalhau and the variations in this access are important hallmarks of activity links within the Time element. For instance, the business actors' access to bacalhau can vary with the time of the year. The retailers' time of best access and the consumers' preferred time of access are not necessarily the same. This causes the retailers to attempt to link their activities with those perceived to be performed by the consumers.

At a large retail chain, consumers purchase on average an amount of bacalhau equivalent to six or seven truck loads weekly. One such truck might contain, for example, 900 cartons of Crescido (Table 5.3.1). In spite of the high turnover, at least one retail chain has a storage facility with a total capacity of 27,000 (900x30) cartons. That storage facility enables them

to never have to reject a bacalhau offer when being contacted by someone other than their regular suppliers. The independent supermarkets experience a similar bacalhau flow, but on a smaller scale. Depending on the size of their storage area (e.g. Figure 5.2.1), some independent supermarkets buy once a week, while others buy bacalhau two or three times a week. In general, retailers do not need to store a large amount due to the constant bacalhau flow. Nevertheless, they can perform purchasing and some storing in order to secure the consumers' access. As a result, the consumers are able to purchase bacalhau whenever they want and this constant availability means that there is little need for them to store any. This paragraph illustrates retailers' attempt to link their activities with consumers' activities in the dimension of Storing.

Figure 5.2.1: An independent supermarket's chilled storage area (photo: Svanhild E. Haugnes).

In addition to ensuring a stable bacalhau flow, the retailers' storing enables them to adjust the timing of their activities throughout the year. They time their activities to correspond with their experience of the consumers' requests. For instance, a retail chain informant explains how the chains keep a low profile in September. Their experience is that most households spend 'all' their money on the children's return to school. In October they start advertising again, and run campaigns on Friday prime-time TV. Likewise, Sonae Distribuição, for example, continuously alters activities in their stores, to make it interesting and fun for the consumers to come back frequently. These activities are focused on the weekends as their experience is that most consumers do their main weekly shopping on Saturday.

The most striking example of the timing of retailers' activities, however, is the retail chains' change from dealing with six or seven truck loads of bacalhau a week, to six or seven truck loads a day before Christmas. Christmas is the consumers' peak season for eating bacalhau. Therefore, the retailers time their activities over the year in response to certain experienced variations in the consumers' purchasing and devouring in the dimension of Timing.

To summarize the Time element, two dimensions are identified in which the retailers attempt to directly link their activities with those of consumers. Firstly, the retailers purchase and are able to store bacalhau in order to secure the consumers' general access, as they know from experience that consumers regularly purchase the available bacalhau and consequently don't store much at home. Secondly, the retailers time their activities with the buying behaviour of the consumers. The consumers are perceived to vary their activities with certain set high and low seasons during the year. These findings are the starting point of 6.2 Time Element which identifies and analyses the industrial network's business actors' attempts to indirectly link their activities with the consumers' activities.

5.3 Product Feature Element

The Product Feature element concerns the bacalhau's features. The retailers experience the consumers to be very specific about what they want, as the bacalhau's features affect its storability, how it is prepared, its taste and appearance. Due to the competition and stability of the industry, however, the retailers are very specific about the product features too. The division in their preferences creates the possibility for the retailers to attempt activity links.

Retailers sell various types of bacalhau based on a range of product features. Retailers that primarily sell bacalhau based on fresh raw material, distinguish between fresh and frozen-based bacalhau in their display. Those who primarily sell frozen-based bacalhau do not make such a distinction, even though their bacalhau is often a mix of frozen and fresh-based. The distinguishing of fresh-based bacalhau by those retailers selling it is an attempt to link with the consumers' preference for it. Furthermore, bacalhau may have either black or white wings. Figure 5.3.1A shows a white winged bacalhau while Figure 5.3.1B shows a black winged bacalhau. The black winged variety dominates. White wings are also called 'angel wings' and the retail chains perceive them to be popular among consumers for

Christmas. This categorizing is another illustration of the retailers' attempt to link their activities with consumers' activities.

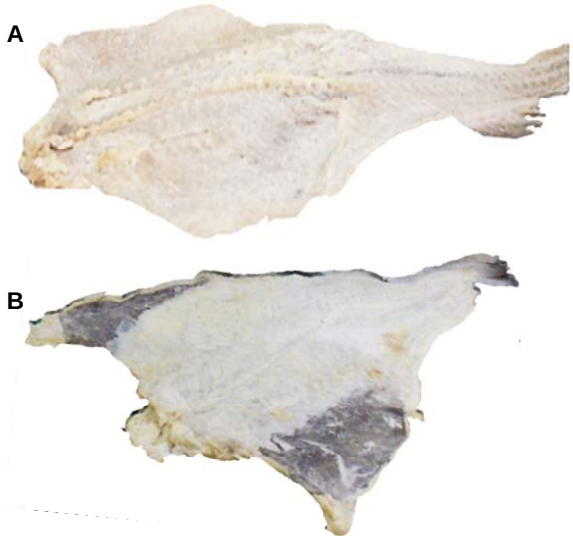


Figure 5.3.1: A white (A; photo: Solbac Export, edited) and a black (B; photo: Atle Følgesvold, edited) winged bacalhau.

The bacalhau is also categorized by its country of origin, as the retailers experience the consumers to make their purchase depending on this. Even though Gadus Morhua is exported to Portugal from many nations (Figure 4.2.1), only Icelandic and Norwegian sourced bacalhau is identified at the supermarkets. Retailers experience that consumers traditionally prefer Bacalhau da Noruega (i.e. bacalhau from Norway) (see section 5.4 Information Element for more details).

Concerning size, the retailers purchase and sell bacalhau based on a standard weight classification. The classification is unique to Portugal - other bacalhau cultures all use a mutual international classification standard. The Portuguese standard has probably been developed through the linking of business actors' and consumers' activities over the years. The consumers are experienced to make purchases of bacalhau dependent on the use of this standard classification. By classifying the bacalhau in the standard's weight classes the retailers are attempting to continue this link with the consumers' activities. The Portuguese standard weight classification is divided as shown in Table 5.3.1.

Table 5.3.1: Portuguese classification of weight classes of bacalhau (source: Decreto-Lei n.˚25/2005:Artigo7.˚, no. 2a).

Classification	Weight of bacalhau
Jumbo[9]	4.5 - 6 kilos
Especial	3 - (4.5 kilos)
Graúdo	2 - 3 kilos
Crescido	1 - 2 kilos
Corrente	0.5 - 1 kilos
Miúdo	0.3 - 0.5 kilos

Humidity is another important bacalhau feature. Bacalhau is sold by weight, and the wetter it is, the heavier it is. Thereby, the retailers (and / or the secondary processors) will earn more and the consumers receive less, the wetter the bacalhau is. Some secondary processors experienced this fact to be abused by other secondary processors during the last decade or so. To prevent this, Decreto-Lei n.˚25/2005 was introduced on January 28th 2005. Its main purposes were to "raise the criteria of quality, secure the interests and rights of the consumers, make sure free competition is maintained and increase the visibility in the markets" (Decreto-Lei n.˚25/2005, my translation). The legislation regulates bacalhau products "from the moment in time they are accessible to the consumer / end-user" (Decreto-Lei n.˚25/2005:Artigo 2.˚ 2, my translation). Consequently, it encouraged the retailers (and the secondary processors) to attempt to link their humidity related activities with consumers' activities. The legislation defines four categories based on humidity and salt content (see Appendix V).

Despite the legislation, the empirical data gave no indications of retailers attempting to link with consumers' activities by categorizing their bacalhau in this way. That no attempt is made to do this is supported by the fact that the bacalhau's various humidity and salt content require certain temperatures to stay fresh. For instance, both 'Bacalhau salgado verde' and 'Bacalhau salgado semi-seco' (Appendix V) have to be packed separately in plastic bags (Decreto-Lei n.˚25/2005:Artigo 6.˚ 2) and kept at 4˚C both in storage and when displayed (Decreto-Lei n.˚25/2005:Artigo 9.˚ a1 and b1), while 'Bacalhau salgado seco' must be kept at 7˚C (Decreto-Lei n.˚25/2005:Artigo 9.˚ a2 and b2). An independent supermarket informant says he has a temperature of 6˚C in his storage area (Figure 5.2.1). Photos of both retail chains (Figure 5.6.2; Figure 5.5.1) and independent supermarkets (Figure

[9] Jumbo is an additional weight class, which is not mentioned in Decreto-Lei n.˚25/2005. It is used by some retailers, for example Pingo Doce.

5.4.2) show no chilled facilities or other indications of displayed bacalhau being categorized according to this temperature regulation.

So far, I have described fresh versus frozen raw material, black versus white wings, country of origin, six weight classes, and four categories of humidity and salt content. With the exception of the latter, these are all features that retailers attempt to link with consumers' activities. Bacalhau in Portugal is also categorized by three qualities based on faults visible to the consumers. Primeira (i.e. Superior, NBS 20-01, 1998:no. 5.5) is bacalhau based on well bled out cod, properly washed, and cleaned after gutting. Sortido (NBS 20-01, 1998:no. 5.5; Decreto-Lei n.˚25/2005:Artigo 8.˚) is Primeira bacalhau with minor but visible faults. Bacalhau in a worse condition than Sortido is categorized as Vrak / Popular provided that it is still suitable as food fit for human consumption (NBS 20-01, 1998:no. 5.5). Vrak / Popular is not accessible to the consumers in the supermarket as bacalhau (the way bacalhau is defined here). The retailers distinguish between Primeira and Sortido not by naming them, but through pricing and displaying. Consequently, the retailers categorize qualities in an attempt to link with consumers' activities.

All of these six presented bacalhau features fall within the dimension of Categorizing and are controlled by the retailers upon arrival. It is not uncommon for the retail chains to have a central warehouse and a purchasing department to take care of this. As an example, about five years ago one of the largest retail chains established a centralized department to purchase, receive, control and distribute all bacalhau to their one hundred plus stores throughout Portugal. Prior to this, different employees in different parts of the country judged the bacalhau differently when controlling it. Today, they secure a consistent quality all over the country. Earlier, they had a significant level of consumer complaints on the bacalhau delivered to the different stores. Today, consumer complains at this particular retail chain have more or less stopped. This example illustrates the retail chains' attempt to link their activities with consumers' activities in a dimension of Controlling.

In comparison to the retail chains, the independent supermarkets either control the bacalhau themselves before purchase, or leave it to their supplying wholesaler. One owner of an independent supermarket tells how he returns bacalhau to the suppliers two or three times a year, whenever he considers it not as agreed upon. Another independent supermarket has had the same main supplier for two generations, and trusts his judgment 100 per cent. This supermarket never returns any bacalhau at all. Whether they control the bacalhau themselves or leave it to their supplier, the independent

supermarkets attempt to link these activities with consumers' activities in a dimension of Controlling.

The last dimension of the Product Feature element to be mentioned here is the retailers' bacalhau cutting. At the retail chains, the consumers request cutting of the bacalhau. This commonly becomes the only face-to-face meeting between the employees and the consumers other than at the checkout counter. All retailers cut the bacalhau at the consumers' request. The retailers have a band saw (Figure 5.3.2B) or equivalent (Figure 5.3.2A) in their store, as it is a heavy job for the consumers to cut the bacalhau at home. There are established ways of cutting the bacalhau, which vary depending on the fish species and the bacalhau culture. The standardized way of cutting bacalhau in Portugal is shown in Figure 5.3.2C and has probably developed over the years through the business actors' and the consumers' linking of activities. The cutting separates the thinner and thicker parts of the bacalhau, as that makes it easier for the consumers to prepare it (Johansen et al., 2003:35), when regulating the desalting and cooking of the different bits. The retailers offer to cut the bacalhau in an attempt to link with the consumers' request in a dimension of Cutting.

Figure 5.3.2: Employees at an independent supermarket (A; photo: Svanhild E. Haugnes) and a retail chain (B; photo: Sonae Distribuição) cutting bacalhau. A standard cut bacalhau (C; photo: www.jangaard.no).

This section has identified retailers' attempts to directly link activities with consumers within three dimensions of the Product Feature element. Firstly, the retailers categorize bacalhau by its white or black wings, fresh or frozen raw material, six weight classes, three qualities based on visible faults and

partly by its country of origin. The retailers perceive the consumers to make their purchase based on these features. Secondly, the retailers control these bacalhau features in addition to the four categories of humidity and salt content at the bacalhau's point of arrival, as the consumers presume to control them too. Thirdly, the retailers cut the bacalhau at the consumers' request. These findings are the starting point of 6.3 Product Feature Element which identifies and analyses the industrial network's business actors' attempts to indirectly link their activities with the consumers' activities.

5.4 Information Element

The information held by the actors and the differences in that information are central to the Information element. The information possessed by the retailers and the consumers is not necessarily the same, which creates the possibility for the retailers to attempt activity links. Examples of retailers' attempts to link their activities with consumers' activities in the dimensions of Tracing and Specifying, are given below.

The retailers experience is that consumers generally prefer Bacalhau da Noruega (i.e. bacalhau from Norway). However, many retailers have started to treat Bacalhau da Noruega as a term signifying high quality, rather than a reference to the country of origin. This is contrary to the fact that Norwegian bacalhau which is not of the best quality is also sold as Bacalhau da Noruega. The gap between true country of origin and the consumers' perception is reflected by Figure 4.2.1 showing that Norwegian bacalhau has approximately 50 per cent market share, while Figure 5.4.1 indicates that a much higher number of consumers believe they are buying Norwegian bacalhau. Corroborating this, one retailer sells Icelandic bacalhau as Norwegian, while another confirms selling both Russian and Icelandic bacalhau as Norwegian. They argue that the consumers are satisfied with the quality when being told by posters or orally that it is Bacalhau da Noruega. In contrast, the retail chain Pingo Doce started a campaign some years ago to educate consumers about the origin of the cod and the different bacalhau qualities. In the campaign, Pingo Doce promotes 'the real Bacalhau da Noruega' together with EFF, as they have a large contract with the Norwegian secondary processor Jangaard Export AS. The term 'real' refers to the bacalhau having undergone both primary and secondary processing by Norwegians in Norway. The bacalhau is individually tagged with tracing information to communicate this fact. Since the tagging started in spring 2003, sales have increased by 10-15 per cent annually. This example represents an attempted activity link in a dimension of Tracing. The retailers

provide information about origin and traceability, and experience that the consumers purchase more of that particular bacalhau.

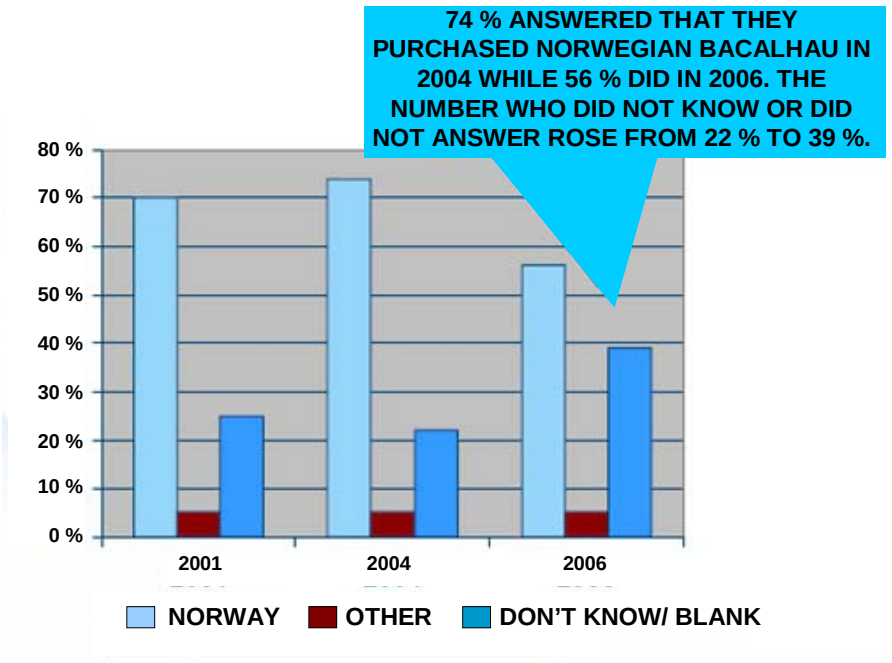


Figure 5.4.1: "From what country of origin do you normally purchase bacalhau?" (source: Mikkelsen jr., 2006, my translation).

The "typical product information of bacalhau [displayed at the retailers seems to be limited to] its country of origin, size and price" (Østli and Heide, 2004:26, my translation). At the independent supermarkets, the bacalhau and information about it is displayed by the entrance and / or behind the counter as illustrated by Figure 5.4.2. The owner and staff are experienced and knowledgeable. Here the consumers trust that they will be provided with good quality produce, an owner concludes. The perception is that consumers go to an independent supermarket when they want specific information. At another independent supermarket the point is made that they often talk with the consumers about quality, how to desalt the bacalhau, and how to store it afterwards. The independent supermarkets do not regard the consumers as knowledgeable. A blind-test study supports this view by indicating there is little connection between the consumers' meal experiences and the way that they consider the bacalhau at the point of purchase (Østli and Heide, 2004:59).

Figure 5.4.2: An independent supermarket with bacalhau displayed behind the counter (photo: Svanhild E. Haugnes).

Nevertheless, the retail chains have 80 per cent (TNS, 2005a) market share and perceive the consumers in general to be knowledgeable. At one of the retail chains they believe that primarily elder women purchase bacalhau, because they know how to judge the different qualities. In contrast to independent supermarkets, at retail chains the consumers are free to touch, smell and look at the bacalhau displayed on tables, before making a purchase (Figure 5.6.2). Those working in the bacalhau department often do not know anything about bacalhau, except how to cut it. However, on a regular basis they have promotional stands in their stores, either with their own staff, or those of a supplier or an organization. Staff at the stands are highly knowledgeable, and the consumers are free to talk to them, ask questions and receive individually adapted information. At the same time, the retailers also get information when the consumers talk to staff at a retail chain's stand, or to staff at an independent supermarket. In the Specifying dimension, the retailers attempt to link activities directly with the consumers. The retail chains and the independent supermarkets give individually adapted information, albeit in different ways, while the consumers go where they can get their preferred information.

Within the Information element, two dimensions of attempted direct activity links are identified. Firstly, retailers inform the consumers of the bacalhau's country of origin, and experience that the consumers purchase what they believe to be Bacalhau da Noruega. Secondly, independent supermarkets or representatives at retail chains' promotional stands attempt to link by giving

individually specific information to the consumers who go there. These findings are the starting point of 6.4 Information Element which identifies and analyses the industrial network's business actors' attempts to indirectly link their activities with those of the consumers.

5.5 Cost Element

Within the Cost element, important hallmarks of attempted activity links concern the costs associated with the bacalhau and variations in them. For instance, costs can vary with the product's size or the retailers' size.

As stated in the previous section, the retail chains have increased their holding to approximately 80 per cent of the market for bacalhau products (TNS, 2005a). At least one cause of this consolidation is the need for efficiency and cost reduction. For instance, some retail chains have a large storage facility, which means that they never have to reject a bacalhau offer when being contacted by someone other than their regular suppliers. They purchase all the low priced bacalhau available, in preparation for the next promotional campaign. In this dimension of Purchasing, the retail chains might purchase, for example, a large volume of loss-leader bacalhau in an attempt to link with consumers' activities. For their part, the consumers join in the cost reduction through a large degree of self-service at the retail chains.

The Purchasing dimension provides illustrations of rationalizing among the retailers. The rationalizing involves a range of cost-effective activities. As mentioned, the consumers perform self-service at the chains. The bacalhau is piled on tables for the consumers to evaluate themselves. By saving costs the retailers are able to run promotional campaigns more often. The retail chains are asked by their main supplier, or decide themselves, to run promotional campaigns regularly. One retail chain tells how they normally sell 30 tonnes a week, but when they have a special promotion (Figure 5.5.1) they can sell as much as 500 tonnes during a week. Figure 5.5.1 exemplifies a retailer offering loss-leader bacalhau with a low margin on a promotional campaign. The retail chains consider bacalhau as perfect for psychological pricing, as they experience a small decrease in price to give a large effect. Viewing the promotional campaign simply as a price reduction makes it an illustration of their attempt to link with consumers' activities in a dimension of Price Differing. The retailers reduce the price and experience the consumers to purchase a much larger volume than they would have done otherwise.

Figure 5.5.1: Bacalhau on promotion displayed centrally on tables (photo: Svanhild E. Haugnes).

Two dimensions of attempted direct activity links are identified within the Cost element of transformation. Firstly, as far as the Purchasing dimension is concerned, the retailers have rationalized. They have decreased in number and their volumes of lower priced bacalhau have increased, while the consumers perform more self-service. Secondly, with regard to the Price Differing dimension, that rationalizing involves a number of cost-effective activities. These cost-effective activities attempt to link with the consumers who perform more bacalhau activities. The findings are the starting point of 6.5 Cost Element which identifies and analyses the industrial network's business actors' attempts to indirectly link their activities with those of the consumers.

5.6 Place Element

The Place element of transformation concerns activities related to where the actors can access the product and variations in their places of access. For instance, the place where the purchase is made can vary. The places where the retailers and the consumers prefer to access bacalhau do not necessarily concur, which creates possibilities for the retailers to attempt various activity links with the consumers.

Independent supermarkets and smaller supermarkets of retail chains allow the consumers to arrive and leave by foot, as illustrated by Figure 5.6.1. In contrast, stores of the size of mini-hypermarkets and hypermarkets operate in locations outside the larger cities, or even further away. The consumers need a car to reach many of these stores. The retail chains' 80 per cent market share illustrates that their geographic location is cost-efficient and convenient to most consumers and only excludes a minority.

Figure 5.6.1: Independent supermarkets are located centrally (photo: Svanhild E. Haugnes).

Furthermore, the different chains have different concepts in addition to differentiating through size. For instance, there are different types of stores, such as Continente, Modelo and Modelo Bonjour of Sonae Distribuição, Jerónimo Martins with Feira Nova and Pingo Doce, and the Carrefour Group with Carrefour, Minipreço and Dia. As an example, an informant mentions how the "up-market" Pingo Doce is located centrally in cities, while the "mid-range" Feira Nova alternative is located outside city centres. These examples of retailers' criteria of location illustrate attempts to link with consumers' activities in a dimension of Locating. The retailers' location of their stores is a compromise, as they are not willing to pay the cost of coming to every consumer's doorstep. The consumers' journey to the store is also a compromise, as they would not be willing to travel hundreds of miles to reach, for example, one central store, or alternatively the secondary processors. As mentioned in the analysis of the Time element, the retailers attempt to link by making the bacalhau accessible to the consumers.

External locating is one thing; internal locating is another. The retail chains distinguish between meat, fish and bacalhau. Figure 5.6.2 illustrates how bacalhau is displayed in a separate department at hypermarkets. Higher qualities are located closer to the employees. Low priced or bacalhau on promotion is centrally displayed on a table (Figures 5.6.2 and 5.5.1). These aspects were also discussed within the Cost and the Product Feature elements. Within the Information element it was noted how the consumers may be free to touch, smell and look at the bacalhau themselves. The situation at independent supermarkets and the retail chains' small supermarkets is different, as the limited space available does not allow different departments to be distinguished. These shops display the bacalhau by the entrance and / or behind the counter as illustrated in Figure 5.4.2. Through posters and the provision of individually adapted information (as discussed within the Information element) these supermarkets attempt to link with consumers' activities in a dimension of Displaying. The retailers display the bacalhau in a way that is dependent on the supermarkets' size and the fact of it being among the consumers' most purchased products.

Figure 5.6.2: A retail chain's bacalhau department (photo: Sonae Distribuição).

To summarize, two dimensions are identified within the Place element in which the retailers attempt to directly link activities with the consumers. Firstly, the retailers select a geographic location, with the consumers actively walking or driving there. Secondly, the retailers display the bacalhau on the basis of its features in a way that is influenced by the supermarkets' size and

the bacalhau product's generally perceived high importance to the consumers. These findings are the starting point of 6.6 Place Element which identifies and analyses the industrial network's business actors' attempts to indirectly link their activities with those of the consumers.

5.7 Summarizing Remarks

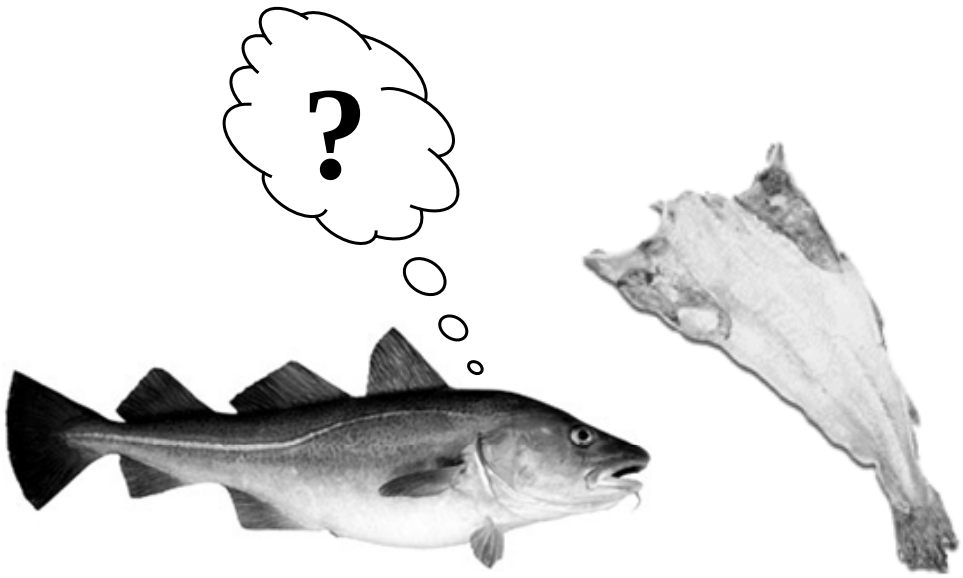
This chapter has discussed the five interface elements in relation to the retailers' attempts to directly link activities with the consumers, as summarized in Table 5.7.1. The analysis resulted in eleven dimensions of the interface elements being identified. These will be used in Chapter 6 to structure and reduce the discussion of indirect activity links.

Table 5.7.1: Summary of the Retailers' attempts to Directly link Bacalhau Activities with the Consumers

Interface Element	Dimension	Retailers' attempts for Direct activity links. Examples.
Time	Storing	Purchase (and can store) to secure access.
	Timing	Time activities with e.g. consumers' high and low seasons.
Product Feature	Categorizing	White versus black wings, frozen versus fresh raw material, weight, etc.
	Controlling	Controlling the categories at arrival.
	Cutting	Cut bacalhau on consumers' request.
Information	Tracing	Inform about (some) country of origin.
	Specifying	Some give individual information.
Cost	Purchasing	Larger units with lower prices.
	Price Differing	Various cost-effective activities.
Place	Locating	Driving or walking distance.
	Displaying	Central, dependent on store size and features.

Chapter 6

The other Business Actors' attempts to indirectly link Bacalhau Activities with the Consumers



"It is preferable to accept too little of what is essential, if it allows one to have a little of what is desirable.
– The desirable, after all, is what one is working for and longing for –".
Sigrid Undset (1967) "Jenny"

6.1 Introduction

This chapter discusses the way in which the Norwegian and Portuguese business actors attempt to indirectly adjust to the consumers' activities. The features of these attempted activity adjustments are also discussed.

The dimensions within which direct activity links were identified in Chapter 5 are used as the starting point in the search for indirect activity links. The argument for this approach is that an attempted direct activity link is likely to mean that there will be attempts for indirect activity links within the same dimension. Thereby, the search is structured and reduced to a discussion in the light of the already identified dimensions within each of the five interface elements.

Each section below starts with a brief description of the respective interface element's two or three dimensions. The sections are concluded by highlighting examples within those dimensions of sequential chains of the activity network, which include both business actors' attempted direct and attempted indirect activity links with consumers.

6.2 Time Element

In the previous chapter Storing and Timing were identified as two dimensions in which retailers attempt to directly link their activities with consumers' activities. The Storing dimension involves the retailers purchasing and to some extent storing bacalhau to secure the consumers' general access. The consumers purchase from this readily accessible volume and do not need to store much bacalhau at home. The Timing dimension involves the retailers timing their activities to fit in with the requests of the consumers. Consumers are known from experience to vary their activities with certain fixed high and low seasons throughout the year.

6.2.1 Secondary Processors' Activities

In relation to the Storing dimension, secondary processors which base their bacalhau activities on frozen raw material can secure the flow by storing large quantities or by continuously buying more as needed - just like the retailers. Frozen fish can be bought all year round, which provides scope for efficiency. For instance, Fjordlaks AS bases their bacalhau on frozen raw material. With a freezer capacity amounting to about 22,500 tonnes, they

purchase large quantities during the fishing season from January until March. They maintain a continuous store of frozen cod, at least large enough to cover demands for the coming two to three months of bacalhau processing. This store is supplemented by buying throughout the year. They do all this in order to be able to supply continuously, in an attempt to link with consumers' activities.

Secondary processors basing their activities on fresh raw material use a different storage strategy. These secondary processors are dependent on a continuous supply of fresh or green (i.e. salted, not yet dried) fish or an enormous amount of green fish in storage. For instance, Jangaard Export AS salt large amounts of cod in order to secure their ability to supply bacalhau through the year. These stores empty in the months leading up to Christmas, which is the consumers' peak devouring season. After the winter's fishing season they claim to have as much as 5,000 tonnes of green fish in store, which they estimate corresponds to an investment of 150-200 million NOK. Their storing activities ensure a continuous supply, in an attempt to link with consumers' activities. The secondary processors purchase and store in order to secure the bacalhau flow, which enables the retailers to do the same. In this way, bacalhau is always available for purchase by the consumers.

As far as the Timing dimension is concerned, the secondary processors' storage strategies also enable them to time their activities with their experience of the varying consumers' activities. For instance, a secondary processor using frozen raw material has the storage capacity (e.g. Figure 6.2.1) and efficiency to supply larger promotional campaigns. They can collect a certain quality or size for the next promotional campaign in an attempt to link with consumers' activities. Similarly, secondary processors using fresh raw material store green fish. It is possible to time the drying process depending on certain experienced variations in consumers' activities, such as the peak devouring season in the months leading up to Christmas. Furthermore, during processing 10-15 per cent of the fish becomes Sortido. The Sortido is collected and stored until the volume is sufficient to supply a promotional campaign. These examples of timing illustrate secondary processors' attempts to link their activities with consumers' activities.

This sub-section has identified and analysed the secondary processors' attempts to indirectly link their activities with those of the consumers in the Storing and Timing dimensions. Concerning the Storing dimension, the secondary processors secure the flow of bacalhau differently, depending on whether they use fresh or frozen raw material. Concerning the Timing dimension, the secondary processors also use their storing strategies to time their activities with their experience of various consumers' activities. The

next sub-section will make a similar identification and analysis of the primary processors' activities.

Figure 6.2.1: Storage of bacalhau in cartons (photo: Rui Costa e Sousa & Irmão, S.A.).

6.2.2 Primary Processors' Activities

Concerning the Storing dimension, primary processors of the coastal fleet return to shore on a daily basis. There is consequently no need to, or possibility of, storing the cod onboard. As the quality of fresh cod reduces very quickly, they are also prevented from storing on shore. Neither can they store their quotas, because of the limited fishing season. The lack of storing, combined with the possibility of catching fish being seasonal in nature, does not link with the consumers though, who seem to prefer to purchase all year round. So the coastal fleet does not attempt to link their activities with consumers' activities in the Storing dimension.

The primary processors of the sea fleet are at sea for as long as seven to eight weeks before landing. In this period the cod is stored onboard at -18˚C or colder[10]. After washing, the headed and gutted (i.e. HG) cod is moved into a plate freezer (see Figure 6.2.2A). The fish is placed between the metal plates which are then cooled. Three to three and a half hours later at -24° C[11], the frozen fish blocks are loosened as the plates are warmed. The

[10] Legislation, 2001:§3-6.5 and §8-4 no.1
[11] A minimum of two and a half hours for a thickness of 5cm (Legislation, 2001:§8-2.1)

blocks of frozen cod are removed from the plate freezer and carried to the vessel's storage area (Figure 6.2.2B). As the sea fleet freezes the cod, they also have the choice of whether or not to store on shore, while waiting for a change in the request from their customers. This request could concern price, weight, volume, quality etc. Kloosterbour Terminal Norway in Ålesund is an example of such a freezer facility that rents out space. In addition, the primary processors of the sea fleet are not dependent on a particular fishing season. Consequently, the primary processors of the sea fleet, the secondary processors and the retailers are able to be efficient in their storing, which is an attempt to link with the consumers who thereby do not need to store.

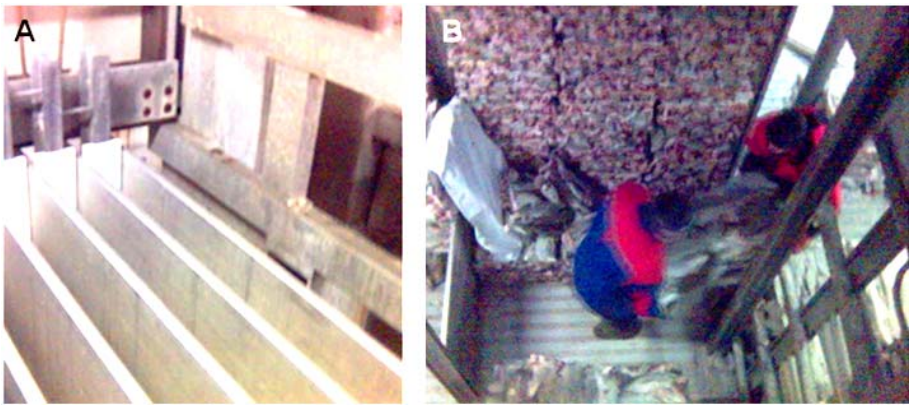


Figure 6.2.2: A close up of a plate freezer (A) and frozen fish blocks carried in the vessel's storage area (B; photos: Svanhild E. Haugnes).

As far as the Timing dimension is concerned, primary processors of the coastal fleet do not have the option of timing their activities, as their activities are dependent on a limited fishing season. In contrast, the sea fleet has the possibility of timing their activities. They do this either by calculating when to dock or by storing on shore, depending on variations in the prices of certain weight classes, volume, qualities and so on. This timing is an attempt to link with secondary processors' activities, and hence also with the retailers' and the consumers' activities.

This sub-section has identified and analysed the primary processors' attempts to indirectly link their activities with consumers' activities within the Storing and Timing dimensions. The next sub-section will identify hunters' and catchers' activities' attempted links.

6.2.3 Hunters' and Catchers' Activities

A longliner skipper says fishing can be compared to hunting on shore. Over the year, different species migrate in different predictable patterns. Furthermore, the different sizes of fish swim at different depths depending on their preferred water temperatures. The water temperatures change with the season and a range of other factors. The hunters and catchers have a certain flexibility to store particular sizes of fish within a cod-quota. The skippers use all possible resources and skills to find the preferred species and size. These preferences are related to the Timing dimension and what the hunters and catchers experience to be requested by their customers during that period. The 'fishing season' and the consumers' 'devouring season' do not always coincide. This experience is based on a recurrent pattern in their customers' requests through previous years. The hunters and catchers adjust their fishing of various cod sizes to match the primary processors' customers' seasonally dependent requests, in an attempt to link activities with the secondary processors, the retailers and finally the consumers.

Concerning the Timing dimension, the storing mentioned above is used to time the hunting and catching of the most requested cod sizes. The hunters' and catchers' Timing related activities are limited by their quotas' restriction of location, species, size etc. To find the right place with the preferred cod, the skippers talk with each other and consider weather conditions. Even so, one trawl skipper underlines that the most important and decisive factor is a skipper's own intuition. When they reach a chosen spot, echo sounding is used to check whether there are fish, how many there are, and at what depth. In this way the primary processors time hunting and catching of the preferred cod, while other cod covered by the quota is 'stored' within the time period that the quota is valid. Thereby, the hunters and catchers act in a way that links with the secondary processors' activities, the retailers' activities and finally attempts to link to the consumers' activities, again within the dimension of Timing.

This sub-section has presented an analysis of the hunters' and catchers' attempts to indirectly link their activities with the consumers' activities within the Storing and Timing dimensions.

6.2.4 Cod Stock Manager Activities

As far as the Storing dimension is concerned, it can be predicted how many tonnes of each species a vessel will catch, because of the government regulated quotas. The sea territories in which the Norwegian government

regulate and control quotas are illustrated by dotted lines and the second lightest colour in Figure 6.2.3. The quotas' purpose is to regulate the fished volume in order to keep some 'stored' for later, both during the year and the times to come. Overfishing (i.e. catching more than the quotas) is, however, a threat. "The Norwegian Government is deeply concerned about the immediate risk to fish stocks in the Barents Sea from IUU fishing" (www.fisheries.no, 2007b). Nonetheless, the managing of the cod stock through quotas and work against IUU fishing (Protocol, 2006; Agreed Record, 2006) attempts to link with the primary processors' activities. The cod stock managing functions on a higher level than the rest of the network. It enables the Storing and Timing related activities of the primary processors, and thereby the secondary processors and also the retailers, which finally attempt to link with the consumers' activities.

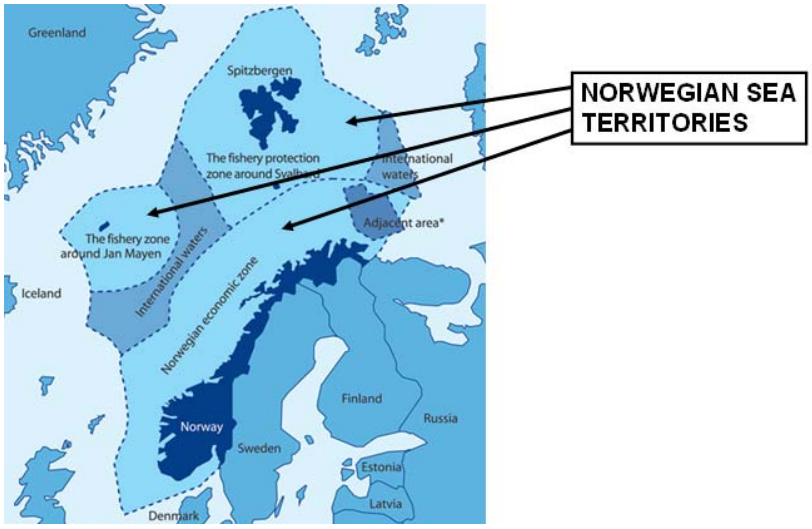


Figure 6.2.3: The sea territories managed by the Norwegian government (drawing: www.fisheries.no, 2006c).

This sub-section has identified and analysed the cod stock manager's attempts to indirectly link activities with consumers' activities within the Storing dimension. These attempts are on a much broader level than those of the other business actors. The cod stock manager saves cod through quota regulations and international agreements against IUU fishing. These attempted linked activities also allow the other business actors to attempt activity links within the Storing and Timing dimensions. Ultimately, the cod stock manager's activities ease the supply of cod to the Portuguese consumers.

6.2.5 Summary

Chapter 5 identified and analysed Storing and Timing as two dimensions in which retailers attempt to directly link their activities with consumers' activities, within the Time element of transformation. This section identified and analysed the business actors' attempts to indirectly link their activities with consumers' activities within these dimensions. The following paragraphs will summarize this with two examples of sequential activity chains within the network, one for each dimension.

Concerning the Storing dimension, on a superior level, the cod stock manager 'stores' the cod stock through quota regulations and international agreements. Within this set framework, the sea fleet can 'store' by saving whole or parts of a quota throughout the year. The secondary processors that use a frozen raw material can purchase all year round and thereby be very efficient in their storing. In comparison, secondary processors using a fresh raw material are dependent on storing a large volume. The retailers do not generally store much, but when they do they are able to be very efficient. Neither the retailers nor the consumers really have to store. For the most part the secondary processors, the primary processors and the cod stock manager are the ones attempting to indirectly link their storing with the consumers' activities, as illustrated by the sequential activity chain in Figure 6.2.4.

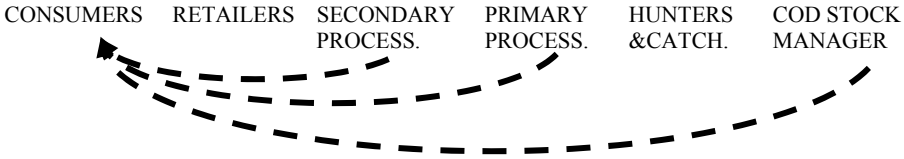


Figure 6.2.4: Business actors' attempts to link activities with Consumers within the Storing dimension.

With regard to the Timing dimension, the business actors' storing enables them to time their attempts to adjust their activities to correspond with various consumers' activities. For instance, a secondary processor with storage capacity, who uses frozen raw material, has the efficiency of supplying large promotional campaigns. This storing links with the retail chains' running of such promotional campaigns, which in turn attempts to link with the consumers purchasing bacalhau on promotional campaign. Consequently, these secondary processors and retailers attempt to link their

activities indirectly (broken line) and directly (solid line), respectively, with consumers' activities. The sequential activity chain is illustrated by Figure 6.2.5.

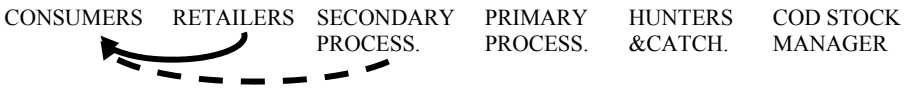


Figure 6.2.5: Business actors' attempts to link activities with Consumers within the Timing dimension.

6.3 Product Feature Element

In Chapter 5, Categorizing, Controlling and Cutting were identified as three dimensions in which retailers attempt to directly link their activities with consumers' activities. The Categorizing dimension involves the retailers categorizing bacalhau by its white or black wings, fresh or frozen raw material, six weight classes, three qualities based on visible faults and partly by its country of origin. The consumers seemingly purchase bacalhau based on these product features. The Controlling dimension involves the retailers controlling these product features, along with humidity and salt content, at the bacalhau's point of arrival. The retailers experience the consumers to control and perform other related activities. Finally, the Cutting dimension involves the retailers cutting the bacalhau at the consumers' request.

This section identifies and analyses the network's business actors' attempts to indirectly link their activities with those of the consumers in terms of the Product Feature element. The section will end with the presentation of one sequential activity chain exemplifying each of the three dimensions.

6.3.1 Secondary Processors' Activities

The bacalhau raw material may be fresh or frozen cod. In either case it must be stored at the right temperature to avoid its quality being reduced or destroyed. Fresh fish has to be stored chilled on ice with an air temperature between -1°C and 4°C, green fish has to be stored between 1°C and 5°C, and frozen fish at -18° C or colder[12]. Due to obvious storage problems with fresh fish, frozen and green fish are the preferred and dominant types among Portuguese secondary processors. As far as categorizing by fresh or frozen

[12] Legislation, 2001:§6-3.2 no.1, 1st line, §12-6 and §8-4 no.1.

raw material is concerned, spot processors and volume processors that mainly process frozen cod do not distinguish between fresh and frozen, even when they receive a mix. The secondary processors which do distinguish between fresh and frozen based bacalhau attempt to link with some retailers' categorizing and thereby also with consumers' activities.

Regarding categorizing by white or black wings, only cod of the highest quality becomes white winged bacalhau. In this process it is important to soak the fish well to avoid damaging the meat underneath the black skin when removing it (Giskeødegård and Nesvik, 2006:116). The owner at a Norwegian volume processor says, however, that only two per cent of his bacalhau has white wings, as in his experience the Portuguese consumers do not often request it. The experience based processing and processed share of black or white wing types is one illustration of attempts to link activities with consumers' activities.

Regarding categorizing by the bacalhau's country of origin, Portuguese secondary processors (together with wholesalers and retail chains) import bacalhau raw material from Norway, Russia, Iceland, USA and a number of other countries (Figure 4.2.1). A large Portuguese secondary processor claims to sell everything as Bacalhau da Noruega, even though he only gets approximately ten per cent supplied from Norway. The owner argues that he does not know for sure where his Icelandic, Norwegian or Russian suppliers have purchased the cod, and that all the other secondary processors mix bacalhau of different origins in the same way. In comparison, a Norwegian volume processor controls and categorizes the origin of his bacalhau by purchasing 50 per cent of his raw material from vessels of the coastal fleet and 50 per cent as salted fish from other sources. A third secondary processor receives supplies from two companies he owns and two others that he has had as suppliers since the company was established in the early 1970s. Consequently, the secondary processors control and categorize the bacalhau's country of origin to varying extents. Approximately 50 per cent of some secondary processors' bacalhau and 100 per cent of others, attempts to link with consumers' activities by being sold based on its true origin. Other interviewed secondary processors argue that the bacalhau's quality is of primary importance and that country of origin is only used as a reference to quality, at least by the consumers. In either case, the secondary processors experience via retailers that consumers categorize and purchase by origin.

Categorizing by weight is carried out using a machine with weight-sensors under a conveyor belt, as illustrated in Figure 6.3.1. The weight-sensors divide the bacalhau according to the Portuguese weight classification. This secondary processor activity attempts to link with consumers' activities, due

to the business actors and consumers probably developing this unique Portuguese standard through linking their activities over the centuries.

The bacalhau is categorized into Primeira (i.e. Superior), Sortido and Vrak / Popular depending on the extent of visible faults[13]. Through their various activities, the secondary processors categorize the bacalhau by visible and invisible faults and in doing so attempt to link with the consumers' activities concerned with quality. Primeira is perfect looking bacalhau. Sortido is bacalhau with the same faults as Vrak / Popular, only less visible or invisible to the unskilled. Vrak / Popular is further processed before reaching the consumers. Other types of visible damage may render it unfit for human consumption[14]. The women in Figure 6.3.1 perform the categorizing while emptying the machine.

Figure 6.3.1: Sorting bacalhau into weight classes (photo: Rui Costa e Sousa & Irmão, S.A.).

The categories of humidity and salt content are regulated by Decreto-Lei n.˚25/2005. During the first salting, cod and salt are placed in layers in large tubs in order to perform wet-salting (i.e. the salt draws water out of the fish meat). Most secondary processors also perform a second salting (Figure 6.3.2A). The more salt mature the bacalhau is, the more taste it has (Lynum, 2003). The second salting is performed in storage or during transportation. Green fish is packed during transportation (Figure 6.3.2B) to stay hygienic, to avoid contamination (Legislation, 2001:§20-1) and to prevent it turning yellow (Decreto-Lei n.˚25/2005:Artigo.3˚; Østli and Heide, 2004:59).

[13] NBS 20-01, 1998:no. 5.5; Decreto-Lei n.˚25/2005:Artigo.8˚.
[14] Decreto-Lei n.˚25/2005:Artigo.8˚, 1g-o and 2.

Figure 6.3.2: Second salting (A; photo: Solbac Export AS) and packaged green fish on a pallet (B; photo: www.gundersen.as).

After salting, 'Bacalhau salgado verde' is washed[15], as illustrated in Figure 6.3.3A. Over night the water runs off the washed green fish. The next day it is placed on grates and moved to drying tunnels, as illustrated in Figure 6.3.3B. In the drying tunnel the temperature must be kept below 26˚C until the fish is '7/8 Cured' (Appendix VI) to avoid it getting burned (Giskeødegård and Nesvik, 2006:117). It is dried for between two and five days depending on its weight and the desired dryness. When being removed from the drying tunnel, the bacalhau is categorized "by experienced production workers who can estimate the bacalhau's water content with an accuracy of plus / minus two per cent by only touching it – named the organoleptich method" (Tande jr., 2005:49, my translation). A Norwegian Production Manager emphasized that the most experienced workers need only to look at the fish to tell its condition. If it is too wet, it is too soft, and so is sent back into the drying tunnel (Figure 6.3.3B). This categorizing is based on an old classification scale (Appendix VI) which has probably developed as a result of business actors and consumers world-wide linking their bacalhau activities over the centuries.

The industry is in continuous development. During the last two decades the secondary processors have moved from dry-salting to wet-salting and from iron containers to refrigerator containers. These latter changes have allowed the bacalhau to become wetter. 'Dried for Shipment' bacalhau contains 41-43 per cent water and was standard in Portugal until about 1990. Today, '7/8 Cure' is standard, which overlaps with the two 'Bacalhau salgado seco'

[15] Appendix V; Decreto-Lei n.˚25/2005:Artigo.3˚ and 8˚ 1f; NBS 20-1, 1998:no.5.5.

categories (Appendix V). '7/8 Cure' contains 44-47 per cent water (Appendix VI). In spring 2007, EFF and Bacalao Forum carried out some spot-tests on bacalhau labeled as '7/8 Cured', which showed water contents from 45.19 up to 47.45 per cent. These tests, together with the secondary processors' humidity categorization, illustrate attempts to link with consumers' activities. Despite the retailers not attempting to perform this categorizing to link with consumers' activities, the secondary processors do.

Figure 6.3.3: Washing the green fish (A) before the drying tunnel (B; photos: Svanhild E. Haugnes).

With regard to the Controlling dimension, the secondary processors have control over both fresh and frozen cod's origin, weight and whether it is Primeira or Sortido upon arrival. When the arriving fish is green, the colour of the wings and the salt content are controlled as well. Green fish in particular must be driven pallet by pallet (Figure 6.3.2B) straight onto the scales, as green fish keeps losing water during transportation. The number of the pallet and its weight are written down on a weight list.

There are exceptions, though, where the secondary processors do not control the cod at its point of arrival. Four or five Norwegian spot processors hire secondary processors' activities from other actors who do not buy or sell themselves. Like others in the industry, these spot processors partly base themselves on regular supplies from long-term suppliers. An informant tells how he and other spot processors do not always see the fish physically, but trust the suppliers and the hired secondary processors. If any errors are discovered, they believe that they are always told. In addition, Decreto-Lei n.˚25/2005 and EC No.853/2004 regulate hygiene and safety in every step of the transformation. The HACCP system (i.e. Hazard Analysis and Critical

Control Points) obliges business actors to identify and prevent threats to food safety, make hygiene and safety plans, maintain good temperature control, and undertake analysis of the food product. Whether controlling the bacalhau themselves, or leaving it to others, the above mentioned controlling activities represent attempts by secondary processors to link with consumers' activities. The secondary processors make sure that the cod is controlled, the retailers control the bacalhau upon arrival, and the consumers are believed to carry out their own control related activities.

As far as the Cutting dimension is concerned, some secondary processors sell pre-cut bacalhau packed in bags or small cartons ready for retailing. This cutting and packing is an attempt to link with the consumers' preparing, as the consumers no longer need to worry about how or when to cut the bacalhau. The secondary processors' cutting is an alternative to the retailers' cutting.

This sub-section has identified and analysed the secondary processors' attempts to indirectly link their activities with the consumers' activities within the Categorizing, Controlling and Cutting dimensions. Concerning the Categorizing dimension, the secondary processors categorize by reference to at least five of the six mentioned product features. They categorize on the basis of fresh or frozen raw material, white or black wings, weight, visible faults, humidity and salt content. Concerning the Controlling dimension, the secondary processors control upon arrival whether the bacalhau raw material is fresh or frozen, its weight, origin, visible faults, salt content and the colour of the wings. Concerning the Cutting dimension, some secondary processors cut and pack bacalhau as an alternative to the retailers cutting it. The next sub-section aims at a similar identification and analysis of the primary processors' activities.

6.3.2 Primary Processors' Activities

This sub-section will refer to trawl and longline when identifying and analysing the primary processors' attempts to indirectly link their activities with those of the consumers. All the primary processors considered here are Norwegian, which makes the origin[16] of the cod less of an issue.

Concerning categorizing by fresh or frozen cod, the sea fleet has frozen all their fish for the past 20 years. By comparison, within an hour of getting the fresh cod on board, the coastal fleet has to store it on ice or in water at

[16] Vessels of the Norwegian sea fleet can have quotas of Gadus Morhua in other countries' sea territories, and land at foreign harbors, but these are not focused upon here.

between -1°C and 0°C. Ice or water are not needed if the weather or conditions on board keep the cod at between -1°C and 4°C, and the catch is landed within 12 hours (Legislation, 2001:§3-6.5 no.3). When the coastal fleet claim that fresh fish is better than frozen, the sea fleet strongly disagrees. "No fish is as fresh as the one frozen at sea", as both a longliner skipper and a trawler skipper put it (my translation). Their arguments include the technologically developed thawing process, the fact that the fish goes whiter with freezing, and that freezing stops the spoiling process immediately. Regardless of this discussion, the primary processors' categorizing links with that of the secondary processors, which in turn attempts to link with that of the retailers. Thereby, the fleets' categorizing attempts to link with consumers' purchasing.

Concerning categorizing by weight, the primary processors sell cod according to the sales organization's specified weight classifications. They weigh and categorize the cod after heading (Figure 6.3.4B) and gutting (Figure 6.3.4A) it. The Norwegian Fishermen's Sales Organisation, for instance, classifies cod into two groups: 2.5kg or less and above 2.5kg. In comparison, SUROFI divides cod into four weight classifications; less than 1kg, 1 to 2.5kg, 2.5 to 5kg and above 5kg. The weight classification standards of the sales organizations vary as a result of the history of their geographical region and what the secondary processors in the region predominantly make from the cod. Considering that 10kg of raw material is needed for approximately 4.5 to 6.5kg of bacalhau, the SUROFI weight classifications are in accordance with the Portuguese weight classification standard (Table 5.3.1). This illustrates a way in which those selling through SUROFI attempt to link their activities with consumers' activities. In addition, an informant at the Norwegian Fishermen's Sales Organisation says it is not uncommon for secondary processors and primary processors of their region to also categorize the cod into weight classes other than those reported to the organization. The latter represents another illustration of the primary processors' attempt to link weight categorization with consumers' activities. The primary processors, secondary processors and retailers link their categorizing by using standard weight classes, which attempt to link with consumers' activities.

With regard to categorizing by visible faults, the trawl net contains no more than ten tonnes of fish when pulled on board. A heavier catch would damage too large a percentage of the fish, as considerably more fish would get squashed against the trawl net[17]. The catch is loaded onto the processing deck through a hatch. Immediately the fishermen on the processing deck start cutting the throats of the fish, throwing them into a tank of water to

[17] Squashing leaves cuts or bruises (Decreto-Lei n.˚25/2005:Artigo.8˚ 1b or 1d).

bleed out (Legislation, 2001:§3-6.3 no.1). One trawler skipper estimates that it takes about three hours until all ten tonnes of fish in a catch are cut. If the fish is dead by the time it is cut, blood will stay and colour the meat. Squashed or coloured cod is known to be considered as Sortido[18] category by the consumers and thereby also by the retailers and the secondary processors who are the primary processors' customers. Consequently, these categorizing activities of the trawlers attempt to link with consumers' activities.

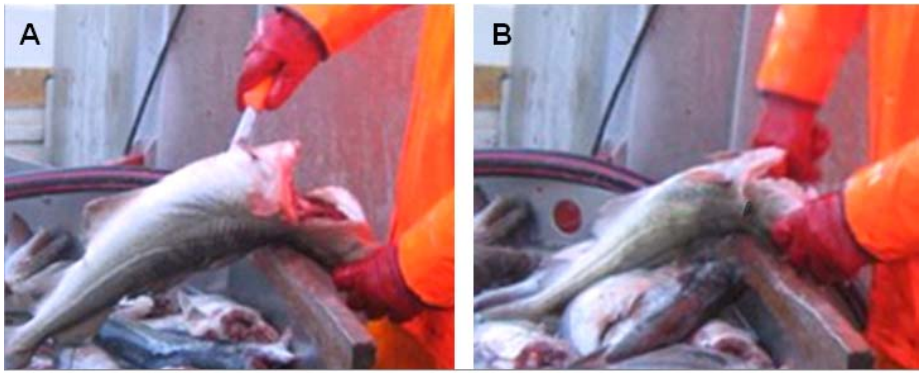


Figure 6.3.4: Gutting (A) and heading (B) of cod on board a vessel of the coastal fleet (photos: Rolf I. Paulsen).

In terms of cod caught by longline, it is still alive when caught. On its way onboard it goes through two bars of steel that rip the hook out of the fish's mouth. As the fish are pulled up one by one, there is no squashing damage. The man standing by the longline has a knife ready to cut the throat of each fish as it enters. After cutting them, the fisherman throws the fish into a tank of water. The fish is left in the tank for 15-30 minutes to bleed out. Therefore, each and every fish is perfectly bled out. Compared with trawled cod, these are the biggest differences. All longlined cod is cut whilst still alive and is without visible damage. These quality-related differences may make the longliners' attempts to link with consumers' activities differ in context and situation from those of the trawlers.

Concerning the Controlling dimension, the fishing is regulated by quotas. The government bases the quotas on the weight of round fish. The catch's weight is double checked when landed. Certain quays, like Kloosterbour Terminal Norway in Ålesund, are approved by the sales organization of the region to weigh and control the fish prior to auction. Alternatively, if the

[18] Decreto-Lei n.°25/2005:Artigo.8° 1l; NBS 20-01, 1998:no. 5.5.

fish is landed directly at a customer's site, the customer will control it instead. In addition, the primary processors are obliged to be aware of and control safety and hygiene critical points according to the HACCP system. These controlling activities of the primary processors link with their customers' activities, their customers' customers' activities and finally attempt also to link with the consumers' controlling of the bacalhau.

This sub-section has identified and analysed the primary processors' attempts to indirectly link activities with those of the consumers within the Categorizing and Controlling dimensions. During the analysis, the empirical data gave no indication of attempts to link activities within the Cutting dimension. Concerning the Categorizing dimension, the primary processors categorize the cod by reference to the product features of weight, fresh or frozen state and the extent of visible faults. All the involved primary processors are Norwegian, performing their activities in Norwegian sea territories. Concerning the Controlling dimension, the primary processors control the catch and the cod during processing. Next, a similar identification and analysis of the hunters' and catchers' activities is presented.

6.3.3 Hunters' and Catchers' Activities

As in the previous sub-section, trawl and longline are referred to when identifying and analysing the hunters' and catchers' attempts to indirectly link activities with the consumers within the Categorizing and Controlling dimensions. The catching and parts of the hunting process depend on the type of fishing gear used.

Where and at what depths the various species and sizes go depends on the water temperature and time of year. The echo sounder is used in the hunting process to determine whether fish are present and where they are. One longliner skipper claims it is possible for their customers to order specific sizes and species, but he has not yet experienced such requests. A trawler skipper argues that they know what they will get, but not the exact amount of (additional unwanted) by-catch. Another longliner skipper adds that he has never heard of promotional campaigns or anything of what is going on closer to the consumers' end of the network. He only notices variations in the price when, for example, a particular size is more popular. The primary processors find the lower weight classifications easier both to hunt and catch. Hunting and catching in accordance with the various weight classes' changing prices, however, is an attempt to link with consumers' activities. The primary processors hunt and catch various weight classes, which are

also categorized by the secondary processors, the retailers and finally also experienced to be so by the consumers.

With regard to categorizing by visible faults, the trawler skipper regulates the trawling process from the bridge of the vessel. To limit visible damage to the fish, trawler skippers never go for more than approximately ten tonnes in each catch. Preventing cod from having visible faults links with activities of secondary processors and retailers, who prefer Primeira quality bacalhau and thereby attempt to also link with activities of consumers with that preference. In this way, the hunters' and catchers' activities aimed at preventing visible faults attempt to link with the consumers' activities.

The different catching process of a longliner compared to a trawler has consequences with regard to categorizing by visible faults. A longliner baits its hooks with squid and mackerel daily and sets the line early each morning. On a commercial fishing vessel the longline is pulled by a machine. If the longline is pulled too tight it can snap - this makes it very important for the vessel to maintain the right speed and to move in the same direction as the longline. There is no visible damage on the longlined cod. Pulling the cod one-by-one once a day, however, means that it takes six to seven weeks to fill the cargo hold. This lack of efficiency makes the cod more expensive for the consumers. The resultant high quality cod is not identifiable at the retailers unlike, for example, bacalhau based on fresh cod (i.e. not frozen). Consequently, longlining probably does not attempt to link with the Portuguese consumers' activities. This view is supported by two informants who independently expressed the belief that bacalhau from longlinged cod ends up in Italy, rather than Portugal, because of its higher quality and price.

This sub-section has identified and analysed the hunters' and catchers' attempts to indirectly link their activities with those of the consumers within the Categorizing and Controlling dimensions. Concerning the Categorizing dimension, the hunters and catchers categorize the cod by weight and the extent of visible faults. Concerning the Controlling dimension, the hunters and catchers control the volume of fish caught and the amount of visible faults. Next, a similar identification and analysis is performed on the cod stock manager activities.

6.3.4 Cod Stock Manager Activities

As far as categorizing by visible faults and weight is concerned, the Ministry of Fisheries manages the natural cod resource. Within this resource, there are three naturally arising qualities of cod. Firstly, cod of five years or older

(www.godfisk.no), which migrate from the Barents Sea to the main spawning areas in Lofoten north of 67ºN (www.fisheries.no, 2007a). The long distance travelled, together with the creating of cod roe and milt gives this cod large muscles, the owner at a Norwegian secondary processor explains. He continues describing how the meat becomes solid which means it releases water more freely during the bacalhau transformation. The sea fleet fish for this cod in December – January when it travels across the Barents Sea to spawn in Lofoten. In addition, the coastal fleet wait beyond the shores of Lofoten to fish in January – March / April.

Secondly, the immature young fish migrate, following the capelin and herring to the shores of Finnmark. These immature cod travelling to the shores of Finnmark in April-May, are the lowest naturally arising quality of cod. This cod is named 'loddesprengt' (literally 'stuffed with capelin') because its meat becomes fatty and loose as a result of all the feeding. It is difficult to make Primeira bacalhau from a 'loddesprengt' cod, as it easily smears in the secondary processors' machines. Therefore, before processing, 'loddesprengt' cod has to be stored for a while in very cold and salty water.

Thirdly, cod can be caught all year round in the Barents Sea. In spite of the migratory cycles, the "main nursery and feeding areas for Northeast Arctic cod are in the Barents Sea, in sea temperatures above 0°C (south of the polar front)" (www.fisheries.no, 2007a). One longliner skipper comments that everybody would fish permanently in the Barents Sea if there were no quota regulations. He adds that this would be very destructive to the cod stock.

The government distributes and manages quotas in all three qualities. The cod stock manager's quota activities attempt to link with the quality and size conscious consumers' activities. The migrating cod has various sizes and qualities; the primary processors categorize these, as do the secondary processors and the retailers. Finally, consumers are also known from experience to do likewise.

Concerning the Controlling dimension, the Ministry of Fisheries uses various types of activities to regulate fishing, support their own quota regulations, and control the primary processors' compliance with these regulations. For instance, "there are regulations aiming at protecting young fish; [e.g. a] minimum catching size" (www.fisheries.no, 2007a). This is a rule in accordance with the lower weight limit of the Portuguese weight classification standard. Action is taken if rules are broken as when, for example, "catches contain more than 15 per cent (by number) of undersized fish that particular fishing ground is temporarily closed" (www.fisheries.no, 2007a). Furthermore, it is well known that one gets by-catch, which is fish

that is caught unintentionally together with the intended catch. By-catch is strictly regulated with a maximum legal percentage allowed in each catch (e.g. Legislation, 1994:chap. IV). The Directorate of Fisheries and the coastguard enforce the regulations by performing controls. If the coastguard discovers a rule breaker, the vessel is asked to leave the fishing ground. The primary objective is to secure future accessibility to the cod resource. This objective also depends on the temperature of the ocean (www.fao.org, 2006), any change in which poses a potential threat to the cod stock. The cod stock manager's controlling of weight, visible faults and future access attempts to link with consumers' activities.

This sub-section has identified and analysed the cod stock manager's attempts to indirectly link activities with the consumers within the Categorizing and Controlling dimensions. Concerning the Categorizing dimension, the cod stock manager distributes and manages quotas within the naturally occurring categories of visible faults and weights. Concerning the Controlling dimension, the cod stock manager controls the caught cod by ensuring that it is in accordance with their management of these natural categories. The next sub-section will summarize this section.

6.3.5 Summary

Chapter 5 identified and analysed Categorizing, Controlling and Cutting as three dimensions in which retailers attempt to directly link their activities with consumers' activities. The sub-section above identified and analysed the network's business actors' attempts to indirectly link activities with the consumers within these dimensions. The following paragraphs will summarize this with examples of attempts by business actors to directly and indirectly link activities with the consumers in a sequential activity chain of the network, within each of the three dimensions.

As far as the Categorizing dimension is concerned, the cod stock manager distributes and manages quotas of cod. One quota regulated feature is the cod's weight. The hunters and catchers are able to categorize by weight to a certain extent, as the various sizes of cod prefer particular water temperatures. The consumers' preferred weight classes are indicated by the current prices at the sales organization. The primary processors sell cod in weight categories in accordance with the sales organization's weight standard. It is not uncommon, however, for primary processors to make more detailed classifications than the one reported to the organization. SUROFI's classification is in accordance with the Portuguese weight classification standard. The secondary processors, the retailers and also the

consumers seem to categorize cod into weights of 0.5kg or less, 1kg or above 0.5kg, 2kg or above 1kg, 3kg or above 2kg and above 3kg (Table 5.3.1). Consequently, the cod stock manager and the hunters and catchers attempt to a certain degree to indirectly link their activities with the consumers' activities. Furthermore, the primary processors and the secondary processors attempt to indirectly link activities with the consumers, while the retailers attempt to directly link activities with the consumers. The sequential activity chain is illustrated by Figure 6.3.5.

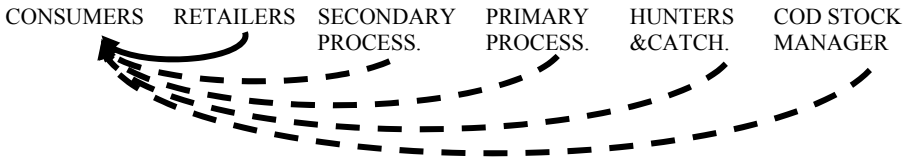


Figure 6.3.5: Business actors' attempts to link activities with Consumers within the Categorizing dimension.

Concerning the Controlling dimension, the cod stock manager monitors the sea temperature and attempts to control it through regulation designed to protect the environment. A sea temperature of just above 0°C is essential to the cod stock's survival. The primary processors follow up by storing fresh fish at 1°C to 4°C and frozen fish at -18° C or colder. Upon arrival, the secondary processors assess visible faults of green, fresh and frozen cod to check if it has been stored at the correct temperature. They also control the temperature during their own storing and transformation of the bacalhau. Furthermore, the retailers control the bacalhau's degree of visible faults upon arrival. However, neither the independent supermarkets nor the retail chains seem to keep the bacalhau at the recommended temperatures when on display. So overall, the cod stock manager, the primary processors and the secondary processors attempt to indirectly link their activities with the consumers' activities, while the retailers do not attempt to link in this case. The sequential activity chain is illustrated by Figure 6.3.6.

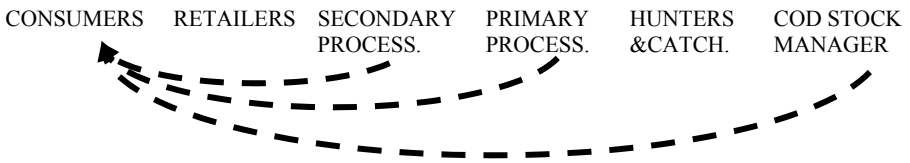


Figure 6.3.6: Business actors' attempts to link activities with Consumers within the Controlling dimension.

As for the Cutting dimension, the retailers perceive the cutting to be too heavy for the consumers to do at home. All retailers have a band saw or equivalent to cut the bacalhau, at the consumers' request. Consequently, the retailers attempt to directly link activities with the consumers. The sequential activity chain is illustrated by Figure 6.3.7.

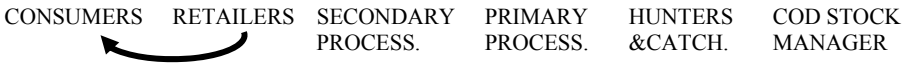


Figure 6.3.7: Retailers' attempts to link activities with Consumers within the Cutting dimension.

6.4 Information Element

In Chapter 5, the identified Tracing dimension involved the retailers informing the consumers of the bacalhau's country of origin. The consumers are experienced to prefer to purchase what they believe to be Bacalhau da Noruega. The Specifying dimension involved the consumers visiting independent supermarkets or retail chains' promotional stands to provide and obtain specific information relevant to themselves.

In this section, these two dimensions will be used as guidelines to identify indirect activity links. As with the two previous sections, this section will end by highlighting an example of a sequential chain of business actors' activities that attempt direct and indirect linking with the consumers' activities within each of the Tracing and Specifying dimensions.

6.4.1 Secondary Processors' Activities

As far as the Tracing dimension is concerned, over the last decade some secondary processors have started to tag[19] each bacalhau individually, as an extended information activity aimed at the consumers, as illustrated by Figure 6.4.1. The starting point is that there are no limits to the information that can be passed on to the consumers via a tag (Arnt Olav Aarseth, Bacalao Forum). For instance, Jangaard Export AS believes their sales have increased 10-15 per cent annually since they started tagging their bacalhau with Pingo Doce's private brand. On their 3.5cm by 8cm tag, amongst other things they inform consumers that the bacalhau has been fished and

[19] "The tag is attached directly to the bacalhau by a plastic fastener, [and] is a tool to communicate quality" (Aarseth, undated, my translation).

processed in Norway, which is an attempt to link with consumers' activities. Individual tagging is perceived to be a guarantee of the tracing information's correctness.

Figure 6.4.1: An individually tagged bacalhau (photo: Sophie M. Cantillon).

As far as the Specifying dimension is concerned, EFF for example, arranges information stands and demonstrations at the retail chains. These are "adjusted to the retail chains' own planned activities" (Enge, 2006:12, my translation). When EFF arranges a stand or demonstration it does so on behalf of the Norwegian secondary processors. At the stand the consumers and the EFF employee provide and receive individually relevant information, which is an attempt to link with consumers' activities. Likewise, Grupo Rui Costa e Sousa e Irmaão, SA's internet site is another example of an attempted activity link. On the site, the consumers and the secondary processor can freely ask and answer individually adapted questions. An information stand replaces the individually adapted information given at the independent supermarkets, while an internet site can complement it.

To summarize, the secondary processors attempt to indirectly link within the Tracing dimension by providing information about the bacalhau's origin on individual tags. From experience, the consumers buy more of this tagged bacalhau. Concerning the Specifying dimension, the secondary processors arrange internet sites, promotional stands, or for an organization like EFF to provide the information on their behalf. The next sub-section will make a similar identification and analysis of the primary processors' attempts to link activities.

6.4.2 Primary Processors' Activities

With regard to the Tracing dimension, Legislation concerning the quality of fish and fish products (Legislation, 2001: §8-7 no.2) orders the vessels to pack all fish. The only exceptions from the regulation are fish that are to become salt fish or bacalhau, as salt kills all bacteria (e.g. Lynum, 2003:212). The sea fleet use WinCatch (www.wincatch.com), GPS and similar systems to store information about the date, length of catching time, location etc. Although not required to by the legislation, some package their fish and attach this information to the cartons. Others only use it in case of complaints, as cod that is not physically packed inevitably does not have information written on its carton either. An alternative or addition to this technical and printed system is the oral exchange of information between the primary and secondary processors. Vessels of the coastal fleet guarantee their catch's origin and give detailed information orally. They land their catch on a daily basis, which makes the cod's country of origin obvious. It is, for instance, one of Jangaard Export's criteria that the cod is dead for less than 24 hours by the time it is wet-salted. Their quality control checks on freshness are made at the point of landing. The sea fleet also gives information orally about their catch's origin, which they can verify by the large amount of detailed data registered during processing. Both fleets make it easier for the secondary processors to pass on the origin information to the retailers, who in turn can pass it on to the consumers. The primary processors' activities represent a guarantee of traceable origin, but a problem occurs if the fish is traded later on without, for example, the packaging, and its origin information is lost. Consequently, the primary processors attempt to indirectly link by informing the secondary processors of the cod's country of origin. That enables the secondary processors and finally the retailers to attempt linking through passing this information on to the consumers as well. Consumers are seen to purchase increasing amounts of the bacalhau that has been individually tagged with its country of origin.

No illustrations of attempts by the primary processors to indirectly link activities within the Specifying dimension were revealed by the empirical data. This is probably because they never see the consumers or leave any written information available to the consumers.

This sub-section has identified and analysed the primary processors' attempts, as well as the hunters' and catchers' attempts to indirectly link activities with the consumers. In the Information element, the hunters' and catchers' activities are not considered as a separate category in their own

right, due to the lack of difference between these and the primary processors' other activities. The next sub-section will make a similar identification and analysis of the cod stock manager activities.

6.4.3 Cod Stock Manager Activities

Concerning the Tracing dimension, in February 2006 Portuguese and Norwegian ministers signed a protocol to create a higher level of transparency (Protocol, 2006) with regard to the bacalhau's country of origin. At the time, IUU (i.e. illegal, unreported and unregulated) fishing was estimated to account for 20 per cent of all landed catch. The parties agreed that Portugal would forward landings information on a vessel-by-vessel basis to the flag State and to Norway, and also let Norway initiate relevant control activities and be present to observe the performance of the controls. Furthermore, the Norwegian government signed a more general agreement with the European Community for 2007 (Agreed Record, 2006). These activities of the cod stock managers to secure traceability are attempts to indirectly link with the origin-related activities of the consumers. By controlling traceability in this way the cod stock manager makes it easier for the primary processors, secondary processors and retailers to provide information about, and compete by highlighting, the bacalhau's origin, which the consumers seem to act upon.

During the analysis, the empirical data did not give rise to any illustrations of attempted activity links within the Specifying dimension. This could be due to the cod stock manager's 'regulating and controlling' position in the network.

This sub-section has identified and analysed the cod stock manager's attempts to indirectly link activities with consumers' activities within the Tracing dimension. Cod stock managers work to create a higher level of transparency with regard to the bacalhau's country of origin. In the next sub-section, I will summarize this section by highlighting an example of attempts by business actors' activities throughout the network to link with consumers' activities, within each of the Tracing and Specifying dimensions.

6.4.4 Summary

The text above discussed the network's business actors' attempts to indirectly link activities with the consumers within the two dimensions of Tracing and Specifying. The following paragraphs will summarize with an

example of a sequential chain of business actors' attempted activity links involving the network, within each of the revealed dimensions.

As far as the Tracing dimension is concerned, Norway and Portugal have signed a protocol to create a higher level of transparency. By focusing on the bacalhau's country of origin, they counter possible IUU fishing, which makes it easier for the primary processors to provide information about, and compete by emphasizing, the bacalhau's origin. The primary processors of the coastal fleet inform the secondary processors orally about details of the cod's origin. The coastal fleets' daily landings make their catches' country of origin indisputable. Secondary processors individually tag their bacalhau. Jangaard Export's tagged bacalhau is sold at the retail chain Pingo Doce. In addition, the retailers inform the consumers of the bacalhau's country of origin. Through the tag and other activities Pingo Doce informs the consumers that the bacalhau is 'the real Bacalhau da Noruega'. This is an example of a sequential chain where the cod stock manager, the primary processors and the secondary processor attempt to indirectly link activities with the consumers, while the retail chain does so directly. The sequential activity chain is illustrated by Figure 6.4.2.

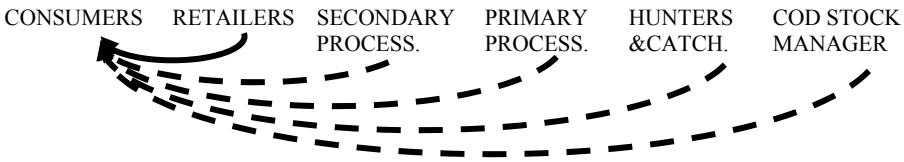


Figure 6.4.2: Business actors' attempts to link activities with Consumers within the Tracing dimension.

With regard to the Specifying dimension, the independent supermarkets find that the consumers are not knowledgeable. Unlike staff at the retail chains, those working at independent supermarkets are highly experienced. They often talk to the consumers about qualities, desalting and storing methods. These activities of the independent supermarkets attempt to directly link with consumers' activities. The independent supermarkets find that consumers come to them in order to be provided with good quality information and individually tailored advice. This represents a very short sequential activity 'chain' involving only the retailers' attempt to directly link activities with the consumers, as illustrated by Figure 6.4.3. The potentially complementing individually adapted information given by secondary processors does not imply "a predetermined order" (Håkansson et

al., 2009:105), meaning that their activities and the retailers' activities are not sequential in a chain as defined here.

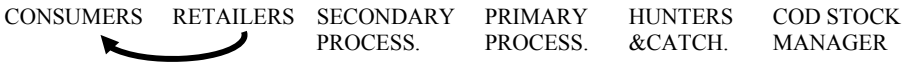


Figure 6.4.3: Retailers' attempts to link activities with Consumers within the Specifying dimension.

6.5 Cost Element

Chapter 5 identified Purchasing and Price Differing as two dimensions in which retailers attempt to directly link their activities with consumers' activities. The Purchasing dimension involves the retailers rationalizing through increasing retail chain dominance and by the consumers performing more self-service. The Price Differing dimension involves a range of cost-effective activities and the consumers purchasing a larger volume at a lower price. The two revealed dimensions will be used to access the business actors' attempts for indirect activity links before two sequential activity chains are proposed.

6.5.1 Secondary Processors' Activities

As far as the Purchasing dimension is concerned, developments among the retailers have parallels in the secondary processors' rationalizing and processing of increased volumes. Chapter 4 mentioned how the volume processors have moved into a dominant position since the fall of the import and export monopolies in 1990. Compared to spot processors, volume processors can make long-term purchase and supply plans, which secure both their suppliers' and their own customers. This indicates how the rationalization has set minimum demands on the secondary processors' activities. Another economic barrier is the 1.05 per cent tax of the F.O.B. value. The export tax is mainly earmarked to finance EFF. In spite of this, the retail chains also commonly require the volume processors to participate in promotional campaigns with both lower prices and monetary contributions towards advertisements. The Norwegian spot processors are no longer in that position of being asked to participate with such money, as their irregular supply related costs have already excluded them from the Norwegian–Portuguese bacalhau network. Their margins are small and their costs are large. The greater volumes and reduced prices of the volume processors link

with those of the retail chains and are thereby also an attempt to link with consumers' activities.

With regard to the Price Differing dimension, the secondary processors must also reduce costs in order to be able to sell at a low price. There are many examples of this. For instance, there has been a general change from drying fish on rocks to the use of indoor drying tunnels. Another broad example is the very efficient mechanised processing system at Fjordlaks, where frozen fish enters at one end and bacalhau comes out of the other end. These are just a few examples of the cost-effective activities that enable the secondary processors to sell larger volumes at a lower price. Even the small percentage of accidently damaged bacalhau ends up being offered on promotional campaigns. When the secondary processors find that they have too much Sortido or a certain size of bacalhau etc. stored up, they ask their retail customers to run promotional campaigns. At other times retail chains might request the secondary processors to supply a large volume of, for example, a lower priced bacalhau for a promotional campaign. The cost-effective measures enable the secondary processors to sell at least some of the bacalhau at a lower price, which links with the retailers selling at a lower price, which in turn attempts to link with the consumers who purchase more when the price is low.

This sub-section has identified and analysed the secondary processors' attempts to indirectly link their activities with those of the consumers, within the Purchasing and the Price Differing dimensions. Concerning the Purchasing dimension, the secondary processors have rationalized, increased their volumes and lowered their prices. Concerning the Price Differing dimension, they perform a range of cost-effective activities, which enables them to lower their prices. The next sub-section will make a similar identification and analysis of the primary processors' activities.

6.5.2 Primary Processors' Activities

As far as the Purchasing dimension is concerned, rationalization and increased volumes are also reflected in the primary processors' activities. The sea fleet can be at sea for seven to eight weeks at a time and they freeze the cod that they catch. The trawlers of the sea fleet catch up to ten tonnes of fish each time the trawl net is pulled in five or six times a day. In comparison, the coastal fleet lands a few tens or hundreds of tonnes of fresh fish on a day-by-day basis. These factors mean that the sea fleet is in a better position in negotiations than the coastal fleet. The sales organizations work as a security net for the primary processors of both fleets, as they

control payments and quotas. Nonetheless, the table in Appendix VII illustrates how the efficiency of the sea fleet (producing frozen cod) pays off. Even though the cod caught by the sea fleet is of a higher cost (as a result of the number of employees, equipment, size of loans and so on), the sea fleet's large volumes and efficiency link with the secondary processors' activities. The large and predictable volumes of fish per vessel, supplied on a regular basis, allow the secondary processors to work efficiently. The secondary processors' outputs of large and predictable volumes of bacalhau, at a relatively low price, link with retailers' activities and thereby also attempt to link with consumers' activities.

Regarding the Price Differing dimension, the primary processors also have cost-effective activities and advantages based on economies of scale. The processing systems used on the trawlers have continuously increased in efficiency. This enables the sea fleet to sell the cod at a lower price in the long run. Their lower prices link with the secondary processors selling the bacalhau at a lower price, which in turn links with the retailers selling the bacalhau at a lower price. Finally, this attempts to link with the consumers, who are perceived by the business actors to purchase more when the bacalhau is offered at a reduced price.

To summarize, within the Purchasing dimension, the sea fleet in particular have increased the efficiency of their processing in an attempt to link with consumers' activities. Concerning the Price Differing dimension, with the same purpose, the primary processors perform a range of cost-effective activities in order to lower their prices. The next sub-section will make a similar identification and analysis of the hunters' and catchers' activities.

6.5.3 Hunters' and Catchers' Activities

With regard to the Purchasing dimension, Appendix VII illustrates how the price is dependent on the type of fishing gear used. The trawl is the dominant gear used, probably as a result of its efficiency in terms of price versus volume. As with the other primary processors' activities, this is a cost-related attempt to link with consumers' activities.

As far as the Price Differing dimension is concerned, the primary processors also attempts to link activities with the consumers when hunting and catching. For instance, the analysis of the Time element notes how the skippers consider which sizes to hunt based on the time of the year. Their considerations of the seasonal changes in the prices of the various sizes are based on a recurrent pattern in their customers' requests through previous

years. Recurrent weight-based price variations through previous years are an indication to them of the probability of getting better paid for certain sizes of fish. Another attempt to link concerns the trawlers self-imposed ten tonne catch limit. If a larger limit were used, the weight of the catch would easily squash a too large a percentage of the cod in the trawl net, and thereby reduce its quality and price. In a similar way to the other cost-related primary processor activities, these hunters' and catchers' activities link with secondary processors' and retailers' activities. They also attempt to link with consumers' activities. Conversely, the longliners provide an example of activities that do not attempt to link through cost-efficiency. Due to the higher quality and higher costs involved, this transformation is not considered to attempt to link with Portuguese consumers' activities.

This sub-section has identified and analysed the hunters' and catchers' attempts to indirectly link their activities with those of the consumers, within the Purchasing and the Price Differing dimensions. Concerning the Purchasing dimension, the primary processors have maximised the efficiency of their hunting and catching. Similarly, the hunters and catchers also attempt to link activities concerning Price Differing. The next sub-section will make a similar identification and analysis of the cod stock manager activities.

6.5.4 Cod Stock Manager Activities

With regard to the Purchasing dimension, the cod stock manager regulates and controls the cod stock. Chapter 4 refers to how the quota in 2006 was 220,000 tonnes. The total quota has only had minor changes the last eight years (www.ssb.no, 2008c). In 2008 it was set at 191,650 tonnes (Protocol, 2007), comprising 21,000 tonnes allocated to the coastal fleet and 170,650 tonnes allocated to the sea fleet (ibid.). The decline in the number of fishing vessels and fishermen, along with the stable quota, the division of the quota on the basis of the type of fishing gear used, and between the coastal and the sea fleets, together reflect the rationalizing and increased efficiency of the whole Norwegian-Portuguese bacalhau network. The cod stock manager activities allow the primary processors to work efficiently, which in turn allows the secondary processors and the retailers to work efficiently too. Finally, their efficient purchasing and supplying activities attempt to link with consumers' activities.

As for the Price Differing dimension, no attempted activity links were found. This is probably due to the cod stock manager's 'regulating and controlling'

position in the network and the broad, wide-ranging nature of the activities undertaken.

6.5.5 Summary

The text above identified and analysed the network's business actors' attempts to indirectly link activities with consumers' activities within the Purchasing and Price Differing dimensions. The following paragraphs will summarize the business actors' attempts to link activities within each of these two revealed dimensions.

As far as the Purchasing dimension is concerned, the development of the bacalhau transformation gives the impression of a systematic effort by the business actors to rationalize and increase the volume per unit in an attempt to link with consumers' activities. The cod stock manager supports this development by dividing quotas between the sea and coastal fleets and between the different types of fishing gear. The sea fleet's and the trawls' dominance is reflected in their quota allocation. The continuous decline in the number of fishing vessels and fishermen in recent years, despite the quota having remained stable, reveals how efficiency has increased. The larger units are able to continuously supply large volumes at a low price. This in turn enables the secondary processors and the retailers to do the same. The secondary processors have grown in size and decreased in number, while the retail chains' dominance has reached 80 per cent; at the same time both have become able to steadily purchase and supply large volumes. All of these sequentially linked activities attempt to directly or indirectly link with the consumers' activities, as illustrated by Figure 6.5.1. For their part, consumers purchase 80 per cent of their bacalhau at retail chains where they perform a lot of cost-saving self-service.

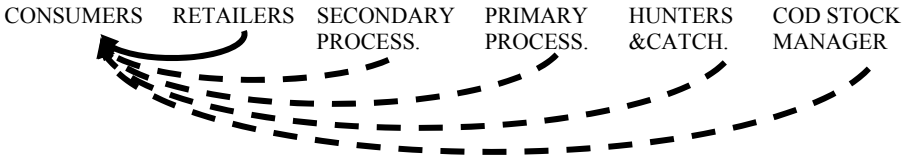


Figure 6.5.1: Business actors' attempts to link activities with Consumers within the Purchasing dimension.

With regard to the Price Differing dimension, the rationalization of the industry includes a number of cost-effective activities, which attempt to link with the consumers' activities. The continuously increasing efficiency of the

line processing systems and machines used by the primary processors and secondary processors cut costs. They believe in and reply on the economies of scale. So do the retail chains, which cut costs in their displaying of the bacalhau and by leaving the consumers to carry out a large extent of self-service. All of these activities link sequentially through their lowering of costs, and as they also lower the price. This again attempts to link with the consumers, who are experienced to purchase more bacalhau when the price is low. The sequential activity chain is illustrated by Figure 6.5.2.

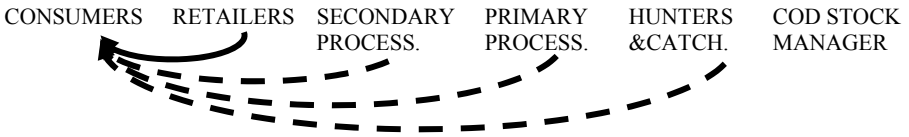


Figure 6.5.2: Business actors' attempts to link activities with Consumers within the Price Differing dimension.

6.6 Place Element

Retailers attempt to directly link their activities with consumers' activities within the Place element of transformation. Chapter 5 identified the Locating dimension in which retailers attempt to link various activities with consumers' activities through their geographical location. It also identified the Displaying dimension in which retailers attempt to link various activities with consumers' activities through the way in which they display the bacalhau. Based on these dimensions, this section will identify and analyse the network's business actors' attempts to indirectly link activities with the consumers. It concludes with a summary.

6.6.1 Secondary Processors' Activities

As far as the Locating dimension is concerned, Gafanha da Nazaré is the centre of Portuguese secondary processing. Similarly, Ålesund is the centre of Norwegian secondary processing. The secondary processors are family owned businesses, the relationships among them are on a personal level, and some of the owners are related. These cluster-like locations have certain advantages that link with consumers' activities. For example, the secondary processors may provide help to one another when necessary. Furthermore, various supporting businesses have established themselves in the areas of Ålesund and Gafanha da Nazaré. Consequently, when expertise or any help is required, it is available locally.

Another example is the tagging of the bacalhau with origin information, as discussed in the Product Feature element and the Information element sub-sections. The increased sales of origin-tagged bacalhau show how the cluster-like locations can over the years provide a common advantage, through the reputation built up by the secondary processors of a particular location. These examples illustrate how the secondary processors through their locating related activities, attempt to link with consumers' activities in a dimension of Locating.

With regard to the Displaying dimension, the secondary processors categorize the bacalhau into Primeira and Sortido. This activity link with the retailers, who display the Primeira and Sortido separately in an attempt to link with the purchasing consumers, is discussed within the Product Feature element. Additionally, in the Time element it was discussed how the secondary processors store, for example Sortido, while waiting for the next promotional campaign. The cost-efficiency of running large volume promotional campaigns was discussed within the Cost element. Whether the bacalhau is Sortido or not, the consumers are experienced to purchase a much larger volume during promotional campaigns. Regarding the retailers indicating the bacalhau's quality in the display, the secondary processors link with this by providing the relevant information on the transportation carton. These are examples of secondary processors' activities that attempt to link with consumers' activities, through linking with the retailers' displaying related activities.

To summarize, the secondary processors' attempt to indirectly link their activities with the consumers' activities within the Locating and Displaying dimensions. Their geographical cluster-like locations link with the retailers' locations and attempt to link with consumers' activities. Likewise, a number of secondary processors' activities link with the retailers' displaying activities and attempt to link with consumers' activities. Below, an analysis of the primary processors' activities is made.

6.6.2 Primary Processors' Activities

Regarding the Locating dimension, vessels that use the same fishing gear are almost all owned by men from the same neighbourhoods and societies. Some of the communities are rather small and the business stays in the family through generations; consequently some of the different primary processors belong to the same family. Most coastal fishing vessels, longliners and many Norwegian trawlers are family owned.

The family aspect, the type of vessel and fishing gear used, depends on which local community the skipper belongs to. Thus location influences the type of vessel and fishing gear used. In addition, some of the primary processors' costs are also dependent on their location. As discussed within the Cost element, the trawlers benefit from economies of scale compared to the coastal fleet. The trawlers' economies of scale, which are dependent on their location, link with the cost-concerned secondary processors (who also locate due to cost-efficient opportunities). They in turn link with the cost-concerned retailers, who attempts to link with the activities of the consumers, who are perceived to be cost-conscious. Just as with the secondary processors, the primary processors' geographical location depends on personal relationships and benefits, making it easier to supply their customers. This represents an attempted indirect activity link, as in the end, it makes it possible for the consumers to walk or drive to their preferred supermarket location.

As far as the Displaying dimension is concerned, the bacalhau's features are as previously mentioned, of central importance. Within the Product Feature element the importance of, for example, letting the cod bleed out properly was discussed, as the cod then becomes whiter. Whiteness is perceived to be a visible feature that is important to the consumers. Furthermore, the economies of scale discussed earlier also attempt to link through the Displaying dimension. The ability to land and process large volumes of fish, together with the categorizing into Sortido and Primeira, are particularly visible on the displays during promotional campaigns. These are activities that link with the previously referred to displaying related activities of the secondary processors and the retailers, and thereby attempt to link with consumers' activities as well.

To summarize, the primary processors' fishing gear is dependent on their geographic location, which links with activities related to the secondary processors locating in clusters in particular areas. That in turn links with the retailers' location-dependent activities, and attempts to link with the consumers' activities. As far as the Displaying dimension is concerned, a range of primary and secondary processors' activities link with the retailers' displaying related activities and attempt to link with those of the consumers. The next sub-section will make a similar identification and analysis of the hunters' and catchers' activities.

6.6.3 Hunters' and Catchers' Activities

With regard to the Locating dimension, groups of vessels go hunting together. As mentioned in the analysis of the Time element, the skippers discuss amongst themselves where to go and when to go. The fact that the type of fishing gear used depends on the primary processors' location means that these activities also attempt to link with consumers' activities within the Locating dimension.

As far as the Displaying dimension is concerned, the primary processor can 'store' a quota or parts of it within the time period of its validity. This is discussed within the Time and Cost elements. This illustrates the ability the primary processors have to link activities, as it affects the access to bacalhau offered on display. Another activity that the trawlers attempt to link is their self-administered maximum limit of ten tonnes per catch, which is imposed to limit the volume of Sortido that would arise from damaged fish. The bacalhau's visible features are, as mentioned, perceived to be central to the consumers' choice when selecting bacalhau from the display. So too is the bacalhau's origin. As discussed in the analysis of the Information element, the primary processors use GPS to monitor and record their position. As a result they can communicate the cod's exact origin, which enables the secondary processors to inform the retailers about the correct origin, and enables the retailers to again attempt to link with the consumers' activities by posting origin information on the display.

This sub-section has identified and analysed the primary processors' attempts to link their hunters' and catchers' activities with the consumers' activities, within the Locating and Displaying dimensions. The next sub-section will make a similar identification and analysis of the cod stock manager activities.

6.6.4 Cod Stock Manager Activities

The cod stock manager has a superior position within the Place element. Its attempted linked activities have a knock-on effect, as they also make possible the other actors' attempts to link activities. For instance, with regard to the Locating dimension, the cod stock manager makes international agreements to reduce and prevent IUU fishing. Quotas are set by the cod stock manager dependent of geographical area, among other factors. As discussed within the Information element, one measure involves Portugal forwarding landing information to Norway. This contributes to the

maintenance of a continuous stable quota, and is thereby an attempted link with consumers' activities. Moreover, the work against IUU fishing also makes it easier for the primary processors and the secondary processors to take advantage of their geographical location. The business actors can attempt to link their origin related activities with those of the consumers, as discussed within the Product Feature and the Information elements.

As far as the Displaying dimension is concerned, combating IUU fishing makes it easier to inform about and compete on the basis of the bacalhau's origin. Connected to this is the 'storing' discussed within the Time element. Another attempted linked activity is the dividing of the quotas between the three naturally occurring cod quality types. This was discussed within the Product Feature element. The retailers cannot sell Sortido at full price because of its visible faults. By setting quotas with consideration to all three naturally arising qualities, the cod stock manager attempts to link with various consumer activities.

To summarize, concerning the Locating dimension, the cod stock manager's quota administration makes possible, amongst other things, the cost-efficient activities that attempt to link with consumers' activities. Concerning the Displaying dimension, large volumes and the division between qualities link with activities of the other business actors, and thereby also attempt to link with consumers' activities.

6.6.5 Summary

In Chapter 5, Locating and Displaying were identified and analysed as two dimensions in which retailers attempt to directly link their activities with consumers' activities. This current section identified and analysed the industrial network's business actors' attempts to indirectly link their activities with consumers' activities within these dimensions. This sub-section summarizes their attempts to directly and indirectly link a sequential chain of activities with consumers' activities.

With regard to the Locating dimension, the cod stock manager allocates the majority of the total quota to sea areas that are only reached by the sea fleet. These primary processors' economies of scale are based on their fishing gear and vessels, which are dependent on their geographical location in clusters. The large volumes and cost-efficient activities of the trawlers link with the cost-efficient activities and opportunities of the secondary processors, which to a certain extent are also based on their locating in clusters. Through their cost-efficient activities, the secondary processors link with the retailers who

take their cost-efficiency into consideration when choosing their location. Finally, the retailers attempts to link with the seemingly cost-conscious consumers' activities through, amongst other things, their choice of location. All together, these linked activities constitute a sequential chain as illustrated by Figure 6.6.1.

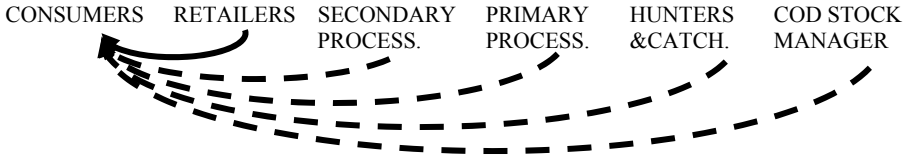


Figure 6.6.1: Business actors' attempts to link activities with Consumers within the Locating dimension.

As far as the Displaying dimension is concerned, the cod stock manager regulates the volume and quality of the fish that can be caught by setting quotas. The cod's features vary according to three naturally arising qualities. The primary processors also distinguish between different qualities, which influence their actions. For instance, the trawlers do not catch more than ten tonnes of fish at a time, as otherwise too large a proportion would be damaged and become Sortido. Likewise, the secondary processors treat the lower qualities with more care, in an attempt to prevent the cod from becoming Sortido bacalhau. For example, 'loddesprengt' cod is left in salted ice water for a while before going into the processing machines, to prevent it smearing. Sortido bacalhau is worth less. The retailers display the bacalhau centrally, but sort and price it depending on its features. This is performed in an attempt to link with the consumers, who examine the bacalhau and make a choice based on its look, smell, texture etc. Taken as a whole, this is an example of a sequential activity chain in which the cod stock manager, the primary processors and the secondary processors attempt to indirectly link their activities, while the retailers attempt to directly link their activities with the consumers' activities. The sequential activity chain is illustrated by Figure 6.6.2.

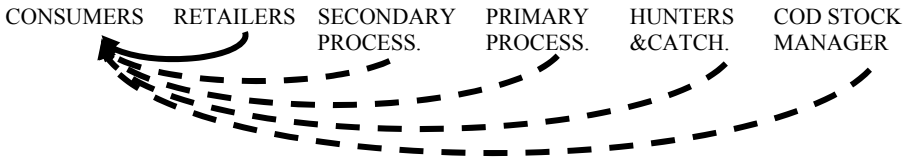


Figure 6.6.2: Business actors' attempts to link activities with Consumers within the Displaying dimension.

6.7 Summarizing Remarks

Chapter 6 has identified and analysed the business actors' attempts to *indirectly* link activities with the consumers. The argument was used that an attempted direct activity link within a particular dimension may mean that attempts for indirect activity links are present in that dimension as well. By that means, certain examples of sequential chains of activities could be identified, in which the business actors attempt to directly and indirectly link their activities with the consumers' activities. These are summarized in Table 6.7.1.

The next chapter will describe the consumers' activities and give examples of probable activity links between business actors' activities and those of consumers.

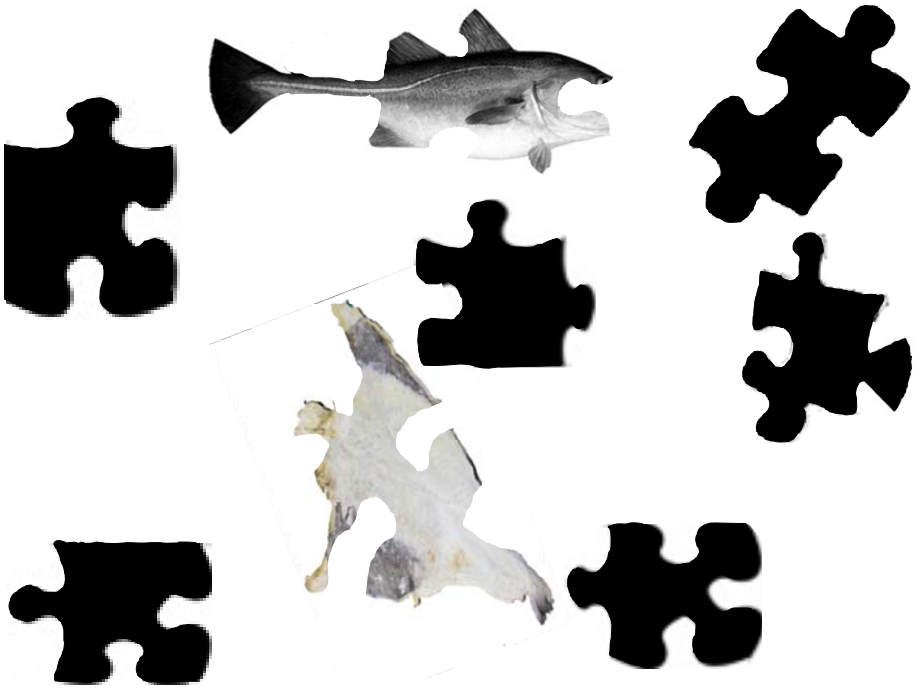
Table 6.7.1: Summary of the Business actors' attempts to Directly (in the case of Retailers) and Indirectly (in the case of the others) link Bacalhau Activities with the Consumers

Element	Dimension	Retailers	Secondary Processors	Primary Processors	Hunters and Catchers	Cod Stock Manager
Time	Storing		Frozen raw material: can purchase all year, very efficient	Sea fleet: saving quota throughout the year		Quota regulations and international agreements
	Timing	Chains: run promotional campaigns	Storage capacity: efficient supply of promotional campaigns			
Product Feature	Categorizing	Standard Portuguese classification of weight classes of bacalhau	Standard Portuguese classification of weight classes of bacalhau	E.g. SUROFI's weight standard in accordance w/ the Portuguese standard	To a certain extent, as the various sizes of cod prefer particular water temperatures	One quota regulated feature is the cod's weight
	Controlling	Control the degree of visible faults upon arrival.	Control upon arrival and keep the recommended temperatures	Keep the recommended temperatures		Monitors and attempts to control the sea temperature
	Cutting	Cut bacalhau on consumers' request				

Information	Tracing	E.g. Pingo Doce promotes 'the real Bacalhau da Noruega'	E.g. Jangaard Export individually tag their bacalhau	Coastal fleet: inform details orally	Coastal fleet: indisputable country of origin	Norway and Portugal have signed a protocol to create transparency and counter IUU
	Specifying	Independent supermarkets: individually adapted				
Cost	Purchasing	Chains: dominance has reached 80 %	Fewer but larger businesses	Fewer but larger businesses	Trawl dominance	Total quota is stable
	Price Differing	Simple display, extensive self-service	Increasingly efficient line processing	Increasingly efficient line processing	Increasing efficiency	
Place	Locating	Locating in driving or walking distance	Opportunity and cost dependent locating in clusters	Locating dependent fishing gear and vessels	Economies of scale based on fishing gear and vessels	Allocates the majority of the total quota to areas only reached by sea fleet
	Displaying	Sort and price depending on its features	Treat the lower qualities to prevent Sortido	Distinguish between qualities	Trawl: max ten tonnes to avoid Sortido	Quotas on the three naturally arising qualities

Chapter 7

The Business Actors' and the Consumers' probable linked Bacalhau Activities



"… mankind is … not ashamed of the action for which they ought justly to be esteemed fools, but are ashamed of the returning, which only can make them be esteemed wise men."
Daniel Defoe (1719; 1968) "Robinson Crusoe: his life and strange surprising adventures"

7.1 Introduction

This chapter describes each of the derived Portuguese consumers' activity categories, and then considers how the Norwegian and Portuguese secondary processors' and the Portuguese consumers' activities are probably linked in the Norwegian-Portuguese bacalhau network. The argument is that the business actors probably attempt to link their activities through adjustments made under the influence of consumers' activities. As a result, the previously uncovered examples of sequential chains of business actors' *attempts* to link activities with the consumers (in Chapter 5 and 6) can now be considered sequential chains of *probable* activity links between the business actors and the consumers.

The sections of this chapter are divided into the consumers' activity categories of planning, purchasing, storing, preparing and devouring, respectively. The division by consumers' activity categories is a simplification, as a business actor's activity may link with consumers' activities in more than one category, just as more than one business actors' activity may link with a consumers' activity.

This chapter continues the simplification of concentrating on sequential activity chains, rather than activity networks. This is because its purpose is to illustrate probable direct and indirect activity links between consumers and business actors. Each section starts by describing the consumers' activity category being considered.

7.2 Planning

The business actors perceive consumers' planning to vary from non-existent to extensive. Planning can also overlap with other categories of consumers' activities. For example, consumers may plan while having the bacalhau in storage, or during preparations. To simplify matters, the focus here will be on the first phase of planning, which comes before purchasing, storing and so on. To be able to plan, the consumers need a certain amount of information. Therefore, it may be the same member of the household or family who always does the planning, regardless of who actually prepares or devours the bacalhau. Whether the consumers' own knowledge is right or wrong, valuable or worthless is irrelevant here, as what is important is their interest in using new information (i.e. received from business actors). The business actors' information will inevitably say something about where and when the bacalhau is available, what features it has and how much it costs.

The product features and price that the consumers have in mind will depend on the occasion being planned for and the resources that they choose to use. For instance, if it is for an everyday meal, cheap Sortido may be preferred, while plans may be made to use an expensive, top quality bacalhau for Christmas Day. When planning, consumers must have access to information at the right time, as cultural influences determine when the Portuguese consumers arrange to eat bacalhau. The peak season extends from late autumn to Christmas. Generally speaking, outside the peak season the consumers plan to do their weekly shopping on Saturdays.

The previous description illustrates how the Information and Time elements of transformation dominate the business actors' perception of consumers' planning. In order to successfully make plans, the consumers must at least have, or receive, a certain level of appropriate information at the right time. Based on this portrayal, the two examples that follow will outline probable links; firstly, between consumers' planning and business actors' bacalhau promotional campaigns, and secondly, between consumers' planning and business actors' high-quality bacalhau.

Business actors' Bacalhau Promotional Campaigns

The retailers organise promotional campaigns based on Sortido on an irregular basis. These campaigns meet the demands of price sensitive consumers, who plan extensively. These consumers may buy a large amount, which they devour during the period of time before the next promotional campaign. In addition, these campaigns allow price sensitive consumers to spontaneously take advantage of the good offer. Even so, these consumers include some very knowledgeable and affluent planners, who are able to choose the better, less damaged bacalhau from amongst the Sortido. The retail chains announce their promotional campaigns at fairly short notice through advertisements on TV or in newspapers. As a result, weekly sales can increase from 30 to 500 tonnes.

The secondary processors participate in the advertising either directly, or through an organization like EFF. Most of the Sortido used for promotional campaigns is stored by the secondary processors until it is needed. During the bacalhau transformation, 10 to 15 per cent of the secondary processors' output is Sortido. Regardless of whether the bacalhau is semi-dry or well dried, or whether it is based on fresh or frozen raw material, all varieties of Sortido that are offered on promotional campaign are classed as a single homogenous group by the retailers and the secondary processors. A primary processor using a trawl obtains about three to four per cent of the lower quality Sortido and Vrak / Popular, although not all of the primary processors' Sortido automatically becomes Sortido at the secondary processors. The primary processors do not participate in any TV or

newspaper advertising, or in storing, and so do not link their activities with consumers' planning. The cod stock manager on the other hand 'stores' bacalhau raw material through quota regulations, which allows all consumers to purchase throughout the year and perform long-term planning, in the sense of accounting for future access to bacalhau. This example illustrates how the consumers, the retail chains, the secondary processors and the cod stock manager probably link their activities in sequential chains concerning promotional campaigns.

Business actors' High Quality Bacalhau

Retailers offer a particularly high quality and rather expensive bacalhau all year round. The year-round accessibility meets the demand from quality conscious consumers who are not price sensitive and prefer not to plan ahead much. At the same time, it allows such consumers to plan extensively, as this bacalhau is always available. In the following example, an activity chain of the retailer Pingo Doce is used as an illustration.

Some years ago, the retail chain Pingo Doce decided to start supplying all year round an individually tagged, drier bacalhau, based on fresh raw material, and which did not contain phosphate. Pingo Doce made this request to their supplier, Jangaard Export, which was interested in linking activities. Consequently, today Jangaard Export's storing and other related activities probably link with this type of consumers' planning. For instance, they fill their stores with 5,000 tonnes of green fish during the fishing season to facilitate a stable supply all year round. In addition, Jangaard Export tags the bacalhau as a result of their close relationship with Pingo Doce. Their participation in conveying the bacalhau's quality and traceability, in addition to providing tips about preparation techniques on the tag, probably also link with consumers' planning.

To produce the kind of bacalhau desired by this type of consumers' planning, Jangaard Export only uses cod that is less than 24 hours old (i.e. from the fish's death to its arrival at the processing plant). As a result, the primary processors who supply Jangaard Export are limited to the coastal fleet, as they alone make landings on a daily basis. A large number of primary processors make supplies on a daily basis from January until April, as that is when the spawn-migrating cod are accessible to the coastal fleet. The cod stock manager allows them to hunt and catch a large volume of fish during these months. This has probable links with consumers' activities, despite all quotas being regulated by the authorities, as the spawn-migrating cod in Lofoten is of the best naturally occurring quality. The close relationships between the business actors' activities guarantee this particular bacalhau's origin and quality. This example illustrates how the consumers' planning, the retail chain Pingo Doce's activities, the secondary processor

Jangaard Export's activities, the primary processors and hunter and catchers of the coastal fleet's activities and the cod stock manager's activities probably all link in a sequential chain related to high-quality bacalhau.

The examples above illustrated two sequential chains of probable direct and indirect links between consumers' planning and (i) business actors' bacalhau promotional campaigns, and (ii) business actors offering high quality bacalhau. The next section will describe consumers' purchasing and provide examples of sequential chains of probable links between consumers' purchasing and business actors' activities.

7.3 Purchasing

Every retailer in Portugal is expected to stock bacalhau and many use it as a loss leader. Consumers can purchase bacalhau without a prior planning sequence. The business actors perceive consumers' purchasing to vary from non-existent to extensive. However, the necessity of the retailers and the consumers being present together in time and place at the check-out counter, does not allow zero linking. When the consumers make a spontaneous purchase, they are dependent on access to bacalhau with certain features, or at a certain price in the supermarket. Information at the retailers is central to consumers in this situation; for example, displaying the bacalhau in the consumers' main route through the supermarkets is a clear advantage. The extensively purchasing consumers also, however, need to orient themselves to a certain extent about the bacalhau features and prices when entering the retailers. Even though the consumers may have done a lot of planning and therefore do not need to spend much time and effort at the retailers, they do not necessarily simply pick up what they have previously decided to. To be able to choose the planned bacalhau at the point of purchase, at least some consumers need a certain type and amount of new information from the business actors.

Consumers' purchasing is connected to the preferred price and features of the bacalhau and to generally held information. The business actors perceive Information, Cost and Product Feature to be the elements of transformation most central to consumers' purchasing. Accessible information about the different prices and bacalhau features are vital to successful consumers' purchasing. Based on this, in the following paragraphs two examples outline probable links; firstly, between consumers' purchasing and business actors' bacalhau quality grading, and secondly, between consumers' purchasing and business actors' activities related to bacalhau traceability.

Business actors' Bacalhau Quality Grading

The bacalhau's quality grading, based on appearance, is one factor considered by the purchasing consumers. The consumers need a certain level of knowledge and skill to distinguish bacalhau on the basis of its appearance alone. At the retail chains the consumers are left to touch, smell and look at the bacalhau displayed on tables. In the display, the retail chains do not explicitly inform the consumers of the bacalhau's quality grading. Instead, it is implicit by the price, the bacalhau's origin and whether it is being offered on promotional campaign or not. This adjusts to consumers who do not care, or do not know much about, quality grading, by allowing them to help themselves, as these are the only criteria they are concerned about.

Price and origin information also probably link with knowledgeable consumers who prefer to help themselves rather than needing to involve an employee by giving them a starting point for their own evaluation of the bacalhau. At the same time, secondary processors who communicate the high quality of their bacalhau through tagging, having stands or providing brochures in supermarkets, probably link with consumers who prefer information. At the independent supermarkets the employees guide and advice the consumers. By doing so, they are adjusting to consumers who seek more information.

Among several factors constituting quality grading, all retailers and secondary processors distinguish between Primeira and Sortido. In addition, some distinguish between bacalhau based on a frozen versus a fresh raw material. While acting according to regulations (Decreto-Lei n.˚25/2005:Artigo.8; Standard: Products of salted fish and salted and dried fish, no. 5.5), both the retailers' and the secondary processors' activities probably link with consumers' purchasing. The authority of these regulations becomes just as important to the primary processors as a result of their supplying the secondary processors. Consequently, the primary processors' sorting probably links indirectly with consumers' purchasing. In addition, there is legislation regulating the primary processors' activities, which intentionally overlaps with some of the legislation regulating the activities of the secondary processors and retailers. The activities of the primary processors are probably indirectly linked with consumers' purchasing, as they link with their secondary processor customers' activities, which in turn link with their retailer customers' activities.

Activities such as letting the heart pump the blood out of the fish (which would otherwise have coloured the meat), rather than waiting until landing (despite the cutting being a freezing activity to undertake on deck after all the work of hunting, catching and pulling on board), is an example of a

primary processors' activity that probably links indirectly with consumers' purchasing. The Ministry of Fisheries regulates quotas between the fleets and on the basis of the type of fishing gear used. There are also different naturally arising qualities of cod on which quotas are based. To a certain extent, the cod stock manager regulating what naturally occurring qualities may be hunted probably links indirectly with consumers' purchasing. This example illustrates how the consumers, the retailers, the secondary processors, the primary processors and the cod stock manager probably link activities in sequential activity chains concerned with bacalhau quality grading.

Business actors' Activities related to Bacalhau Traceability

The bacalhau's traceability is another factor considered by the purchasing consumers. The bacalhau's origin is tightly connected to its traceability. Business actors experience the consumers to prefer bacalhau from Norway. (Fifty per cent of the bacalhau offered for sale is from Norway). Retailers use signs to indicate whether the bacalhau is Icelandic, Norwegian or based on Pacific cod. However, statistics illustrate (Figure 4.2.1 versus Figure 5.4.1) that the retailers' displays can lead the consumers to believe that they have bought something different to what they actually have. Some of the retailers and secondary processors have started to treat 'Bacalhau da Noruega' as a reference to cod species rather than to the country of primary and secondary processing. By changing the definition, these business actors pretend to adjust their offer to the purchasing consumers, whilst knowing that the consumers' own definition might not overlap with theirs. It can be argued that whether the information given about the country of origin is correct or not does not matter, as long as the consumers' expectation of the chosen bacalhau's other features is fulfilled. If so, these retailers' and secondary processors' activities probably link directly and indirectly, respectively, with the origin-satisfied purchasing consumers, regardless of how they define 'origin'. If the purchasing consumers were to discover that the origin information is incorrect and become dissatisfied, however, these retailers' and secondary processors' activities would no longer link with the origin-concerned consumers. EFF tries to prevent such dissatisfaction by displaying guaranteed Norwegian bacalhau at retail chains.

These displays represent the informing Norwegian secondary processors' probable indirect link with consumers' purchasing. Secondary processors' tagging of the individual bacalhau represents another probable indirect link with consumers' purchasing. Tags make it possible to trace back to when and where the bacalhau was secondary processed, provided that their information is both precise and correct. The tracing activities of the primary processors, performed both on board and at sea, are also probably indirectly linked with consumers' purchasing. The illegal, unreported or unregulated

(i.e. IUU) catch that accounts for 20 per cent of the total fish caught in Norwegian sea territories annually, can represent a problem in terms of guaranteeing the bacalhau raw material's quality and traceability, although not so far as the activities of the coastal fleet are concerned. As for the sea fleet, they make use of technical and printed systems together with oral exchange of information to verify the cod's origin (see 6.4 Information Element). The cod stock managers of Norway, Portugal and other countries link their activities in an effort to wipe out all IUU fishing.

A concluding observation about this chain of activities is pinpointing that the connection between the 20 per cent of IUU fishing and the misleading information about the bacalhau's origin given to the purchasing consumers at the retailers is a challenge to the whole Norwegian-Portuguese bacalhau network. This example illustrates how the consumers, some retailers, some secondary processors, the primary processors, the hunters and catchers and the cod stock manager probably link their activities in sequential activity chains related to bacalhau traceability.

These two examples of probable links between consumers' purchasing and (i) business actors' bacalhau quality grading, and (ii) bacalhau traceability, illustrate two sequential activity chains. The next section describes consumers' storing and exemplifies sequential chains of probable activity links between consumers' storing and business actors' activities.

7.4 Storing

The previous section analysed probable links with regard to the purchasing of bacalhau. Selecting which bacalhau to purchase depends on when it will be devoured. Alternatively, the consumers can store the purchased bacalhau. The preservation process makes it possible for consumers to store the bacalhau further, for an almost indefinite length of time. However, refrigeration technology allows for a decrease in the salt content, an increase in the water content and an increase in the demands on the consumers' level of storing knowledge. In earlier times the bacalhau could be stored more or less anywhere, thanks to its preservation. Today consumers' storing can take place between purchasing and preparing and / or in the middle of the preparing if, for example, they choose to freeze desalted portions. To simplify matters, the focus here will be limited to consumers' storing between purchasing and preparing. The business actors perceive the extent of consumers' storing to range from zero to extensive.

When compared to other bacalhau, a well-dried bacalhau can be stored for longer, at a higher temperature, without deteriorating. Bacalhau of average salt and water content may also be stored extensively under the right conditions. In other words, the Product Feature element is central to consumers' storing activities. Furthermore, to maintain the purchased quality during consumers' storage, the bacalhau should be kept chilled in a refrigerator or similar. The consumers need to be aware of this beforehand. Alternatively, the business actors must inform the consumers about the length of time the bacalhau may be stored, bearing in mind its features and place of storage. Consequently, the Place and Information elements are significant too. To store successfully, it is important for the consumers to have or obtain information about how and where their chosen bacalhau should be stored, depending on the length of the time they wish to store it for. The following example illustrates probable links between consumers' storing and business actors' bacalhau temperature conditions.

Business actors' Bacalhau Temperature Conditions

In general, the longer the fish is stored under the wrong conditions, the greater the chance of spoiling the bacalhau. The bacalhau has to be kept cool to slow down the process of deterioration that starts the minute the fish dies. The fact that it is not already ruined by the time it reaches the consumers indicates a successful link between business actors' and consumers' activities. These business actors' activities may be influenced by the consumers who prefer a quality bacalhau. The Bacalhau Purchasing Manager of a retail chain and the owner of a wholesaler both said, however, that the most common cause of complaint was due to the consumers keeping the bacalhau under the wrong temperature conditions, which indicates lack of linking with consumers' activities.

Consumers are recommended to store the bacalhau at 4°C as that is the temperature the business actors are ordered to maintain. The secondary processors print the instructed temperature to be maintained during transportation and storage on the bacalhau's transportation carton. As the sticker is considerably smaller than the signs used by the retailers, it may be that no account is taken of it or it is simply overlooked when used in the display. The secondary processors' printing probably links indirectly with consumers' storing when the consumers overlook the sign, as it is read and adhered to by the transporters, wholesalers, retailers and other business actors involved.

EU regulations (implemented by Norwegian legislation) also order the secondary and primary processors to store fresh cod at between -1°C and 4°C, frozen cod at -18°C or colder, and green fish at between 1°C and 5°C regardless of whether it is in a mobile or fixed storage facility. The

legislation-regulated temperature that all business actors must adhere to represents probable indirect links with consumers' storing. Even Gadus Morhua in the sea needs a temperature just above 0°C. The cod stock manager works at keeping a sustainable and accessible cod stock in the Barents Sea. The cod stock manager's concern about sea temperature is a probable indirect link with consumers' storing. Too much time in the wrong temperature conditions ruins the product and thereby the consumers' access to it – a fact that also applies to the cod when it is in the sea.

The challenge to these sequential activity chains is the retail chains lack of any significant attempts to link activities with consumers' storing. Information provided by the retail chains or other business actors could easily inform consumers about storing methods. Thereby, this example has illustrated how the consumers, the independent supermarkets, the secondary processors, the primary processors and the cod stock manager probably link activities in sequential activity chains related to the bacalhau temperature conditions.

While this section has described consumers' storing activities, the next section will describe consumers' preparing, and probable links between consumers' preparing and business actors' activities.

7.5 Preparing

The preparation of the bacalhau by consumers is not necessarily performed in one go. For instance, the bacalhau can be desalted, divided into portions, frozen and stored, before being thawed and prepared further. How much time the preparation takes varies with the recipe. There is an old saying in Portugal that girls should know 365 bacalhau recipes before getting married. These recipes involve various amounts of consumer preparation, and various types of activity links.

The Sortido's high degree of wetness decreases its minimum preparation time. If consumers have purchased a well-dried and 'salt mature' bacalhau, which is considered to be of a higher quality, they must also expect a longer desalting time. Thus, the higher the salt content and the lower the water content, the longer the desalting time. Therefore, the Product Feature and Time elements are perceived by business actors to be central to consumers' preparing. It could be an extensive preparation for Christmas Day or a more limited and simple preparation for a lunch meal. An extensive preparation can last for hours or days, and involve all sorts of techniques and equipment. Not all consumers know how to prepare bacalhau, which makes the

Information element central too. For instance, it is important for consumers to be informed about the connection between the bacalhau salt and water content and its desalting time. Based on this characterization of consumers' preparing activities, the following three examples outline the business actors' perception of probable activity links. The first is between consumers' preparing and business actors' guidance for preparing; the second between consumers' preparing and business actors' activities related to the weight classification standard; and the third between consumers' preparing and business actors' bacalhau cutting.

Business actors' Guidance for Preparing

Guidance on how to desalt or cook is required for some consumers to prepare the bacalhau. The variation in consumers' preparing activities is reflected in the several hundred recipes for bacalhau that exist in Portugal. Some retail chains distribute magazines or brochures that include recipes. At the independent supermarkets the employees give advice, in a probable direct link with the preparing consumers, when they request it. From time to time secondary processors have stands at the retail chains, to communicate in a probable direct link with the consumers' activities. Alternatively, they can print guidelines for preparation on tags in a probable indirect link with consumers' preparing. At regular intervals EFF has stands at retail chains on behalf of Norwegian secondary processors. In addition, the organization has a large number of recipes on its homepage www.godfisk.no. Through EFF's informing actions, the secondary processors are probably indirectly linked with the preparing consumers, through both their own and their organizations' information activities. Activities of the primary processors and cod stock manager are not linked with consumers' preparing. Consequently, this example illustrates how consumers' preparing, and retailers' and secondary processors' guidance for preparing probably link in sequential activity chains.

Business actors' Activities related to the Weight Classification Standard

Recipes use a specific weight classification as their starting point. In addition to the general size of the bacalhau, the thickness of a piece of bacalhau depends on the cod's body part. For instance, wings are thinner, while loin is thicker. Consequently, weight is a factor of importance to consumers' preparing. Portugal has a unique weight classification standard that regulates the activities of the retailers and secondary processors (see Table 5.3.1). Corrente and Crescido are experienced to be the most popular weight classes with the consumers. In what is probably a link with consumers' preparing, some retailers and secondary processors sort the Crescido classification into an additional two classifications based on weight. The owner of a secondary processor explains that this is influenced

by the large amounts of Crescido available in the market and the experience of consumers requesting a more detailed weight classification.

The primary processors' sales organizations base their weight classification standards on what the secondary processors of their region mainly make, or historically have made, of the cod. These classifications have to be used in sales reports, but do not hinder the primary processors from basing their sales on a more detailed classification, in a probable indirect link with consumers' preparing. The Norwegian Fishermen's Sales Organisation classifies the cod into 2.5kg or less and above 2.5kg, compared to the secondary processors' and the retailers' classification of bacalhau as 0.5kg or less, 1kg or above 0.5kg, 2kg or above 1kg, 3kg or above 2kg and above 3kg (Decreto-Lei n.˚25/2005:Artigo.7˚ 2a). SUROFI classify HG cod into the weight categories of less than 1kg, 1kg to 2.5kg, from 2.5kg to 5kg and above 5kg. When compared to the secondary processors' and the retailers' classification, the SUROFI classification must be read with the water content in mind, as the cod becomes considerably lighter during the bacalhau transformation. SUROFI's classification probably links indirectly with consumers' preparing, while the Norwegian Fishermen's Sales Organisation's written and established standard does not. Knowing that the secondary processors and thereby the consumers are willing to pay more per kg for larger fish, the primary processors hunt for such fish. In this sequential activity chain related to the weight classification standard, consumers' preparing, retailers' activities, secondary processors' activities and primary processors' activities probably link.

Business actors' Bacalhau Cutting

Cutting the bacalhau is part of the consumers' preparing. In Portugal there is a standardized way of cutting the bacalhau (see Chapter 5, Figure 5.3.2C). The cutting separates the thinner from the thicker parts of the bacalhau, which makes it easier for the consumers to prepare it. Desalting an uncut bacalhau would demand a lot of space and be a very complicated affair as the bacalhau can, depending on its weight classification, be quite large and unwieldy. The retailers offer to cut the consumers' selected bacalhau with a band saw or similar equipment free of extra charge. The cutting activity probably links directly with the preparing consumers, as it is hard physical work without the equipment used by the retailers. The majority of consumers do not have access to such equipment. An alternative is that the secondary processors, who probably link indirectly with the consumers' preparing, 'take over' the retailers' cutting activity by cutting and pre-packing the bacalhau. Neither the primary processors nor the cod stock manager seem to be involved in these activity chains. One possible future development of these probable activity links could be for either the primary or the secondary processors to cut all cod in the way that the Portuguese

bacalhau cutting standard describes. An alternative would be for the secondary processors to sort and pack the cut parts into separate bags depending on their type, for example loin, wing or tail. That would let the consumers choose their desired bacalhau thickness and amount in a much more flexible way. This example, however, illustrates how either the consumers' preparing and the retailers' bacalhau cutting probably directly link, or the consumers' preparing and the secondary processors' bacalhau cutting probably indirectly link.

This section has described consumers' preparing activities and given examples of sequential chains of probable activity links between them and business actors' activities. The next section will describe consumers' devouring activities and give examples of probable links between consumers' devouring and business actors' activities.

7.6 Devouring

Devouring is the last consumers' activity category to be discussed here. It can take place in a variety of ways, for example, as a full meal, during preparing, or as leftovers are devoured after a second storing, and so on. In simple terms, the consumers' devouring may vary from zero to extensive.

It is possible for the consumers to devour bacalhau without much linking to business actors' activities. For instance, the consumers can devour bacalhau with the same features and of the same price, regardless of which day of the week it is, where in the house they are sat, or the level of formality of the meal. On the other hand, it might be that regardless of whether the bacalhau is expensive or cheap, Sortido or top quality, black or white, wet or dry, the family always devour their bacalhau together at the kitchen table at 7pm. The time of day when the bacalhau is eaten may vary, depending on whether it is a weekday meal, a weekend or a holiday, or if it is to be eaten between regular meals or during a meal. In the household the meal might, for example, be eaten at the kitchen table, the dining table or the coffee table. If more than one consumer participates in the devouring, they make up the social situation together. The social situation under which the bacalhau is eaten varies with the presence of guests, the strength and type of relationship between the members of the household and the guests, and which of the household's members are present. Consequently, the business actors' perceptions highlight that the Time and Place elements are most important in consumers' devouring. With this characterization as a starting point, two examples are outlined in the following paragraphs. These concern the probable links between consumers' devouring and business actors' bacalhau

promotional campaigns and between consumers' devouring and business actors' bacalhau quality grading.

Business actors' Bacalhau Promotional Campaigns
As bacalhau in general is considered to be a relatively expensive meal, consumers desiring an everyday supper with the family round the kitchen table may prefer to devour bacalhau purchased on special offer. The retail chains run promotional campaigns on a regular basis outside the peak season using bacalhau as a loss leader, which gives more households the option of eating bacalhau as an everyday meal. The retail chains' sales increase from 30 to 500 tonnes per week during promotional campaigns (as mentioned in sections 5.5 Cost Element and 7.2 Planning), which illustrates this probable link with consumers' devouring.

The bacalhau on offer during campaigns is often the cheaper and lower quality Sortido. Of all bacalhau produced by the secondary processors, 10 to 15 per cent becomes Sortido in the transformation. The Sortido is then stored by the secondary processors while waiting for a retail chain to run a promotional campaign, in a probable indirect link with consumers' devouring. The primary processors do not store Sortido, as only some of it will remain Sortido after the secondary processors' activities. Cod stock manager activities are a probable indirect link with consumers' devouring, in the same way as they were with consumers' planning activities. They secure the possibility of everyday suppers both now and in the future. To summarize, the consumers' devouring, and the retail chains' and the secondary processors' bacalhau promotional campaigns probably link in sequential activity chains.

Business actors' Bacalhau Quality Grading
The bacalhau's quality criteria are generally important to the consumers' devouring activities. One criterion is the bacalhau's appearance. The importance of the appearance varies with the consumers' devouring. For example, a nice looking bacalhau is more important for a Christmas party than for a regular Monday evening meal alone in front of the TV. At the retail chains the consumers are left to evaluate the appearance for themselves. At the independent supermarkets the employees help and advise (see section 7.3 Purchasing). Retailers' provision of information in this way probably links directly with consumers' devouring. This is especially so as the consumers' expectations - based on judgment of the appearance of the bacalhau at the supermarket - may not be fulfilled after preparing. Concerning the appearance, a number of elements are mentioned in Decreto-Lei n.˚25/2005:Artigo 8.˚, which regulates the activities of the retailers and the secondary processors. In addition, 'Standard: Products of salted fish and salted and dried fish' guides the Norwegian secondary processors. For

instance, a non-perfect looking bacalhau is categorized as Sortido (see section 6.3 Product Feature Element for more information). These affected activities of both the retailers and the secondary processors represent probable links with consumers' devouring. As the secondary processors are their customers, the legislation and business standard are just as important to the primary processors, which represents an additional probable indirect link with consumers' devouring. The primary processors also have their own legislation, the purpose of which partly overlaps with that previously mentioned. Where and when the primary processors go hunting is regulated by quota. The seasonally dependent, different naturally occurring qualities of cod affect the look of the fish, but as mentioned previously, faults in appearance can be corrected to some extent by secondary processors. All in all, this last example illustrates probable activity links between consumers, retailers, secondary processors, primary processors, hunters and catchers, and cod stock manager in sequential activity chains of bacalhau quality grading.

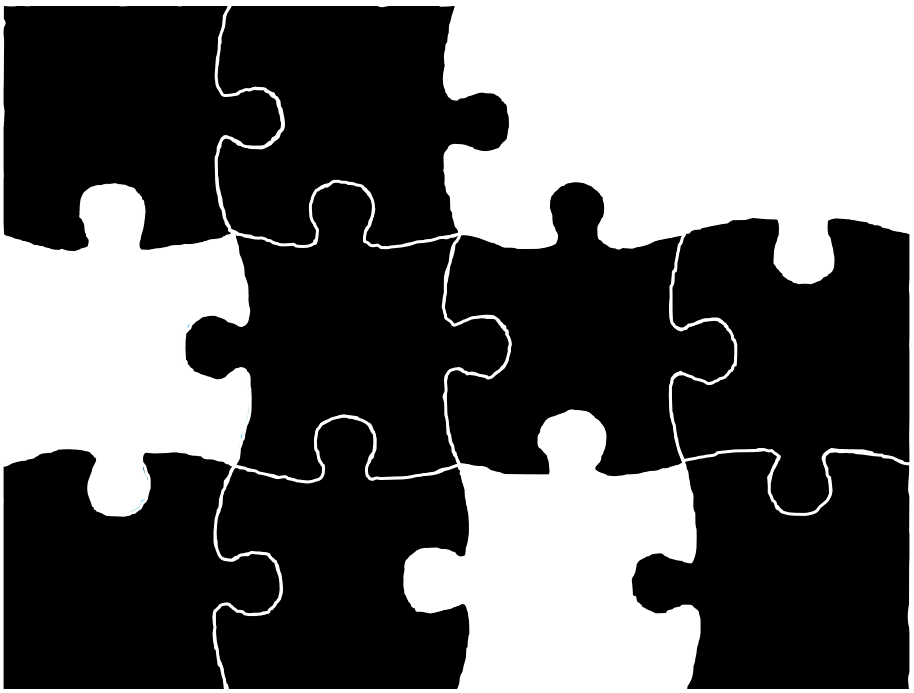
This section has described consumers' devouring and given examples of two sequential chains of probable direct and indirect links between consumers' devouring and (i) business actors' bacalhau promotional campaigns and (ii) business actors' bacalhau quality grading. The next section will summarize the findings of this chapter.

7.7 Summarizing Remarks

Together, Chapters 4 to 7 have built the empirical framework of this thesis. All three parts of the theoretical research problem are covered through the empirical discussion: consumers' activities, business actors' activities and their linking. Chapter 4 described the involved business actors and identified their main activity categories. Chapters 5 and 6 analysed examples of the business actors' attempts to link activities with the consumers, within the interface elements. Chapter 7 discussed the examples of probable activity links between business actors' activities and the consumers' activities. Finally, Chapter 7 also described the consumers' activities. The empirical material led to the description of sequential chains of directly and indirectly linked activities. Together with weak and strong, direct and indirect constitute the different aspects of the four categories of transformation. In Chapter 8, the empirical material will be analysed further. The complexity of areas of sequential activity chains will illuminate weak and strong aspects of transformation, as well as the four categories of transformation.

Chapter 8

Analysis



"The more you see the less you know. The less you find out as you go. I knew much more then than I do now."
U2 (2004) "City of Blinding Lights"

8.1 Introduction

The aim of this study has been to include consumers in the 'activity links' concept in the Industrial Network literature. This has been performed through shedding light on the first type of influence and adjustment in a product's transformation (Figure 1.2.1): 'Business actors' activities adjust to influence by consumers' activities'. This chapter offers an analysis concerning the four categories of transformation (Figure 2.9.5) to discuss how the business actors' activities adjust to the influence of the consumers' activities. Firstly, the findings from Chapters 4 to 7 will be briefly recapitulated in section 8.2 below.

8.2 Summary of Activities in the Network

The empirical material discussed the activities of the identified business actors. The retailers' five activity categories are controlling, pricing, informing, storing and sorting (Figure 4.2.3). Both independent supermarkets and retail chains perform these retailers' activities. The secondary processors' six activity categories (Figure 4.2.4) are those of controlling, informing, salting and drying, storing, sorting and distributing. These activities are performed by volume processors and spot processors. In general, the volume processors sell to the retail chains via a large wholesaler or an agent (Figure 4.2.2). Both Norwegian and Portuguese secondary processors have been included in the study, but only Norwegian primary processors. The primary processors' six activity categories (Figure 4.2.5) are controlling, storing, hunting and catching, sorting, informing and distributing. The primary processors' hunting and catching were separated, as it is markedly different from the other activity categories. The primary processors are divided between the coastal fleet and the sea fleet. Whether part of the sea fleet or the coastal fleet, the primary processors' trade is governed by one of the fishermen's sales organizations. Lastly, the cod stock manager regulates and controls the cod stock in the Norwegian sea territories through a variety of activities. Amongst other things the cod stock manager sets the quotas for the catch of wild cod.

In this thesis consumers have been included as actors in an industrial network, controlling certain resources and activities, being purposeful in action and aiming at gaining knowledge. The tangible and intangible resources involved are their knowledge, skills, relationships, processing facilities and equipments. Consumers' activities are different from those of business actors as they relate to their own personal use, rather than profit and

sale. In Chapter 2, five generic consumers' activity categories were identified (Table 2.8.1); planning, purchasing, storing, preparing and devouring. These categories cover the different basic activities of the consumers, from the point where the product enters the consumers' part of the network, until it leaves or is destroyed.

Chapter 5 to 7 discussed the activities of the consumers in different ways. In terms of 'planning', at the very least, the consumers must know or receive a certain amount and type of information at the right time. The information should say something about where, when and what type of bacalhau is available. The timing should match the bacalhau devouring season, which itself depends on cultural factors. If the information and time is right, the next step is purchasing. The consumers can, however, make a purchase without making plans previously. Accessible information about different prices and bacalhau features are crucial to the consumers purchasing successfully. If the consumers accept the price of a bacalhau with certain features, the next step may be storing it. Whether the bacalhau will be stored or not depends on when it is to be devoured. In the thesis only storing between purchasing and devouring has been considered. Recently, the increasingly low salt content and high water content of bacalhau have raised the demand, on the consumers' knowledge of storing. Consequently, it is vital that the consumers know how and where to store the bacalhau. The chosen recipe, together with the bacalhau's wetness and saltiness determines the preparation time. Bacalhau must be desalted before devouring; it is necessary for the consumers to know about this in order for the preparation to succeed. If the preparation is successful, the final consumers' activity is devouring. The choice of when and where to devour bacalhau is significant. Bacalhau may be eaten on different days of the week and at various times of the day in accordance with social occasions. The occasion also influences the choice of devouring place, which may vary between different tables and rooms in the house.

In terms of the links between the activities of business actors and those of consumers, five elements of transformation by which the activity links can be divided were identified. These are those of Product Feature, Time, Place, Cost and Information, and all are elements of transformation a product can go through.

Chapter 5 identified and analysed the retailers' attempts to directly link their activities with those of consumers within the five elements of transformation. As the retailers are the business actors which are physically present together with the consumers in time and place, it was likely that dimensions of the interface elements (see Table 5.7.1) would stand out as attempted to directly link activities with consumers. For example, a

dimension of Price Differing stood out in the Cost element, as retailers perform a range of cost effective activities such as the retail chains letting the consumers perform self-service.

The eleven dimensions of the five transformation elements were the starting point of Chapter 6. This identified and analysed the business actors' attempts to indirectly link activities with the consumers. For example, both secondary processors and primary processors undertake cost-saving activities and pursue advantages based on economies of scale. Like the land based processing plants, the trawlers have invested in efficient line processing machinery. They even consider the different weight categories during their hunting and catching activities, taking into account the weight-based price variations seen in previous years. Therefore Chapter 6 was based on the logic that an attempted direct activity link within a dimension may mean attempts for indirect activity links in it as well. For instance, all the business actors' activities' attempts to link with consumers' activities by lowering costs. This resulted in sequential chains of activities, in which business actors' attempts to directly and indirectly link activities with the consumers.

Chapter 7 discussed how the Norwegian and Portuguese business actors' activities and the Portuguese consumers' activities are probably linked. For example, looking again at the Price Differing dimension within the Cost transformation element, the consumers are experienced to purchase more bacalhau when the price is low. A retail chain that normally sells 30 tonnes a week may sell as much as 500 tonnes a week during a promotional campaign. The business actors' Price Differing activities have probable links with consumers' planning, as a result of their influence on and adjustment to each other.

The empirical framework indicates that activity linking varies in both strength and directness. The type of directness is a result of whether the business actors and the consumers are present together in time and place, and whether their activities are divided by at least one other business actor's activities. Their activities link directly when the actors are present together in time and space, and no intermediary is involved. The empirical chapters distinguished between direct and indirect activity links in its structure. These individual links form part of an either stronger or weaker section of an activity network. A section constitutes an area of sequential activity chains. One uniform definition of strength could, however, not be drawn from the existing literature (see section 2.9 Activity Links in Business-to-Business-to-Consumer). Three initial definitions were made. Firstly, activity links' strength is based on the number of involved actors. The more dominate one party is, the weaker are the links. Secondly, activity links' strength is based

on the number of linked activities. Activity links are strong when each of the actors links activities from two or more of their activity categories, while it is weak when only one or two of the actors' activity categories are involved. Thirdly, activity links' strength varies with the activity links' level of integration. Weak activity links are general, while strong links are specialized to some extent. To summarize, activities are either directly or indirectly linked, which again are part of an either strong or weak section of an activity network. These aspects create the four categories of transformation introduced in Chapter 2, as illustrated by Figure 8.2.1.

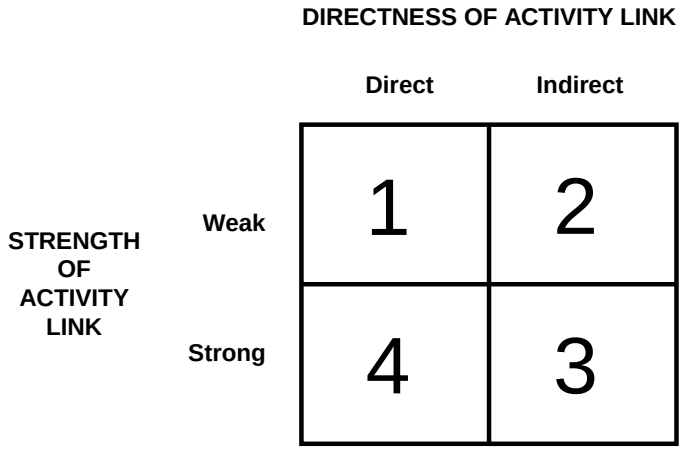


Figure 8.2.1: Four categories of transformations (from Figure 2.9.5).

Through the complexity of areas of sequential activity chains, this chapter will discuss an overall definition of activity links' strength, and analyse further how the business actors' activities adjust to the influence of the consumers' activities. As the total amount of linked activities in an activity chain is decisive to its strength, it is used as a starting point together with the variations in directness of sequential activity links within the empirical chapters. The next sections of this chapter will categorise the transformations, before discussing how the creation, alteration or elimination of activity links can be influenced, and which actors are able to do this. Finally, the effects the used interface has on the activity links will be discussed.

8.3 Categories of Transformations

Based on Alderson's definition (1965:93) and the theoretical analysis of Chapter 2, *transformation* is the change in a product's features, communicated information, location in time and place, or cost, which is calculated to increase its value for both the involved business actors and the consumers. Four categories based on directness and strength have been established (Figure 8.2.1). In the following, examples will highlight the four categories and the differences between them, sub-section by sub-section.

8.3.1 The 1st Category of Transformation (Direct / Weak)

The first category of transformation (Figure 8.2.1, category 1) concerns a weak section of an activity network dominated by direct activity links. An example of this is retailers cutting bacalhau at the request of the consumers. When the retailers cut the bacalhau in the standard way, they separates the thinner from the thicker parts of the bacalhau, making it easier for the consumers to prepare it (Johansen et al., 2003:35). The retailers have a band saw or equivalent, which makes it much easier for them to perform the cutting than the consumers, who do not have such equipment. This division of work saves the consumers preparation time and makes the bacalhau smaller and easier to transport and store. The retailers have the skill and equipment to perform the cutting, which the consumers are willing to pay for.

The solid arrows in Figure 8.3.1 represent the direct activity links, illustrating how the actors are present together in time and place without intermediaries while linking their activities. The total number of performed activities that link makes this a weak section of an activity network dominated by direct activity links. Defining it as weak is supported by the many consumers' activities' domination (e.g. Dabholkar, 1990; Fitzsimmons, 1985; Mills and Morris, 1986; Bateson, 1985). Contradicting to this, the cutting is fine-tuned in relation to the consumers' activities (Håkansson et al., 2009; Johanson and Mattsson 1992), and a substantial economic effect of stopping the cutting activity can not be excluded. However, performance of the activity has no "substantial economic effects on the actors involved" (Håkansson et al., 2009:33; Gadde and Snehota, 2000) as it is a general standard cutting activity performed by all retailers. The next sub-section will look at the characteristics of a weak section of an activity network dominated by indirect activity links.

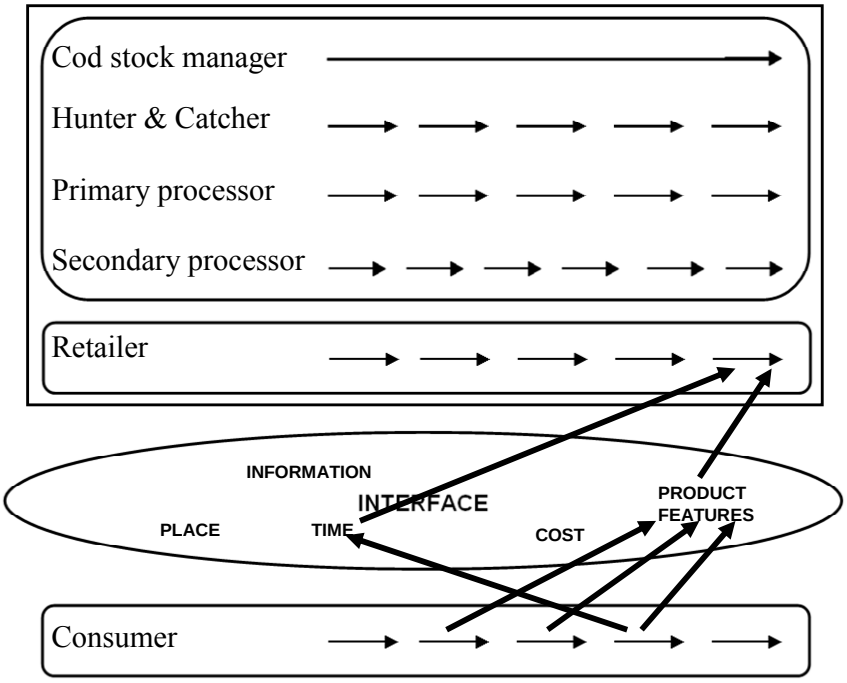


Figure 8.3.1: Example of a weak and direct transformation.

8.3.2 The 2nd Category of Transformation (Indirect / Weak)

The second category of transformation in Figure 8.2.1 represents a product transformation dominated by indirect activity links in a weak section of an activity network. This is exemplified in Figure 8.3.2 by the bacalhau temperature-related activities of an average retail chain[20] in the network. The linkage of temperature-related activities is in the interest of both the business actors and the consumers, as fish starts to deteriorate as soon as it dies. Maintaining a low temperature is essential to slow down this process of deterioration.

[20] Note that the directly linked activities concerning bacalhau temperature conditions vary depending on whether a retail chain or an independent supermarket is involved.

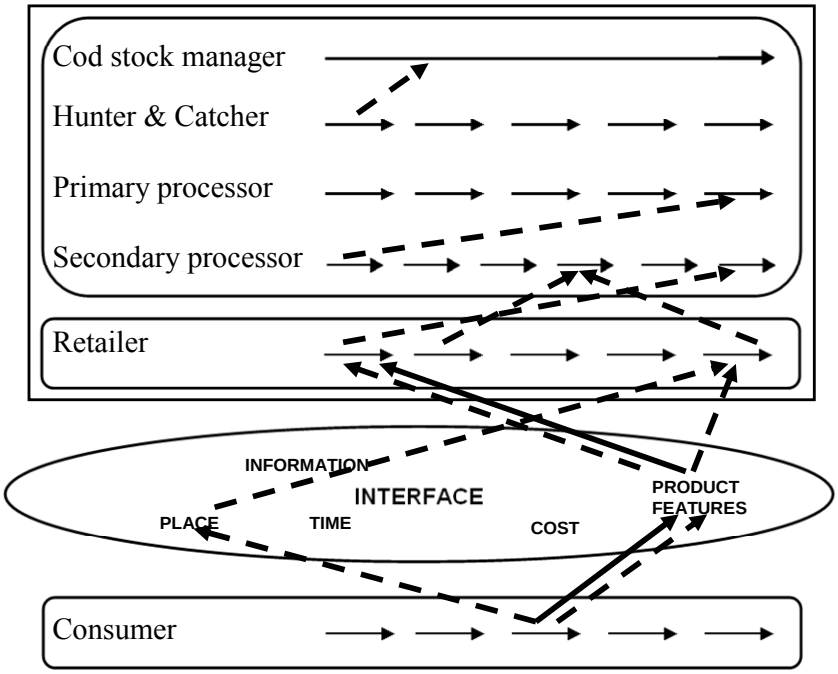


Figure 8.3.2: Example of a weak and indirect transformation.

The retail chains control the temperature of the bacalhau upon its arrival, and that is the only directly linked (solid arrow) activity with consumers' storing. The retail chains do not, for example, display the bacalhau at the temperature demanded by the legislation. Furthermore, the consumers are not informed about the necessary storage temperature, even though interviewees claimed that consumers storing bacalhau at the incorrect temperature is the root cause of most common complaints. If the consumers do not know what temperature to keep the bacalhau at, this "would result in mismatching" (Alderson, 1965:30). By not linking these additional activities with the consumers' "use requirements" (Alderson, 1954:11), no utility is created. Generally speaking, unexploited activity links may jeopardise the whole activity network, as "[t]he survival and prosperity of every firm in the channel is dependent upon the success of the others" (Alderson, 1954:19).

The secondary processors print the set storage temperature on their transportation cartons. These secondary processors' information stickers are indirectly linked (broken arrow) with consumers' storing by recommending bacalhau storage temperature at the retailers. Some retail chains even use this rather small sticker from the secondary processors' transportation carton

in their bacalhau display. Upon arrival, the secondary processors also control the temperature of the fish and looks for potential damage caused earlier by incorrect storage temperatures. The temperature at which bacalhau must be kept at the secondary processors is regulated by the EU and implemented by Norwegian legislation, which indirectly (broken arrow) links with consumers' storing.

Furthermore, temperature conditions at the primary processors are regulated and indirectly link (broken arrow) with consumers' storing. Even Gadus Morhua in the sea needs a temperature just above 0°C to survive. The cod stock manager – amongst others – works to counter rising sea temperatures. The cod stock manager sets their quota restrictions by taking into account factors such as location, species, size and so on. The hunter and catchers search for fish in a way that is dependent on the quotas. All these business actors' activities link indirectly (broken arrow) with consumers' storing, as they keep the bacalhau at the optimal temperature conditions for its features.

When the costs of linking activities are considered greater than the benefits, the linking activities are cut to a minimum. In the current example, the retail chains do not link any more activities than absolutely necessary. Even though the other business actors only link activities of one or two activity categories each, they differ from the retailers by acting to ensure that the correct temperature conditions are maintained by their customers. Despite the relatively large number of business actors that are involved, the temperature related transformation is weak, as the actors each link only a small number of activities. With further regard to this weakness, the relevant section of the activity network is dominated by business actors' activities that far outnumber the single consumers' activity (e.g. Dabholkar, 1990:484; Firtzsimmons, 1985:62). The break in this area of sequential activity chains created by the retail chains sabotages these activity links' level of integration. Figure 8.3.2 illustrates how the business actors' indirectly linked activities dominate this weak section of the activity network relating to the temperature-related bacalhau transformation.

8.3.3 The 3rd Category of Transformation (Indirect / Strong)

The third category of transformation is dominated by indirectly, strongly linked activities. The example of indirect and strong links in Figure 8.3.3 illustrates how a product's transformation "begins with conglomerate resources in the natural state and ends [as a] meaningful [product] in the hands of consumers" (Alderson, 1965:26). It concerns the origin of the bacalhau in an activity network involving the retail chain Pingo Doce. The

fact that most of the other business actors do not specialize in bacalhau of a particular origin in this way, serves to "prepare the way" (Alderson, 1954:18) for these business actors, as "[t]he opportunity for a firm to specialize … depends on the existence of other firms" (Alderson, 1954:18).

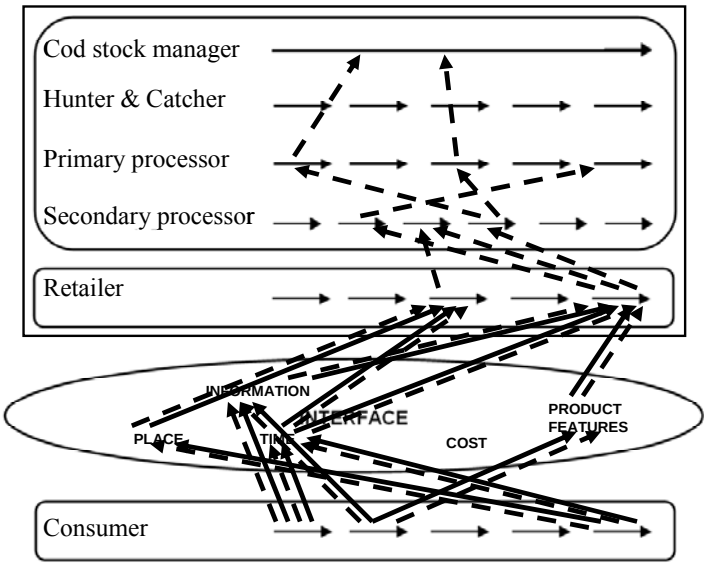


Figure 8.3.3: Example of a strong and indirect transformation.

Figure 8.3.3 illustrates the linked origin-related activities involving the retail chain Pingo Doce. Pingo Doce sorts the bacalhau and informs the consumers of its origin. Their supplier, the secondary processor Jangaard Export, contributes by sorting and processing the bacalhau according to its origin. Even the cod that they process is tagged with information regarding origin. Jangaard Export only accepts cod that has been caught less than 24 hours ago, landed by the coastal fleet. The time restriction and the size of the vessels provide an assurance of the cod's origin. In addition, the involved primary processors talk with the secondary processor. This is an example of how intangible and tangible resources are used in combination, through the "parallels between the movement of goods and the flows and stocks of information" (Alderson and Martin, 1965:125). The coastal fleet hunt and catch a large volume of fish during the months of their fishing season, which is regulated by quotas set by the cod stock manager. As cod stock managers, the Norwegian and Portuguese governments have also signed a protocol to increase transparency and consequently increase the ability to trace the origin of the cod. Traceability makes it more meaningful for the primary processors to inform their customers about the cod's origin.

In a category of transformation dominated by indirect activity links, as represented by the example given above, the majority of the involved business actors' activities link indirectly (broken arrow) with consumers' planning, purchasing and devouring. As in the weak and indirect category of transformation, only the retailers' activities link directly (solid arrow) with consumers' activities. However, as this category of transformation is strong, it is characterized by the participation of a large number of business actors. The business actors and the consumers each link activities of at least two or three categories. Supporting the strength of this category, the actors are equally involved, through performing a similar amount of linked activities, and on account of none of them having a more decisive role in the product transformation than the others. The business actors seem to have identified an "exact need of the" (Czepiel, 1990:16) consumers and adapted their activities to fulfil that need, and by so doing have themselves influenced the consumers' activities. Further, concerning level of integration, these activities are "systematically and tightly linked" (Håkansson et al., 2009:33; Richardson 1972; Gadde and Snehota, 2000; Gadde and Ford, 2008).

8.3.4 The 4th Category of Transformation (Direct / Strong)

The fourth category of transformation is dominated by directly linked activities in a strong section of an activity network. The example of direct and strong links illustrated by Figure 8.3.4 is from an area of sequential activity chains involving an independent supermarket, such as Casa Oriental, cha café e chocolate (i.e. Casa Oriental). Unlike the retail chains that exemplify the second category of transformation, Casa Oriental informs their consumers of the necessity of correct temperature conditions, knowing that many of their consumers lack that information. By not linking their temperature condition activities with the consumers, the retail chains "increase the likelihood of the survival and success of the" (Alderson, 1954:18) independent supermarkets. The independent supermarkets advise the consumers to ensure the bacalhau remains cool during transportation to the house, and to keep the bacalhau in the refrigerator or another chilled place while storing and desalting. The information they provide links directly (solid arrow) with the consumers' purchasing, storing, preparing and even planning. The indirectly linked activities of Casa Oriental's network look the same as those of the retail chains' network, which were revealed in the discussion about the second category of transformation.

This is a category of mainly direct activity links. The dominant business actors are the secondary processors and the retailers. This section of the

activity network is strong, as the business actors and the consumers link activities of two or more of their activity categories. The division of work is balanced between the business actors and the consumers. None of them decide more than the others what the bacalhau transformation will be like. The consumers seem to have communicated "his or her problems and goals" (Czepiel, 1990:16), and the business actors link their activities accordingly. The independent supermarkets use the opportunity to specialize their activities given by the retail chains' non-specialized activities (Alderson, 1954). Even all the three definitions of strength point in the direction of strong, the linked activities could have been stronger, with at least the cod stock manager and the primary processors being involved in more activities. However, that strengthening would bring along a change in the category of transformation, which is the subject of section 8.4 below.

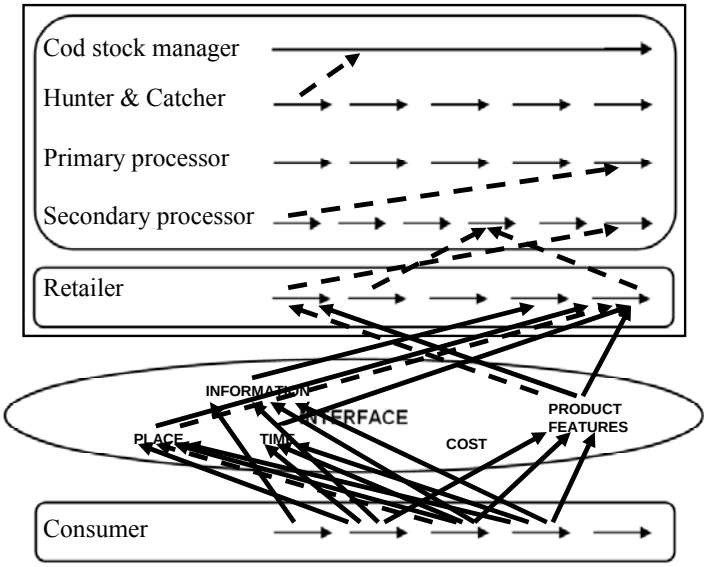


Figure 8.3.4: Example of a strong and direct transformation.

8.3.5 Summarizing Remarks

The presentation of the four categories of transformation shows how they differ from each other depending on the actors' division of work. Figure 8.3.3 gave an illustration of many actors, each involved with many systematically and tightly linked activities, in a 'strong' section of the activity network that is dominated by indirectly linked activities. In

comparison, Figure 8.3.4 gave an illustration of few actors, each involved with many highly integrated activities, in another 'strong' section of the activity network, this time dominated by directly linked activities. Both of these examples of transformation categories illustrate how advantageous it can be for business actors to take the opportunity to distinguish their activities from those of other business actors.

The example of category three concerns specializing in bacalhau of a particular origin, while the example of category four involves direct linking of temperature condition activities. The creation of a strong section in an activity network seems to be achieved through complementing and specialising (Alderson, 1954). It is also characterized by the equal division of work between business actors and consumers. The text above discusses how these same actors are equally involved through performing a similar amount of activities. Neither the involved business actors nor consumers participate more than the other. In a strong section of an activity network, the involved business actors and consumers link activities of two or more of their activity categories (Meuter and Bitner, 1998; Figure 2.8.2). Thereby, this is an illustration of the concurrence of the three definitions of 'strong'.

As far as 'weak' sections of activity networks are concerned, Figure 8.3.1 gave an illustration of few actors, each involved with few and standardised activities, in a transformation dominated by directly linked activities. In contrast, Figure 8.3.2 gave an illustration of many actors, each participating with few activities, in a product transformation dominated by indirectly linked activities. Furthermore, the area of sequential activity chains illustrating this category is characterized by a break caused by one of the business actors. The two 'weak' examples of transformation categories illustrate plainness and minimalized or not fully exploited areas of sequential activity chains.

Unlike those in the strong categories, the activity links within weak categories do not seem to stand out in comparison to other business actors' linking activities. Furthermore, the previous analysis showed how weak sections of an activity network are characterized by the domination of either the business actors' or the consumers' activities. In a weak area of sequential activity chains the business actors and consumers link activities of only one or two activity categories each. Thereby, the illustration shows how the three definitions of 'weak' concur.

Based on the descriptions of the four categories of transformation, a business actor can work out which category of transformation its linked activities belongs to. By establishing who is doing what in a selected section of the activity network of a product's transformation, the actor becomes aware of

its position in the network. The actor can thus aim to keep activities within the present category of transformation, or to change that category. The actor may, alternatively, decide to eliminate the activity links, or to establish activity links within a new area. The next section exercises the implications of changing the category of transformation of an activity link.

8.4 Changing Categories of Transformation

One activity or activity link may have a huge impact, either negatively or positively, on other activities or activity links that are considered important. What that impact is, is not necessarily easy to discover. Therefore, one must be very careful when changing one's activities: No activity or activity link is an island. Their influence on other and what it may influence depend on time and place. That is, a single activity link "affects each of those involved in it differently and is also likely to be interpreted differently by each of them and by others around them" (Håkansson et al., 2009:37).

A cod stock manager, primary processor, secondary processor or a retailer may wish to change one category of transformation for another. It might be a wish to strengthen the activity links to make them more stable and solid through including more indirectly linked activities. Alternatively, an actor might want to weaken the activity links or even remove them through phasing out both directly and indirectly linked activities. Moreover, perhaps an actor wishes to establish new, though weak, activity links in the hope of strengthening them one way or another. Similarly, the consumers may wish to change the category of transformation in order to secure their preferred use.

The four categories of transformation can be used to locate the current category for a set of linked activities. The next step would then be to ask what possible changes can be (or could have been) made to the current category of transformation. Basically, any changes in the established activities "are likely to require adjustments in the activity links" (Dubois, 1995:61), which can change the whole activity network (Håkansson and Snehota, 1989). Therefore, changes with the purpose of establishing new activity links, or changes in the directness or strength of existing activity links, must be done with the counterpart's activities in mind. Business actor initiated changes must have the consumers' activities in mind. Equally, consumer initiated changes must have the business actors' activities in mind. A change must connect with both the consumers' purpose of use and the desire to please themselves (e.g. Kotler, 1986; Bowers et al., 1990; de Certeau, 1984) and the business actors' purpose "for sale and profit"

(Ekström et al., 2001b:28), as "[t]ransformations relate[ ] to aspects of utility" (Alderson, 1965:27) to both the linking business actors' and consumers' activities. Activities only stay linked as long as the aims of the business actors and the consumers are fulfilled.

This section will analyse what is necessary to change to or from each of the four categories of transformation. Firstly, changes from the first category of transformation to the second and further on to the third are analysed, illustrated by the cutting example. Secondly, the bacalhau origin in the network of Pingo Doce is used to illustrate a change from the third category of transformation to the forth. Then analyses of changes from the second to the fourth categories, and from the fourth to the third categories are illustrated by the two examples relating to temperature.

8.4.1 Changing from the 1st Category of Transformation

The first category of transformation involves 'direct, weak' activity links. The example of cutting from the previous section is used to illustrate a change from the first category of transformation to the second, and subsequently on to the third.

The retailers have invested in cutting equipment which enables them to cut the bacalhau much more quickly and easily than the consumers can. This has not always been the situation. In previous years, the consumers carried out this preparing activity themselves. The movement of this activity from the consumers to the retailers represents the creation of a weak and direct-dominated activity link from what was, until recently, a non-existing activity link.

Furthermore, a growing number of secondary processors cut and pack their bacalhau. The cutting activity is now moving further on from the retailers to the secondary processors. Such a change would be an alteration from the dominance of direct activity links to the dominance of indirect activity links. This change of category of transformation is happening gradually because the secondary processors consider the "benefits from [linking this activity to be] more substantial than the costs" (Gadde and Håkansson, 2006:180). In addition, the consumers' "past behaviour provides [the secondary processors] with reason to expect that" (Richardson, 1972:886) their activities would link.

Despite the fact that the cutting activity is moving between different business actors, the activity linking remains weak, as no additional directly or

indirectly linked activities or actors are added nor the level of integration increased. It is only a single linked activity moving between different business actors and as a result changing from a direct to an indirect link. One way to strengthen these indirect and weak activity links would be to undertake additional supporting activities such as, for example, sorting loins and tails / wings into separate bags. This would create additional indirect links between secondary processors' processing and sorting, and consumers' preparing, purchasing and storing, and represent a specialization. The second arrow in Figure 8.4.1 illustrates such a change from indirect-dominated and weakly linked activities (2), to indirect-dominated and strongly linked activities (3).

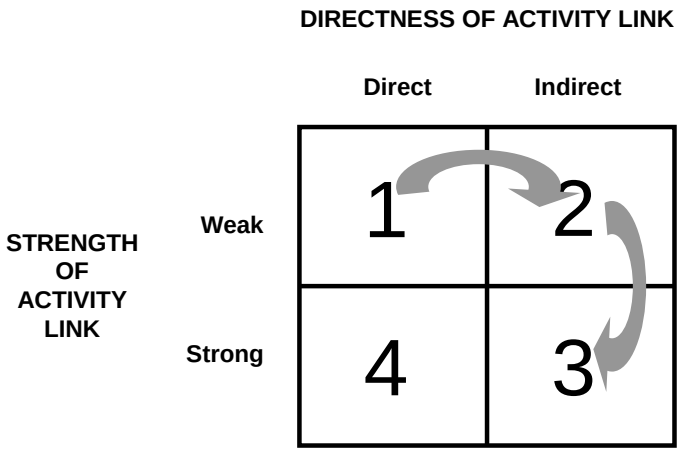


Figure 8.4.1: Changing from the 1st category of transformation.

In the future, the number of linked cutting related activities could increase. On the other hand the activity link could disappear, if the consumers were to start performing the cutting themselves again. Alternatively, the whole cutting activity, or parts of it, might keep moving between the different business actors.

8.4.2 Changing from the 3rd Category of Transformation

The third category of transformation is 'strong, indirect'. The origin / Pingo Doce example is used in this sub-section to show how strong activity links

do not appear to be easily swayed – a consequence of the business actors' and the consumers' equal involvement.

The bacalhau origin example refers to the link between a secondary processor (Jangaard Export) informing and consumers' purchasing as being indirect, because the origin information is printed, rather than having an employee at the retailer's premises to communicate the same information to the consumers face-to-face. It is an information tag and not a human being that is present in time and place with the consumers. That said, the degree of directness of linking and physical presence can vary. The question is whether a tag can be used to create a 'direct-like' link, as happens, for example, when consumers use self-service ATM machine (Bateson, 1985). If the consumers feel that their aims have been fulfilled in the same way as if the secondary processor had been present with them in time and place, then utility is created and their activities link directly. However, Jangaard Export cannot achieve that change from an indirect to direct category of transformation with their tag, as it is printed with Pingo Doce's private brand.

This possible change of category of transformation is, of course, not limited to the activities of the secondary processors. "[T]he success [of Pingo Doce's and Jangaard Export's tagging] creates opportunity for others" (Alderson, 1954:21). For instance, at the present time 'Bacalhau da Noruega' is not sub-divided into geographical regions. One possibility is for a group of vessels in the coastal fleet to get together and tag their cod with "Fresh from Lofoten" or similar. Alternatively, the fishermen's sales organizations that control all landed cod entering the bacalhau industry could certify it with a tag stating "Caught by Norwegians in Norwegian waters". Even the cod stock manager could participate in this potential change of category of transformation by way of its own information activities. This could also help to counter IUU-fishing. For instance, the cod stock manager could certify the cod with a tag that includes, for example, the national coat of arms, the identification number of the quota and a text about how the cod is caught in a way that is naturally sustainable. Tagging the cod in this way could then be linked to the secondary processors' activities to ensure that the tags survive the salting and drying procedure. If made, such a change could create direct links, not only between secondary processors informing and consumers purchasing, but also between primary processors informing and consumers purchasing, and cod stock managing and consumers' purchasing. In Figure 8.4.2 the arrow represents this potential change from indirect-dominated and strongly linked activities (3), to direct-dominated and strongly linked activities (4).

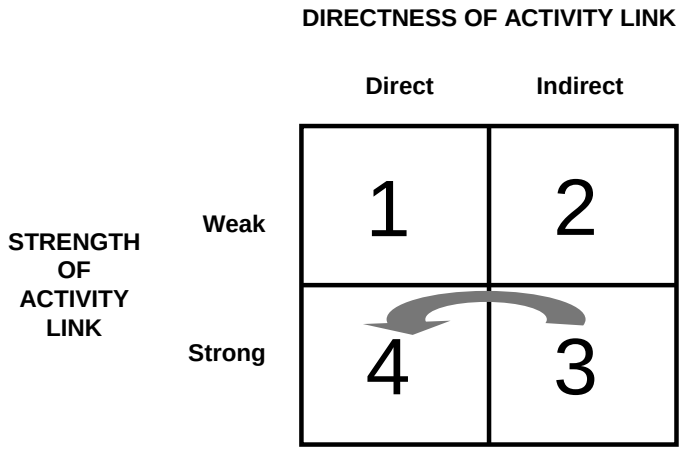


Figure 8.4.2: Changing from the 3rd category of transformation.

8.4.3 Changing from the 2nd Category of Transformation

The second category of transformation is 'weak, indirect'. An example of this category was illustrated by Figure 8.3.2, which mapped out activity links concerning bacalhau temperature conditions of the retail chains in average.

The bacalhau temperature conditions in the network of a retail chain are an example of the second category of transformation, while those in the network of an independent supermarket are an example of the fourth category of transformation. One possible change is for an average retail chain to change from the second to the fourth category of transformation (see Figure 8.4.3). The retail chains could instigate this change by altering their temperature related activity links to match those in the network of an independent supermarket such as Casa Oriental. This presupposes that the retail chains would consider the "benefits from [those activity links to be] more substantial than the costs" (Gadde and Håkansson, 2006:180). The difference in the activities of the retail chains is the only disparity between the two networks; the indirectly linked activities of the two networks are the same. The difference is limited to direct activity links, as Casa Oriental informs their customers about bacalhau temperature conditions by talking with them face-to-face.

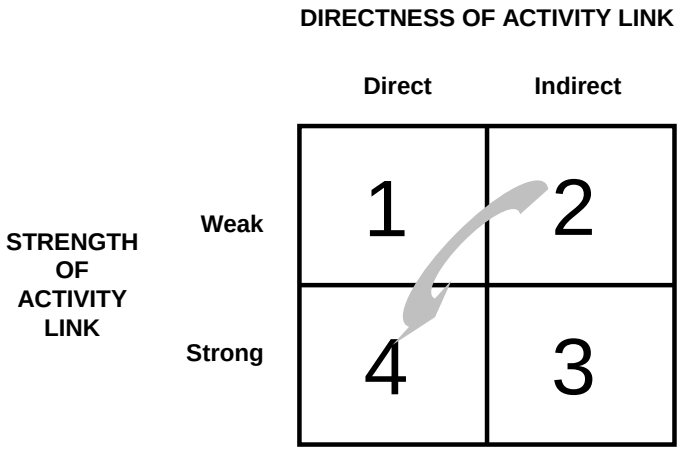


Figure 8.4.3: Changing from the 2nd category of transformation.

8.4.4 Changing from the 4th Category of Transformation

The last illustration of category changing concerns the fourth category of transformation. Figure 8.3.4 mapped out temperature-related activities in the network of an independent supermarket like Casa Oriental. This example is also used here. One possible change would be for Casa Oriental to reverse the changes suggested in the example of the previous sub-section. By cutting their directly linked activities, the transformation would change from the fourth to the second category. This elimination of activity links could for example be forced by a worsening financial situation or due to Casa Oriental joining a retail chain. However, as mentioned, strong activity links do not seem to be easily swayed because of the business actors' and the consumers' equal involvement.

There are also possibilities to further strengthen a selected section of an activity network, even when the actors concerned are already very involved, with two or more specialized activities each. More directly linked activities could be added to the already direct-dominated and strongly linked activities. For example, there are no directly linked activities between business actors and consumers other than those between the retailer and the consumers. Casa Oriental could use this as an opportunity to involve a supplier, whether a wholesaler or a secondary processor. Together they could, for example,

arrange theme evenings. These might be evenings that individual consumers could attend and / or they might be an offer to consumers looking for a special, private arrangement. Upon arrival the consumers would be given a vivid presentation on a set subject such as, for example, the importance of correct temperature conditions. The participants might be given the opportunity to look at and smell pieces of bacalhau that had previously been stored at the wrong temperature for various lengths of time. The session could conclude with a specially made bacalhau meal, served together with a wine recommended by a sommelier.

A third alternative would be to strengthen the activity links by adding more indirectly linked activities. For example, the existing tagging by secondary processors could be used to advantage. The secondary processors could become further involved by adding information about the recommended temperature conditions to the tag, and highlighting the importance of keeping to this. As a large proportion of the indirectly linked activities in this particular activity network are due to legislation and government food safety concerns, they are unlikely to be removed in the near future. The business actors therefore have the option of taking advantage of these set activity links to become further involved. In Figure 8.4.4 the arrow represents these potential changes in the category of transformation from strong and direct-dominated activity links (4), to strong and indirect-dominated activity links (3).

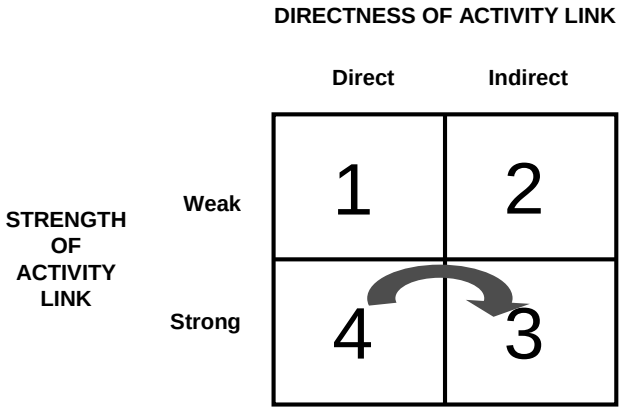


Figure 8.4.4: Changing from the 4th category of transformation.

8.4.5 Summarizing Remarks

This section has discussed the possible changes between the four categories of transformation. Firstly, the weak and direct linked (category 1) bacalhau cutting activity was used to illustrate a change to indirect links (category 2), and even to strong and indirect links (category 3). Secondly, a section of the network containing the retail chain Pingo Doce was used to illustrate a change from strong and indirect links (category 3) to direct links (category 4). Thirdly, the bacalhau temperature related activities in the network of an average retail chain were used to illustrate the change from weak and indirect links (category 2) to strong and direct links (category 4). Lastly, the bacalhau temperature related activities in the network of an independent supermarket such as Casa Oriental were used to illustrate a change from strong and direct links (category 4) to strong and indirect links (category 3).

By using these examples, this section has illustrated changes that can be made between the four categories of transformation. The focus of the examples has been on establishing and strengthening areas of sequential activity links, but by reversing them, they are also examples of weakening and elimination.

This section has made some addition to the definition of strength. Firstly, as far as strong activity links are concerned, the analysis has illustrated how the actors' equal and highly integrated involvement appears to make influencing changes less easy. Secondly, weak activity links seem to be plain and minimalized or not fully exploited, and thereby much easier to dissolve. This section has, however, illustrated how some weak activity links are special as they are founded on national and international legislation and regulations. Having said that, in the example of bacalhau temperature condition activities, the risk of quality reduction and deterioration appears to worry the retail chains more than any legislative issues.

This current section has also added to the definition of direct activity linking through the analysis of 'direct-like' activity links. If the business actors' and consumers' activities link indirectly, but at least one of the parties experience their aim to be fulfilled and utility to be created as if they had been present together in time and place, their activities link directly or more precisely, in a direct-like way. In this section, such linking is exemplified by consumers' self-service at ATM machines and the provision of information on printed tags.

The ease of changing between indirect and direct linking, weak and strong linking, and from or to linking activities in general, depends of the current category of transformation and which other is influencing the change. Therefore, after looking at what changes can be made, it is of interest to know which other is best placed to perform or influence the preferred change. This is the subject of section 8.5 below.

8.5 Actors Changing the Category of Transformation

Only those participating in the selected section of activity links can make a change to it (e.g. Alderson, 1957:212). Consequently, both the involved business actors and consumers are potentially able to change the category of transformation. By changing their activity, they will change the activity link (Dubois, 1995), which can change the category of transformation and thereby the whole activity network (Håkansson and Snehota, 1989).

With regard to making a specific change, the first step would be for the business actors or consumers to question how they can alter their activities to influence that change. Secondly, they must question what the other actors of the selected section of the activity network can do to their activities to bring about that change. The actors involved in the part of the network containing the activity link(s) in focus may, of course, be motivated by very different and even contradictory purposes (e.g. Oudshoorn and Pinch, 2003). However, as members of the same industrial network and being involved in the same transformation, the way in which the activity-linking business actors and consumers can support each other in the change of category is of central importance. It should be borne in mind that activity links are "a sequence of acts directed towards a purpose" (Dubois, 1995:52), which is use and to please themselves (e.g. Kotler, 1986; Bowers et al., 1990; de Certeau, 1984) by the consumers and "sale and profit" (Ekström et al., 2001b:28) by the business actors. "Confusion of signals … would result in mismatching" (Alderson, 1965:30) and loss of the activity link(s). "The survival and prosperity of every firm in the channel is dependent upon the success of the other" (Alderson, 1954:19). The sub-sections below discuss how the different actors in the bacalhau network might influence changes from one category of transformation to another.

8.5.1 Consumers

Consumers, as actors in the industrial network (e.g. Sörhammar, 2008; Hadjikhani and Bengtson, 2006), can influence a category change. This is

especially so in weak sections of activity networks, whether dominated by directly or indirectly linked activities, in which the involved consumers' activities are the controlling influence by outnumbering the business actors' activities (e.g. Dabholkar, 1990:484). Consumers can change a category of transformation through their planning, purchasing, storing, preparing and devouring activities (Table 2.2.1). In comparison to the business actors, the consumers are far more numerous but do not necessarily have an organization to unite or represent them in issues related to changing categories of transformation. However, because of their numbers, the consumers can also influence the weakening or elimination of an existing strong category of transformation. The consumers can influence such a change when many or all of them raise the same request to the business actors. The consumers' primary aim in doing so would be to ease their use or increase their self-pleasing through a change in the division of work. That would also be the situation with regard to the category's directness. For instance, the advantage of changing from an indirect to a direct activity link is the opportunities that would result from the consumers' and the retailers' presence together in time and place.

The cutting of bacalhau (Figure 8.3.1) is an illustration of how a business actors' activity can be influenced by consumers' activities, and as a result adapts the product to the "process in which it will be used as a input" (Dubois, 1995:55). It is much more efficient for the network if the retailers perform this activity rather than the consumers. As business actors, the retailers are in a far better position to buy and use the best cutting equipment, and to know how to make the cuts in the standard way. The consumers, on the other hand, cutting the bacalhau manually, might struggle to perform this job in the correct way. At the present there is even a change from predominantly direct activity links to predominantly indirect activity links, as a growing number of secondary processors cut and pack the bacalhau. This further change of category means that the consumers no longer have to queue up and wait at the retailers for the cutting to be performed.

8.5.2 Retailers

Retailers' activities can be influenced by consumers' activities in order to adapt the product to the "process in which it will be used as a input" (Dubois, 1995:55). The Consumer Behaviour literature's main focus is on the retail-level's activity links with the consumers (e.g. Lovelock and Young, 1979; Bateson, 1985; Langeard, Bateson and Lovelock, 1981; Bowers et al., 1990), as the retailers are the business actors who are most often present together with the consumers in time and place. Therefore, the

retailers are most likely to perform changes to weak sections of activity networks dominated by directly linked activities, in which retailer activities are the controlling influence by outnumbering the consumers' activities (e.g. Dabholkar, 1990:484). The retailers can change the category of transformation through their controlling, pricing, informing, storing and sorting (Figure 4.2.3).

Broadly, the retailers can be divided into two groups: retail chains and independent supermarkets. However, which type they are affects their ability to change category of transformation. The size of their market share and their contact with the consumers puts the retail chains in a powerful position. This enables them to change even strong categories of transformation, despite the fact that they and the consumers are equally involved (e.g. Czepiel, 1990). Thus with regard to being influenced by consumers' activities, the retail chains can both make and prevent category changes by refusing to take part in activity links. An example of the latter concerns the bacalhau storage temperature conditions, the section of the activity network of which the retail chains at some point changed from strong (Figure 8.3.4) to weak (Figure 8.3.2), by declining to participate in certain activity links. Interviewees claimed that the consumers' lack of knowledge of the required temperature conditions is the main cause of consumers' complaints. Even so, the retail chains neither display the bacalhau at the appropriate temperature nor actively inform the consumers about the correct way to store it.

8.5.3 Secondary Processors

Secondary processors' activities are influenced by retailers' or consumers' activities to adapt the product to the "process in which it will be used as a input" (Dubois, 1995:55) and / or by primary processors' or cod stock manager's activities to adapt "in order to use input products" (Dubois, 1995:55). The secondary processors are most likely to perform changes in weak activity networks dominated by directly or indirectly linked activities, in which secondary processors' activities are the controlling influence by outnumbering the consumers' activities (e.g. Dabholkar, 1990:484; Figure 8.3.2). The secondary processors can change the category of transformation through controlling, informing, salting and drying, storing, sorting and distributing (Figure 4.2.4).

A change in category of transformation can also be a change in the balance of power between the actors of the network. The retail chains are powerful, with their 80 per cent market share and physical contact with the consumers.

Spot processors and smaller volume processors have gone bankrupt or left the network among other things as a result of the retail chains' exerting their power. However, 50 to 60 per cent of the 70,000 tonnes of bacalhau annually imported to Portugal comes from Norway (Figure 4.2.1), and the three largest Norwegian volume processors control 90 per cent of this. Furthermore, the largest Portuguese volume processor accounts for almost twice as much as any one of these three (Costa, undated). With four secondary processors controlling 70 to 80 per cent of the bacalhau market, they should be in position to make changes in strong as well as weak sections of their activity networks. For instance, they should be able to influence change in the activities of retail chains in the above-mentioned example of the bacalhau storage temperature.

The individual tagging of the bacalhau is an example of a category change performed by secondary processors, which might be influenced by consumers' activities. For instance, the tagging by Jangaard Export and Pingo Doce has increased annual sales by 10 to 15 per cent. Using a tag can change the indirect activity links to direct activity links between the informing secondary processors and the purchasing consumers. As previously mentioned, the tag might become a substitute on a par with the business actors' physical presence with the consumers in time and place and create a similar feeling of relationship and helpfulness, which again would shift the power balance between the retailers and the secondary processors. For instance, the activity link of bacalhau storage conditions could be strengthened by the secondary processors printing the recommended temperature on the tag to highlight the importance of storing at the correct temperature. This is also an example of how the secondary processors could use the tag to take advantage of the opportunity inherent in the legislation the government has imposed upon them. The legislations already oblige them to link their activities indirectly with consumers' activities, so why not inform the consumers directly at the same time.

An interesting factor of the secondary processors' ability to change category of transformation concerns the Norwegian Seafood Export Council (i.e. EFF). EFF undertakes a broad spectrum of worldwide marketing activities on behalf of the Norwegian secondary processors. To finance this, Norwegian exporters are charged 1.05 per cent of the F.O.B. value in tax. By comparison, the Portuguese secondary processors are free to spend their marketing budget on joint campaigns with their main retailer customers. The retailers demand their suppliers' economic participation in these marketing activities, regardless of whether they pay EFF-tax or not. As a result of their already tight profit margin, this economic burden hinders the Norwegian secondary processors from performing certain changes of

category of transformation, regardless of whether consumers' activities influence them to do so or not.

For example, a growing number of secondary processors carry out the bacalhau cutting, but taking over this activity from the retailers involves new processing costs. Likewise, joining in directly linked activities such as co-arranging themed evenings with retailer customers, necessarily involves extra costs. Considering that the few Norwegian secondary processors are very large, they would have been able to participate in these category-changing activities had it not been for their marketing budgets now being spent in a manner beyond their control. However, there are also advantages to organizations like EFF, FHL and AIB such as, for example, their ability to lobby politicians, negotiate international business agreements and fund research about the bacalhau consumers. Nonetheless, the fact that EFF's activities limit the Norwegian secondary processors' opportunities to compete through changing categories of transformation does not seem to be compensated for by the possibilities they create.

8.5.4 Primary Processors

This section does not distinguish between the primary processors and the primary processors as hunters and catchers. This is due to this presentation's general character and that the hunters and catchers, when it comes to their ability to change activities, are not in a very different position to the primary processors in general.

Primary processors' activities are influenced by secondary processors', retailers' or consumers' activities to adapt the product. This is in addition to any influence on their activities arising from their own initiatives. The primary processors are most likely to perform changes in weak activity networks dominated by indirectly linked activities, in which primary processors' activities are the controlling influence and outnumber the consumers' activities (e.g. Dabholkar, 1990:484). A large proportion of the indirectly linked activities of the primary processors have arisen because of legislation. For instance, where and how to catch, and when and why the cod is bled out. Just as for the secondary processors, these activities present an opportunity to be used and taken advantage of by developing them further, rather than ignoring or being indifferent to them.

Moreover, the primary processors can look to further use their position in the network and the opportunities that the unifying sales organizations present. For example, it may be possible for them to increase their profits by carrying

out some or all of the bacalhau cutting. Would it be most efficient to deliver the whole cod to a single customer, or to deliver cod loins to one, and cod tails and wings to another? The primary processors can change the category of transformation through their controlling, storing, hunting and catching, sorting, informing and distributing (Figure 4.2.5) activities.

The primary processors can be divided into the sea fleet and the coastal fleet. Neither has clear opportunities regarding category change. If one primary processor wanted to change the category of transformation, it alone would not necessarily have the power to do so, as it may not be in control of or manage a weak section of the activity network. However, all first-hand trade of fish in Norway is arranged or controlled by one of the fishermen's registered sale organizations (Law of raw fish trading, 1951:§2 part 1). The fact that a far greater number of consumers believe they are buying bacalhau of Norwegian origin than is actually the case (Figures 4.2.1 versus 5.4.1), has given the fishermen's sales organizations a job to do. What they could do is help changing the category of transformation by coordinating the primary processors' activities. Even strong sections of activity networks may be changed through collective behaviour, including that of the primary processors.

8.5.5 Cod Stock Manager

The Norwegian government controls and regulates "one of the few remaining cod stocks in a reasonably good condition" (www.fisheries.no, 2007a). Consequently, their purpose of "sale and profit" (Ekström et al., 2001b:28) differs to a large extent from that of the other business actors. They regulate the fishing through quotas, on which the whole Norwegian-Portuguese bacalhau network bases their activities. Through quota changes based on location, time, fishing gear, species, size, volume and so on, the cod stock manager is in position to change all the categories of transformation.

An example of a category change performed by the cod stock manager, which is at least partly influenced by consumers' activities, concerns the approximately 20 per cent of the final catch (Ot.prp. nr.98 (2005-2006):no. 2.1) that is illegal, unreported or unregulated (i.e. IUU, Appendix IV). In aiming to prevent IUU fishing, the Norwegian government seeks to work with countries where the IUU catch is potentially landed. Another weapon that could be used against IUU fishing would be for the cod stock manager to certify the cod with a tag. The tag could, for example, include the national coat of arms, the identification number of the quota and a statement

to the effect that the cod has been caught as part of a naturally sustainable quota. Such tagging could influence change of category of transformations, as well as helping to avoid consumers' confusion about what really constitutes 'Bacalhau da Noruega' (see Figure 4.2.1 versus Figure 5.4.1).

8.5.6 Summarizing Remarks

The two previous sections discussed the differences between the four categories of transformation and how links could be established, changed, or eliminated in shifting category. This section has analysed which actors are able to perform a preferred establishment, elimination or change of a category of transformation. Only the business actors and consumers participating in the selected section of the activity network at the point in time when it was identified and mapped out can change its category of transformation. Consequently, who actually influences or performs a change depends on the area in question. The ease of changing between indirect and direct, weak and strong, and from or to linking activities in general, depends on the existing category of transformation and who will influence the change. By changing their activity, they will change the activity link (Dubois, 1995), which in turn can change the category of transformation and thereby the whole activity network (Håkansson and Snehota, 1989). However, it is necessary for the changed activities to continue to bridge a gap in Product Feature, Cost, Time, Place and / or Information and thereby to create utility for both the involved business actors and consumers, in order to stay linked.

Consumers initiating a change will first consider what they can do to their activities to influence the preferred change, before looking at what the involved business actors can do to their activities to bring it about; the latter may involve an influence on the business actors' activities. Furthermore, both parties can influence a change in a weak section of an activity network, in which their activities are the controlling influence and outnumber those of their counterpart (e.g. Dabholkar, 1990). As far as the consumers and the retailers are concerned, they can change weak and direct activity links. The consumers and the remaining business actors can change weak and indirect activity links.

The situation with regard to strong sections of an activity network is that the actors are equally involved. None of them decide more than the others what the product transformation should be like (e.g. Czepiel, 1990), and therefore neither the consumers nor any of the business actors can thereby easily influence or impose changes. Strong activity links are therefore not easily

swayed. The exception is when business actors or consumers act collectively. By doing so they might become sufficiently dominant to change a strong category of transformation.

Section 8.6 below concludes the chapter by considering the effects of the interface elements and dimensions on the actors and their linked activities, and the interface elements' effects on each other.

8.6 The Effects of the Interface

This section focuses on the interface elements, which are the five elements of transformation identified in Chapter 2. The five elements logically connect business actors' activities and consumers' activities. Bridging gaps in these elements creates product transformation and utility for both business actors and consumers. This study of how business actors' activities are adjusted to consumers' activities uses transformation as a mediator.

As an interface, the elements of transformation create certain effects on the categories of transformation (section 8.3), how the creation, alteration or elimination of activity links can be influenced (section 8.4), and which actors are able to do this (section 8.5). The first sub-section below illustrates how the elements affect each other, and thereby both the categories of transformation and which actors are able to influence changes. The second sub-section outlines how the dimensions of an element affect each other. Finally, comments are made about the elements' effects on each other when changing categories and their effects on the one influencing the change.

8.6.1 Effects between Elements

The five interface elements affect each other differently depending on what activities are linking and which actors are involved. An interface element's effect[21] on another interface element arises when linked activities themselves create additional links involving other elements, activities and / or actors.

Cutting is an example illustrating the elements of transformation effects on one other. Cutting is presented in Chapter 5 and 6 as a dimension of the Product Feature element. This is because being cut in the standardized way becomes a feature of the bacalhau. However, cutting the bacalhau in the

[21] These effects are closely connected to the original activity link, and are both created by it and a part of it. In fact, it cannot be stated unequivocally, or in general terms, whether the effect or the activity link is the initial phenomenon.

standardized way is also a less significant dimension within the Time element, as cutting influences the consumers' preparing time. It is one activity link within the Time element that strengthens (to a limited extent) the activity links of the Product Feature element. In addition, it is clearly much easier for the purchasing consumers to transport, or the storing consumers to store, a cut bacalhau rather than a whole one. These effects represent direct links between retailers' informing and consumers' purchasing and storing, within the Product Feature element, as a result of the cut bacalhau's advantageous size.

The bacalhau's country of origin is the second example that illustrates the effects of one element of transformation upon another. The bacalhau's country of origin is presented in Chapter 5 and 6 as one of the factors of the categorizing dimension within the Product Feature element. However, categorizing is also a just as significant dimension within the Information element, as the origin is communicated from actor to actor in the network. For instance, when the consumers wish to purchase bacalhau of a certain origin, that feature will also be a part of their planning. The traceability will then also be important to consumers' devouring, depending on when, where and with whom the bacalhau is to be devoured. The effects on consumers' planning represent a direct link between the retail chain informing and consumers' planning, an indirect link between the secondary processor's storing and processing and consumers' planning, and an indirect link between the coastal fleet's primary processors' distributing and consumers' planning. These are effects involving the Time element and the Information element, as the consumers requires origin information at the right time to be able to perform successful planning. The effects on consumers' devouring represent a direct link between retailers' sorting and informing and consumers' devouring, and an indirect link between secondary processors' sorting and informing and consumers devouring. These latter links occur within the Time element and the Place element, as when, where and with whom the consumers choose to devour is an essential part of consumers' devouring. These are illustrations of elements strengthening each other.

A third example that illustrates effects between elements concerns the bacalhau's temperature conditions in the activity network of a retail chain. The temperature condition's influence on the bacalhau's visible faults is one of many factors of the categorizing dimension within the Product Feature element. However, this categorizing is also a less significant dimension within the Time element, the Place element and the Information element. The linked activities *should* involve the consumers being informed about how and where their chosen bacalhau should be stored, depending on the length of time they wish to store it. However, not all of the listed interface elements are used to link business actors' activities and consumers' activities

in this case, as a consequence of there being only a few, indirect links. In fact, by not involving the Time element and the Information element, the involved Product Feature and Place elements are weakened. For instance, if the consumers are not aware of the time limits for storing the product, the quality of its features may be reduced. As far as effects are concerned, none stood out which involved any but the most well informed consumers.

As in the previous paragraph, the fourth and last example relates to the temperature condition. This example illustrates the activity network of an independent supermarket, rather than those of a retail chain. Here the planning consumers are informed about how to distinguish the bacalhau's quality grading. One of the guiding factors will be the price. Generally speaking, Sortido and cheap bacalhau has a higher water content than more expensive bacalhau, which require a lower temperature condition. This represents direct links between the retailer's pricing and consumers' planning and storing. These are links within the Information element, Time element and the Product Feature element, as the price reflects the bacalhau's features and consequently how long and under which temperature conditions it should be stored. This is, therefore, another example of different elements strengthening each other.

The examples given above illustrate how activity links within one interface element affect other interface elements by involving additional actors and / or activities. However, the different elements also affect one another when activities are not linked, in cases where a potential activity link exists. One such example is the lack of directly linked activities between retail chains and consumers with regard to the bacalhau's temperature (Figure 8.3.2). This may lead not only to incorrect temperature conditions during consumers' storing, but also during consumers' transporting and preparing. Thereby, this sub-section has illustrated how the elements of transformation affect both the categories of transformation and which actors are able to influence changes.

8.6.2 Effects between Dimensions

The five elements of transformation may either strengthen or weaken each other. Chapter 5 and 6 identified dimensions within each element. This sub-section will take a closer look at effects between dimensions of the same element.

The dimensions within a single element are tightly connected. For instance, categorizing, controlling and cutting were identified as three dimensions

within the Product Feature element. An example of these dimensions' tight connection can be seen in the bacalhau being categorized by six weight classes. Accordingly, the actors control the bacalhau's weight class upon arrival. The standard cutting of the bacalhau is adjusted to match the bacalhau weight classes.

Similarly, within the Time element, Storing and Timing were identified as two dimensions in which business actors' activities attempt to link with consumers' activities. An example of these dimensions' tight connection is the way in which the raw material's availability does not correspond with the consumers' peak devouring season. This mismatch between the fishing season and the devouring season means that the business actors have to store. This enables the business actors to time their activities with various consumers' activities. This timing is not limited to just the peak annual devouring season, but also to various promotional campaigns.

Furthermore, Locating and Displaying were identified as dimensions within the Place element. The tight connection between these dimensions is reflected in the retailers' locating and displaying the bacalhau in a way that is dependent on the supermarkets' sizes. For example, hypermarkets are located outside larger cities and have the space to display the bacalhau in separate departments. On the other hand, independent supermarkets are smaller and more centrally located, and display their bacalhau by the entrance or behind the counter.

Within the Cost element, Purchasing and Price Differing are the identified dimensions. An example of the tight connection between Purchasing and Price Differing is the way that the retailers purchase low priced bacalhau from all kinds of suppliers, collecting enough to run a promotional campaign. This bacalhau is sold with a low margin as a loss-leader. If the price is low enough the consumers will purchase a correspondingly large amount. Consequently, the purchasing is connected to price and vice versa.

Finally, within the Information element, Tracing and Specifying were identified as two dimensions in which business actors' activities attempt to link with consumers' activities. These dimensions are connected through, for example, the independent supermarkets giving the consumers individually adapted information about qualities, desalting and storing. The business actors can also provide consumers information about the bacalhau's origin. If specified, the bacalhau's origin can be traced. If it is not specified, it cannot be traced.

Overall, the dimensions of an element of transformation are tightly connected. One may be of more significance than the other and there may

be certain activity links in which they overlap. However, being tightly connected, they generally act in a similar way. If one is weakening an activity link, the other is likely to weaken it as well. Equally, if one is strengthening an activity link, the other is likely to do so too. Thereby, it is illustrated the dimensions of an element pull in the same direction when affecting the categories of transformation and which actors are able to perform changes.

8.6.3 Effects between Elements when Changing Categories

A change of category of transformation is a change in the elements and their dimensions. In other words, a category is altered through changes in the elements, which are themselves altered through changes in their dimensions. The dimensions are altered through changes in their linked activities. When elements are replaced or the involved elements are changed, the involved dimensions will be changed also. The effect that a change of category has on the elements is the subject of this sub-section.

When performing changes in a dimension and hence within an element, what is at first a less important or convenient effect may develop into new and separately linked activities that come to dominate or even eradicate the original activity link. The secondary processors' salting and drying of the cod is an example. Originally these were activities performed by the primary processors to link with consumers' storing. Today, these have changed into activities performed by the secondary processors to link with consumers' preparing. Originally the Time element was most significant, as the vessels were at sea for months at a time and the consumers rarely got the chance to purchase. It was crucial for the bacalhau to be storable for a long period of time. Today the Product Feature element is most significant, as bacalhau is a traditional product, which must be prepared in a certain way. This is a very clear example of a category change that has developed over a long period of time. The examples of changes of category of transformation that are illustrated by Figures 8.4.1 – 8.4.4 vary in terms of how pronounced their effects are. They are not, however, as pronounced as in the example given above. What they have in common is a change in the most central interface element, its dimensions and its activity links, and hence also in its effects.

Effects between elements of transformation depend on who is performing the change of category of transformation. However, the elements of transformation also affect who is in a position to perform the change of category. This is in the same way that the product transformation in general

affects actors involved in linked activities. These effects can be either a blessing or a curse. As mentioned, performing a particular activity may bring certain costs, together with the benefits. If it is a linked activity desired by the network, its advantage to the network compensates for any disadvantage to the actor(s) performing it (e.g. Gadde and Håkansson, 2006). For maximum benefit the activity will keep moving between the actors until it reaches the actor(s) for whom it is the least burden and / or with whom the network gains most advantage. However, an actor may use its power in the network to sabotage this by not performing the activity that lands on its doorstep. In such a situation, the sabotaged activity link cannot always be compensated for by another actor's activities. An example is the retailers who choose to misinform the consumers about the bacalhau's origin. These retailers lead the consumers to believe that all Gadus Morhua-based bacalhau has either Norwegian or Icelandic origin, as they experience the consumers to prefer one or other of these. Consequently, they earn more money by misguiding the consumers on those supposedly linked activities. However, as "[t]ransformations relate to aspects of utility" (Alderson, 1965:27), an activity link based on erroneous premises can be viewed as a real activity link so long as both actors experience utility. The retailers earn more money, at least from a short-term perspective; the long-term consequences may differ. Together with IUU fishing, this misinforming is a challenge that undermines the whole activity network. By forcing another actor to perform an activity (even though it may be a bigger burden to them), or by refusing to perform an activity that falls to its lot, an actor weakens its own network's position and it's ability to compete.

8.6.4 Summarizing Remarks

This study of activity links uses the five elements of transformation as a mediator. To link, activities must create utility for the involved actors through bridging a gap in at least one of the five elements of transformation. This section has elaborated further on the effects the five elements of transformation have on the activity linking.

Firstly, four examples of the effects between elements were looked into. Such effects arise when linked activities themselves create additional links involving other elements, activities and / or actors. Three of the examples illustrated effects of elements in strengthening each other to different extents. The fourth example illustrated how the elements relating to a not fully exploited section of the activity network weaken those that are involved. This indicates how the elements of transformation create certain effects on the categories of transformation. As the category of

transformation determines which actors may influence a change, the effects between the elements also affect which actors are able to influence changes in the categories of transformation.

Secondly, five examples outlined how the dimensions of an element affect each other. Within an element one dimension may be more significance than the other(s) and there may be certain activity links in which they overlap. They are shown, however, to be tightly connected and in general to act in the same direction. Whether one dimension is weakening or strengthening an activity link, the other dimensions of the particular element follow. Thereby, it illustrates how the dimensions of an element pull in the same direction when affecting the category of transformation and furthermore which actors are able to perform changes.

Thirdly, this section has commented upon the elements' effects on each other when changing category of transformation, and their effects on the actors influencing that change. A category of transformation is altered through changes in the elements, an element is altered through changes in the dimensions, and a dimension is altered through changes in the linked activities. Changes in categories have in common a change in the most central interface element, its dimensions and its activity links, and hence also in its effects. Effects between elements of transformation depend on who is changing the category of transformation. Elements of transformation affect who is in a position to change category. Forcing someone else to make that change, or not making it, weaken the section of the activity network.

8.7 Summary

In this chapter, the main findings from the case study have been elaborated upon and analysed from an overall perspective. Firstly, the findings from the empirical material were briefly recapitulated, structured by the research problem's three parts; the consumers' activities, the business actors' activities and their activity linking. The case study distinguished between direct and indirect links in sequential activity chains. However, it indicated an additional division in strength, by these forming parts of an either stronger or weaker area of sequential activity chains. Through the complexity of areas of sequential activity chains, it was an aim of this chapter to discuss an overall definition of activity links' strength.

The main purpose of this chapter was to analyse how the business actors' activities adjust to the influence of the consumers' activities. Therefore, the four categories of transformation were discussed. The differing aspects of

these categories are activity links' directness and strength. One of the three literature based definitions of strength worked as a starting point. This second part of the chapter started out with categorising the transformations. The four categories of transformation were shown to differ from each other depending on the actors' division of work, how involved they are, and as a result of how complementing and specialized a particular area of sequential activity chains is. This refers to the three initial literature-based definitions concurring. This clear distinction between 'weak' and 'strong' also indicates how an actor can work out which category of transformation its linked activities belong to.

After becoming aware of its position in the network, it is of interest to an actor to know how to create, alter or eliminate activity links, either to perform that change or to keep the present position. Therefore, this was analysed next. The analysis of how to change category of transformation added to the definition of activity links' strength. Due to the level of integration, strong activity links appear to change less easily. In contrast, weak activity links appear easy to dissolve, except when founded on national or international legislation or regulation. The analysis of change also introduced 'direct-like' activity links. These are indirect activity links in which at least one of the parties experiences their aim to be fulfilled and utility to be created in the same way as if they had been linking directly. Finally, after discussing the differences between the four categories of transformation, and revealing how to change from one category of transformation to another, it was of interest to analyse which actors are able to perform a preferred establishment, alternation or elimination of a category of transformation. Only the business actors and consumers involved in the current section of the activity network at a particular time can change its category. The initiating actors will first consider what they can do to their activities, before looking at what the other involved business actors can do to their activities to bring about the preferred change. The latter may involve consumers' influencing the business actors' activities. As far as weak sections of an activity network are concerned, the dominating actors can influence a change. In contrast, changes in strong activity links need business actors or consumers to act collectively to become sufficiently dominant.

The third part of this chapter analysed the effects the five elements of transformation have on the activity linking. The elements may either strengthen or weaken each other. Each element consists of a number of dimensions, which are tightly connected and in general act in the same direction. As a result, both the elements and their dimensions create certain effects on the categories of transformation. As the category of transformation determines which actors are able to influence a change, the

effects between the elements and each of their dimensions also affect which actors are able to influence changes in the categories of transformation. The elements affect which actors are able to make a change, as well as the category change itself. In the following final chapter, the theoretical and empirical implications of these findings will be discussed.

Chapter 9

Implications and Final Remarks

”Veni, vidi, vici.”
Julius Caesar

9.1 Introduction

This chapter summarizes the main theoretical and managerial implications of the thesis. The research problem of this thesis has been:

> *How can consumers be considered in the Industrial Network literature via the activity layer?*

By including consumers in the 'activity links' concept of the Industrial Network literature, this study represents a reinterpretation of that concept. The question that remains is what has the IMP group and the industry learned by including consumers in this way?

Below, the theoretical implications of including consumers' activities are approached first. This involves suggesting definitions of directness and strength of activity links between business actors and consumers. Variations in these aspects constitute the four categories of transformation. The first section will also introduce a three-step process of categorizing activity links. The aim is to show how the categories of transformation can teach us about what the 'activity links' concept is. The next question to be answered is; so what? This section will highlight the main differences that the inclusion of consumers and the four categories of transformation make to the Industrial Network literature. Thereafter, the following section will discuss the managerial implications, suggesting how business actors and consumers can use the three-step process of categorizing activity links. Finally, this chapter concludes by suggesting further research.

9.2 The 'Activity Links' Concept

The first sub-section below will look at how this study has contributed to the current view of the 'activity links' concept in the Industrial Network literature. It will illustrate how the change from a business-to-business to a business-to-business-to-consumer perspective creates the distinction between direct, indirect, strong and weak activity links. Combined in a matrix, these four aspects make up four categories of transformation. The second sub-section will look at how these categories of transformation contribute to the understanding of the 'activity links' concept and the consideration of consumers in the Industrial Network literature.

9.2.1 Directness and Strength

From raw material to a meaningful product in the hands of consumers, transformation is performed through activity links. A selected section of a product's transformation can be categorized into one of four groups, depending on its activity links' strength and directness. A sequential activity chain is dominated by either direct or indirect activity links, whilst itself being part of an either strong or weak area of sequential activity chains.

Direct and Indirect Activity Links
Every activity links with a number of other activities, as the transformation of a product is always performed by more than one party. Whether the actors and their linked activities are few or many, there is a certain division of work between the business actors and the consumers. Therefore, one cannot explain a single activity "in isolation from others to which it is connected" (Håkansson et al., 2009:39; Johanson and Mattsson, 1992).

The current Industrial Network literature distinguishes between dyadic and serial activity links. An activity link is dyadic when a supplier and a customer adjust their activities to each other. This makes the activities in a network form chains of activity links between actors present together in time and place. Furthermore, these chains of activity links are serial, which implies "a predetermined order of activities, e.g. that activity A has to be completed before activity B can be started" (Håkansson et al., 2009:105). All business actors link their activities with both those of their supplier(s) and their customer(s), and "a specific activity cannot be performed until another one has been completed" (Håkansson et al., 2009:105). As a result of that, the serial activities must be performed in a particular order, which requires that the activity linking actors are contemporary to a certain degree.

The current Industrial Network literature takes a business-to-business perspective, by limiting the (dyadic) activity links to business actors' activities performed in a sequential order (serial). There has been no fundamental research including consumers, and only a few sporadic studies (e.g. Sörhammar, 2008; Sörhammar and Hadjikhani, 2008) have expanded their limits to include activity links between consumers and the retailer-level and their suppliers. The Consumer Behaviour literature, however, takes a business-to-consumer perspective. It is one body of literature, among those in the field of Marketing, which focuses on activity links between consumers and the business actors in physical contact with them, which are primarily those at a retail-level. There are sporadic exceptions of studies that include retailers' suppliers' activities as well (e.g. Wind and Rangaswamy, 2001). In this thesis, consumers' activities and their activity links with business actors'

activities were taken from the Consumer Behaviour literature and applied to the Industrial Network literature.

Despite their differences, both the business-to-business and the business-to-consumer perspectives limit their focus to activity links between actors that are next to each other in the network. Taken together, they constitute a business-to-business-to-consumer perspective. Including consumers' activities from the Consumer Behaviour literature creates potential for direct activity links between consumers' and business actors' activities within the Industrial Network literature. The analysis of the case study came up with a definition of *direct activity links*; when the business actors and the consumers are physically present together in time and place, and no intermediary is involved.

An activity is not restricted to link with just one or two other activities. Furthermore, the activities are sequential, which may give rise to activity chains of various lengths. Or as Gadde and Ford put it; "every actor is connected to other actors, vertically, horizontally, diagonally and in all other possible directions" (Gadde and Ford, 2008:47). Consequently, business actors' activities may also adjust to the activities of consumers who are not in their physical presence.

The current Industrial Network literature defines joint activity links as "when two activities become dependent because both are related to a third activity, such as the physical delivery activities of two suppliers in relation to the same buyer" (Håkansson et al., 2009:105). This definition of indirect activity links is, however, limited. Firstly, it comprises only activities such as "ideas, solutions and technologies to travel across several actor boundaries" (Håkansson et al., 2009:39). Secondly, the third party is limited to those in "the classic role of distributors, such as wholesalers and export-import agents, and financial intermediaries, such as brokers" (Håkansson et al., 2009:39).

The case study showed how both everyday activities and intermediaries of equal 'importance' to a product's transformation are involved in indirect activity links. The latter included activity links between business actors and consumers. So *activities link indirectly* when the business actors and the consumers are not present together in time and space, i.e. when at least one intermediary is involved.

The analysis of the case study introduced 'direct-like' activity links, as well. Such links occur when business actors and consumers link their activities indirectly, but at least one of the parties experience their aim to be fulfilled and utility to be created as if they were linking directly. This could, for

example, involve a machine or an information leaflet rather than a human being present in time and place with the consumers.

The current Industrial Network literature does not include consumers and is therefore limited to 'vertical' direct activity links and 'horizontal' indirect activity links between business actors. The case study reported here has added 'vertical' indirect activity links. The term 'vertical' is used here as a reference to actors in customer-supplier positions. With regard to Gadde and Ford's (2008) 'diagonal' activity links, those are a combination of the presented 'vertical' and 'horizontal' links.

Strong and Weak Activity Links

A sequential chain of direct and / or indirect activity links can vary in degree of linking. An activity is not restricted to linking with just one or two other activities, as "any activity is part of many activity chains" (Håkansson et al., 2009:97). These constitute areas of sequential activity chains, in a section of the activity network – for example, the section of origin-tracing related activities or the section of size-categorizing related activities. Consequently, direct or indirect activity links are part of an either strong or weak section of the activity network, represented by an area of sequential activity chains. The complexity of the various activity chains' degree of linking, sections of the activity network's degree of linking, and thereby the whole activity network in which the product is transformed, makes the distinction between weak and strong activity links. As a result, an actor linking or considering whether to link activities "must limit its commitments, both *to whom* it wants to be related to and how *strong* that commitment should be" (Mattsson, 2000:157).

But what are the definitions of 'weak' and 'strong'? From the existing literature I identified three diverse definitions of strength. These are that the activity links' strength is based on (i) the balance in influence and adjustments between the involved actors, (ii) the number of linked activities, and (iii) the activity links' level of integration. The analysis of the current literature indicated how the three presented definitions of activity links' strength have both certain overlaps and differences.

The number of actors involved in an activity chain varies, as "[c]ompanies can exploit the division of labour in a more extensive way through seeking and accepting dependence on others" (Håkansson et al., 2009:42). Therefore, when choosing one definition as a starting point for the search for an overall definition, the choice fell on the total amount of linked activities in an activity chain, which is decisive to its strength. Here, activity links were considered strong when each of the actors links activities from two or

more of their activity categories, and considered weak when only one or two of the actors' activity categories were involved.

The analysis of the case study shows how the three definitions of the literature concur. Thus '*strong*' linking is defined as when equally involved business actors and consumers perform many complementing and specialized activities. Strong sections of activity networks seem characterized by business actors who have taken the opportunity to distinguish their activities from those of others. Strongly linked activities must be specialized to some extent. The involved actors' activity structures are "fine-tuned" (Håkansson et al., 2009:115) and "systematically and tightly linked" (ibid., 2009:33; Richardson 1972; Gadde and Snehota, 2000; Gadde and Ford, 2008) in relation to each other, which makes linking possible only "with other individualized activities" (Håkansson et al., 2009:113). Based on this and the actors' equal involvement, influencing changes appears to become less easy. Neither of the actors can easily influence nor impose changes, except when one of the parties becomes sufficiently dominant through acting collectively.

'*Weak*' linking, on the other hand, is defined as involving few and general activities, the performance of which is dominated by either the business actors or the consumers. But; what if, for example, "[t]he justification of the middleman rests on specialized skill in a variety of activities" (Alderson, 1954:14)? Would not that specialization be an indication of strength? If, however, the specialization lay only with the intermediary and not the other actors' activities, the activity links would still be weak. Adding actors' activities because of the existing actors' shortcomings does not necessarily strengthen an area of sequential activity chains, even if the number of involved actors and maybe even the number of linked activities increases. Weak sections of activity networks consequently seem to be plain and minimized or not fully exploited. Weak activity links do not stand out in comparison to those of other areas of sequential activity chains. Furthermore, the more dominant one party is, the weaker the links are. Weak activity links seem much easier to dissolve than strong activity links, as the dominating party is in position to influence a change. Some weak activity links represent exceptions, however, as they are founded on national and international legislation and regulations.

The distinction between 'strong' and 'weak' activity links contributes to the current Industrial Network literature. According to it, an activity link is strong "when two activities are adjusted in relation to each other" (Håkansson et al., 2009:105). It does not seem to consider one-way influence and adjustment as a full activity link. The involved actors have to influence each others' activities and adjust to those of each other. Based on

this perspective, the two-way influence and adjustment would have to cover both strong and weak activity links. There is, however, no indication of anything to support this view in the case study. Rather, it supports the view that an activity link based on one-way influence and adjustment should be considered 'weak', as that involves domination by the one influencing. The more dominant one of the actors' activities are through its influence, the weaker the activity links. The involved actors' equal participation in strong activity links refers to them performing close to the same amount of linked activities, and / or neither of them deciding more than the other what the product will become like (e.g. Czepiel, 1990).

This thesis has studied activity links with a short-term aspect. The current literature distinguishes between those of a long-term aspect and those of a short-term aspect (Håkansson, 1982). The short-term perspective focuses on everyday activities, while the long-term perspective concerns development processes that build on history or plan for the future. The case study illustrated how short-term activity links both affect and are affected by those of a long-term aspect, as the "history will impact on [the actors'] options, attitudes and behaviour" (Håkansson et al., 2009:35). The next sub-section will illustrate how the distinction between direct, indirect, strong and weak activity links with a short-term aspect can be applied as a tool to analyse past, present or potential future activity links, and thereby affect the long-term perspective.

9.2.2 The Process of Categorizing

Sequential activity chains consists of activities that are either directly or indirectly linked, and are themselves part of an either strong or weak section of an activity network. These differing aspects create the four categories of transformation. The case study suggested a three-step process to make use of the opportunities this typology of activity links presents. Together, these steps will illuminate how the business actors' activities adjust to the influence of consumers' activities.

1st Step: Current Category of Transformation
For an actor to understand how to use the latent opportunities in a particular activity, the actor has first to understand the link or links in which the particular activity is currently involved. All activities are linked with at least one other, as no activity exists to itself alone. The activity links of an actor may be both strengthened and weakened by the actor's other activities' links (Hadjikhani and Thilenius, 2009).

Based on the typology, an actor can work out which category of transformation any of its activities belongs to. A two-step process deduced from the current Industrial Network literature is used to do this. Firstly, the actors that are involved must be identified. The case study illustrated how this would clarify the activity links' directness. Secondly, it must be established what activities are linked in the transformation of that particular product. The case study referred to this as deciding the activity links' strength.

Through carrying out these two steps, an actor becomes aware of its position in the network. With that knowledge an actor can decide to keep the particular activity / activities within the current category of transformation, or to change that category of transformation. The actor may, alternatively, decide to eliminate the activity links, or to establish activity links within a new area.

2nd Step: Possible Changes to the Category of Transformation

After identifying in which category a product is currently transformed through linking activities, an actor may, for various reasons, wish to change the current category of transformation for another. Then it becomes of interest to look at how these links might be eliminated or changed, or how new links may be established. Which of the other four categories of transformation would the actor in question prefer to be in? Probably one in which the activity links' benefits are "more substantial than the costs" (Gadde and Håkansson, 2006:180). Each of the business actors and consumers has a number of optional links and changes they can make to their activities. It should be made clear that there is no single type of activity link that can be generally considered the best (Gadde and Snehota, 2000). Mapping out the opportunities in creating, eliminating and altering an activity link is performed through a similar two-step process, this time, however, based on the outline of the previous one.

According to the current Industrial Network literature, it must first be "determine[d] what activities are needed to create a particular outcome, such as an end product" (Håkansson et al., 2009:100). What does the actor wish to achieve? Which activities are required to achieve it? The first step concerns the activity links' strength. As the type of activity links vary with the actors' presence together in time and place, the question of degree of linking is a question that concerns time and place across the frames of the particular section of the activity network. In other words, the degree of linking depends on whether an activity occurs in the particular section of the activity network or not.

Secondly, optional changes in the activity links' directness must be considered. Who would be required to perform the activities it would take to obtain the actor's preferred category of transformation? Business actors initiating changes must have the consumers' activities in mind, and vice versa, as both parties' aims must remain fulfilled and utility be created for their activities to stay linked. As this is a question of an activity links' type, it is a question of the actors' presence in time and place, within the frames of the particular section of the activity network.

The actors' awareness of an activity's category of transformation is of central importance. Basically, any changes in the established activities "are likely to require adjustments in the activity links" (Dubois, 1995:61), as "changes of one activity will impact on other activities" (Håkansson et al, 2009:104) and thereby can change the whole activity network (Håkansson and Snehota, 1989). Are not chain reactions in the nature of activity networks? Not necessarily so. Firstly, activities that are neither directly nor indirectly linked will not adjust. They are part of a different activity network, or at least a different section of the activity network in question. Secondly, changes in weak activity links may not change the whole activity network. The change's domino-effect may be limited to the dominating actors' activities, and have no bearing on the other party to which the activity link(s) in question may be of almost no importance. There are, however, exceptions that can be imagined, such as the famous story of the flapping butterfly's wings in China causing a storm in the Barents Sea. Maybe the difference between chain reactions caused by strong activity links and those caused by weak activity links, is in the length of time it takes before their consequences show?

Changes are harder to make to strong activity links, so when they are made, they make an impact. When many actors, each with many activities, which are highly integrated, choose to 'get stuck' in an area of sequential activity chains, it is because doing so has advantages. Strong activity links "have substantial economic effects on the actors involved" (Håkansson et al., 2009:33; Gadde and Snehota, 2000). As an already strong section of the activity network grows stronger and stronger, it becomes harder and harder for outsiders to influence a change or to join in. However, at a certain point, when the involved actors and activities have become numerous enough and integrated enough, the specialist nature of the particular section of the activity network will become the ordinary. It will not be special any more, as it has become dominating and commonplace. The bubble having burst, new specializations and complementation are established within the area of activity links, which has developed into being the whole activity network. At that point, the previously weak activity links may become a new strong activity section, being no longer general or most common. Of course that

does, however, depend on what that area of sequential activity links actually does perform. It may be of such little interest that it just vanishes, or stays as an agreeable alternative to those becoming the new strong activity sections.

This knowledge of how to change categories can also be used to make forecasts that analyse potential consequences of alternative scenarios or preferred changes. Likewise, such knowledge can be used when looking back at past behaviour. For instance, the ability to analyse various products' transformations, activity links and changes of categories, makes it easier to understand and complete historical statistics.

3rd Step: Who to Make or Influence that Change

After categorising and mapping out possible changes, it is interesting to know who is in a position to perform or influence the preferred change. What activities (at least in the case of 'strong' activities), which actors, and how they can be utilized cannot be decided by one actor in isolation. It requires the involvement of all the business actors and consumers that are linking activities in that section of the activity network at the time of the change.

The first step would be for the actor who wants the change to question what can be done to its own activities to influence that change. Only those already participating in the selected section of the activity network can make a change to it (e.g. Alderson, 1957:212), which will include both the involved business actors and consumers. Consequently, the actors that are able to influence or perform a change will vary with the area in question.

Secondly, the actor wishing for a change must question what the other actors of the selected section of the activity network can do to their activities to bring about that change. The other actors may, of course, be motivated by very different and even contradictory purposes (e.g. Oudshoorn and Pinch, 2003 versus Cermak and File, 1994). Therefore, it must be considered whether their potential new utility would be equal to, greater than or less than what they currently have. The other actors may not be willing to contribute to the change of category unless it would lead to increased utility for them. In order for them to contribute to a change of category, it must be expected that the counterparts would also like the costs of changing to be less than the advantages they gain from it. For example, if the counterparts prefer stable and solid activity links, they cannot be expected to participate in weakening or eliminating them. If the consumers are aiming for a change, it may involve influencing the business actors' activities.

There may be situations where a third party - an actor not currently involved - has an interest in influencing a particular change. In that case it will have

to negotiate, ask or put pressure on one or all of those involved to make that change. It may, however, transpire that a particular involved actor is impossible to influence. In such cases, there might be an option to influence someone else, a fourth party (who may also be uninvolved in the section of activity network), to influence the one that needs to be swayed to get the change performed. If the change involves enough money and is of a big enough interest to the party, the chain of who, to influence who, to influence etc. in order to get the right actor (who is in the position to make the change) to actually make that change, can be very long. The process of obtaining a preferred network position may have to be performed stepwise over a long period of time.

9.3 Differences to Business Actors and Consumers when Consumers are included in the Activity layer

The previous section illustrated how a business-to-business-to-consumer perspective creates four categories of transformation. In addition, it presented a three-step process of categorizing to use this typology's opportunities. This section will illustrate what difference this makes to the various actors involved.

9.3.1 Consumers

As far as consumers are concerned, their inclusion will give rise to an understanding of the way that they affect the activity links between consumers and retailers - i.e. a business-to-consumer perspective within the Industrial Network literature. This is when activities link directly. The existing literature is limited to activity links between business actors in a business-to-business perspective. Including consumers also allows an understanding of how they affect the activity links between business actors, i.e. a business-to-business-to-consumer perspective within the Industrial Network literature. The case study illustrates how consumers can affect business actors' activities both directly and indirectly within sequential activity chains of the network.

Areas of sequential activity chains can vary in degree of linking. As actors within the network, consumers can influence a change in these sections of activity networks. Consumers are able to change weak and direct activity links, and weak and indirect activity links. They can influence such changes through a consumers' association or through individual or collective behaviour, i.e. when many or all raise the same request for change. Collective behaviour can also change strong sections of activity networks.

Whether the consumers want change, and if so what changes they prefer, depends on fulfilling their aims of increasing or easing their use. Sometimes however, the consumers would prefer not to perform an activity, but the cost of business actors performing it for them would be too high for them to gain utility. Therefore the consumers have no choice but to perform the activity if they want to retain the outcome of that activity links.

Consumers' awareness of their activities' linking with (all) business actors' activities may enable them to avoid performing activities with too great a cost in comparison to the benefits that would result from fulfilling their aims. This is especially the case when business actors could perform a comparable activity at a lower cost. Unnecessary lock-in effects can be eliminated, efficiency can be increased and the consumers can avoid being taken advantage of.

9.3.2 Retailers

For retailers, the inclusion of consumers will allow an understanding of what affects the activity links between retailers and consumers – again, a business-to-consumer perspective within the Industrial Network literature. It will also give retailers an awareness of how consumers are affecting them. This is when activities link directly. Including consumers, however, also allows an understanding of how they affect the activity links between retailers and other business actors. Furthermore, within this business-to-business-to-consumer perspective, retailers would themselves be able to affect consumers' activities indirectly, through their linking with, for example, their suppliers' activities. In that case, retailers would function as an intermediary between consumers and other business actors, whilst still being both affected by, and able to affect, their linking. The fact that consumers influence and are influenced by activity links between retailers and other business actors, can however, cause various effects, which it may be advantageous to consider.

Sections of these sequential chains of direct and / or indirect activity links can vary in degree of linking. Basically, retailers are able to change direct and weak activity links. The retailers' positions as the dominating, directly linking actors, when combined with an extensive market share, can however, enable them to also influence 'strong' changes. Their position can, for example, be further strengthened by adding activity links. Alternatively, such a position can be abused by refusing to perform an activity even when they are the actors of the network with least cost connected to its performance. The success of an area of sequential activity chains depends of

the success of all its actors. Consequently, if one actor undermines it, resulting in unexploited activity links, the section may be jeopardised.

A fuller understanding of consumers' participation in the activity network makes retailers aware of influences in activities' linking. Whether influencing changes in weak or strong activity links, the aims and utility of all the involved consumers and business actors must be remembered, as they are all dependent on each other for the efficiency of their activity network. For example, locking-in others will eventually have negative consequences, due to the ability of the consumers (amongst others) to affect retailers.

9.3.3 Secondary and Primary Processors

This section deals with both secondary and primary processors. This is due to the general character of this presentation, and because both secondary and primary processors mostly link activities indirectly with those of consumers. As they are not present together with the consumers in time and place, will the inclusion of the consumers make any difference to the secondary and primary processors?

By including consumers, the effects of secondary and primary processors' activities would not end at the retailers. A heightened awareness of the network's extended boundaries would increase these processors' understanding of consumers' influence and their own ability to adapt to it. Through a business-to-business-to-consumer perspective, these processors' activities would also affect consumers' activities. Furthermore, understanding consumers' participation entails the awareness of the consumers' activities' effects on the activities between these processors and their suppliers and others, and vice versa. These are all indirect activity links. There is, however, no reason for all their activities to only link indirectly with consumers' activities via retailers or other intermediaries. The inclusion of consumers also enables an understanding of the possibility to create direct-like activity links with consumers.

Areas of sequential activity chains with these indirect or direct-like activity links vary in degree of linking. The secondary and primary processors are most likely to perform changes in weak sections. For example, the case study illustrated how some of their indirectly linked activities arise from legislation. These they can use and take advantage of, as they present an opportunity to be developed further, rather than being ignored or treated with indifference.

When these processors are very small, however, they do not individually have clear opportunities to influence changes. Then an organization such as EFF or SUROFI can represent them, opening up the possibility of also altering or eliminating strong activity links. With many of their members having different motives and purposes, however, these organizations must necessarily work on a general level, to avoid anyone being unfairly disadvantaged. In order to specialize and create strong activity links, the processors can use a trade body / governmental organization to keep informed by getting a (continuous) overview and then consider any opportunities that this reveals.

Participating in an efficient, strong section of a network with a minimum of intermediaries has both competitive advantages, and potentially trap-like lock-in effects. Selling or buying nearly everything to / from one actor creates the opportunity to maximize the specialization of the product transformation to that one actor's activities. If things start to go wrong however, for example, as a result of one party's tendency to dominate, or larger changes in the activity network in general etc., then very strong activity links are inflexible and not easy to sway. The substantial economy involved (Håkansson et al., 2009; Gadde and Snehota, 2000) will cause severe effects.

In theory, there are no limitations to the number of possible intermediaries, which could result in actors being unaware of their activities' links' existence. These links might have positive unexploited opportunities or "detrimental effects" (Håkansson et al., 2009:112). Having an overview of their own activity network is taking responsibility, and they can use their trade organization to get it. Having secondary processors and / or retailers as intermediaries in all sequential activity chains can prove to be more expensive than would be preferred. Direct-like activity links is an option to prevent, for example, retailers from using a dominant market share - and their direct linking with consumers - to 'choose' certain activity chain structures for themselves. Thereby, this is an example of how these processors can shift the network's balance of power through a change in the activity network.

9.3.4 Cod Stock Manager

The cod stock manager is in a position of setting some of the fundamental frameworks of the network through regulation and control. What differences would it make to the cod stock manager to consider activity links with consumers?

Through its position as legislator and controller, direct activity links are not a natural option. An exception is the possibility of direct-like activity links, for example, to inform consumers. Its activities do, however, link indirectly with those of consumers. The extension of the border of the activity network makes the cod stock manager aware that their regulations and controlling not only link with primary processors and secondary processors, but also indirectly with the consumers' activities. The activities of the cod stock manager do affect consumers' activities, and, maybe not so obviously, the consumers' activities affect those of the cod stock manager. Awareness of the network's extended boundaries would increase the cod stock manager's understanding of this interdependence, which a business-to-business-to-consumer perspective necessitates.

Areas of sequential activity chains containing these indirect links can vary in degree of linking. Whether a section of the activity network is 'strong' or 'weak', the cod stock manager is in a position to change it. Regulating access to the raw material to keep it viable for the future, may not be popular at the present neither with wither business actors or consumers, as it reduces the current access, but at the same time it secures the availability of raw material in the future.

The inclusion of consumers in the activity network makes a difference to the cod stock manager. It gets a better overview of the network and its opportunities in it. For example, direct-like activity links can sometimes be a more efficient alternative to legislation, as potentially 'disobedient' business actors may be more likely to act in accordance with consumers' activities.

9.4 Managerial Implications: using the Process of Categorizing

The thesis has shed light on the complexity of the activity links between business actors and consumers during the transformation of a product all the way from the sea to the table. This section discusses its managerial implications, focusing on the three-step process of categorizing activity links and suggesting how the actors can use the opportunities that this presents.

1st Step: Current Category of Transformation
An actor may for various reasons wish to survey the situation of a section of the activity network. Concerning a particular activity or activities of the current actor, what is the actor's position in the section? The actor must

identify in which category of transformation the particular activity or activities belong.

It could, for example, be a retail chain cutting bacalhau. The first question for the retail chain to answer is: what other actors are involved? The second question to answer is: what activities does the section of the activity network containing the bacalhau cutting consist of? The consumers used to perform the cutting activity. Now the product is cut for them if they ask, which makes it easier for them to transport it to their houses, store it and prepare it. So the retail chain surveying the situation of its cutting activity can conclude that it is a direct but weak activity link, involving only activities of itself and the consumers.

To map out an activity's or activities' current category of transformation, the particular business actors or consumers must take a step back and view the activity or activities in question in a broader perspective. This should not be limited to the suppliers and customers they relate to on a regular basis, but also the others that are potentially involved in the particular section of the activity network. Getting the best possible overview is important if this knowledge is to form the basis for improving the efficiency of this section of the activity network.

2nd Step: Possible Changes to the Category of Transformation

Whether it is obvious that a section of the activity network has potential for improving or not, it could be both interesting and wise to map out possible changes. Actually, I would advise mapping out possible changes and considering them as a continuous process to all the actors of an activity network. Only by knowing its activity network and its own position in it, and through actively participating in shaping demand, can a business actor take responsibility for its own situation and secure its future. When the most visible changes have been made, there will still be a continuing number of minor changes that can be made to increase efficiency.

Having decided to make an optional change, the actor mapping it out and considering it must check whether it is realistic or not. Let us continue using the bacalhau cutting as an example. The retail chain could consider which other actors could perform this activity. With such a change they could sell their cutting equipment and use that space in the stores for something else. Furthermore, salary costs would be reduced, as staff would no longer spend time cutting or cleaning afterwards. Current evidence shows that the consumers prefer the business actors to do the cutting for them, so it if the retail chain would rather not do it, what about the secondary processors? Consequently the retail chain might map out an optional moving of the cutting activity (weak) to the secondary processors (indirect).

The next question is whether the secondary processors would be willing to take over the cutting activity. In the current example, if the secondary processors are not interested in making that change, the retail chain would be locked-in to the current activity structure of offering the cutting service itself, as the consumers might otherwise choose to purchase their bacalhau from a competitor instead.

Basically, any changes in the established activities can change the whole activity network. Therefore, it is (i) important that the actors know what they are doing when changing an activity. This requires knowing the activity network very well, so as to be aware of the obvious and less obvious effects that change will have. Furthermore, it is (ii) important for an actor to be aware of what is going on when someone else changes their activities. This requires knowing what effects changes elsewhere in the activity network will have, and being able to cope with them.

3rd Step: Who to Make or Influence that Change
In the current bacalhau cutting example, the retail chain wants the secondary processor(s) to take over an activity. To influence that, and thereby bring about the change, the retail chain could, for example, agree to pay more for the ready cut bacalhau, or assist the financing of the secondary processor(s)'s cutting machine.

9.5 Further Research

There are several avenues for further research. The first and most obvious is to extend the existing study by including empirical data obtained directly from consumers. This could be undertaken via surveys or focus groups, for example. This should result in a more empirically balanced picture of the different perspectives of business actors and consumers in terms of the necessary and possible activity adjustments. The respondents could then, for example, be questioned about their control of resources and activities, their aims of gaining knowledge, and the situation last time they - in whatever way and to whatever degree - participated in planning, purchasing, storing, preparing, and devouring bacalhau at home. Such a study could be further strengthened by including in-depth interviews. Distributing a questionnaire, and finding participating households and interpreters, the contacts that I established in Portugal during the work of this thesis could be used. Secondly, future work that shifts the activity boundary to include consumers could involve studying different product types and different industries. Overall, I suggest that the inclusion of consumers in the Industrial Network literature is central.

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”Life is not a child’s play, but playing in life is important.”
Arne Ness

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Appendix I

Activity Links in Consumer Behaviour literature

A Chronological Review of a sample of definitions of, and statements about, the link between producers' and consumers' activities in the Consumer Behaviour literature.

Year and Author(s)	Nature of Study	Definitions and Statements
(1857/1973) K. Marx	Conceptual	"…taking in food…, which is a form of consumption, the human being produces his own body…" (chap.1)
(1979) C.H.Lovelock and R.F.Young	Conceptual	"consumers can do some of the work themselves, replacing all or part of that previously done by the service employee" (p.169)
(1981) A.Toffler	Conceptual	Prosumers are "people who are beginning to perform for themselves services hitherto performed for them" (p.267)
(1981) I. Illich	Conceptual	"…form of unpaid work which an industrial society demands as a necessary complement to the production of goods and services." (p.100)
(1981) E.Langeard, J.E.G.Bateson, C.H.Lovelock and P.Eiglier	Empirical	"consumers […] do some of the work themselves rather than having service personnel do it for them" (p.25)
(1982) P.K. Mills and D.J. Moberg	Conceptual	Customers "perform tasks for themselves which otherwise would require the use of service providers" (p.470)
(1983) P.K.Mills, R.B.Chase and N.Margulies	Conceptual	"the client / customer, who perhaps can be even more often induced to do more in the transaction" (p.302)
(1984) M. de Certeau	Conceptual	"…between the person (who uses them) and these products (…), there is a gap of varying proportions opened by the use that he makes of them." (p.32)
(1985)	Empirical	"the switching of consumers from the more

J.E.G.Bateson		traditional forms of service to the self-service options" (p.49)
(1985) J.A.Fitzsimmons	Conceptual	Consumers "must adjust the timing of their demand to match the availability of service" (p.62)
(1986) P.K.Mills and J.H.Morris	Conceptual	"clients are performing complex activities in the rendering of their own services" (p.62)
(1986) P.Kotler	Conceptual	Prosumers are "people who produce some of the goods and services entering their own consumption" (p.510)
(1988) C.Goodwin	Conceptual	"As service consumers contribute to service production or quality improvement, they take on characteristics of employees" (p.72)
(1990) J.A.Czepiel	Conceptual	"tailoring the service to meet the exact needs of the client […] requires […] that the client 'open up' to the firm concerning his or her problems and goals" (p.16)
(1990) J.Bowen	Empirical	Consumers have differing "expectations and differences in the meaning of 'participating in the creation of a service' "(p.46)
(1990) M.R.Bowers, C.L.Martin and A.Luker	Conceptual	"Because consumers are involved in the production of their service, they are often partially responsible for the quality of the service provided" (p.61)
(1990) S.W.Kelley, J.H Donnelly jr. and S.J.Skinner	Conceptual	"Contributions of customer technical quality can range form labor performed by the customer to information provided by the customer" (p.317)
(1990) P.A.Dabholkar	Conceptual	" 'customer participation' refers to the degree to which the customer is involved in producing and delivering the service" (p.484)
(1993) D.Fodness, B.E.Pitegoff and E.T.Sautter	Conceptual	"Consumer cooption occurs when a service firm's customer decides to 'produce' for him or herself the service previously purchased from the service provider" (p.18)
(1993) Firat and Venkatesh	Conceptual	"…very much a social act where symbolic meanings, social codes, and relationships, in effect, [where] the consumer's identity and self, are produced and reproduced" (p.235)
(1993) J.H.Song and C.R.Adams	Conceptual	"In participation, customer's efforts are a part of the inputs for the products" (p.11)
(1994) D.S.P.Cermak,	Empirical	The "simultaneity of production and demand means that the buyer of the service

K.M.File and Prince		participates in the specification and delivery of the service as it is being performed" (p.90)
1995, A.F.Firat and A.Venkatesh	Conceptual	"During the moment that is called consumption in modern (economic) literature, the products are acting on the individual to produce a certain type of human being" (p.254)
1995, A.F.Firat, N.Dholakia and A.Venkatesh	Conceptual	"In customizing oneself to (re)present marketable (self)images, the consumer is interacting with other objects in the market to *produce* oneself, to purposefully position oneself" (p.52)
(1995) G.T.M.Hult and B.A.Lukas	Conceptual	"it is essential that the patients participate in the decision-making process" (p.42)
(1995) S. Wikström	Conceptual	"…I define co-production as buyer-seller social interaction and adaptability with a view to attaining further value" (p.10)
(1996) C.A.Lengnick-Hall	Conceptual	"Two customer roles are at the input, or upstream, side of organizational activity: the customer as resource and the customer as co-producer" (p.796).
(1998) W.F.van Raaij, W.Fred and T.H.Pruyn	Conceptual	"A service is a joint action of the service provider and the customer" (p.812)
(2000) C.K.Prahalad and V.Ramaswamy	Conceptual	"The market has become a forum in which consumers play an active role in creating and competing for value" (p.80)
(2001) J.Wind and A.Rangaswamy	Empirical	"Customerization sees the customer as an active participant at every stage of the product development, purchase, and consumption process, and as the co-producer of the product and service offering" (p.13-14)
(2001) K.M.Ekström, M.P.Ekström, V.Miguonov, M.Potapova and H.Shanahan	Empirical	" use values as opposed to exchange values for sale and profit in the market" (p.28)
(2003) N.Bendapudi and R.P.Leone	Empirical	"when we refer to participation, we mean the joint production of outcomes", which "is a situation in which both the customer and the

		firm's contact employees interact and participate in the production" (p.15)
(2004) S.L.Vargo and R.F.Lusch	Conceptual	"production is an intermediary process. … in using a product, the customer is continuing the marketing, consumption, and value-creation and delivery process" (p.11)
(2004) C.K. Prahalad and V. Ramaswamy	Conceptual	"…, the joint efforts of the consumer and the firm … are *co-creating* value through *personalized experiences* that are unique to each individual consumer." (p.x)
(2005) C. Xie	Empirical	"…food prosumption, more specifically, meal preparation at home." (p.31)
(2006) S.L.Vargo and R.F.Lusch	Conceptual	"Customers are active participants in relational exchanges and co-production" (p.11)

Appendix II

Conducted in-depth Interviews

(*) not recorded.

Interviewee	Activity	Time and Place	Language	Duration	Interviewer
Ship owner/ skipper of longliner	Primary processing	20th Dec. 2005, Ålesund	Norwegian	2 hours	S.E. Haugnes
Ship owner/ skipper of longliner	Primary processing	20th Dec. 2005, Ålesund	Norwegian	2 hours	S.E. Haugnes
Ship owner/ skipper of longliner	Primary processing	20th Dec. 2005, Ålesund	Norwegian	2 hours	S.E. Haugnes
Ship owner/ skipper of trawler	Primary processing	8th March 2006, Ålesund	Norwegian	2 ½ hours	S.E. Haugnes
Ship owner/ skipper of trawler	Primary processing	9th March 2006, Ålesund	Norwegian	7 hours	S.E. Haugnes
Skipper of trawler	Primary processing	9th March 2006, Ålesund	Norwegian	1 hour	S.E. Haugnes
Skipper of trawler	Primary processing	9th March 2006, Ålesund	Norwegian	1 hour	S.E. Haugnes
Assistant director	Secondary processing	9th March 2006, Ålesund	Norwegian	2 hours	S.E. Haugnes

Owner/ Marketing manager	Secondary processing	21st Dec. 2005, Ålesund	Norwegian	2 + 1 + 1 hours	S.E. Haugnes
Managing Director	Secondary processing	20th Dec. 2005, Ålesund	Norwegian	2 hours	S.E. Haugnes
Sales Manager	Secondary processing	19th Dec. 2005, Ålesund	Norwegian	c. 1 hour	S.E. Haugnes
Owner/ Director	Secondary processing	10thMarch 2006, Ålesund	Norwegian	3 hours	S.E. Haugnes
Quality Manager	Secondary processing	11th Dec. 2002, Ålesund	Norwegian	(*)	S.E. Haugnes, A. Følgesvold, H. Raabe
Director & president	Secondary processing	10th March 2006, Ålesund	Norwegian	2 hours	S.E. Haugnes
President	Secondary processing	19th Dec. 2005, Ålesund	Norwegian	1 hour	S.E. Haugnes
Production manager	Secondary processing	8th March 2006, Ålesund	Norwegian	2 hours	S.E. Haugnes
Managing Director	Exporting	20th Dec. 2005, Ålesund	Norwegian	(*)	S.E. Haugnes
Owner & owner	Broking	10thMarch 2006, Ålesund	Norwegian	2 hours	S.E. Haugnes
Owner/ manager	Importing	5th Oct 2005, Lisbon	Norwegian	(*)	F. Prenkert

Owner	Agent	11th Oct. 2005, Porto	English	1 ½ + (*) hours	F. Prenkert & A. Følgesvold
Owner	Agent	30thMarch 2006, Lisbon	English	3 hours	S.E. Haugnes
Owner	Importing and wholesaling	10th Oct. 2005, Maia	Portuguese	(*)	F. Prenkert & H. Raabe
Quality manager	Whole-saling	10th Oct. 2005, Vila Nova de Famaliçao	English	(*)	F. Prenkert & H. Raabe
Owner	Importing and wholesaling	11th Oct. 2005, Lisbon	Portuguese	(*)	H. Håkansson
General manager	Secondary processing	10th Oct. 2005, Trofa	English	(*)	F. Prenkert
Owner	Whole-saling	11th Oct. 2005, Alfena	Portuguese	2 hours	S.E. Haugnes & H. Raabe
Production Manager	Secondary processing	6th Oct. 2005, Gafanha da Nazaré	English	(*)	F. Prenkert
Marketing director & President/ owner & Finance director & Import director	Secondary processing	7th Oct. 2005, Gafanha da Nazaré	Portuguese	3 ½ + 4 hours	S.E. Haugnes & A. Følgesvold
Owner & manager	Secondary processing	10th Oct. 2005, Gafanha da Nazaré	English & Portuguese	2 ½ hours	S.E. Haugnes & A. Følgesvold

Owner	Secondary processing	10th Oct. 2005, Gafanha da Nazaré	Portuguese & English	c. 1 hour	S.E. Haugnes & A. Følgesvold
Manager	Secondary processing	30thMarch 2006, Torres Vedras	English	4 hours	S.E. Haugnes
Manager	Secondary processing	31stMarch 2006, Gafanha da Nazaré	English	c. 1 hour	S.E. Haugnes
Import manager & owner	Secondary processing	11th Oct. 2005, Mafra	Portuguese	½ hour	S. Cantillon
Wholesaler	Distributing	10th Oct. 2005,	English	(*)	S. Cantillon
Owner	Inde-pendent Super-market	6th Oct. 2005, Porto	Portuguese	1 hour	S.E. Haugnes
Bacalhau chief buyer	Inde-pendent Super-market	6th Oct. 2005, Porto	Portuguese	½ hour	S.E. Haugnes
Marketing director	Retail chain	7th Oct. 2005, Lisbon	English	(*)	S. Cantillon & A. Følgesvold
Marketing director	Retail chain	6th Oct. 2005, Porto	English	1 ½ hours	S.E. Haugnes
Manager	Retail chain	10th Oct. 2005, Alcanena	Portuguese	(*)	H. Håkansson
Bacalhau chief buyer	Retail chain	12th Oct. 2005, Santarém	English	(*)	F. Prenkert & A. Følgesvold
Marketing	The	6th Oct.	Norwegian	2 + 3 ½	S. Cantillon &

Manager	Norwegian Seafood Export Council	2005, Lisbon		hours	H. Håkansson
Marketing Manager - & two Account Executives	The Norwegian Seafood Export Council & TNS Euroteste	13th Oct. 2005, Lisbon	English & Norwegian	3 hours	S.E. Haugnes & H. Raabe
Marketing Manager	The Norwegian Fishermen's Sales Organi-sation	Dec. 2006, phone interview	Norwegian	1 ½ hours	S.E. Haugnes
Sales Manager	SUROFI	20th Dec. 2005, Ålesund	Norwegian	(*)	S.E. Haugnes
Secretary & Project Manager & Department Head	Norwegian Seafood Federation	21st Dec. 2005, Ålesund	Norwegian	(*) + (*)	S.E. Haugnes

Appendix III

NewMark's Interview Guide

SECTION 2 and 3

2. CUSTOMER SECTION

Data Collection Interview Guide **Customer side.** 2005-04-14

Customer areas *only* are marked grey.
Common areas are unmarked.

Area of Inquiry	Company 1	Company 2	Company 3	Company 4	Company 5
1. General info	1. Name & Nationality 2. Volume/value/rank (tonnes or NOK p.a. or no.) & Change in rank (from no. – to no.) 3. Customer since (year/no. of years)				
2. Product/ Resource	1. Type 2. Type supplied to next level 3. Why sell to this customer? 4. Importance to customer				
3. Contact	1. In the other organisation 2. Importance of contact person 3. With end users				

4. Technological Development	1. Adaptation to customers' technology 2. Customers' adaptation to **your** technology 3. Joint development efforts 4. Adaptation to end users using technology
5. Relationship	1. This customers' main problems/concerns/complaints with you as a supplier 2. Level of quality of and complaints about products delivered to this customer 3. Your main problems/concerns with this customer 4. Information exchange with this customer
6. Industry	1. Trade associations' and other NGO's roles for this customer 2. Trade associations' and other NGO's roles for end users 3. Special regulations in relation to this customer 4. Special regulations in relation to end users

Example questions customer section

Grey shaded areas pertain to the customer side only. Areas common to both customer side and supplier side are unmarked.

We must explain to the informant that by "end-user" and "consumer" we refer to private people consuming the final/end product. And that by 'end-product' we mean the product as it is sold to the consumer.

Section 1: General Information

1:2.

- How many of the current top 5 customers were among your top 5 customers:
  - -1 year ago?
  - -3 years ago?
  - -5 years ago?
- Why has this changed/remained stable?

Section 2: Product:

2:1.

- Could you please describe the products/resources you supply to this customer?
- How are they using this (these) product(s)?
- Are any of your products adapted to the equipment or production facilities used by this customer?
- How?
- On whose initiative?

2:2.

- What are the products that your customer supplies to *their* customers?
- Who are "the typical/average" users of the final product? [E.g., active, health freak, educated, lazy, gourmet, age, sex, family situation, social class…]
- Which skills and activities are needed from the consumer to use the final product?
- How do the consumer use the final product?

(2:3. Supplier side questions. Omitted here.)

2:4.

- Why do you sell your products to this customer?
- Is the customer a "good" customer?
- Do you learn anything from selling to this customer?

2:5.

- What is the importance of your products to the customer?
- Are your products critical in the customers' production process?

Section 3: Contact:

3:1.

- Concerning this customer, with whom (individuals, departments etc) do you have contact?
- How often?

3:2.

- How important is the purchasing agent that you deal with at the customer?
- Would you follow this person if he/she left for a competing supplier?
- What type of contract(s) do you have with this customer?
    - Partnership/Strategic, Agreement/Long-term, Contract/Short-term, Contract/Spot?
    - Time period?
    - What elements would be fixed in the contract period? (Volume, price, etc…)
    - Who decides/has the most impact on the type of contract? (You/Customer/Other?)

3:3.

- Do you have any contacts with end-users (consumers)?
- How? For example, participating in performing market research?
- Direct or indirect contact? Co-operating with anyone in doing this?
- How often?

Section 4: Technological Development:

4:1

- Have you made special adaptations to your products to accommodate requirements from this customer?
- How? In what way? Which adaptations?

- On whose initiative? *[Any actor in the industrial network can be mentioned here, including consumers.]*
- Are any **earlier adaptations** to your products restricting new solutions to technological problems of this customer?
- How? In what way? Which adaptations?
- Have you made special adaptations in your production facilities to suit any of the customer's facilities?
- How are these adaptations made?
- On whose initiative?
- Are there certain parts of your facilities that are adapted or all of it?
- Are any **earlier adaptations** in your facilities restricting new solutions to technological problems of this customer?
- How? In what way? Which adaptations?

4:2.

- Has this customer made special adaptations to its products to accommodate requirements from you?
- How? In what way? Which adaptations?
- On whose initiative?
- Are any **earlier adaptations** in this customer's products restricting new solutions to its technological problems?
- How? In what way? Which adaptations?
- Has this customer made special adaptations in its production facilities to suit any of your facilities?
- How are these adaptations made?
- On whose initiative?
- Are any **earlier adaptations** in this customer's facilities restricting new solutions to its technological problems?
- How? In what way? Which adaptations?

4:3.

- Have you had any joint development projects with this customer? – Describe!
- Are you carrying out any product development with this customer? – Describe!
- Have there been any special problems that you have solved together earlier (or currently) – Describe!

4:4.

- Have you made special adaptations in your production facilities to suit end-user's demands?

- If yes, would it be towards existing consumers, or to enter a new segment of the consumer market?
- How are these adaptations made?
- On whose initiative? Why?
- What equipment does the consumer need to use the final product? [Stove, microwave oven, fridge, food-processor, freezer, special pots and pans, …etc.]

Section 5: Relationship

5:1.

- What are the main concerns that this customer expresses?
- What are the main problems that this customer has?
- What is the current "headache"?
- What are this customer's usual complaints?
- What do you think this customer finds most demanding about you as a supplier?
- Why?

5:2.

- How many complaints on products delivered have you got from this customer? Per month, year, ever?
- What was the reason for the last complaint?
- What was the outcome/how was the problem resolved?
- Were you happy about the way it was resolved?
- Was it costly?

5:3.

- What are **your** problems in relation to this customer?
- What is costly?
- What draws heavily upon your resources? (For example staff, financial, knowledge, competence etc.)

5:4.

- What kind of information exchange do you have with this customer?
- How often is information exchanged?
- Between whom? Departments, individuals, business units, etc…)
- To what extent do you share information with this customer about:
    - Market conditions?
    - Changes in industry?
- To what extent does your customer function as an important source of information? If so: What type of information? Has this changed over the last 3 years?

- Are any of your customers important in terms of influencing other actors? If so: In what ways?
- Do you feel that you have the information you need?
- Do you use any IT-support for exchange of information?

Section 6: Industry

6:1.

- What role do industry trade associations play for you in relation to this customer?
- Have you ever used the services of such agencies in relation to this customer?

6:2.

- What role do industry trade associations play for you in relation to end-users (consumers)?
- Have you ever used the services of such agencies in relation to end-users (consumers)?

6:3.

- What industry regulations affect you in relation to this customer?
- What national government regulations affect you in relation to this customer?
- Are there any non-governmental organisation (NGO) regulations that affect you in relation to this customer?
- Which? How?
- How do you handle it?

6:4.

- What industry regulations affect you in relation to end-users (consumers)?
- What national government regulations affect you in relation to end-users (consumers)?
- Are there any non-governmental organisation (NGO) regulations that affect you in relation to end-users (consumers)?
- Which? How?
- How do you handle it

3. SUPPLIER SECTION

Data Collection Interview Guide **Supplier side.** 2005-04-14

Supplier areas *only* are marked grey.
Common areas are unmarked.

Area of Inquiry	Company 1	Company 2	Company 3	Company 4	Company 5
1. General info	1. Name & Nationality 2. Volume/value/rank (tonnes or NOK p.a. or no.) & Change in rank (from no. – to no.) 3. Supplier since (year/no. of years)				
2. Product/ Resource	1. Type 2. Type purchased from earlier level 3. Why buy from this supplier? 4. Importance to supplier				
3.Contact	1. In the supplier organisation 2. Importance of contact person				
4. Technological Development	1. Adaptation to suppliers' technology 2. Suppliers' adaptation to **your** technology 3. Joint development efforts				

5. Relationship	1. This suppliers' main problems/concerns/complaints with you as a customer 2. Level of quality of and complaints on products delivered from this supplier 3. Your main problems/concerns with this supplier 4. Information exchange with this supplier
6. Industry	1. Trade associations' and other NGO's roles for this supplier 3. Special regulations in relation to this supplier 5. Regulatory impact on supplier structure and concentration 6. Regulatory impact on your relationship with this supplier 7. Regulatory impact on sourcing strategy

Example questions supplier section

Grey shaded areas pertain to the supplier side only. Areas common to both customer side and supplier side are unmarked.

Section 1: General Information

1:2.

- How many of the current top 5 suppliers were among your top 5 suppliers:
  - 1 year ago?
  - 3 years ago?
  - 5 years ago?
- Why has this changed/remained stable?

Section 2: Product:

2:1.

- Could you please describe the product/resources this supplier delivers to you?
- How are you using this (these) product(s)?
- Are any of these products adapted to the equipment or production facilities you use?
- How?
- On whose initiative?

(2:2. Customer side questions. Omitted here.)

2:3.

- What kind of products/resources is your supplier buying from *its* suppliers?
- In what way does the nature and character of the products supplied to your supplier affect you in your production?

2:4.

- Why do you buy products from this supplier?
- Is the supplier a "good" supplier?
- Do you learn anything from buying from this supplier?

2:5.

- What is the importance of your products to the customer?
- Are the products you buy from this supplier critical in your production process?
- How much of the total output of these resources from this supplier do you purchase?

Section 3: Contact and contract

3:1.

- Concerning this supplier, with whom (individuals, departments etc) do you have contact?
- How often?

3:2.

- How important is the salesperson you deal with at the supplier?
- Would you follow this person if he/she left for a competing supplier?
- What type of contract(s) do you have with this supplier?
    - Partnership/Strategic; Agreement/Long-term; Contract/Short-term: Contract/Spot?
    - Time period?
    - What elements would be fixed in the contract period? (Volume, price…)
- Who decides/has the most impact on the type of contract? (You/Supplier/Other?)

Section 4: Technological Development

4:1.

- Have you made special adaptations to your products to accommodate requirements from this supplier?
- How? In what way? Which adaptations?
- On whose initiative? *[Any actor in the industrial network can be mentioned here, including consumers.]*
- Are any **earlier adaptations** to your products restricting new solutions to technological problems of this supplier?
- How? In what way? Which adaptations?
- Have you made special adaptations in your production facilities to suit any of the supplier's facilities?
- How are these adaptations made?
- On whose initiative?
- Are there certain parts of your facilities that are adapted or all of it?
- Are any **earlier adaptations** in your facilities restricting new solutions to technological problems of this supplier?
- How? In what way? Which adaptations?

4:2.

- Has this supplier made special adaptations to its products to accommodate requirements from you?

- How? In what way? Which adaptations?
- On whose initiative?
- Are any **earlier adaptations** in the supplier's products restricting new solutions to its technological problems?
- How? In what way? Which adaptations?
- Has this supplier made special adaptations in its production facilities to suit any of your facilities? (Production/Logistics etc.)?
- How are these adaptations made?
- On whose initiative?
- Are any **earlier adaptations** in this supplier's facilities restricting new solutions to its technological problems?
- How? In what way? Which adaptations?

4:3.

- Have you had any joint development projects with this customer? – Describe!
- Are you carrying out any product development with this customer? – Describe!
- Have there been any special problems that you have solved together earlier (or currently) – Describe!

(4:4. Customer side questions. Omitted here.)

Section 5: Relationship

5:1.

- What are the main concerns that this supplier expresses?
- What are the main problems that this supplier has?
- What is its current "headache"?
- What are this supplier's usual complaints?
- What do you think this supplier finds most demanding about you as a customer?
- Why?

5:2.

- How often have you had reason to complain to this supplier? Per month, year, ever?
- What was the reason for your last complaint to this supplier?
- What was the outcome/how was the problem resolved?
- Were you happy about the way it was resolved?
- Was it costly?

5:3.

- What are **your** problems in relation to this customer?
- What is costly?
- What draws heavily upon your resources? (For example staff, financial, knowledge, competence etc.)

5:4.

- What kind of information exchange do you have with this supplier?
- How often is information exchanged?
- Between whom? Departments, individuals, business units, etc…)
- To what extent do you share information with this supplier about:
    - Market conditions?
    - Changes in industry?
- To what extent do your suppliers function as an important source of information? If so: What type of information? Has this changed over the last 3 years?
- Are any of your suppliers important in terms of influencing other actors? If so: In what ways?
- Do you feel that you have the information you need?
- Do you use any IT-support for exchange of information?

Section 6: Industry

6:1.

- What role do industry trade associations play for you in relation to this supplier?
- Have you ever used the services of such agencies in relation to this supplier?

(6:2. Customer side questions. Omitted here.)

6:3.

- What industry regulations affect you in relation to this supplier?
- What national government regulations affect you in relation to this supplier?
- Are there any non-governmental organization (NGO) regulations that affect you in relation to this supplier?
- Which? How?
- How do you handle it?
- Had industry regulations an impact on your choice of this supplier of its resources/products?
- If so, why and in what way?

(6:4. Customer side questions. Omitted here.)

6:5.

- Do industry regulations have an impact on the number of suppliers of the products/resources this supplier supplies you with?

6:6.

- Do industry regulations have an impact on how you relate to this supplier?
- Do industry regulations have an impact on the possibilities of developing the relationship with this suppliers?

6:7.

- Does the impact of regulations differ according to the supplier's country of origin, type of product etc.?
- How many other suppliers do you have of the most important resource you buy from this supplier? (None, one, some, many)
- How many of your competitors buy from the same suppliers as you?

Appendix IV

UN's definition of IUU Fishing

The Food and Agriculture Organization of the United Nations' Plan of Action on Illegal, Unreported and Unregulated (IUU fishing) describes the term IUU in detail. IUU fishing comprises all activities that would come under one or more of these categories:

"Article 3 of the Plan of Action states as follows below.

Illegal fishing refers to fishing activities

- conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;

- conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.

Unreported fishing refers to fishing activities

- which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations;

- or undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

Unregulated fishing refers to fishing activities

- in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization;

- or, in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law. IUU." (www.fisheries.no, 2006b)

Appendix V

Decreto-Lei n.˚25/2005's Categories of Humidity and Salt Content

Decreto-Lei n.˚25/2005's four categories of bacalhau based on humidity and salt content (my translation):

> Bacalhau salgado verde: cut, headed, gutted and peeled cod containing from 51 to 58 per cent of water and 16 per cent or higher salt content is to be named salt fish (Decreto-Lei n.˚25/2005:Artigo 3.˚ a).
>
> Bacalhau salgado semi-seco: cut, headed, gutted, peeled and washed cod containing from 47 to 51 per cent of water, and 16 per cent or higher salt content is to be named semi-dry bacalhau (Decreto-Lei n.˚25/2005:Artigo 3.˚ b).
>
> Bacalhau salgado seco: cut, headed, gutted, peeled and washed cod containing 47 per cent or less water and 16 per cent or higher salt content is to be named well dried bacalhau (Decreto-Lei n.˚25/2005:Artigo 3.˚ c).
>
> Bacalhau salgado seco: cut, headed, gutted, peeled and washed cod containing 45 per cent or less water, salt content less than 16 per cent but not less than 12 per cent, and that has a golden color is to be named golden bacalhau (Decreto-Lei n.˚25/2005:Artigo 3.˚ d).

Appendix VI

The Traditional Categories of Humidity

The traditional classification system of cod-based bacalhau dryness used by Norwegian secondary processors (sources: [1)] the three informants with the longest experience; [2)] Giskeødegård and Nesvik, 2006:118):

Category	Water content [1)]	Water content [2)]
Extra Curing Extra Dried (kavringtørr, kongotørr)	32 - 33 %	30 - 33 %
Extra Curing (kassetørr)	34 - 37 %	33 - 35 %
Usual Curing Extra Dried (ekstra lagertørr)	max 38 %	36 - 38 %
Usual Curing (lagertørr)	38 - 40 %	36 - 38 %
Dried for Shipment (skipningstørr)	41 - 43 %	43 %
7/8 Cure	44 - 47 %	45 %
¾ Cure	46 - 48 %	48 %
Soft Cure	48 - 50 %	52 - 54 %

A handful of the eldest and most experienced Norwegian informants explained how this old scale was originally based on Usual Curing. For instance, 7/8 Cure was 7/8 of Usual Curing and ¾ Cure was ¾ of Usual Curing.

Appendix VII

Examples Prices of Fish Caught using different Types of Fishing gear

The table illustrates the average price (NOK / kg) of headed and gutted cod, according to the type of fishing gear used. The prices are from the Norwegian Fishermen's Sales Organisation for 2005.

2005	Fishing gear	1 – 2.5 kg	Over 2.5 kg
Fresh	Net	15.55 NOK	19.42 NOK
	Line	17.09 NOK	19.87 NOK
	Traps	16.67 NOK	22.24 NOK
	Mini-trawl (Snurrevad)	17.25 NOK	20.27 NOK
	Hook (/ fishing line)	15.57 NOK	18.80 NOK
	Other	15.85 NOK	19.39 NOK
	Longline	19.61 NOK	22.85 NOK
	Trawl	17.19 NOK	19.75 NOK
Frozen	Longline	22.14 NOK	24.87 NOK
	Trawl	19.71 NOK	22.66 NOK