



Market orientation in the mental models of decision-makers: two cross-border value chains

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Review

Market orientation in the mental models of decision makers: Two cross-border value chains

Abstract

Purpose: This study determines whether predictions about different degrees of market orientation in two cross-border value chains also appear in the mental models of decision makers at two levels of these value chains.

Design: The laddering method elicits mental models of actors in two value chains: Norwegian salmon exported to Japan and Danish pork exported to Japan. The analysis of the mental models centers on potential overlap and linkages between actors in the value chain, including elements in the mental models that may relate to the actors' market orientation.

Findings: In both value chains, decision makers exhibit overlap in their views of what drives their business. The pork chain appears dominated by a focus on efficiency, technology, and quality control, though it also acknowledges communication as important. The salmon chain places more emphasis on new product development and good relations between chain partners.

Research limitations/implications: While confirming prior results regarding the role of competitive pressure, end-user heterogeneity/dynamism, regulations, and trade associations, the results also generate new insights into the possible role of relational governance in promoting the market orientation of value chains.

Originality: This article offers three novel ideas: using the concept of mental models as a possible mediator between factors that influence the degree of market orientation and market-oriented activity; using a laddering method to elicit mental models; and considering concepts shared among actors in a value chain as possible indicators of the degree of market orientation.

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3 Market orientation, commonly defined as the generation of market intelligence, its dissemination
4 within the business organization, and its use to direct business activities (Kohli and Jaworski,
5 1990), can drive superior company performance in various contexts and industries (Cano et al.,
6 2004), including exporting manufacturers (Cadogan et al., 2003; Racela et al., 2007). Research on
7 market orientation also investigates external factors that may influence the degree of market-
8 oriented activities undertaken by an organization, including competitive pressures, market
9 growth, and the heterogeneity of customers served (e.g., Avlonitis and Gounaris, 1999; Cadogan
10 et al., 2003; Grunert et al., 2005; Jaworski and Kohli, 1993; Slater and Narver, 1994). But what is
11 the mechanism by which such factors work? They must influence managerial decision making
12 that selects market-oriented activities as salient courses of action.
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27 Mental models might provide a means to analyze the extent to which manager's view
28 customer-related or environmental factors as determinants of competitive advantage (Day and
29 Nedungadi, 1994). This research extends such reasoning to external factors that may affect the
30 degree of market orientation through their impact on decision makers. That is, when decision
31 makers perceive market-oriented factors as decisive for the success of their business, they engage
32 in market-oriented activity. Therefore, we consider the link between the organizational construct
33 of market orientation and individual-level market-oriented cognitions, similar to recent
34 contributions regarding individual-level market orientations (Celuch et al., 2000; Schlosser and
35 McNaughton, 2007), the role of national culture in affecting the link between organizational
36 factors and market orientation (Kirca and Hult, in press), and the global adoption of the
37 marketing concept (Nakata, 2000). We also consider recent work in institutional theory that deals
38 with environmental pressures and their appearance in managers' mental models (Daniels et al.,
39 2002).
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3 We attempt to clarify how such external factors affect organizations that form dyads in
4 international value chains, because value chains, rather than individual companies, increasingly
5 offer a more appropriate level of analysis for studies of competitive rivalry (Ketchen and Hult,
6 2007). Efforts to extend the market orientation concept to the value chain level fall into two
7 classes. The first, exemplified by Siguaw, Simpson, and Baker's research (Baker et al., 1999;
8 Siguaw et al., 1997; Simpson et al., 1999), investigates whether the degree of market orientation
9 of one company affects the degree of market orientation in subsequent stages of the value chain.
10 The second, as exemplified by Grunert and colleagues (Grunert et al., 2002, 2005), considers how
11 the entire chain jointly serves an end-user market, thus defining a value chain's market
12 orientation as the extent to which the members of the chain generate intelligence about end users,
13 disseminate this intelligence throughout the chain, and respond with coordinated actions. This
14 stream of research also proposes various factors that may affect a chain's market orientation,
15 including competitive pressures, end-user heterogeneity and dynamism, trust and commitment in
16 chain relations, whether the chains are short and balanced, regulations, and the presence of
17 market-oriented trade associations.

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19 We build on this stream and investigate whether and how such factors affect the mental
20 models of decision makers in international value chains. To explain these links, we draw on
21 institutional and relational governance theories. Specifically, different actors in a value chain may
22 adopt unique perspectives on the factors that affect the success both of their own business and the
23 value chain as a whole, especially in cross-border value chains, in which actors cooperate but are
24 physically or mentally far away from one another. Recent work by McFarland and colleagues
25 (2008) indicates that imitative behavior, which increases strategic alignment within an industry,
26 also appears in consecutive dyads in a supply chain. Thus, different perceptions of market
27 orientation may constrain the level of market orientation of the chains as a whole and damage its

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3 competitiveness. Alignment, which refers to whether the interests of the value chain members are
4 consistent, may affect the competitiveness of a value chain (Ketchen and Hult, 2007; Lee, 2004).
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8 The remainder of this article is structured as follows: We first expand on the concept of
9 market orientation in value chains and discuss factors that may have an impact on the degree of
10 market orientation. Next, we discuss the concept of mental models and propose a specific type
11 that may be useful for our analysis of the role of market orientation. Two cross-border value
12 chain cases suggest some predictions about their degree of market orientation, so we conduct an
13 empirical investigation of the mental models of the decision makers in these two chains, using
14 interviews with a reverse laddering procedure. We compare the insights with our predictions; the
15 results offer new perspectives on the role of market orientation in cross-border value chains.
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26 **Theoretical approach**

27 *Market orientation of value chains*

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29 Kohli and Jaworski (1990) define market orientation as the organization-wide generation of
30 market intelligence pertaining to current and future customer needs, the dissemination of that
31 intelligence across departments, and organization-wide responsiveness to it. However, following
32 Grunert and colleagues (2002), we extend this definition to the value chain level by defining the
33 market orientation of a value chain as chain members' generation of intelligence pertaining to
34 current and future end user needs, dissemination of this intelligence across chain members, and
35 chain-wide responsiveness to it. Intelligence generation refers to the sum of activities by all chain
36 members focused on gaining information about end users, who typically are consumers. The
37 dissemination step includes all exchanges of information about end users between and among the
38 chain members. Finally, responsiveness refers to the actions of the chain members to create
39 superior value for the end users. These market-oriented activities do not need to be evenly
40 distributed across the chain; for example, the downstream retailer might be responsible for all
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3 intelligence generation, whereas the responsiveness activities could concentrate entirely upstream
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5 with the primary production member. Only dissemination must involve all members of the chain.
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8 Building on previous research and case studies, Grunert and colleagues (2005) propose
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10 five groups of factors that may influence the degree of market orientation in a value chain.
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12 *Heterogeneity and dynamism of end-user markets.* Greater heterogeneity and dynamism
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14 results in improved payoffs from a market orientation, because the ability to tailor offerings more
15
16 exactly to different consumer groups and their changing wants increases benefits.
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19 *Chain configuration.* Governance structures with strong, long-term links between chain
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21 members, especially upstream, facilitate information exchanges and create trust and commitment.
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23 These factors can induce market-oriented activities, especially the upstream dissemination of
24
25 end-user information and upstream responsiveness to end-user heterogeneity. Trust and
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27 commitment create openness, which enhances information exchange and reduces hold-up
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29 problems that can prevent upstream chain members from engaging in differentiation activities
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31 that require segregation and traceability.
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36 *Regulations.* Regulations may make upstream, market-oriented product differentiation
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38 more difficult, especially in international chains, whose transactions often are regulated by
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40 quotas, minimum price arrangements, and so on.
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43 *Competitive pressures.* Differences between the levels of market orientation often relate
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45 to differences in the competitive pressures experienced by those chains. Competitive pressure
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47 appears to determine the degree of market orientation at the organizational level (e.g., Avlonitis
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49 and Gounaris, 1999), and it may extend to the level of value chains.
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53 *Trade associations.* Trade associations (and similar agents) may have a role in not only
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55 the generation of market intelligence but also the formation of mental models for an entire
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3 industry. The extent to which trade associations think and act in market-oriented ways thus may
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5 influence the degree of market orientation of the whole chain.
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8 Despite case study evidence of the importance of these factors, as well as research support
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10 with regard to the determinants of market orientation at the organizational level, the theoretical
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12 mechanisms by which these factors exert influences on value chains remain unclear. We propose
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14 that institutional theory (Delbridge and Edwards, 2007; DiMaggio and Powell, 1983; Meyer and
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16 Rowan, 1977; Oliver, 1988; Scott, 1987) and relational governance theory (Dwyer et al., 1987;
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18 Macauley, 1963; Rindfleisch and Heide, 1997) may provide useful building blocks for
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20 developing a theoretical framework that can explain such links.
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24 Institutional theory refers to how institutional pressures may align organizational
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26 behaviors and strategies across an industry, as well as among actors in vertical supply chains
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28 (Brito, 2001; McFarland et al., 2008). Because market-oriented activity offers a means to deal
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30 with competitive pressures and end-user dynamism and heterogeneity, mimetic pressure on the
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32 members of a supply chain may increase (or decrease) the levels of market orientation in value
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34 chains that face higher or lower levels of such external factors. Regulation similarly can exert
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36 coercive and trade associations can apply normative pressures that may alter the levels of market
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38 orientation. Chain configuration is a unique case, in that it does not exert pressures to determine
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40 isomorphic organizational behavior but rather is an outcome variable that can be affected by
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42 other factors (Joshi and Campbell, 2003).
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48 Research into the effects of customer dynamism and competitive pressure on relational
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50 governance has not produced clear-cut results (Rindfleisch and Heide, 1997; Sutcliffe and
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52 Zaheer, 1998), though this relationship may be contingent on the knowledge of the partners and
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54 their willingness to share this knowledge (Joshi and Campbell, 2003). The link between chain
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56 configuration and market orientation may thus be interdependent: Relational governance
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3 facilitates the exchange of information and the coordinated responsiveness to changing customer
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5 demands that market orientation requires, but responding to dynamic customers and competitive
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7 pressure by being more market oriented also may create a greater willingness to share
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9 information and coordinate actions in the value chain, which in turn furthers relational
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11 governance. Determinants of relational governance in cross-border value chains have been
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13 analyzed (e.g., Roath et al., 2002; Roath and Sinkovics, 2006; Zhang et al., 2003), though never
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15 from a market orientation perspective.
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19 We apply these theoretical arguments to two value chain cases and thereby derive
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21 predictions about the chains' likely level of market orientation. In this way, we determine
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23 whether higher expected levels of market orientation may be reflected in the mental models of
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25 decision makers in these chains.
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28 29 *Mental models*

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31 Mental models, central concepts in research on organizational cognition (Huff, 1990) and
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33 sensemaking (Weick, 1995), represent decision makers' theories-in-use, in effect, their views
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35 about which factors influence the success of their business activities. Mental models of business
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37 success provide subjective counterparts of various attempts to identify the actual success factors
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39 of a market (Grunert and Ellegaard, 1993; Sousa de Vasconcellos e Sá and Hambrick, 1989). In
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41 an international context, they also are subjective counterparts of export success factors (Kamath
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43 et al., 1987). Specifically, mental models frame the perception and interpretation of incoming
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45 information and guide decision makers' behavior, including their market-oriented activities.
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50 We assume that mental models mediate external factors that inhibit or encourage market
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52 orientation, such that these external factors influence the extent of market-oriented activities only
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54 to the extent that they increase the prominence of market-oriented issues in the mental models of
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56 decision makers. Therefore, an assessment of whether differences in external factors actually
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3 appear in the mental models of decision makers provides a useful approach to gain a greater
4 understanding of the determinants of market orientation. This use of the mental model concept
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8 matches previous work in the realm of institutional theory, which evokes them as tools to explain
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11 how institutional pressures may align organizational behavior and strategies (e.g., Daniels et al.,
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13 2002). Likewise, it aligns with relational governance approaches that perceive of relations as sets
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15 of common expectations in the mental models of the relationship partners (Lindenberg, 2003).
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18 One way to analyze mental models uses cognitive maps (Spicer, 1998), or graphical
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20 representations of a person's knowledge domain that indicate both the central concepts
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22 characterizing the domain and the way they interlink in the person's mind. The most common
23
24 method to derive cognitive maps uses the network approach (Fiol and Huff, 1992; Huff, 1990),
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26 because network models are firmly rooted in research in cognitive psychology (for basic theory,
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28 see Anderson, 1983, Grunert, 1994; Norman and Rumelhart, 1975). A network model depicts
29
30 cognitive structure as a set of nodes and links, in which the nodes represent fragments of
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32 knowledge (i.e., cognitive categories) and the links represent associations between them; these
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34 associations take various forms, including causality. When the links represent causality, the
35
36 models represent causal maps (Bougon et al., 1977).
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41 Another popular approach for deriving and analyzing causal maps employs personal
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43 construct theory (Kelly, 1955), which assumes that people make sense of the world by
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45 categorizing incoming information into a set of bipolar constructs, which are hierarchically
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47 ordered in terms of abstractness and linked by causality. Thus, a manager may categorize a
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49 production facility according to its efficiency (or as a bipolar construct, inefficient–efficient),
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51 which relates causally to another construct called profitability (unprofitable–profitable). Several
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53 methods can elicit people's personal constructs, as we outline in the Methods section. Personal
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3 construct theory thus appears in a series of studies of managerial causal maps (Eden and
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5 Ackerman, 1992).
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8 Personal construct theory has been developed into means-end theory, which has been used
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10 in a variety of business-related applications. The central construct of means-end theory is the
11
12 means-end chain, a specific building block in mental models that represents a sequence of
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14 cognitive categories, ordered by the level of abstraction and linked by causality. Thus, in the
15
16 preceding example, modern technology → efficiency → profitability exemplifies a means-end
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18 chain. More abstract concepts are the ends, achieved by means of the less abstract concepts.
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20 Some concepts are ultimate ends, in the sense that they cannot be means for achieving something
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22 else.
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27 Where does market orientation appear in such mental models? To answer this question,
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29 we draw upon Day's (1994) distinction of different organizational capabilities as inside-out,
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31 outside-in, and spanning processes, as well as his claim that the capabilities of market-oriented
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33 organizations relate primarily to outside-in and spanning processes. We adopt this argument and,
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35 in our analysis of decision makers' mental models, search for outside-in and spanning processes
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37 as subjective success factors that should lead to overall organizational goals. We depict our
38
39 overall conceptual model in Figure 1.
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43 Figure 1 here
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45 **Two value chain cases**

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47 We select two value chain cases, pertaining to agriculture and fisheries, which we
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49 describe next to derive implications for the degree of market orientation, based on our theoretical
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51 reasoning. International value chains in the fields of agriculture and fisheries are of particular
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53 interest for several reasons. They serve turbulent end-user markets, in which the changing eating
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55 habits of consumers reflect their attempts to reconcile the sometimes conflicting desires for
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3 convenience, healthy eating, high-level gourmet experiences, value, food safety, and reassurance.
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5 These desires have increased fragmentation among not only food consumers but also
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7 consumption situations. Slowly eroding barriers of trade have made the food sector more global,
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9 resulting in greater competitive pressure, especially for smaller players with undifferentiated
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11 offerings. Structural changes in retailing also have changed the power balance in these value
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13 chains. Biological variations in raw material and turbulence in the production environment
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15 (especially for seafood) obfuscate information along the whole value chain. Despite greater
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17 global proximity, considerable cultural differences mark various value chain members.
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22 With these considerations in mind, we select two value chains that bridge European
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24 suppliers and Japanese end-user markets. The first case follows Danish pork to Japanese end
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26 users, and the second follows Norwegian salmon to the Japanese market. Both cases represent
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28 success stories. Furthermore, their structure is quite similar, as we depict in Figure 2.
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32 Figure 2 here
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34 *Danish pork to Japan*

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36 Denmark, the biggest exporter of pork in the world, exports 85% of its total production of 1.85
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38 million tons of pork per year. Japan accounts for 14.9% of Danish export volume but 23.2% of
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40 export value, indicating that Japan is a high value market.
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44 Pork production in Denmark rests firmly in the hands of one major player, Danish Crown,
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46 which accounts for 94% of all slaughters. Danish Crown is a cooperative owned by
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48 approximately 20,000 pig producers. Danish Crown, in turn, owns several processing companies,
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50 in both Denmark and other countries, of which Tulip is the best known. Although only one major
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52 player remains in the Danish market, a strong trade association, the Danish Bacon and Meat
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54 Council, performs tasks related to R&D, sales promotion, disease prevention and control, and
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56 generation of market intelligence. The Danish pork sector thus entails a high degree of
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3 concentration and vertical integration and deals with Japanese counterparts without additional
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5 intermediate agents.
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8 The raw material for products, the Danish pig, is highly homogeneous due to a long
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10 history of breeding and quality control. Pig production follows nationally agreed specifications
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12 for weight, fat content, and so forth, negotiated by the farmers, slaughterhouses, the Danish
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14 Bacon and Meat Council, authorities, retailers, and consumer organizations. Danish farmers are
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16 paid according to their adherence to these specifications, meaning that close compliance with the
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18 product specifications improves their income. Slaughterhouses in Denmark slaughter, debone,
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20 cut, freeze, and pack in bulk the meat for the Japanese market. Danish Crown offers around 200
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22 standard cuts, but for the Japanese market, all cuts are made to specifications, with very tight
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24 margins, such that pigs are chosen to match the cuts and avoid waste. The most common cuts are
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26 belly, loin, pig wing shoulder, calla butt, and tenderloin.
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32 Japanese meat processing is dominated by four major players that account for two-thirds
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34 of all processed pork meat. Downstream, the value chain becomes more dispersed: Processed
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36 meat products find their way to consumers through retailers and a range of food service outlets.
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38 Japanese retailing is much less concentrated than European retailing, due to various legislative
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40 restrictions, which, though recently loosened, have resulted in a fragmented Japanese retail
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42 structure.
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46 Relations between the Danish slaughterhouses and the meat processing companies in
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48 Japan are long-term, some lasting for more than 30 years, which offers a major competitive
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50 advantage for the Danish slaughterhouses, because relationships are very important in the
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52 Japanese business environment. Some Japanese traders and pork meat processors mention buyer
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54 power, but the vast majority of slaughterhouses, traders, and pork meat processors perceive their
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56 relations as evenly balanced.
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3 Japanese eating habits have undergone dramatic changes and expanded far beyond fish
4 and rice, which have been the components for traditional meals throughout the day. After World
5 War II, Japanese cuisine became more international, though fish and rice remain the most
6 common meal components. Pork meat consumption was 17.3 kg per inhabitant in 1999,
7 compared with 60.3 kg in Denmark in 2001. Bacon, sausage, and ham are available for breakfast,
8 and lunch and dinner consumption demands more diverse uses of pork meat. The best selling
9 product is *Tonkatsu*, a special type of pork cutlet that gets breaded and pan fried.
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20 Little domestic rivalry marks the production end of the value chain, because there is only
21 one dominant actor. Internationally, competitive pressure is at a medium level, mainly due to
22 competitors in the United States and Canada. The Danish offerings have a competitive advantage
23 because of their tight adherence to the Japanese product specifications, which other competitors
24 have not been able to achieve.
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31 *Norwegian salmon to Japan*

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34 Norway is the biggest exporter of farmed salmon in the world, exporting 85% of its growing
35 production, which reached 580,000 tons in 2003, up from 410,000 tons in 1998. Exports to Japan
36 accounted for 10% of volume in 2004, down from 15% in 1998. Globally, the market for farmed
37 salmon, which was pioneered by the Norwegians, has increased from nothing to almost 1.2
38 million tons in the 2000s. The Norwegian growth model therefore has prompted imitators in
39 countries such as Chile, the United Kingdom, and Canada, often driven by Norwegian
40 entrepreneurs. Increased global competition in salmon markets has gradually reduced unit
41 prices—in the period 1998–2004, by about 20%. Price decreases have followed reductions in
42 production costs and the emergence of scale economies due to industrial restructuring that
43 combined many small farmers into four or five major production and exporting networks.
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3 Product differentiation at the farm level is very low, because basic salmon products are relatively
4 standard and can be substituted by most suppliers worldwide.
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8 Seafood consumption per capita in Japan has decreased recently, though it remains among
9 the highest in the world: about 66 kg per capita live weight equivalent, compared with 50 kg in
10 Norway in 2003.¹ However, consumption trends are changing, moving away from traditional
11 products such as fishcakes or *kamaboko* to more high-quality, and higher value, products such as
12 sushi and sashimi, which demand species like tuna and fresh salmon. Total exports of Norwegian
13 salmon to Japan grew steadily prior to 2001, but they fell back to the 1998 level in 2004 due to
14 stiff competition from Chile and growing demand from alternative markets for salmon, especially
15 in Russia.
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19 The relations between Norwegian exporters and Japanese importers have developed over
20 time. Their trade relationships feature other fish species, such as mackerel and capelin, as well.
21 Norwegian farmed salmon sold in 94 countries in 2004, though 90% of it goes to just 19 nations.
22 To a large extent, traders are price takers in a global market, which implies that market power
23 between the Norwegian exporters and Japanese importers is balanced. Market power in the fresh
24 salmon market also relates to business relationships, product quality, and just-in-time global
25 delivery; financing and storage capabilities add to market power in the frozen salmon market.
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29 In Table 1, we summarize the two value chain cases, organized according to the five main
30 determinants of the degree of market orientation.
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48 Table 1 here
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50 51 **Methodology**

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53 For each case, we conducted preparatory desk research, using accessible documents and Web
54 sites, and then applied this information to create an overall characterization of each value chain,
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58 ¹See NOAA Fisheries (2003): Fisheries of the United States. <http://www.st.nmfs.gov/st1/fus/fus03/index.html>
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3 including its main actors and governance structure. In the next step, we conducted key informant
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5 interviews with representatives of the producers/exporters and processors/importers.
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8 Various techniques can elicit decision makers' causal maps (Ahmad and Ali, 2003), most
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10 of which are open techniques. The most generic approach to generating cognitive maps involves
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12 concept generation, followed by a structuration stage, in which respondents establish links
13
14 between the concepts generated or provide another form of structure, such as through sorting. We
15
16 adopt a method developed in the context of personal construct theory, which matches our
17
18 theoretical approach. This method, called *laddering*, allows the phases of concept generation and
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20 elicitation of the links between concepts to occur simultaneously.
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24 Laddering originally was developed by Hinkle (1965) in the context of personal construct
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26 theory (although Hinkle did not use the term laddering). Building on work by Kelly (1955),
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28 Hinkle aimed to develop a method that could elicit hierarchical meaning systems in a therapeutic
29
30 context. At the most concrete level, respondents generate a personal meaning construct (e.g., I
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32 prefer active holidays), which becomes the bottom of a ladder. The interviewer then asks "Why?"
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34 or "Why do you prefer active holidays?", which prompts the respondent to generate a second,
35
36 more abstract construct, such as being physically fit as opposed to physically feeble. The second
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38 construct also provokes a "Why?" question, and the process continues until the ladder has
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40 reached a level of abstractness beyond which it is impossible to continue. Laddering appears
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42 widely used in personal construct research (Costigan et al., 2000), as well as research on
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44 knowledge acquisition (Rugg and McGeorge, 1995), organizations (Rugg et al., 2002),
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46 architecture (Honikmann, 1977), and consumers (Reynolds and Gutman, 1988).
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53 We employ a reverse laddering methodology (Bisp et al., 1998; Harmsen and Jensen,
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55 2004), which asks informants to indicate what it takes to achieve success in their business. Their
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57 answers, which are recorded, invoke a second round of questions pertaining to relevant business
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3 activities or competencies that are necessary to achieve these reasons for success. This procedure
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5 repeats in several layers until we attain a comprehensive tree that maps the respondents'
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7 subjective impression of the causal structure that affects their business success.
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10 For the salmon chain, we conducted 10 interviews: 3 with Norwegian
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12 producers/exporters, and 7 with Japanese importers/processors. In the pork chain, we interviewed
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14 12 members: 4 producers/exporters and 8 importers/processors. The salmon interviews were
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16 conducted in Japanese, and the pork interviews were conducted in English and Japanese with the
17
18 help of a translator. This difference in methodology might account for some of the differences in
19
20 data richness encountered for the two sets of interviews.
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24 The laddering technique, with its extensive probing, created some difficulties for the
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26 Japanese informants, who perceived that the interviewer was insisting on talking about topics that
27
28 they already had addressed. This reaction could represent a difficulty for the cross-cultural use of
29
30 this interview technique and may merit further investigation. Some people may consider such
31
32 persistence rude and impertinent, perhaps especially when their native languages pose the
33
34 repetition of commands as a way to infer a lack of clear expression or understanding. Such
35
36 interpretations are unlikely to facilitate the data collection process.
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40 Our analysis of the laddering data follows standard procedures (Grunert et al., 2001). All
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42 the ladders are subjected to a coding procedure, resulting in a limited number of concepts at the
43
44 various levels of abstraction, which in turn provide the input for an implication matrix. The
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46 implication matrix is a symmetrical matrix of all concepts resulting from the coding process, such
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48 that the entries equal the number of times that one concept is identified as implying another
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50 (causal link) across the various ladders. On the basis of the implication matrices, we can derive
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52 hierarchical value maps, which represent the standard method for analyzing laddering data in a
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54 device form by summarizing the most common links between concepts. These maps feature a
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3 cut-off level that indicates the minimum frequency required for links to appear in the map. The
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5 choice of this cut-off level requires a trade-off between the complexity of the resulting map and
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7 information loss. The hierarchical value map also relies on a non-redundancy principle, such that
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9 there is always only one path between two concepts, and longer paths are preferable to shorter
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11 paths (i.e., when there is a link A–B–C, there cannot simultaneously be a link A–C). This analysis
12
13 was done using the MecAnalyst software. The underlying procedures have been described by
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15 Reynolds and Gutman (1988) and Grunert and Grunert (1995).
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19 20 **Results**

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22 In Figures 3 and 4, we reveal the hierarchical value maps for producers/exporters and
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24 importers/processors, respectively, in the salmon value chain. The concepts that are shared by
25
26 both groups of actors are shaded.
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30 Figures 3 and 4 here

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32 Specifically, the following causal chains are common to both groups of actors:

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34 • *Market oriented product development*, which consists of the links range of products–new
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36 product development–customer preference–high perceived customer value.
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40 • *Relationship management*, with the links customer–supplier relationships–network
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42 building–high perceived customer value
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46 • *Quality management*, which contains the link consistent quality–high perceived customer
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48 value
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52 • *Trust management*, with the links build trust and reputation–good relations with trade–
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54 high perceived customer value.
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58 The rest of the maps relate to the determinants of costs, and despite minimal direct
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60 overlap, the two groups of actors seem to agree that a major determinant of lower relative costs

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3 relates to addressing and reducing uncertainty. For processors, this reduction involves using
4 market information to reduce risk, and for producers, they can predict demand and exercise
5 market power.
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10 Outside-in and spanning processes are prominent in both maps, including those parts that
11 overlap. Product development is a classical spanning process (Day, 1994) that links
12 understanding of customer preferences with an understanding of internal capabilities.
13 Relationship and trust management similarly presuppose an understanding of partners as well as
14 an understanding of one's own role in the relationship. Of the four shared chains, only consistent
15 quality is not necessarily a spanning process, because quality parameters might be internally
16 defined and maintained. Although the cost-related chains are not shared across the two groups,
17 both include outside-in elements, namely, market information and ability to predict demand.
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29 We thus conclude that producers/exporters and processors/importers of salmon have
30 mental models that exhibit a high degree of alignment regarding the importance of outside-in and
31 spanning processes, which, as we noted previously, are the best indicators of market orientation.
32 We compare these results to our predictions from Table 1 in the Discussion section.
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38 Figures 5 and 6 depict the hierarchical value maps for producers/exporters and
39 importers/processors, respectively, of pork. These two groups of actors agree about the
40 importance of communication abilities, safety, and modern production technologies for creating
41 higher perceived customer value, though importers/processors perceive a mediation of this
42 relationship by high-quality products. Likewise, they agree about the importance of production
43 skills for achieving lower relative costs. Differences appear in perceptions of what leads to food
44 safety: consistent quality for producers and production skills and modern production technologies
45 for processors. For processors, new product development and control of the value chain also
46 relate to higher perceived customer value. For producers, trade efficiency and the ensuing risk-
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3 handling ability relate to low costs, as does having market information. Again, we relate these
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5 results to our predictions in Table 1 in the following section.
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Figures 5 and 6 here

Compared with the mental models in the salmon chain, outside-in and spanning processes have a much lesser role in the pork chain. Among the concepts shared by both groups of actors, only communication abilities pertain to spanning processes. Modern production technologies, production skills, and safety are all inside-out processes. A few more spanning or outside-in processes appear in the non-shared portions of the maps. For example, product development, a spanning process, appears in the map for importers/processors. Customer–supplier relationships and trading efficiency (spanning processes) and market information (outside-in process) are in the producers/exporters map.

Discussion

The comparison of the two sets of maps reveals pretty clear pictures. The pork chain is dominated by thinking in terms of efficiency, technology, and quality control, though it also perceives communication as important. Decision makers in the pork chain thus identify the success factors for their businesses as mostly inside-out processes. The salmon chain reveals a strong shared emphasis on new product development and good relations among the chain partners. Decision makers in the salmon chain regard the success factors for their businesses mostly in terms of spanning processes.

According to our conceptual model, spanning and outside-in processes in the mental models of decision makers mediate between the external factors and the degree of market-oriented activities. We have characterized the two value chains according to factors that, on the basis of prior literature, should influence their degree of market orientation, and we have formulated some related expectations. Both chains serve end-user markets with high degrees of

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3 homogeneity and dynamism, in which higher degrees of market orientation should lead to greater
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5 rewards. Both chains also exhibit high degrees of trust and commitment in their relationships
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7 between chain members, which facilitates greater market orientation. On the basis of these
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9 considerations, we expected that outside-out and spanning processes would be prominent success
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11 factors in the mental models of all decision makers. But we found this trend in the salmon chain
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13 only, not in the pork chain.
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17 We therefore concentrate on those factors for which the chains differ. Regulations
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19 affecting the pork chain (especially self-regulation by Danish pig producers) appear to favor
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21 efficiency rather than market orientation, but otherwise, the main difference in Table 1 refers to
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23 competitive pressures. Those in the salmon chain are much greater than those in the pork chain,
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25 partly because salmon is a generic product, whereas Danish pork products exported to Japan can
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27 be differentiated according to customer wants. Higher competitive pressure may correlate with
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29 higher degrees of market orientation; is this explanation sufficient?
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34 At first glance, it may seem paradoxical that a chain delivering a generic product under
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36 high competitive pressures should be more market oriented than a chain delivering a
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38 differentiated product, because successful differentiation presupposes some customer
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40 understanding. Yet our analysis of the mental models of decision makers seems to suggest this
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42 very situation. The answer emerges from our observation that the pork value chain is a “split”
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44 chain; that is, the differentiation of pork products depends on product specifications obtained
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46 from direct customers, which flow freely because of the trust and commitment between the
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48 producers/exporters and importers/processors. Maintaining these good relationships and
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50 producing products according to specifications are therefore the key success factors in the minds
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52 of decision makers. They do not regard insight into Japanese end users as necessary; the trade
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54 association does not even attempt to collect market intelligence about Japanese end users. This
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3 knowledge, to the extent that it exists, remains with the Japanese members of the value chain.
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5 Thus, the new product development spanning process appears in the map created by Japanese
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7 importers/processors but not in the map that depicts the mental models of the Danish
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9 producers/exporters.
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13 The salmon chain suffers more competitive pressure, because it supplies a generic
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15 product, and increased efficiencies have been eaten up by falling prices on world markets.
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17 Therefore, it may be reasonable that decision makers consider organizational capabilities, related
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19 to outside-in and spanning processes, more important, because they could allow them to move
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21 away from the generic product and supply differentiated offerings that are better adapted to
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23 heterogeneous and changing end-user demands. A generic product in a highly competitive market
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25 may increase the prevalence of market-oriented capabilities in decision makers' mental models,
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27 whereas a competitive advantage based on differentiation does not need to rely on an end-user-
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29 oriented market orientation if the value chain is split.
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33 34 **Perspectives and limitations**

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36 With this research, we attempt to promote three novel ideas. First, we suggest the use of mental
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38 models as possible mediators between factors that reportedly influence the degree of market
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40 orientation and actual market-oriented activity. Second, we propose the use of the laddering
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42 method to elicit mental maps. Third, we investigate concepts shared among actors in a value
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44 chain to determine whether they might indicate the degree of market orientation in that chain.
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49 This first pilot study demands caution in interpreting the results. However, we offer some
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51 general propositions that might guide further research in this area. In line with previous research,
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53 we retain the proposition that competitive pressure and end-user heterogeneity and dynamism
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55 advance market-oriented thinking among decision makers, and we enhance this proposition by
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57 adding that this scenario holds even when most of the value chain deals in commodities. The
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3 combination of competitive pressure and end-user heterogeneity/dynamism appears to produce
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5 this situation. Because being market oriented is an accepted way to exploit end-user
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7 heterogeneity and dynamism and minimize competitive pressure, decision makers experience the
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9 mimetic pressure to acknowledge the importance of a market orientation.
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13 We also extend the argument that regulations and trade associations influence the degree
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15 of market-oriented thinking among value chain decision makers. Regulations exert coercive
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17 pressure on decision makers, especially those that standardize the aspects of production, and
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19 move decision makers away from a market orientation. Trade associations similarly can exert
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21 normative pressures, though in either direction by focusing on either the generation of market
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23 intelligence or questions of process optimization.
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27 In contrast with prior research, we do not propose that a high degree of relational chain
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29 governance leads to the greater prominence of market-oriented thinking in the minds of decision
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31 makers. As the pork case shows, higher degrees of mutual trust and commitment may lead to a
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33 split chain, in which only the lower parts of the chain adopt a market orientation, while the upper
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35 part concentrates on fulfilling the desires of its immediate customers more efficiently. High
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37 degrees of trust and commitment may facilitate the exchange of information about end users and
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39 responsiveness to their changing and heterogeneous needs, but such exchanges and coordinated
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41 responses do not necessarily occur. The relationship between the degree of relational governance
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43 and market orientation actually may be U-shaped: When mutual trust and commitment increase,
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45 the upstream actors in the value chain trust their downstream partners so much that they never
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47 worry about their understanding of end users and instead concentrate on production and
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49 procurement processes. This proposition clearly requires further research.
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55 Methodologically, we find that the laddering method is a promising tool for investigating
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57 mental models among decision makers in a value chain. We also encounter several problems with
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3 this method though. It proved to be difficult to use with the Japanese respondents, who disliked
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5 the repeated probing and what they perceived as intrusive behavior by the interviewer.
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8 Researchers therefore might consider using less personal varieties of this method, such as
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10 employing prespecified concepts or concepts generated in a repertory grid task, which
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12 respondents then can assemble into chains or sort into piles.
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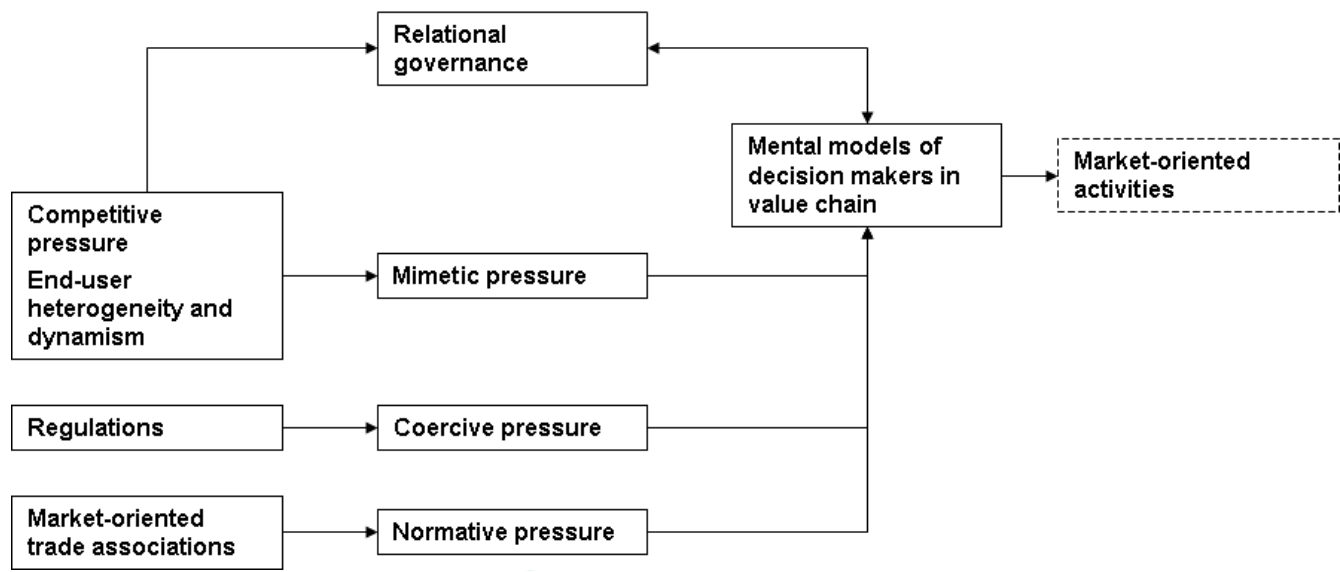
15 Although the total number of interviews in the two chains is approximately the same, the
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17 number of ladders generated was higher in the salmon interviews, which created more data and
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19 hierarchical value maps with a higher degree of stability. There is no obvious reason respondents
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21 in the pork chain should have been less talkative or less differentiated in their reasoning than
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23 respondents in the salmon chain, so we are inclined to attribute this difference to the two different
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25 interviewers who handled the two series of interviews. Interviewer effects are undesirable, of
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27 course, and the natural way to counteract them is to provide greater structure to the interview,
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29 such as by formulating targets for both the number of ladders to generate and the number of
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31 levels a typical ladder should contain. Card sorting methodologies might achieve this
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33 standardization more easily than open interviews. Generally then, research should work to
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35 develop harder forms of laddering (Grunert and Grunert, 1995) to expand on the very soft form of
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37 laddering used herein.
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Table 1
Value chain characteristics and expectations about market orientation

	Pork		Salmon	
Construct	Characterization of value chain	Implications for expected degree of market orientation	Characterization of value chain	Implications for expected degree of market orientation
Competitive pressure	Low domestic rivalry with medium international competition mainly from supply chains based in the United States and Canada. Danish products differentiated by consistent cuts tailored to Japanese specifications within a very tight margin; they have a positional advantage in terms of perceived customer value.	Medium. Tailor-made specifications require good market match and customer relations, but lack of severe competitive pressure may lead to complacency.	High rivalry among salmon farmers and value chains in Norway, Chile, and Canada. High international substitution pressure from U.S. and Canadian wild salmon. Low entry barriers for middlemen and strong price pressures in all parts of the chain. Norwegian products differentiated by the supply of a consistently high-quality generic salmon at competitive prices.	Medium. High competitive pressure motivates market orientation, but generic product directs attention more to cost and efficiency issues.
End-user heterogeneity and dynamism	High. Japanese eating habits have been changing, with components of Western eating diluting traditional Japanese eating patterns.	High. High degrees of market orientation can be exploited to develop differentiated products tailored to the Japanese market that carry higher margins.	Strong Japanese tradition of salmon consumption. Farmed salmon is attractive in high-quality (fresh) market segments of the sushi (raw fish) market.	High. High degrees of market orientation can be exploited to maintain and develop differentiated products tailored to the high-margin Japanese market segments.
Chain configuration	Farming and first level (Danish) processing are vertically integrated in a cooperative; relations with Japanese importers have developed over three decades, leading to high degrees of trust and commitment. Medium level of trust and commitment in lower parts of value chain, where there are more actors.	High in upper parts of value chain; trust and commitment in relations facilitate the exchange of market intelligence and joint responsiveness to it.	Distribution of high-quality fresh products throughout the value chain requires high trust and commitment between all links in the value chain. Long-term relations built over time from trade in other wild fish and prawns.	High in all parts of value chain, because trust and commitment in relations facilitate exchanges of market and production intelligence and joint responsiveness to it.
Regulations	Self-regulation of Danish pig sector favors efficiency; homogeneity and safety and may impede market-oriented	Low to medium. Regulations do not favor market orientation, but impeding factors have eased over time.	Norwegian fish farming licenses form an entry barrier that favors value chain concentration. Food safety regulations in Norway and Japan	Medium. Value chain concentration reduces the competitive pressure, but improves the business capability

	product differentiation, though this is changing. Japanese import regulations may reduce incentives for being market oriented.		favor standardization of quality.	for long-term market-oriented product differentiation.
Market-oriented trade associations	Danish Bacon and Meat Council has a long tradition of generating market intelligence and distributing it to members, but on the Japanese market, it has extended only to direct Japanese customers, not end users.	Medium. Favors market orientation in upper but not lower part of the value chain.	Norwegian Seafood Export Council (NSEC) generates and distributes market intelligence to members in the value chain and invests in seafood promotion for distributors and end users.	Medium. Market orientation is motivated by improved market and product knowledge in the value chain and among consumers

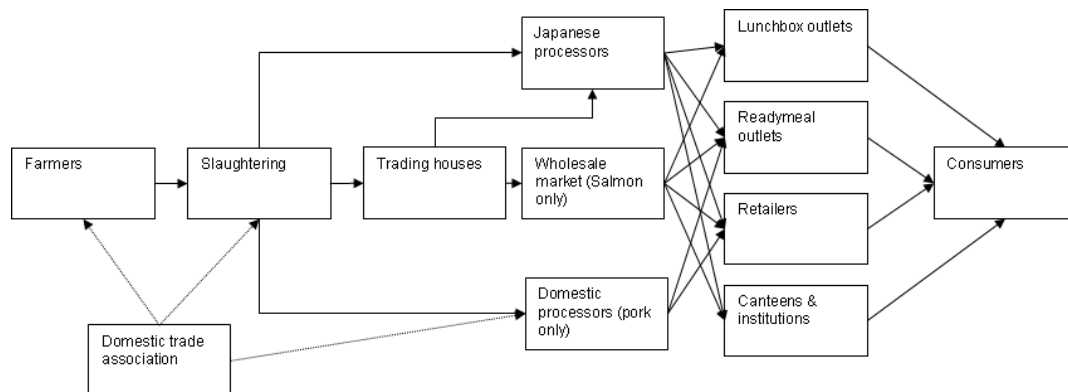
Figure 1
Conceptual model



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Figure 2
Value chain structure

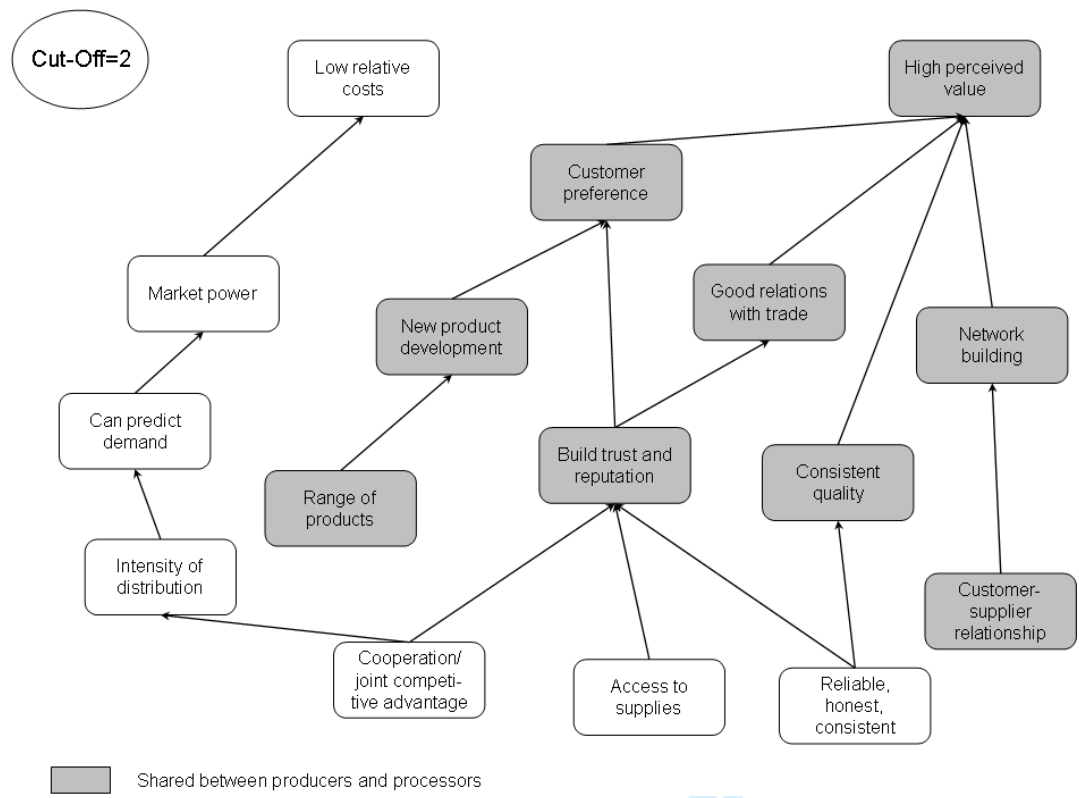


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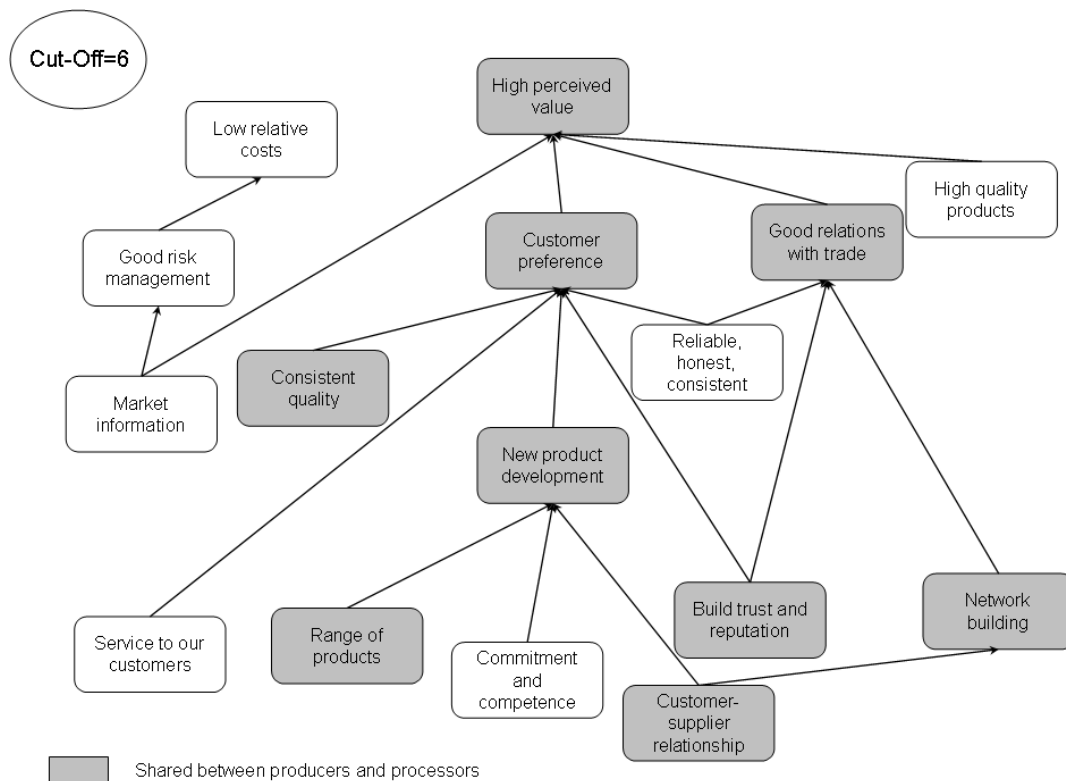
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Figure 3
Map for producers/exporters of salmon



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Figure 4
Map for processors/importers of salmon

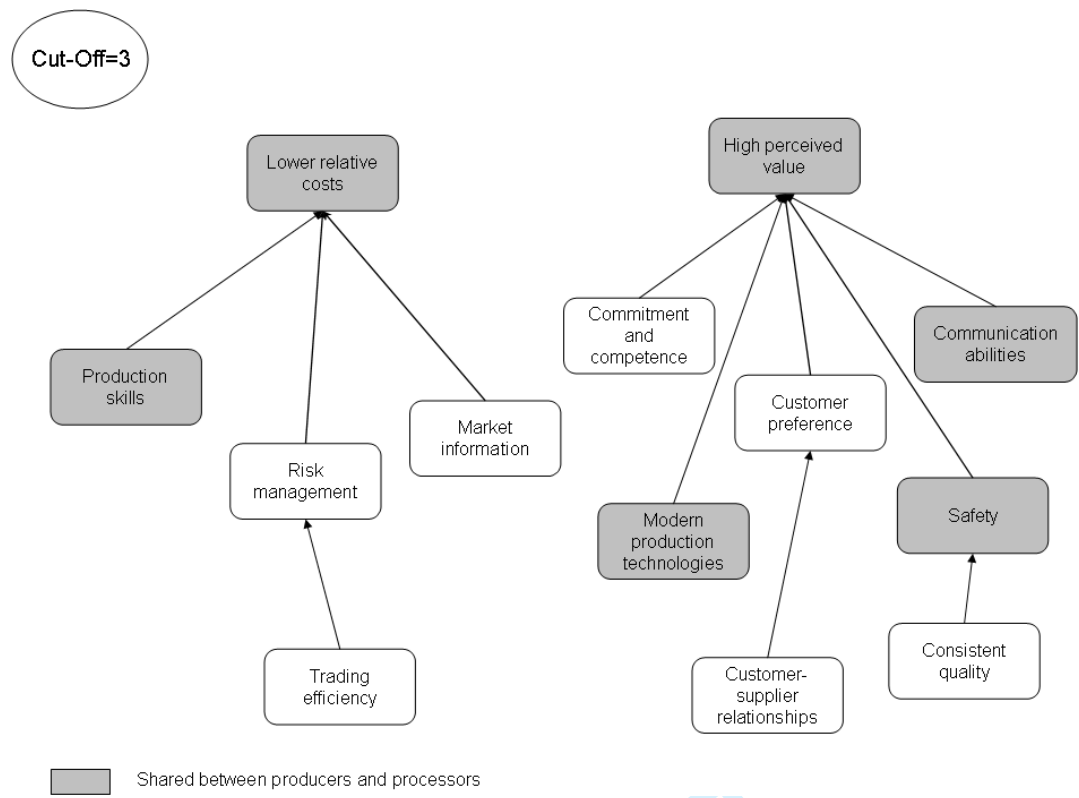


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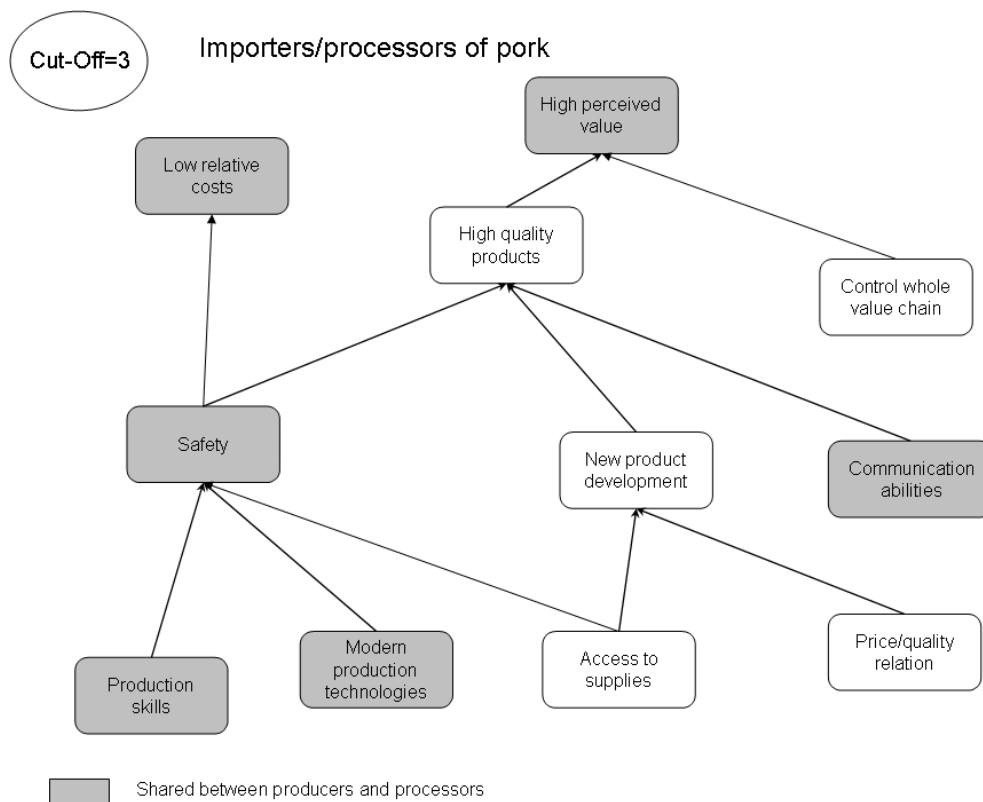
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Figure 5
Map for producers/exporters of pork



Review

Figure 6
Map for processors/importers of pork



Review

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