

# **BUSINESS INTERESTS SHAPING NETWORKING BOUNDARIES<sup>i</sup>**

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## **ABSTRACT**

Business interests are a driver for actors to engage in and support specific activities and business processes and not others. In a networked business landscape actors' pursuit of self-interest imply motivating and influencing others; promoting mutual and collective interests as a basis for developing each their business (as well as their joint). The effort of pursuing self- and collective business interest inherently concerns creating room for (inter)action and thus for moving and negotiating along multiple dimensions of boundaries at the frontier of strategic battles between business actors.

This paper addresses the (business) interest of different actors striving to find sustainable solutions for one of the complex problems of society: reducing usage of antibiotics.

**Keywords:** business interest, self interest, collective interest, boundaries, food safety

## **INTRODUCTION**

In IMP research, boundaries are understood as movable, contestable and multi-dimensional. Azimont and Araujo (2007) discuss boundaries as related to market or network norms and conventions; Geiger and Finch (2009) discuss boundaries as market shaping issues; Gadde's (2013, 2014) work relates to strategizing at the boundaries of firms; whereas Medlin and Guercini (2018) introduce the notion of boundary zones. As a research concept – although still not sufficiently developed – and in relationship and network management the study of created and shared boundaries is extremely useful and productive for understanding why business actors do what they do. In the pursuit of business interests, it should not be underestimate, the level of energy and creativity that is being put into efforts to construct, re-construct and move boundaries in the processes of strategizing and economizing related to contemporary business challenges (Munksgaard, Olsen, & Prenkert, 2017). This paper aims to study the inherent connection between business interests and boundaries.

The empirical setting chosen for the study is related to a central grand challenge of current age: food safety and security – and in particular the need to reduce usage of antibiotics in animal-based food production. The challenge relates to issues of human health and animal welfare, protection of the environment, and business opportunities and politics. Here we deal with an issue so complex that it is impossible for one actor to solve. Not even for a very integrated actor covering the chain from farm to fork. Firstly, the problem is so profound that the entire industry needed to be integrated if the problem were to be solved. Moreover, different actors have different attitudes to the problem's possible solution. It is simply not a matter of what' is right and what is wrong - but about attitudes and interests. Finally, our understanding of the problem develops over time - we simply become wiser about what is a

good possible solution as we advance our knowledge. The problem is truly ‘wicked’ (Buchanan, 1992).

The network of food production is framed by national and global regulators, and different actors (authorities, processing and trade organizations, farmers, retailers etc.) who hold diverse practices and often conflicting interests. It is not to argue, that the food business network is not functioning – it surely is: food is processed and delivered to consumers. However, reducing the usage of antibiotics is an urging and pressing issue that needs careful consideration and action. The food industry network needs to be re-organized and re-purposed for the challenge to be solved. Therefore, it is highly relevant to research how the multiplicity of interests and boundaries in food production networks can be coordinated and negotiated in the ongoing search for possible solutions to this challenge.

Specifically, this study focusses on the use of antibiotics in pig production in Denmark; based on the idea that both self-interest and collective interest are evident when firms and organizations participate in and organize activities and seek to create and move the boundaries for reducing use of antibiotics. The interests of society, industries and in the specific relationships between businesses, regulators or NGO actors, as well as the interests of the single farmer, firm or organization are at play. The clashing points and the potential (mis)alignment of these interests are explored and discussed to identify the boundaries of developing pig production towards a more sustainable and safe future.

## THEORETICAL FRAMING

Determining where the boundaries are for what others should do and what we ourselves should do, and what we should do together is of ongoing concern in business. In many ways, it is closely related to make-or-buy decisions, which have also been of ongoing interest in research. However, solving grand challenges is not as simple as make-or-buy decisions: How do our interests play together - what characterizes the dynamics and complexities? Because, here interests are not only driven by business but also by societal goals. The complexity and the dynamics of self-interests and collective interests are important to understand when we study (and act in relation to) complex issues.

### The notion of business interests

In the networked business landscape, a single actor will make business decisions and act on the basis of perceptions and understandings of his or her environment – although not always with conscious deliberation. However, the related outcome will be based on joint problem solving processes with other actors (Håkansson, 1982) and the emergent collective actions of several actors (Håkansson & Snehota, 1995). The self-interest of a single actor is one particular reason for that actor to support particular business processes and not others (Håkansson & Snehota, 1995; Medlin, 2006). The collective or mutual interests build in interaction relies on the total combined interests of all (involved) parties - which lie beyond the individual interests. Accordingly, business relationship has mutual interest resulting from the relationship itself (Medlin & Törnroos, 2014). The actor - whether an individual, firm or industry - must navigate between own self-interest in interaction and the collective or mutual interest shared with others in the network (Medlin, 2006).

In the present study, focus is on the combined interest of pursuing profit-oriented motivations or purpose-oriented motivations – whether this interest is the self-interest of the single actor or the collective interest of additional actors and the society at large. A study by Medlin and

Törnroos (2014) points to the multi-dimensional or multi-layered notion of interests. In the business relationship the notion of 'specific interest' of a firm engaged in the relationship is introduced, whereas the 'mutual interest' is understood as the '*conjoined interests of the parties in the business relationship, relative to other parties*' (Medlin and Tornross, 2014:1097). In the wider network context or social sphere of the business relationship interests are defined as self-interests and collective interests related to individuals and groups in the social settings – including industry organisations, community groups and different forms of political activities. Adding this multi-layered understanding of interests stresses the how dynamics in networks can arise from interests in relationships as well as the wider social sphere. Moreover, it points to how the source of interests is understood as coming from either direction and that the overlap of interests in relationships and the wider network respectively are nested forming mutual and collective interests. The latter points to the fact that mutual and collective interests rely on combined self-interest leading to a business relationship having mutual interests resulting from the relationship itself. Finally, the multi-layered understanding of interests explicitly opens for investigations of 'classing points' or conflicts between interests and the potential routes for alignment (Corsaro & Snehota, 2011).

Investigating and examining the interplay between actor-dependent interest and mutual or collective interest are important, since the characteristics of the interplay have bearings on how business actors motivate each other, negotiate and try to persuade others to follow and work for specific interests. It also holds bearing on how business actors react and respond to others' interests. Some studies point in the direction, that how we understand the self-interests or specific interest of others has implications for the pursuit of own interests and the development of business in the wider network (Munksgaard & Medlin, 2014). The interplay between self- and collective interests thus determine the overall dynamic and development of the network.

#### The notion of boundaries in business networks

The notion of boundaries is important to individual firms because boundary-setting as a strategic decision influence firm effectiveness and efficiency. Similarly, boundary-setting issues are vital to industries and nations (Gadde, 2014 referring to Pisano & Shih, 2008). A boundary determines what is to be considered 'inside' or 'outside' a firm. As such, boundaries have implications for division of labor in relation to others. In transaction cost economy literature, boundaries are considered significant for organizational efficiency, and in the resource-based view of the firm, boundaries are important due to understandings of what is firm-specific and firm-addressable. In property right literature, boundaries determine control and therefore bargaining power vis-à-vis others. These streams of literature view boundaries as an issue of ownership.

Discussions on boundary issues are not new in IMP-related literature either. In an interacted and networked business landscape, boundaries are not only considered an issue related to the actor-dimension of ownership, but is also argued to be related to activity and resource layers of business. 'From a network perspective the relevant borders are the features of the interfaces between resources, the interdependencies between activities and the interaction between actors. These conditions determine the functioning and the performance of what is on-going in the network' (Gadde, 2014:54). Gadde (2014) discusses firm strategizing as widening or narrowing corporate boundaries related to make-or-buy decisions. However, Gadde's study emphasizes how decisions on widening or narrowing boundaries relate to all three layers of the ARA model (and not mainly to the actor and considerations of ownership). Moreover, Gadde points to firm awareness boundaries and influence boundaries as vital for firm performance as choices of widening or narrowing provide substantial opportunities for

operational improvements. Knowledge of the activities and resources of other actors in the network constitutes a firm's awareness boundary (Dubois, 1998). The awareness boundary constitutes a basis for interaction and may be expanded or changed over time. The related influence boundary of a firm determines the extent to which the firm may exercise control over the activities and resources of other actors (Dubois, 1998). The understanding of boundaries from Gadde's (2014) work relates to pure forms of the integrated hierarchy or the connected company, which are considered archetypes, thus opening for managerial decisions on narrowing and widening boundaries as related to everyday operations.

Munksgaard et al. (2017) present the additional notion of 'opposing' boundaries which may arise as a result of or reaction to the influence of counterparts. When other actors seek to influence the boundaries of a firm, it may choose to 'channel' this influence or seek to 'restrict' it. As such, opposing boundaries are the inverted boundaries setting that are strategically used as responses to the boundary setting of others.

Geiger and Finch (2009) argue for the need for a more nuanced and complex understanding of boundaries. They argue for boundaries to have both material and relational elements, which will moreover continuously developing as do the interaction between a firm and its different counterparts. Geiger and Finch (2009) point to the implication, that boundaries can not be seen as static, but need to be studied as fluid and continuously enacted and interacted.

Adding to the understanding of boundaries as strategizing issues, the study of Araujo, Dubois, and Gadde (2003) highlights firm boundaries as determined by capabilities. On one hand by the direct capabilities to undertake effective and efficient activities and on the other hand by the indirect capabilities to interact with boundary counterparts i.e. suppliers, customers, complementors. Here boundaries relate to what the firm needs to access through others and how this is achieved. Araujo and colleagues call for the need for firms to develop specific capabilities for handling boundaries, which are not directly employed for a productive purpose. It is argued how some of these indirect capabilities are generic and multi-purpose, while others are relationship-specific. This understanding adds to the complexity of boundaries. Because, as these authors claim (Araujo et al., 2003:1269): 'What may be regarded as ancillary capabilities, are retained in-house because they prove essential to use markets effectively, to make good use of the capabilities of others, or to integrate and coordinate a range of distributed and dissimilar capabilities, both internal and external.'

Related to the present discussion of how self- and collective interest influence boundaries, the additional notion of indirect capabilities influences firm initiative for own and joint actions concerning societal challenges. There is a difference whether boundaries are considered closely related to make-buy decisions based on the economy and interdependencies in concrete activities - like Gadde (2014) - or whether we (also) consider what capabilities are in play when we seek potential solutions to grand challenges in interaction with others to find the boundaries of own, others' and collective activities

Table 1 below provides an overview of the theoretical framing of this study.

<b>Interests</b>	<b>References</b>
Self- and collective	Medlin (2006)
Complexity: multi-dimensional interests	Medlin & Tornroos (2014)
Dynamics	Munksgaard & Medlin (2014)
<b>Boundaires</b>	
Widening, narrowing and opposing	Gadde (2014) Munksgaard et al. (2017)
Awareness and influence	Gadde (2014)
Direct and indirect capabilities	Araujo et al. (2003)
Material and relational elements	Geiger & Finch (2009)

*Table 1: Theoretical framing*

## METHODOLOGICAL REFLECTIONS

As the empirical basis for the study, the case of Danish pig production is chosen (Dubois & Gadde, 2002; Easton, 1998; Halinen & Tornroos, 2005). The Danish pig production is of interest for studying the dynamics of self-interest and collective interest for solving grand challenges. This is due to several reasons. First, production of pigs in Denmark is driven by a dual goal of retaining a competitive and export-oriented production and thus a motivation for profit and continuously research and develop for increasing animal welfare and minimize use of antibiotics to the welfare of society at large. The Danish production is not as developed as e.g. Norway and Sweden on giving space and natural living environments for the pigs on the other hand it is not as compromisingly business-oriented as e.g. Spain and USA that have grown in industrial efficiency during the latest years. Second, because the Danish pig production plays an important role in the Danish economy (more than 90 percent of production is exported to over 120 markets around the world, accounting for over 19 percent of the total food products exported), it is easy to access actors in the Danish pig producing industry and the actors willingly share information. Third, the Danish pig production – even though large in number of pigs produced – is situated in a small and open economy. Moreover, given its high export share, the industry depends on access to a large number of markets in the world and is thus embedded in the European and global networked business economy. This make the case suitable for the aim of the present study.

Reducing usage of antibiotics in pig production is considered part of the grand challenge related to food safety and security. This is due to the fact, that most antibiotics used for treatment of pig are closely related (or even identical) with those used for antibiotic therapy for humans. The usage of antibiotics and antimicrobials in general for humans and in pigs and other food-producing animals can potentially lead to development of antibiotic-resistance. Resistant bacteria can spread from animals to humans, where they can lead to infections and treatment failure. When resistance is found among humans, it can easily spread through human-to-human contact. Human-to-animal dissemination should also not be ignored. Resistant bacteria do not know of national borders, making resistance a global matter. Examples of drug-resistant infections in humans are known, some of which are associated with resistance traits transferred from livestock.

Empirical data was collected through semi-structured interviews with actors in the Danish pig industry, talks at industry conferences as well as secondary data sources (new papers, annual reports, websites, industry magazines ant the like).

The coding procedure is based on Saldana (2016) and was conducted in three circles utilizing three different types of coding:

1. Explorative coding: to gain an initial understanding of the actor's perspective on use of antibiotics in pig production as well as identifying themes presently important to the actor
2. In Vivo coding: to identify actor jargon, gaining an insight on actor's perspective and a 'feeling' of the actor
3. Versus coding: to understand the actor's view on antibiotics versus that of 'others' (other actors, the industry, the system, politicians or others identified by the actor)

Data analysis followed the framework developed by Miles, Huberman, and Saldana (2014) building on three phases; data reduction, data display, conclusion drawing and verification. As a first phase a data reduction process with the purpose of selecting, focusing, simplifying, abstracting and transforming data was completed (Miles et al., 2014). In this process, the theoretical framing as presented in table 1 played an important role with the purpose of developing short narratives related to different actors in the industry. Next phase in the analyzing process focused on displaying data in a way that provided an organized, compressed assembly of information (Miles & Huberman, 1994). For this purpose, a cross-interview display matrix-analysis was made. The third and final phase of data analysis comprised analysis of specific data and findings from interviews vis-à-vis insights from observations and secondary data. Finally, findings from the empirical study was compared to the theoretical framing for identifying contributing conclusions.

## FINDINGS

For more than 100 years, the production of pigs and pig meat has been a valuable asset for Denmark. Together, the Danish food and agricultural industries account for annual export in excess of DKK 157 billion and with 190,000 employees. Approximately 90% of the Danish pig production is exported and hence vital to Danish economy and trade balance. The export of pig meat accounts for almost half of the agricultural exports and for more than 5% of the total Danish export. More than 70% of the pig meat produced in Denmark is exported to other EU countries. The most important export markets are Germany, Poland, China, UK, Japan and Italy.

The Danish pig industry is based on a cooperative structure, where farmers jointly own pig breeding, pig production and pig meat processing companies. The cooperative structure allows for the Danish farmers to have a large degree of influence. Veterinarians (private and public) counselling and controlling pig production are, on the other hand, organised in a professional association. The whole farm-to-fork chain is managed by the Ministry of Environment and Food of Denmark

The basic tenet of Danish pig production is intensive farming. The production has become increasing specialized during the latest years, with a decline in number of farms which have instead grown in size in terms of number of pigs produced. Moreover, two thirds of pig farms in Denmark are today specialized in herds that is focusing on either sow herds or specialized in weaners or finishers. The overall aim is to increase efficiency and remain competitive on the world market. The intensity requires use of antibiotics to prevent animals from being sick. However, the use of antibiotics has been reduced substantially.

In the early 1990s national there was an increasing awareness on use of antimicrobials including antibiotics in the Danish pig industry. Collaboration between authorities, industry and scientist were strengthening with the aim to launch initiatives and solutions with a broad support across the many involved actors. New initiatives or legislation are discussed among stakeholders and often adjusted to ensure better compliance and effect. Since that time a continued focus on reduction in antimicrobial usage and the sustained efforts to ensure competitiveness of the Danish pig sector have prevailed.

With the introduction of a policy tool entitled ‘Yellow Card’ in Denmark in 2010, the intention was to reduce use of antibiotic in Danish pig production even further. The Yellow Card scheme is an arrangement under the Danish Veterinary and Food Administration, which determines the limits for antibiotic consumption. Should farmers exceed these limits, they receive a Yellow Card. Most recently, the Minister of Food has announced a new and lower threshold to be reached by April 2019.

In recent years the use of antibiotics in Danish pig production continues to decrease. Around 3% (3.4 tonnes) fewer antibiotics were consumed by Danish livestock in 2017 compared to the previous year, measured in kg/antibiotics. In fact, antibiotic consumption in pig production has declined by no less than 28% since 2009. Overall, consumption fell by around 14% from 2013 to 2017, which corresponds to over 16 tonnes. Compared to the other Nordic countries the use of antibiotics is still high in Denmark: in Norway as little as 2.9 mg/kg biomass is used, Sweden uses 11.8 mg/kg Finland 20 compared to Denmark using 40,8 mg/kg biomass. However, in a European perspective, use in Denmark is still low, as the EU consumption in the most recent European statistics from 2016 of medicine consumption by livestock amounts to 124,6 mg/kg.

#### Farmers’ interests

Among the Danish pig producers – the farmers – the main interest is building a sustainable business. In Denmark, farming is tuff. Costs are high, and competitive pressure from the world market is strong. Other actors in farm-to-fork chain are claiming their part of the profit. In the farmers’ perspective leaving only marginal earnings to the farmer. Sometimes these other actors succeed in playing farmers against each other.

But the Danish farmers are also proud, and they see themselves as world frontrunners with a ‘license to produce’. Whereas, they recognize that eastern European farmers have lower cost and e.g. Spanish pig farmers and national association has succeeded in branding selected pig-based products – they still see Danish products as being of higher quality (better food safety, lower production related CO<sub>2</sub> emissions, stronger production efficiency – less feed for heavier slaughter pig). They also perceive Danish pig farmers are forerunners in developing industrialized pig production – lowering use of antibiotics and initiating lowering use of other additives (e.g. zink). Although, they also recognize, that farmers in the other Nordic countries are more developed on issues of even lower use of antibiotics and animal welfare.

In many ways, the Danish farmers are of the conviction that many different initiatives have created a strong and vital industry – but during the years, ‘somebody’ forgot to communicate the story along the way. Today, they call for the processing firms and the industry organizations to more proactively brand Danish pigs and tell all the good stories (e.g. on the high quality and food safety).

In the farmers’ perspective, the consumers are too focused on price: ‘we produce what the consumers are willing to pay for’. Some years ago, some scandals related to few actors in the industry produced bad-will for the entire industry. Today, the farmers are better at

collaborating – making sure, that everyone stands up for the good standards of the entire industry. They think that ‘one bad link in the chain, may ruin it all’. Being united is much more convincing, since farmers can then respond to new consumer trends by being able to say: ‘we already did that’ or even educate consumers.

#### Veterinarians’ interests

The Danish Veterinarian Association (DVA) represent veterinarians in private practice, public office and large companies. Both the large cooperatives in the industry and the DVA represent their members when new legislation is discussed with the authorities. In addition, regular informal meetings among actors take place concerning issues of animal health, welfare and use of antimicrobials (including antibiotics).

The industry’s focus on reducing antibiotic usage has had implications for the services and research requested from veterinarians and developed their expertise in preventive medicine. Following the development in the Danish pig industry, fewer and more specialized pig veterinary practices now services almost every pig farmer in Denmark.

It is considered the veterinary research task to find possible step-wise developments to implement in pig production. As such veterinary research is perceived a basis for others’ insights, decision making, policies, doings and business. The pig meat processing companies may draw on veterinary knowledge to promote their business (e.g. inviting speakers at business events and conferences). However, it is a balancing act communicating knowledge and insights. A veterinary research argues: *You need to carefully consider your steps (as a veterinary researcher, ed.). If we make a statement and we show something that can be done. Politicians may soon take legislative action, making it a political decision, even when there is no professional evidence. We have experienced that.*” It is considered a question of balancing professional specialist knowledge and farmers’ interests.

#### Industry organization interests

The industrialization of Danish pig production builds on an understanding of ‘license to produce’: a mutual understanding of behaving well in business for reaching a mutual sound and solid business performance. A researcher at the industry organization claims: *“We have a production-oriented approach. We need to produce the pigs as effectively as possible, to compete on export markets. That’s the main driver.”* The ‘license to produce’ approach has been the basis of most initiatives in recent years from the industry organization: funding of development projects, research, communications etc. all with the main purpose of improving the conditions for farmers.

It is difficult – if not considered impossible – to radically change the ways of production. Deciding for more animal welfare in terms of e.g. more square meters per pig would require tremendous investments in new buildings or changing production ways (feeding, breeding etc.) as this requires adjustments in the daily working routines, not to mention the time from inseminating a pig to the new piglet is ready for consumption.

Recently, a new initiative was launched to communicate and inform the public on farming in Denmark and to strengthening the reputation of Danish farmers. Besides public image campaigns, the organization uses resources for making sure to correct misinformation put forward by researchers, politicians or others.

#### Meat processing companies’ interests

Most of the pig slaughterhouses in Denmark are very small. Following the specialisation in the overall industry, the number of pig slaughterhouses has been reduced over the years. In total the Danish slaughterhouses did 17.5 million pig slaughtering in 2017 (Danish Agriculture and Food Council, 2018). This represent approximately 7% of the total slaughtering of pigs in EU in 2017 (Pedersen et al., 2018). The increase in productivity among the meat processing companies are due to, among other things, larger slaughterhouses and an increased specialization as well as automation with, for example, slaughter robots in the processes.

In general, the large cooperative meat processing companies are interested in promoting new types of products to the market. However, this is done only in balance with market demands. In other words, quantities are produced to match demands. Normally, a specialty or niche product will cause extra earning to the farmer producing the pig. However, the meat processing companies will not let other 'regular' producer carry the development costs of such new products. It has to balance in consideration to all cooperative farmer owners.

#### Researchers' interests

In research one main interest is to find alternatives to prevent animals from getting sick and needing treatment. Currently, researchers investigate the potentials of developing probiotic bacteria that can developed and strengthen animals' intestinal flora. If such additives are added to fodder, there is potentials to prevent diarrhea and hence for further decreasing the usage of antibiotics

For finding and implementing alternative treatment it is considered important to collaborate; bringing different disciplinaries together and building cross-disciplinary forums for finding new ways and new solutions. Additional projects bring together veterinarians, biochemists and other researchers. The industry funds some highly relevant projects (industry organizations, slaughter houses or others). However, public funding for such initiatives are not as common as it used to be. A biochemist researcher says: *"We used to have a forum gathering researchers across their niche areas. There was sensory, researchers with insights on meat and muscle structure. There were microbiologists with knowledge on degeneration and durability and others knew something on reprocessing of food. And this is completely gone. Leading to, one can say... a lack of focus on development in the meat industry."*

It is the opinion, that other sectors in food have developed more – e.g. in diary: *"we need a change of attitude. And it is the perception, that this change will come – but from the next generations. The meat industry as is, is rather conservative: New steps need to be taken to develop business potentials. The industry has been too reluctant developing new types of meat and cuttings. IN other words, it is the opinion of some university researchers, that industry reactions (farmers, meat processing companies and industry organizations alike) to consumer demands and trends are too slow. Also, universities need to change, as argued by a researcher: "If you look at the university sector, then we have... you can say, failed to maintain contact to other research disciplines. We are very much involved in our own line of research, but we do not talk enough with others..."*

#### CONCLUDING DISCUSSION

Reducing usage of antibiotics can be considered a collective interest in Danish pig production, as this concern is shared by actors at different layers or positions in the industry. Whereas, we may see elements of a purpose-oriented approach to reducing use of antibiotics

– e.g. caring for animal welfare, worrying about human-implications or the like – most actors argue in support of collective interest based on a ‘license to produce’ understanding. Reducing antibiotics in pig production is a mean for following market developments and sustaining global competitive competitiveness. It is a collective understanding, that the Danish pig production is probably the best in the world – achieving low use of antibiotics while keeping up effectiveness and efficiency in a highly industrialized and competitive global industry. Besides strong traditions and industry organizations promoting joint actions, national legislation is perceived vital for getting all onboard, eliminating the (few) ‘rotten apples’ and thus helping all farmers to use antibiotics in accordance with the rules. As such, actors in the Danish industry see themselves as influencing EU legislation (rather than reactively following it), in close collaboration with other Nordic countries (with lower use of antibiotics, but less industrialized pig production).

Surfacing the collective interest of sustaining a ‘license to produce’ multiple interests co-exist. Some peacefully, while others seem opposing or in conflict. In line with the terminology by Medlin and Törnroos (2014), mutual interests shared in relationships or among (smaller) groups of actors can be identified. Specific interests are formed by actors’ role and positioning in the industry. Veterinarians are concerned with e.g. herd-oriented science; researchers with their field of expertise and processors as well as farmers with their specific business. Traditions of industry organizing sustain existing actor boundaries.

Existing boundaries between actors are fueled by specific and mutual interests forming boundary awareness (Gadde, 2014). Actors make daily ‘make-or-buy’ decisions in the pursuit of their specific interest, sustaining the existing division of labor in the industry. E.g. based on research and professional expertise veterinarians develop guidelines for industry policies or national regulation for regarding reducing use of antibiotics as well as related services utilized by pig farmers. Research institutions seek funding from different funding schemes for new projects that may assist the industry to lower the use of antibiotics – in a shorter or longer time horizon. Industry organizations and the large processing businesses (cooperative slaughter houses) initiate and promote activities intended to support the specific interests of their members and owners; the farmers. This awareness of boundaries and division of labor among actors in the Danish pig producing industry is – as also argued by Gadde (2014) – closely related to the perceived influencing boundaries. In this study, influencing boundaries are at play, when the industry organization carefully consider their actions and communication to influence policy only benefitting pig farmers.

However, there is also a great deal of interests at play in the industry, that is mutually opposing or in direct conflict. At all actor levels, a ‘them versus us’ issue can be identified. Conventional farmers oppose to organic (and vice-versa). Farmers cry for the management of the cooperative processing business and the industry organization to step up in the need to ‘them to do something’. The industry organization argue that consumers and the society at large need to support Danish farmers more – i.e. buying Danish products (including paying a higher price for better product quality and more sustainable production methods). This bashing at other actors seems to spread and ripple in the industry network creating the dynamics between different partners’ interests – whether specific for a single actor or mutual and shared among a group of actors vis-à-vis others. To some extent this ‘them versus us’ understanding of interests in the industry is sustaining existing perceptions boundaries – leading to silo-thinking or group-think. In line with the conceptualization of Munksgaard et al. (2017) opposing boundaries are created by actors seeking to work against the interests of others.

In particular related to reducing use of antibiotics, the present study contributes to the existing understanding of business interests and boundaries. Among the various actors in the pig producing industry, there is a strong collective interest for reducing the use of antibiotics. And many and important steps are made. So, the following concluding remark is by no means an exercise of pointing fingers. On the opposite. The aim is to point out the complex difficulties of solving societal challenges such as reducing usage of antibiotics – and other similar problems: climate changes, the UN Compact Goals and the like. In business perception of who needs to take further action is blurred. In other words, the ‘make-or-buy’ decision and the boundaries for division of labor in this specific situation is characterized by a strong understanding of ‘this is not something I can fix – ‘they’ need to do something’. Who they are varies depending on the situation and which actor you ask. Who acts out a collective interest? To some extent the boundaries set by the involved actors creates a ‘no man’s land’, where the collective interest is nested for someone to do something, and everybody is pointing to anybody, but nobody seem to do much.

Dealing with these boundary-less networks, where nothing happens and where business actors see the challenge as of collective interest and perhaps also their own interest - but where it is not their obligation to do anything. In classical theory we would be able to explain this challenge from a demand-supply perspective: apparently there is no (strong) demand, because otherwise the market would 'fix' it. We could also call for policy theory and ask for legislation to regulate actions (and off course we do see elements of this). But at least, it is not fully succeeded – yet? Maybe the problem is that no mutual or collective interests have been created that motivate business actors' self-interest or specific interest.

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