

Efficiency and Effectiveness in Agricultural Related Activity Patterns⁷⁹

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Introduction

When I studied agricultural sciences in the early 1980's, attention in many disciplines was directed to rationalising of agricultural production. Though there were exceptions and nuances, this was the *general* picture⁸⁰. Via rationalising one expected that farmers need for satisfactory income and welfare and consumers demand for food at acceptable prices could be reached.⁸¹ The market for products from agriculture were in this economic model – which I will term 'the conventional model' - regarded fixed (Holte 1977, Nesheim 1980). Prices, assortment and volumes of products were by and large out of individual farmers' control. In this world, the most 'secure' way for a farmer to maintain income and survive on the farm was steadily to adopt new production technology and implement latest scientific knowledge. In this way farm products could be produced at still lower unit costs. But since product prices fell, higher production volume was necessary to maintain revenue (Almås 1991).

An element in the conventional model was a clear division of labour between primary *production* – which was to take place on the farm – and *processing* – which went on in factories of specialised processing firms. Thus, outputs from farms were in high degree raw materials used as inputs by specialised processing firms. These firms pursued much the same kind of rationale as the farmers, including fewer and larger production units, specialisation and automation. The conventional model had a massive support for many years, in most industrialised countries (Kenney et al. 1989, Friedman 1991, Blekesaune 1993). Most farmers, suppliers, processors, authorities and consumers relied on this model, mainly because it 'produced' relatively inexpensive food of an acceptable quality in relative stable and predictable volumes (Almås 1999:16-18).

Later, on a study trip to the county of Vasa in Finland in 1992, I came across a project called 'Food as craft'. The aim of the project was to educate farmers and other food producers to produce and market food on a small-scale basis (Huttu-Hiltonen & Välimäki 1991). At first glance it seemed like going back in time. Were farmers really able to do this kind of activities

⁷⁹ This paper is based on research funded by INTERREG II via the programme 'Grenseløs Kunnskap' – a R&D-programme for the border regions Trøndelag (Norway) and Jämtland (Sweden).

⁸⁰ Confer Reisegg (1977), Langvatn (1978) and Giæver (1977, 1982) for a presentation from an agricultural economics point of view.

⁸¹ Of course, state subsidies and specific types of legislation can reduce farmers' motivation and possibilities to rationalise, but such instruments do not - *in principal* – remove eventually cost advantages in rationalising production. The question of how subsidies affect production (and consumption) is a huge research topic and will not be addressed here.

– in most cases likely in addition to ‘traditional’ farm activities, and if so, would products from such activities be bought by someone? The project leader told me that he was convinced that there was a growing ‘fastidious market’ for gourmet food, both in Finland and abroad. He conceived this market to be less fixed on prices and more engaged in quality compared to the traditional food market.

Gradually I made more observations of similar phenomena, abroad as well as in Norway. One example was a Norwegian project ‘Hallingkost’ (‘Food from Hallingdal’) (Slettemoen 1993). This project was initiated by tourism firms in the valley of Hallingdal, the second largest tourist area in Norway. The firms wanted to serve more dishes made of local raw materials and traditional recipes, because their customers expressed wants in that direction. Farmers, farmers’ organisations and local food processing firms worked together with the tourist firms in this endeavour. The observations all together convinced me that ‘small-scale food’ was a phenomenon worth studying, not least because the established food companies seemed to shut down such activities.

After some time these ‘small-scale food entrepreneurs’ got institutional backing, as the Norwegian Ministry of Agriculture launched the project ‘Norwegian Farm Food’ in 1996 (Landbruksdepartementet & Statens Landbruksbank 1997)⁸².

As a consequence the conventional model seemed to be incomplete. To be sure, the established food processing companies continued their activity much along the model, but the new firms reoriented, seeking ‘new’ customers by producing and marketing ‘new’ food. This apparent contradiction actualises Almås (1999:17) claim that we [now] can observe a dichotomy among consumers in the advanced industrialised countries; most people will continue to buy cheap food, while others will seek out special, unique food of different kinds.

Is the alternative then to *abandon* the conventional model? Or is it more appropriate to *adjust* it, or may be *expand* it? Such an undertaking is all the more pressing as small-scale, handicraft like activity outside agriculture is also reported. Examples come from branches like brewery (Mason & McNally 1997) and textile and steel production (Piore & Sabel 1984: 262) to mention a few. Indeed, the latter authors go further and suggest that handicraft-like production - flexible production in their words - may well be the dominating form of production in future and that standardised mass production will decline. Piore & Sabel try to understand the dichotomy (if it is a dichotomy) between mass production and small-scale production through historical analyses and sociological theory. My attempt in this paper, however, is to move into a slightly different terrain; to investigate the problem from an economic point of view. Moreover, I want to do this from a *business* economic standpoint, but not merely from within the enterprise, nor merely between enterprises, but via something one could name ‘a combined within-between perspective’. Having set this goal, I will argue, it is fruitful to employ perspectives and concepts developed within Industrial Network Theory (Håkansson & Snehota 1995).

Developing a Theoretical Base

Economic Activity and The Firm

A logical first step in approaching the problem outlined in the introduction, is to develop an idea of what economic activity is and what the term firm refers to. We will start with the view

⁸² Similar projects have been carried out in other countries, among others in Sweden under the name “Svensk Lantmat”.

developed by Araujo, Dubois & Gadde (1998). Inspired by Penrose (1959), these authors regard a firm as a *resource collection* held together by *administrative mechanisms* that coordinate and direct the use of resources in specific *activity structures* embedded in a wider *web of resource constellations and activity patterns* made up of other firms⁸³.

At least two elements seem to be central in this perspective. Firstly, since activities and resources are embedded, firms are not regarded as isolated entities, but tied to a *context* of concrete other firms. Firms exist because they exchange resources they have transformed with their 'concrete context', i. a. suppliers, customers, co-operators. A firm is thus not simply a production entity, nor merely an exchange entity, but both (Snehota 1990)⁸⁴. Moreover, since the context consists of concrete and unique counterparts, the activity structure and resource collection varies from firm to firm, that is, synergetic and exceptional (Araujo et al. 1998). This contextual view of firms permeates Industrial Networks Theory in general (Håkansson & Snehota 1995). For the second, the *interplay* between activities and resources is highlighted; activities can not be carried out without resources and are meaningless if they do not result in some kind of resource. A resource has value if, and is ultimately not a resource unless, it can be used in some activity (be it in the same firm or in another firm).

Of course, and this is certainly not excluded in the perspective of Araujo et al. (1998), there is a third element: an actor has to be presupposed if activities shall be carried out at all. The firm is such an actor. But since the problem in this paper has to do with economy, we will explicate activities and the interplay with resources and not go into theorising the actor.

Interplay of Activities and Resources

Håkansson & Snehota (1995) describe the interplay between activities and resources as concerning economy and technology (pp. 276-278). Moreover, they also regard this interplay as a locus of change in economic life. Thus this interplay seems to point directly to the problem raised in the introduction.

Resources have no value beyond their *known* use. Unless someone knows that the potato plant contains an eatable part, growing potatoes will be quite valueless (unless there should be other known uses of the potato plant). Change or rediscovering in the knowledge of a resource can potentially lead to new activities or change in existing activities. Whether this will happen, we will argue, depends in principal on the design of the whole activity pattern in which single activities and single resources are embedded. For example the potato can in itself be of value for some distant actor, but the *costs* involved in distribution may far exceed this value. But the costs of distribution can, of course, be lowered if the distribution of the potato can be combined with the distribution of some other resource or if the distribution technology changes. But, it can also be the other way round. The distant actor may start a new activity where he or she realises that the potato, for one reason or another, have a greater value, and therefore make it economical to distribute the potato even if the cost of distribution remain high and unchanged.

So, we see once more that resources are a *condition* for activities (which reflects costs) as much as *result* of activities (which reflects value and thus revenue) (Håkansson & Snehota 1995: 132). In this way resources have a double face. However, resources do not *determine*

⁸³ Araujo, Dubois & Gadde (1998) do not use the term activity pattern introduced by Håkansson & Snehota (1995) but uses the term 'web of activity chains'. I prefer the more scanty term activity pattern.

⁸⁴ Snehota (1990) prefers the term enterprise instead of firm

costs and revenue; resources are better viewed as *manifestations* of costs and revenues determined by activities. This leads us to the concepts of efficiency and effectiveness.

Efficiency and Effectiveness

We have argued that the interplay between activities and resources is central for the economy of a firm. Regarding activities it is important to recognise Håkansson & Snehota (1995:52-54) and their identification of two perspectives on activities in the research literature.

The first perspective emerges from microeconomic theory and rests on a clear distinction between internal (transformation) and external (transaction) activities. The primacy of the former for economy is emphasised (Samuelson & Nordhaus 1998). Thus it may be termed an internal view of organisations (Pfeffer & Salancik 1978). Resources as input to transformation activities are regarded given and scarce. The provision side, and thus the cost side, of resources are highlighted. Control of resources is therefore the central management question. Insofar as internal activities are adjusted to the external world, it is by way of price signals *given* to the firm by an abstract environment, or, to be more concrete, by an impersonal market. Firms do not co-operate, but compete in the market. Thus, the external world is regarded competitive and anonymous. This gives all motives to focus on *cost of transformation activities*. In the view of Håkansson & Snehota (1995) this leads to an emphasis on standardisation of activities and pursuing of economies of scale and scope; in general terms *efficiency* (Pfeffer & Salancik 1978). Scale is to gain low unit costs by utilising high capacity resources to produce and/or distribute large volumes of a *single* product. Scope is achieved if one is able to utilise the same capacity to produce and/or distribute large volumes of *more than one product* (Teece 1982, Chandler 1990).

Håkansson & Snehota (1995) find the microeconomic perspective on economy necessary, but not sufficient. It tells only half the story since the 'need discovery and opportunity development' side of activities is ignored. However, this side of economic activity can be comprehended by applying organisational literature dealing with interlocking of activities of individuals (Weick 1979, Scott 1998). Weick states that a person A only can find out of the needs of a person B by directing a behaviour towards B. If B finds A's behaviour potentially valuable, it leads B to direct a behaviour back towards A. If further reciprocated this single interaction can develop and take on a repeated, cyclical form and *lock* the behaviours of the two persons vis a vis one another. This lock-in is termed a *closure* and implies that the two persons have got unique knowledge of each other; it means that the life world of the two has become more stable and manageable.

This interlocking view of activities of individuals can also be applied on economic actors (firms) (Håkansson & Snehota 1995). Consequently a firm may carry out an activity which an other firm may find valuable and reciprocate this activity, which then may lead the first firm to adjust its activity towards the second firms activities. Hence activities of firms can be enacted (proactive) and not only mere reactions to stimuli from the environment, for instance the market. We then realise that the interactive view of activities highlights behaviour and capabilities of actors, that is *effectiveness*. Pfeffer & Salancik (1978) state that the term effectiveness is at the core of the *external view* of organisations. It directs the attention to the quality of a product or service. It raises the question: is the product or service of an actor useful or meaningful for a customer, client or member (Scott 1992). Effectiveness therefore turns the focus from 'given' resources and the 'one way' stream of activities to the heterogeneity and development potential of resources. Discovery and the seeking of new exchange opportunities take precedence over efficient transformation of given input for given

purposes. This actualises learning and knowledge about how to use resources, be it new features of a resource or novel combinations of resources. Thus the emphasis in the effectiveness view of activities is on differentiation and uniqueness contrasted with standardisation in the efficiency perspective. Taking a relational view as a basis, Håkansson & Snehota (1995) integrate both perspectives on activities in the concept *activity link*. Economy is perceived as a balance between efficiency and effectiveness.

With reference to the discussion earlier in this paper, we find it fruitful to add the resource dimension to the discussion of the ‘efficiency – effectiveness’ balance. The concept resource tie is appropriate then (Håkansson & Snehota 1995). As the term activity link, the term resource tie is also a dual one; it is an integration of two perspectives on resources (as we already have touch upon earlier in the paper). One side is *scarcity* of resources, the other *development* of resources (pp. 135-136). As for activity links one is tempted to reserve one side – scarcity – for efficiency and the other side – development – for effectiveness. If we combine these two dual views, a picture like that in Figure 1 emerges.

From the discussion above it seems logical to expect that the standardisation/scarcity combination reflects efficiency and that the differentiation/development combination indicates effectiveness. The two remaining cells have unclear interpretation. Are they ‘impossible’ logically and/or empirically or do they have any meaning in theory or practice? Later in the paper we will be able to provide an interpretation of those two cells. Last, but not least, we have to keep the following in mind regarding Figure 1: The element of scale, which we introduced in the introduction, belongs to the activity dimension, and food, which also was a central element in the introduction, is a product and belongs therefore to the resource dimension.

		R e s o u r c e s	
		Scarcity	Development
A c t i v i t i e s	Standardisation	Efficiency?	?
	Differentiation	?	Effectiveness?

Figure 1: Considering efficiency and effectiveness by relating a dual view of activities and a dual perspective on resources

Research Questions

The message in the discussion above is that: (1) activities can be carried out on two principally different rationales, (2) resources have a double face, (3) activities are always

related to resources and vice versa, (4) this activity/resource interplay is not an isolated phenomenon, but is embedded in a larger context of activities and resources cutting across several actors, and (5) this logic is important for economy. Based on these statements, we can formulate the problem outlined in the introduction in a more precise way:

What are the conditions for getting economy in small-scale activity?

In this paper we will address this general problem by asking two specific questions:

1. How does scale of an activity affect the possibility of taking care of features of resources used as input to that activity?
2. How does balancing between standardisation and differentiation in the activity pattern affect the possibilities of ‘getting economy’ out of care-taking of resources?

To develop answers to these questions it is necessary to make a trip to the empirical world. We will do this in the form of a case. Since scale intuitively seems to be a relative property, it appears promising to *compare* activities that differ in scale. Moreover, we expect to obtain even more distinct answers if *same type of resource* is used as input in these activities. The following case is therefore about two such activities. We concentrate the description on production activities (compare question 1), but make some minor ‘excursions downstream’ in the activity pattern of the two activities. This is done because one can imagine that this is decisive for economy (compare question 2).

Case: Two ‘Approaches’ to the same Resource: Processing of Milk in TMN Verdal and Skånaliseter Farm Dairy

Skånaliseter Farm Dairy started to produce cheese from goat milk produced on the farm in 1995. Before this the milk was processed by Tine Midt-Norge (TMN). TMN is the only dairy co-operative in the middle of Norway. Together with ten other regional dairy co-operatives TMN forms the co-operative Tine Norwegian Dairies. TMN has several production units. One of them, TMN Verdal, produces cheese only, mostly white (real) cheese. We will let TMN Verdal represent cheese making in TMN.

The process oriented refinement at TMN Verdal builds on a relatively automated, high capacity technology, which demands relatively standardised input resources in relatively high volumes. Much of the process is controlled by computer programs. Recipes for cheeses are written as data programs which regulates much of the cheese making process. The raw material, cow milk, is produced on several farms in the geographical area TMN Verdal covers. The milk is transported by tank lorries to the factory seven days a week, from 6 a.m. to 9 p.m. The milk is pumped to a buffer store in the factory, and from the buffer store it is moved in a continuous stream in pipes to a standardising process called ‘milk treatment’. In the treatment the milk is pasteurised (continual plate pasteurising at 72°C in 15 seconds), the fat content standardised (3,8%), unwanted microbes taken away (‘bactofugation’) and the milk given the appropriate temperature for the consecutive process, that is: which type of cheese to be made. This process is to a large extent regulated via computers and supervised by employees in a control room.

The standardised milk is then pumped via pipe line to new tanks. Here rennet (an enzyme) and blend of bacteria for the actual cheese is put into the milk. This is done partly manually. TMN Verdal makes two white cheeses: Jarlsberg (a Norwegian variant of Swiss Cheese) and

a smaller amount of Norvegia (a Gouda cheese). Each of these are produced in two variants, standard fat content (3,8%) and half fat content (2,7%). From here to the pressing towers, the process is done batch-wise. Different parameters relating to the milk to be processed - temperature, pH and time - are controlled by computer programs and supervised by employees in a control room located near the tanks.

The rennet causes a precipitation process in the milk where casein (cheese stuff) and whey is separated. Because the whole substance is kept in constant motion, the casein is precipitated as small grains directly fitted for pressing. The mixture of whey and casein grains is pumped further to pressing towers. Here the grains are pressed to rectangular blocks of cheese of appropriate compactness. Whey is drained off. (Whey is used in a separate process where a special brown whey-cheese is made). In the production line of Jarlsberg and Norvegia there is one standard of blocks regarding form and size: all blocks are rectangular with weight 20 kg. The blocks are then automatically control weighed and transported on conveyor to a salt bath where they lay in 24 hours.

Then the blocks are transported on a new conveyor to a quality point. Here a person for the first time takes the cheese blocks in his/her hands to inspect them manually. Accepted blocks are put back on the conveyor and are transported to an automatic packaging point. Cheese blocks are packaged in special plastic film and put on pallets and transported to a store by truck. There are three successive stores. After about two months the cheese is evaluated by 'cheese referees' from Tines central office in Oslo. Pallets with accepted cheese are then loaded on a trailer and transported to the nearest of Tines central stores, in this case in Trondheim about 100 km away. Moreover, cheese from all cheese dairies of all of Tines regional dairy corporations is sold to Tine Norwegian Dairies (TND). From the central store TND sell cheese made in TMN Verdal, plus other Tine products, except milk, and transport them to grocery stores and retailers. Tines main customers are four large retailers.

The goat milk in TMN's area has undergone a quite different 'fate'. TMN decided in 1986 to close processing of goat milk, in this case making of brown cheese.⁸⁵ The volume of goat milk had become to little for TMN. However, the volume in *absolute* terms had not changed; it was still about 300.000 litres pr. year from approximately ten farms. What had altered was TMNs production technology and organisation of production; each factory now needed larger volumes of input to get economy in the production process, as the story above illustrates. TMN did not make any exception for the goat milk. But, as a co-operative member organisation, TMN was, and still is, obliged by its bylaws to buy milk from all member producers. TMNs new 'solution' for the goat milk was to sell it as animal food. The goat farmers continued to receive the same amount of income from TMN as before. Nevertheless, for TMN, the new use of the goat milk gave it quite a low value. On several occasions this 'problem' was 'signalled' to the goat farmers. In reality TMNs message meant: "terminate your goat milk production".

This was the situation until 1995. Then one of the goat farmers, a couple, after many years with preparation and negotiations, not at least with TMN, established cheese-making on their own farm, Skånaliseter. The couple were convinced that it existed a niche market for goat cheese 'out there' which TMN did not serve. The couple gradually expanded their farm based cheese making. By 1998 they processed all their milk and delivered nothing to TMN.

⁸⁵ This dairy became member of TMN not until 1995. For the sake of simplicity we only use the word TMN here.

The cheese making in Skånaliseter is quite different from TMNs cheese-making. TMN Verdal does about 100 batches of cheese-making a week, Skånaliseter does four: two with white cheese and two with brown cheese. The batches are also smaller, 100 kg of cheese compared to 1200 kg in TMN Verdal. In addition the production in TMN Verdal goes on the whole year through. Skånaliseter has to pause from November to February because the goats does not milk then. All in all this means that the cheese production in TMN Verdal is approximately 800 times larger than in Skånaliseter. Of course, the amount of persons behind the production in TMN Verdal is much higher, but still the output pr. person there is significantly higher. On the other side, the couple undoubtedly 'makes money' out of their cheese making, and then it becomes interesting to look closer at their production and how it differ from the production in TMN Verdal.

The cheese in Skånaliseter is not totally made by hand, but the production is much more handicraft-like than in TMN Verdal. In Skånaliseter the raw material is produced in the same firm as it is processed and probably therefore more of the variation and features of the raw material are taken care of. For example the fat in the milk is not standardised before cheese making. The couple also think that bactofugation is less necessary in Skånaliseter because the 'indoor fodder' - grass - is dried rather than ensilaged. The Skånaliseter milk may also have a different quality because it does not have to be exposed to transport. Another difference related to the raw material is symbolic rather than physical; the Skånaliseter cheese is made of milk from one special, recognisable farm. But how is the raw material really handled in Skånaliseter? The wife, Eli Kristin, is responsible for the making of white cheese, while the husband, Svein, makes brown cheese. As in the case of TMN Verdal we will regard making of white cheese.

Eli Kristin starts the manufacturing of white cheese by letting the milk produced the three previous days be pumped from the milk tank into a metal vat for cheese making. The vat can handle up to 700 litres per batch. One batch lasts about 8-10 hours compared to around one hour in TMN Verdal. In the vat the milk is pasteurised, but by a different, slower method than in TMN Verdal. The vat has double walls and warm water is pumped into the wall. The milk is warmed up to 63°C where it must be held for half an hour to get an effect on the microbes equivalent to 72°C in 15 seconds (as in TMN Verdal). Eli Kristin must control time and temperature manually by using watch and looking at a thermometer standing in the milk. Afterwards she lowers the temperature to 28-32°C by pumping cold water into the walls of the vat as she controls the thermometer. Then it is time to pour the right blend of bacteria into the milk and, after a while, rennet. The casein precipitates as one big lump. Eli Kristin must observe how the lump changes and assess when it is appropriate to cut it in cubes. She then puts harps (cutting strings) on the rotator in the vat, and as a result the casein lump converts to grains. The time of this conversion varies during the season according to what fodder the goats get and the phase in the lactation period. Thus Eli Kristin has to decide in each batch when the grains are appropriate for being bailed into cheese moulds, which is the next step.

Eli Kristin has moulds of different form and size. What kinds and amounts of moulds Eli Kristin will use depends on orders received in advance from customers or what she otherwise expects to be ordered in the near future. She is able to match type of cheese to be made in each batch and form and size of single cheeses to orders. For example there is more demand for feta cheese - a typical cheese for salads - in summer than in winter. The whey is tapped into another vat where Svein makes brown cheese from it. To give the cheeses the right compactness Eli Kristin puts the moulds into a press.

After approximately four hours Eli Kristin takes each cheese out of the press and the moulds. She may put dry salt on the surface or put them in a salt bath. One type of cheese is unsalted. The time in salt bath affects the maturation of the cheese, and some customers have their 'favourites' regarding maturation. Eli Kristin is able to adjust to such special wants by salting the cheese more or less or having them on store for a shorter or longer time. Some types of cheese demands mould on the surface. In this cases Eli Kristin puts the mould on before the cheese is transported to the storage room. She packs each cheese manually in plastic film. On enquiry she can put some types of cheese in special gift packaging. She transports the cheeses manually to the storage room on a trolley table.

The product range in Skånaliseter Farm Dairy consists of six types of white cheese and four types of brown cheese. Eli Kristin has written down the recipes for all the cheeses and keeps diary for each batch. Unlike TMN Verdal, Skånaliseter has developed most of their products themselves, some from scratch, some from traditional recipes in the area or via recipes or assistance from other farm based dairies and a food consultant. TMN Verdal does not develop products, but produces products from recipes developed or managed centrally in Tine Norwegian Dairies.

The new activity has opened up new exchange possibilities for the couple at Skånaliseter, which they have exploited and developed. They are selling cheese directly to individuals from their own shop on the farm or via mail, to other farm shops, specialised food stores, restaurants and hotels. They take orders via telephone and telefax, as well as via electronic mail. Together with other Food-from-the-Farm producers in Norway they promote their firm and products on the Internet. The couple have decided so far not to distribute to the 'big four' retail chains that constitute the main customers for Tine. The argument for doing so is that the uniqueness of the Skånaliseter cheese will disappear in these retailers 'A4-shops'. Among other things these stores do not have cheese counters where customers can get personal information about the products and get the cheese cut individually 'on the spot'. On the other side shops who sell products from Skånaliseter usually also market Tine-cheese. In this way these shops can encounter their customers with a varied assortment of cheese and eventually other food products.

Analysis

The milk (input resource) produced in Skånaliseter has become embedded in a different activity pattern than the milk of their neighbouring goat farmers who supplies TMN Verdal (and also of course different from the milk from the cow farmers delivering to TMN Verdal). In the new activity pattern the goat milk produced in Skånaliseter have risen in value. This is indicated by a higher unit price of the resulting product (cheese) in Skånaliseter than in TMN Verdal. Regarding the input resource, it is difficult to compare the price (and value) between Skånaliseter and the other goat farms. There is two reasons for this. Firstly, Skånaliseter uses its milk internally and does not therefore price it explicitly as the milk exchanged between the other goat farmers and TMN. Secondly, it is obvious that the price the other goat farmers get for their milk does not reflect the value this milk has for TMN; the farmers get a price *as if* the milk was used for producing food products, while we know TMN sell it as fodder.

A natural question then is why the goat milk of Skånaliseter has got more value. If we analyse the activities, the activities taking place 'before' the milk - milk production - has changed only slightly. The answer has to be sought in the activities 'after' the milk is produced. The case gives most information on what goes on in the dairy – the production

activities - and some information regarding further activities, for instance sales. There is an obvious difference in the scale of production activities in Skånaliseter and TMN Verdal. But how to describe and explain this difference in scale? Scale is obviously a property of activities, but is better understood if we also consider the resources connected to the activities. Though TMN Verdal is able to control and employ a good deal of the features of the input resource, in Skånaliseter Eli Kristin is able to take care of other features and probably more features. By a feature we mean not intrinsic qualities of a resource, but qualities that is *valued* in other activities inside or outside the firm. Thus a production activity 'standing alone' is meaningless. The couple at Skånaliseter seems able to respond more quickly and specifically to wants expressed by end users and/or shops that sell their products. They are significantly more able than TMN Verdal in differentiating via salting, packaging, type of cheese and distribution to the wants and activities of concrete customers. For example this regards seasonal changes in demand for different products. Probably they also are better at suggesting solutions the customers never have thought of or have considered impossible. This 'sensitivity' is possible in part because there is fewer activities 'between' production and consumption in the Skånaliseter network than in the TMN Verdal network. All in all it looks like Skånaliseter is more effective than TMN Verdal.

But the advantage of 'shorter distance' between production and consumption is quite uninteresting if a firm is not able to respond to such an opportunity through adjustments in its production activities. Here again the interplay between activities and resources provides an answer. It is tempting to point to the 'low-tech' cheese making equipment in Skånaliseter. It is relatively cheap and therefore may give 'economic room' for more manual activity. This, in addition to the capabilities of the actors (also a resource), constitute a prerequisite for more special adaptation to customers activities and wants. This observation strengthen the impression of effectiveness in the production activities in Skånaliseter.

Certainly there are advantages connected to production in large scale. TMN Verdal is capable of producing more cheese 'per input' of resources than Skånaliseter, and is therefore more efficient than Skånaliseter. On the other side they have fewer products. Fat content seems to be the only differentiation strategy. The production is all in all more standardised and seem to be driven mainly by cost considerations. Therefore TMN Verdal seem more compatible with the description of efficiency than effectiveness.

However, the advantage/disadvantage connected to scale is *relative* and changes over time. The viability of different strategies connected to scale has to be evaluated in light of situation and changes in whole or parts of the relevant activity pattern the firm is or could be a part of. For example, if nobody wanted to make use of the 'expensive cheese' produced in a farm dairy, such small-scale cheese making did not represent any advantages, only disadvantages. Resources connected to this activity, like raw material, equipment and competence, would then be valueless. This is not to say that wants is something exclusively 'decided' by the customer. Wants are as much a result of interaction – weak or strong, direct or mediated – between the producer and the customer. This view is at the core of the effectiveness concept.

It is appropriate to remind ourselves that efficiency and effectiveness, for a firm, is not a question of either – or, but a question of balance. In the case, such a perspective is indicated in that TMN and Skånaliseter also have parts of their activity patterns in common, both on the supplier side (which is not explicated in the case) and the customer side. Therefore, we ought to identify and analyse activities to make use of the concepts efficiency and effectiveness in a meaningful manner. For a firm then, co-ordinating a whole range of

activities, the challenge is over time to balance standardisation and differentiation in this range of activities. This balancing does only make sense if it is related to the activity pattern the firm is a part of.

Regarding the case we have presented, one interpretation could be that the firm Skånaliseter, performing a small-scale activity, represents ‘effectiveness domination’. This is because of, but not solely because of, the ‘smallness’ of the activity. More precisely the strategy builds on a *combination* of small scale activity *and* employment of the opportunity this ‘smallness’ gives to exploit features of resources. This is a central aspect of the effectiveness of Skånaliseter Farm Dairy. Thus *effectiveness* fit nicely in the bottom-right cell in

Figure 2. In TMN Verdal, we will argue, the balance ‘tip’ in favour of efficiency. This is because of this firms large scale activity combined with less exploitation of features in actual resources. Thus efficiency is compatible with the cell on the top-left in

Figure 2.

But what about the two other cells in the figure? We may now be able to provide an answer regarding the two cells with question mark in Figure 1. It is perfectly possible to do an activity on a small scale basis *without* exploiting more or other features of resources than a large scale producer does. But this, we must assume, have negative effects on the economy of the firm because it is less likely that the firms products will be valued in the activity pattern. Consequently, such a strategy can be termed *uneconomical*; it is neither efficient nor effective (bottom-left cell). The fourth possibility, taking care of many features and do this on a large scale basis, could be a strategy to covet. But, we must admit, it seems *unrealistic* (top-right cell).

Scale of activity	Large	Efficiency	Unrealistic
	Small	Uneconomical	Effectiveness
		Few	Many

Amount of features in resource exploited

Figure 2: Relation between scale of activity and amount of features of resource exploited, leading to different economic strategies.

Discussion

Since we can never grasp whole realities in one lot, we must select for study elements we think represent reality. This applies also in this paper. The pair of concept 'large scale – small scale' do not fully represent the pair 'efficiency – effectiveness', but is an aspect of it. What we have tried to disseminate is the following: We started with an outline of a conventional model of economic activity and confronted this model with observations which did not fit the model very well. By selecting concepts and perspectives developed within Industrial Network Theory we tried to develop a more compatible model. A contextual perspective of the activities of firms and a combination of the dual perspective on activities (activity link) and resources (resource tie) was central in the model. With this model in hand we were able to formulate the problem as: What are the conditions for getting economy in small scale activity? To this problem formulation we attached two specific questions, one regarding the relation between scale of activities and features of resources and the other regarding how the balance between standardisation and differentiation affects the possibility of getting economy out of taking care of resources. We then presented a case which we argued could illuminate the model and questions. At last we analysed the data in light of the model and the questions.

The main finding seem to be that carrying out an activity on a small scale basis gives *opportunities* to exploit more features of resources, but is *no guarantee* for this. Moreover, the value of features exploited and thus economy for the actual firm, depends on the design of the activity pattern and how the activity is embedded in this pattern. Doing the activity in small scale may give better opportunities to interact with counterparts (i. a. customers) and thereby discover and learn about specific activities and unique needs of these counterparts. Thus, as a tentative conclusion, small scale activity seem to be most compatible with effectiveness, while large scale activity appears to be more in accordance with efficiency. But, on the firm level, it is not a question of either – or, but a question of seeking a good balance between efficiency and effectiveness, or, in more practical terms, between 'doing things right' and 'doing the right things'.

Appendix: Some Comments on Method and Data

The study this paper is written on the basis of, is 'in the making'. More empirical data and further modelling and theoretical work remains. The empirical data so far have been collected via personal and telephone interviews. The interviews have started in the focal firms: Skånaliseter Farm Dairy and Tine. Interviews have also been carried out with customers of the Farm Dairy and of Tine. Information has also been obtained from some of the suppliers of the two firms, but this information has not been used in the paper. More interviews are planned to get more and subtle information on how activities are carried out and resources used and produced in the business network of the two firms and how this influence economy.

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