Place as a Resource in Business Networks

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1. “Place” – a drawback or an advantage?

In his attentive book “The Rise of the Network Society”, Manuel Castells (1996, Vol. 1) argues that the forces of globalisation, the new information technology included, has replaced “space of place” with “space of flows” and made economic activities “deterritorialised”. Castells’ interpretation reflects an underlying assumption that colour approaches ranging from traditional economics to internationalisation theory – place is a draw-back that the individual company has to overcome. An almost opposite view of place is brought forward in another not less attentive book; “The Competitive Advantage of Nations”, where Michael Porter (1990, p. 119) argues that “Vigorous local competition not only sharpens advantages at home but pressure domestic firms to sell abroad in order to grow.” With this statement, Porter gives voice to an understanding that not only has influenced business strategists, but many scholars within economic geography – place as a creator of advantages for the individual company.

Whether being engaged in resource utilisation in a company, or being a researcher trying to understand how company resources develops and are utilised, it is rather confusing to be left with two such diverging views on the implications of geographical localisation. Before we discuss how the geographical dimension appear in perspective of resource development, let’s consider what’s behind the diverging interpretations of the meaning of place.

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1.1 Place as an advantage – or a drawback?

Despite that the issue of place and its role for the prosperity of firms has been dealt with since the
days of Ricardo (1817, p. 156), “each country naturally devotes its capital to such employment as
are most beneficial to each”, still the issue is controversial. What modern researchers seems to
agree about, is that companies tend to co-localise within certain geographical areas, and that such
concentration of economic activities, at a local or sub-national level, is the norm not the
exception”. However, the understandings of the mechanism behind such co-localisations, and how
these affect industrial activities, are rather often diverging – something that perhaps not is so
surprising if we consider from which perspectives, and with which tools, the issue is investigated.

With Marshall (1890) as one of the earliest and most influential sources of inspirations, scholars in
disciplines ranging from economics and economic geography to applied economics and economic
history have adopted the understanding that spatial agglomeration facilitates the development of
localised knowledge. This in terms of skills of labours, specialising of companies and learning
1994). With Marshall’s (1890) observations in the setting, the research focus became directed to the
issue of how agglomerations within geographical defined areas, such as villages, cities, regions,
countries, affect economic activities. There are two main angles from which this issue has been
investigated; in terms of the cost of production or the market area of the firm – approaches that
however not have been easy to combine. As Dicken (1998, p. 75) underline, in general these
theorists “have been more concerned with incorporating space into economic theory than with
attempting to explain the actual location of economic activities”.

The transfer of the issue of place from macro to a meso and business level, and also, to a more
preferential issue on the research agenda, has actively been supported by one of the most prominent
authors in the field of business strategy, Michael Porter (1990, 1994). Or, to use his own words
(Porter 1994, p. 38): “Economic geography must move from the periphery to the mainstream.” The
field of business strategy has mainly been concentrated on how the performance of a company is
connected to place. In Porters’ perspective, which has influenced many scholars within the field of
both business strategy and economic geography, the agglomeration of several similar companies is
something that spur each to develop unique competitive advantages: “Competitive advantage is

created and sustained through a highly localized process” (1990, p. 19). Thus, while the scholars’ mentioned above can be regarded as focusing upon the positive effects of “urbanisation economies”, i.e. the agglomeration of firms irrespective of sector origin, Porter points at the effect of an agglomeration of firms active in the same industry. (Malmberg, Malmberg, Lundequist, 2000). The main mechanism behind prospering regions populated by similar companies, so called clusters, is according to Porter due to the intense rivalry such agglomerations create. Thus, the issue of place is framed with the underlying assumption that this is an important part of the issue of competition.

Even if we can see watershed between approaches focusing upon place as an issue of urbanisation or an issue of localisation, there is a strong common denominator of how to approach place among scholars within economy, economic geography and business strategy – on its role as a benefactor for economic activities. However, an almost opposite view on place appears among scholars engaged in the internationalisation issue. According to Dicken (1998), the role of place in the internationalisation process during the last decade has been overshadowed by the “emblematic” issue or the “mantra of our time”; the phenomenon of globalisation. Regardless standpoint in this debate; “a scenario of unstoppable global forces leading to an ultimately homogenized world” or “that the globalization story is little more than hype” (Dicken, 1998, p. xiii), in an internationalisation or globalisation perspective place is mainly an issue of how to overcome distance. ¹ An attentive research area within this field concerns the development of “space-shrinking technologies”, developed to overcome the “friction of space and time” (Dicken, 1998, p. 151). This focus can be regarded as a heritage from a time when there existed numerous limits in international and other long-distance communication and interconnection among companies – although these problems perhaps are enlarged from the perspective of recent communication technologies. As Lindqvist (1984) shows, at mid 1700s the news about a new technological break-through could travel from London to Stockholm on less than a week, with the help of a thoroughly development system of horse carried couriers. (This is about the same time it takes to go through the e-mail inbox after being out of the office for some days). However, we will not dwell deeper into the issue of how much modern information technology has contributed to reducing the problems of distance, but just conclude that from an internationalisation perspective, a company’s localisation is a problem to overcome. That companies actually seems to be influenced by features related to the place they are located to is seldom seen as an advantage – rather as something that has to be reduced.

¹ An interesting remark on the globalization debate is made by the Japanese management strategist, Kenichi Ohmae (1985) who instead of a general globalisation process draws attention to the global triad, a tripolar macroregional structure around the North American European and east and souteast Asian economic activites.
Place as a restriction is also a view that characterises several studies resting on an IMP network approach – with Markgren, (2001) and Törnroos (19xx) as two inspiring exceptions. The understanding of place as a hindrance can be traced back to the early IMP studies, where it became equal with distance. (See eg. Håkansson, ed, 1982). The spatial localisation of a company was considered to impact exchange episodes, and particular, the social exchange. Thus, a company’s geographical localisation was investigated in terms of how it affects the social interaction between people engaged in different companies, and it was approached with the concept of physical distance. This while the issue of how place influences the resource that is the object for these interaction processes was neglected. With this categorisation in behind, it is easy to understand why a company’s localisation became interpreted as a problematic element in interaction processes, and not as something that can contribute to the creation of benefits – and thus not of interest as being a specific unit of analysis. As a consequence, more recent studies within the network sphere have given greater attention to issues considered as being important for the prosperity of a company, for example technological and product development, purchasing and marketing, rather than to investigate how space is related to these questions.

However, and this is a more severe objection, regardless framed as a hindrance or an advantage, what all the above mentioned approaches have in common is that place mostly is approached as an independent variable. The underlying assumption is that place is something that is given – an element that can give the individual company certain advantages, or create certain drawbacks. But, place is not considered as an object or a resource in itself – as something the individual company can influence or manage, or combine with its own or its counterparts resource constellations. This assumption have prevailed a structural, physical, static view of geography, rather than handling space as a dynamic, variable object business life.

2. How do companies create and use geographical dimensions?

Above we have discussed how the geographical dimension has been treated in some different research traditions. But what aspects of place will appear when considered in perspective of how an individual company struggles with combining internal and external resources in order to create an economic value? Is the effect of place something that affects all companies within a certain region – or can place mean different things to different companies? A common and striking experience
pointing in the latter direction is made in some related studies of technological development in
different geographical settings; Baraldi, Bocconcelli and Söderlund, 2001, a study of Swedish,
Finnish and Italian furniture producers, Håkansson, 2002, a study of a Norwegian furniture
producer, Tunisini, 2002, a study of Italian furniture machinery suppliers, and Waluszewski, 2002, a
study of a Swedish biotech area. What all these studies draws attention to is first how the qualities
of a certain place is something created by companies and their long term interaction – an
interaction that however not is restricted to the focal region, but which is connecting the resources
within this region to resources of other regions. Through these interaction processes, the resources
located to a certain region is getting new features – which can be the result of a development work
taking place very far away. That the qualities of certain region can be the result of development
activities that are far from local is also something that scholars within disciplines as history of
science (see e.g Widmalm 2001) and history of technology (see e.g. Edgerton, 1996) draws attention
to. Another common interpretation made in the studies mentioned above is that the use of the
geographical dimension can include different aspects for different companies – even if these are
located door to door. Features of an industrial region that fits some companies’ resource
combinations can be of less value for others. Furthermore, while some companies seem to be very
skilled in utilising local resources, others can be ignorant of these possibilities.

What these experiences calls for is an investigation of place as a heterogeneous phenomenon – as
something both created and used differently by companies in their strategic behaviour. To be able to
catch these aspects, we need to approach place as a dependent variable – or as a source of dynamics.
This implies that we have to consider place as something that not only affects the individual
company, but also the way the individual company interacts with other companies. Thus, place has
to be approached both in perspective of the individual company and the context of the company.
This is an aspect that has been touched upon in several Italian “district” studies, which therefore
appears as an obvious starting point in the search for tools to investigate the issue of place as a
dependent variable. Certainly there are other motivations behind by adopting the “industrial district”
as a focal point of reference, but the most important one is that this focus can help us to catch the
interplay between companies and their resources in a collective constructive context – that is on a
genuine “meso” level.
3. An important source of inspiration: the Italian district research

As was mentioned above, an important source of inspiration in how to approach place as a dependent variable is the research carried out within the Italian “industrial district” field. A main focus in this research tradition has been how spatial proximity between companies affects the business behaviour, the issues of how this phenomenon is related to both structure and dynamics included. (See e.g. Piore and Sabel, 1994; Becattini, 1987; Brusco, 1989). Role and function of industrial districts and local production systems have also been, and still are, the object of great debate among these scholars.

In general, at least two main perspectives can be distinguished, (Boari and Lippi, 1999). One is very much “district-oriented”, i.e. it identifies the district as a spatially concentrated community of small and mid-sized companies and tends to focus on the economical and social variables that explain the functioning of such contexts. These types of studies rests on a macro-perspective, with the underlying assumptions of that the determinants and the advantages of industrial districts is the division of labour among companies, the role of the social dimension and, in particular, of the “industrial atmosphere”. Co-ordination among companies’ activities is seen as solved by price mechanisms, information circulation and informal co-operation. The origin of this approach is scholars with a background in industrial economics, which tend to neglect the analysis of the role of the individual actors – the single company – and of the impact of its own behaviour in its market context. However, although these scholars have broken with the traditional, structural level of analysis in industrial economics, they are still resting on the same ground in how to approach the companies within an industrial district. The firms of the district are treated as being homogeneous; interacting uniformly with one another in an area where institutions can matter more than the individual firms.

The second way of approaching industrial districts has developed very much as a reaction against the first, and focuses upon a heterogeneous actor dimension in the industrial districts (Varaldo and Ferrucci, 1997). It has grown especially from the analysis of the role played by individual actors – small and mid sized companies that have rapidly grown in the district – to promote the growth of the whole local contexts where they are situated. Some aspects of the investigated heterogeneity among firms in a district are how certain companies are capable of playing a driving role for many companies in the districts and handle a large set of relationships significantly influencing and directing the development of the industrial district.
Attention is created towards the business behaviour of the single actor, on how it can be a leading company in its market context, on how individual business behaviour can impact on the dynamics of the whole context. Some authors have developed an approach that is very useful for our studies of some Italian and Swedish industrial districts, it is the combined analysis of the actor level and district level. With Lorenzoni and Baden-Fuller (1995), Lipparini and Lorenzoni (1999) in the forefront, a network/constellation approach has been developed in order to analyse local production. This in terms of focusing upon some individual leading actors – the strategic centre – and the set of its relationships with other actors, especially local suppliers. In other words, these scholars have taken a “meso-level” perspective and have attempted to investigate how both the individual and the collective dimension of entrepreneurship influence each other and how both promote the development of local contexts. These scholars have particularly stressed the role of local emerging companies with superior co-ordination capabilities and their business relationships to promote the development of a local context, i.e. district development. They have emphasised the view of relationships as a mean to develop capabilities, the importance of collective strategies and of interactive learning. Furthermore, they have stressed the relevance of these aspects also in respect to internationalisation processes where business relationships also represent a mean by which new enriched competences are developed through the interaction with other contexts (Caroli, Lipparini, 2001). In their perspectives, leading companies do not “cut” with their own context, but they change their way of being part of the district. Thus, they make use of the location because of the advantages it can bring about – but they also go beyond their own location and handle the latter as a resource to be combined with others. In these terms, by a large set of both local and global relationships, such leading companies mobilize their own material and social resources and such of the context where they are embedded and combine these with those of other contexts.

Other scholars with a similar approach have investigated the dynamic aspects of industrial districts in terms of how new, foreign companies are “entering into” these, involving local companies and their partners into the international production and distribution circuits. Furthermore, attentions has been directed to how regional firms start production facilities abroad and increasingly relate to inter-regional and international suppliers (See e.g. Pilotti, 1998; Grandinetti and Rullani, 1996; Corò, Micelli, 1999; Corò, Grandinetti, 1999). What these authors have observed is the opening of districts to globalisation, thus questioning many elements that have always been considered an advantage of the division of labour among local clusters of companies, first of all their physical
distance. In this respect a question is debated among scholars on how much districtual origins can be a limit to companies’ development and how much they can be propulsive for development. Co-location can give small district companies the advantage of gaining knowledge diffusion and exchange of experience, form shared infrastructure and innovating together. At the same time, it can be a limit and put some barrier to companies that are very rooted, also in their own perspective. With this perspective it is easy to understand the intense discussions if and how districts will survive.

With a focus upon companies and their resource interaction the question is formulated somewhat differently. Instead of considering how the qualities of the district will develop and prosper, we will investigate how the companies within this district can develop and use this place in order to create benefits. Why is it so that some companies seem to suffer from their localization, while neighbours are gaining from it? Thus, a question can be phrased “How can a company utilise its localisation as a resource to be combined with other resources?”

4. How can companies take advantage of place?

If place is investigated in perspective of resource development and utilisation – if place is seen as a systematic combining of resources – then its effects, positive or negative, is dependent on how successful companies are in making this combing. This way of approaching companies is based on Penrose (1959) and has been more full presented in Hakansson & Waluszewski (2002). In principle, various elements, tangible and intangible, material and symbolic can be considered as resources when use can be made of them. Resources, in fact, have only a value when they are used. They have a value in relation to others, not as elements in themselves. So, resources have only an economic meaning in constellations – in combinations that imply use. Place can in such situations be regarded as a resource in itself, since it incorporates a number of other resources. The value of a place is in such a case dependent on how a set of resources is combined with each other and used. Place is a unique combination of resources that makes it an entity; it becomes a resource with a certain value in itself.

When considering industrial activities from such a resource interaction perspective, place appears as a dependent variable, something a company actively relates to in its business activities. Place is a resource that companies can make use of and combine with others. Thus, with this approach in the
setting, place appears as an object of analysis in itself, in terms of how it is interrelated to other variables defining the attributes and dynamics of company’s business context as well as company’s resource constellations. This is also how the issue of place is approached in the international study of the furniture industry mentioned above (see Baraldi, Bocconcelli and Söderlund, 2001) and of a study of a Swedish biotech area (see Waluszewski, 2002).

To sum up, it is the cross-section of inspiration gained by Italian district research and empirical observations gained through considering industrial activities from a resource interaction perspective that is behind our ambition to investigate how companies can take advantage of place and create a deeper understanding of the geographical dimension in business life. The aim with this paper is therefore to make a first step in developing a theoretical framework where the geographical dimension is analysed as a strategic variable for companies. The development of such a frame will let us analyse how companies systematically can use the geographical dimension in their technological as well as marketing/purchasing development. Such a framework might also give explanations to the more complex dynamics observed in how companies with different geographical origin develop their networks. In this first step we are going to use empirical illustrations from the two empirical investigations of industrial districts, one of the north east and centre of Italy and one of a high tech area in Sweden (Tunisini, 2002, Waluszewski, 2002).

4.1 How to approach place with a network tool

The word network indicates some kind of structure where nods are related to each other through strings. Thus, there is an obvious space dimension in any network analysis. The individual business actor has a certain position within this structure. Position has consequently been an important concept in the industrial network approach (Johanson & Mattsson 1985, 1988, Henders 1992). But the geographical dimension has not been central. When, for example, Henders (1992) is discussing the position concept, it is without any connection to the geographical dimension. However, it seems both possible and fruitful to make an analogy between position and place. The latter could be seen as the geographical dimension of the position of the company. When the author discusses position she is stressing both the relative dimension as well as the resource dimension of it. Every position in a business network is based on some resources but it is also determined by the positions of the counterparts and their resources. A position is in this way a systematic combination of resources and space, i.e. it is connected to a number of other positions (including their resources). In analogy any
place has to be seen in relation to the resources existing there and how these are related to resources in other places.

Furthermore, in the analysis of position it is stressed that every business unit has several counterparts with different characteristics; i.e. any position has a number of different dimensions – it is multidimensional. Thus the company can act in different ways to develop the own position – or to change it in one way or another. The issue of place can be approached in the same way. Companies’ positions can at least partly be built on the fact that they relate resources existing in different places to each other.

5. To investigate combinations of places and resources

In order to investigate how companies utilises place related features in order to create beneficial resources combinations, we will use a grouping of resources, which is based on a distinction between products, facilities, business units and business relationships (Hakansson and Waluszewski 2002). Below we will take a closer look at how two equipment companies located in different countries and working in completely different industrial areas, have developed their resource combinations by taking advantage of place. We will start the discussion by considering how place related features can be embedded into business units.

5.1 Business units and place related features

Place related features can be more or less systematically embedded into business units. A business unit is built up by people and their experiences of handling facilities, products and business relationships. This means that place related experiences are built into the business unit. This process can be more or less systematic and the utilisation of place related experiences can be more or less consciously taken advantage of. For example in terms of how internal business units are related to each other, or in terms of how external knowledge can be built into the business units. The international dimension is important especially as different institutions, laws and taxation make it necessary for an international company to have separate legal units.
Biacore is an example of a rather new, prospering company that in many different dimensions has benefited, both consciously and unconsciously, from utilising place related features of resources. From being a potential technology discussed during a stormy marketing meeting in June 1983, held at Pharmacia Biotech (nowadays Amersham BioSciences, one of the world’s largest supplier of biotech equipment), Biacore has developed to a specialised and highly respected biotech-equipment company. Biacore’s area of application is real time investigations of interaction between biomolecules, and most of its customers’ are academic research institutions. The turn-over reached 340 million SEK in year 2000, and the number of employees is about 200. The story of Biacore can be regarded as an example of how resources can be mobilised and combined in new ways through taking advantage of place. In the following discussion we will focus on the period when Biacore developed from a project to a business unit with established supplier-user interfaces.

Biacore has its roots in a development project called Biosensor, formally started in the autumn of 1983 in Pharmacia Biotech. A short time after the project was established another company within the Pharmacia sphere, Pharmacia Diagnostica, engaged in the project. In 1986 Biosensor became an own business unit, financed by private investors, and in 1996 the company was quoted at the Stockholm stock exchange. When the first product was launched in 1990 it got the name Biacore, which also became the new name of the company. (For the sake of simplicity, we will only use the latter name). Although being a young company, Biacore has a rather dramatic history, and its first years where coloured by intense internal conflicts and severe difficulties with turning a promising technology to a solution with user applications. However, since 1994 Biacore shows black figures, after earlier losses of about SEK 700 million. When users are describing Biacore, it is often with the words “a specialised, unique but expensive solution”.

From its first day as a project, Biacore was located in a place that must be considered as being a centrally located nod in one of the world’s most elaborated biotech equipment network. Being born within a company that nowadays is called Amersham Biosciences, then Pharmacia Biotech, and being closely related to Pharmacia Diagnostica, meant being in the context of one of the world’s largest and most prominent biotech and diagnostic tool suppliers, both with decades of experience in behind.
The strongest influence over the project came from Pharmacia Biotech, where it also was physically located during its first years. The first chairman of the project was also the general manager of Pharmacia Biotech. The initiator and first R&D leader of the project had about two decades of engagement in instrument development with him, among others as being one of the key persons behind Pharmacia Biotech first and most successful system solutions for separation of biomolecules. The first people involved in the project were hand picked from Pharmacia Biotech, with background in R&D, construction, purchasing and application functions. Some of these also had a carrier as researchers at Uppsala university. The history and experiences the people coming from Pharmacia Biotech brought with them was that of a company rooted in the interaction between researchers at Pharmacia and at the Department of Biochemistry at Uppsala University. It was in the late 1950s that the research collaboration with the Department of Biochemistry resulted in the development of a new separation method, which later was named Sephadex. This gel, which was presented as a totally new method of separating proteins and other biochemical material after molecule size in an article in Nature 1959, became Pharmacias’ first step in the development of a new area of industrial activities. Out of the small group of researchers engaged in the work with Sephadex, a new business slowly emerged: Pharmacia Biotech and its engagement in development of chemicals, instruments and methods for separation of bio-material. In 1982 the first product was launched that did not only consist of gels and columns, but worked as a system solution: FPLC, “fast protein liquid chromatography”. During some mergers in the 1980s and 1990s both the name and the size of the company were radically changed. Another group of people came from Pharmaica Diagnostics, which also has its roots in research carried out at the Department of Biochemistry, Uppsala University, the discovery of Ige and the development of the so called RAST allergy diagnostic test. When Pharmacia bought this test it became the technological foundation of something that later on became a new daughter company, Pharmacia Diagnostics.

Thus, from its birth the business unit Biacore was handled by people bringing with them a huge amount of experiences related to supply and use of biotech and diagnostic tools. Through these people, already on a project stage Biacore got experiences from everything from how to relate to scientific journals and well-reputed academic institutions to suppliers of metal plating.

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2 After buying LKB (another Swedish biotech equipment company) in 1986, the new company became Pharmacia LKB Biotechnology. After the merger with British Amersham in 1997 it became Amersham Pharmacia Biotech. Since late 2001 the company no longer has ownership connections to Pharmacia, but is owned by the Norwegian company Nycomed, with a new name again: Amersham Biosciences.
Although having a rather different history, place related features is also easy to observe when considering the business unit of our other company in focus, one of the two Italian world-wide leading companies in the wood/marble/glass working equipment – Biesse Corporate. Since the mid-nineties, the company has had a very rapid growth: the revenue has shifted from 148 million of euros in 1996 to 346 million of euros in 2001; employees from 1040 to 2000; its offering has been broadly enlarged also by the acquisition of both Italian and foreign companies.

Biesse was born in 1969 in Pesaro in the Marche region and its founder was specialised in mechanical working processes. In 1959 he had founded Cosmec, a small company producing mechanical components and selling to mid-size and large public and private companies, whose factories where located in the Pesaro area. In this respect, the original location of Biesse has a particular meaning. Historically, its geographical location was dominated by a large number of mechanical factories by large Italian Groups and an extensive variety of small sub-suppliers and therefore it has a long mechanical tradition. The founder of the company developed its own abilities in this cultural and technical set. Secondly, and very important, the Pesaro area also has an historical concentration of important Italian furniture companies. They all were born in the sixties and rapidly developed in the seventies and especially in the eighties. Besides a large number of small and mid-sized furniture suppliers, three of the most important Italian furniture producers are localized in the Pesaro area. The close connection between both producers of wood-working equipment and their users has always given a great impulse to the development of both the kind of companies. We may say that there was a fruitful combination between different resource elements that made that geographical area particularly rich and plenty of promising business development. In 1977 Biesse introduced the first numerically controlled boring machine dealing with panel processing and rapidly became worldwide leader in this business. It is still leader today in this business and it has also broadly enlarged its offering to other applications and processes.

The company combines close and long-term relationships with local suppliers and leading customers with business relationships with global suppliers and international customers. The approach towards the use and the reinforcement of its business relationships with its original location is aimed to promote and improve place-specific advantages and competencies. However it is not absolutely viewed as self-sufficient. So the company tries to combine its both local and global dimension trough the combination of both local and global suppliers and customer relationships.
We may say that it utilizes place in relation to the more appropriate use and combination with other resources.

Biesse has a very international orientation. About 75% of its sales are outside Italy and 11 commercial subsidiaries and 150 agents are diffused all over the world in the most important markets. Placing commercial business units responsible for the image and the development of the company’s product in the different local markets is viewed as a basic strategy. These units are mostly charged with the organizing of local resellers and sales representatives who develop a strong connection with local customers and local use culture. They have to combine the “made in Italy” image in the mechanical product with the country-specific uses of the products and expectations of its functioning, that are also country-specific. In this respect, there are sometimes conflicts. In Germany, for example, where the main competitor originates, the “made in Italy” image has negative impacts. As a consequence, business units located and utilized in this country for product diffusion are very responsible resources where main competences, knowledge and experiences are to be strongly rooted in the German tradition.

6.2 Business relationship and place related features

Business relationships are important resources since they both exist in themselves and are a means to connect business units, products and facilities toward each other. A relationship is a quasi-organisation built up through exchange episodes where personnel from the two counterparts get to know each other. As the persons involved are situated in some place the relationship in itself relates the two (or more) places (or sometimes the same place) where the business units are situated to each other. However, a relationship is also connecting products and facilities toward each other. It is even connecting different relationships to each other. In this connecting the place dimension being related to products, facilities and business relationships can be more or less utilised. Every relationship is in this way characterised by the places featuring the two business units, which it relates. Business relationships connect a company to some specific places. These can be distributed in the geographical dimension in different ways creating a more or less systematic pattern. The relationships indicate the place used by the company and also describing its experience in this dimension. Furthermore, the content of each relationship can also be more or less featured by the place dimensions related to products, facilities and other business relationships. Business relationships are a mean by which resources are mobilised, combined and used. As we will se
below, there is a strong connection between business relationships and the utilisation of place related features in our empirical illustrations.

For Biacore being born in the Pharmacia Biotech and Pharmacia Diagnostica meant being supplied with an extensive network of relationships to external units. Two examples of resource combinations made on an early stage, which came to influence the further development of Biacore and its technical and social resources where made possible through the first project leaders access to an external resource network. The research units that probably were most familiar with the technology Biacore came to build upon; SPR or “surface plasmone resonance” technology, was the Linköping Institute of Technology and a group around professor Ingemar Lundström, Laboratory of Applied Physics. It was the studies on surface plasmone resonance, a light phenomenon possible to use to trace interaction between molecules, that once inspired the first project leader to consider the possibilities to utilise such sensors in a biotech tool. The informal discussions with the Linköping group soon developed to a formalised co-operation, with professor Lundström taking place in the board of Biacore.

If the Linköping group contributed with technical solutions that later on became fundamental for Biacore’s application, the influence from the Swedish defence research organisation FOA was more indirect. Through the chairman of the Bioacore project three project leaders were recruited from FOA, all with a background in research about SPR technology. One of these project leaders became R&D manager during the tough period when Biacore was transferred from a project with an interesting technology platform but with total lack of applications to a commercialised product with a specified use. Today this person is the general manager of the company. However, although the embedding of knowledge gained through external relationships was a prerequisite for the development of Biacore’s basic technology, these experiences also brought with it a long and painful internal conflict, where people defending different solutions started to fight against each other. This conflict culminated in 1988, when a new technical project management was established, and the project was redirected developing a technology platform to finding a specific area of application.

Three of the earliest representatives of potential users, professor van Leuven, University of Leuven, Belgium and professor van Regenmortel, Institut de Biologie Moléculaire et Cellulaire, Strassbourg, France, and professor C.A.K. Borrebaeck, Department of Immunotechnology, University of Lund,
Sweden, was also involved in the project through contacts the application team had developed during their time at Pharmacia Biotech. When professor van Regensmortel later took place in the board of Biacore, the experiences and network of the University in Strasbourg was built into Biacore in a more formal way. In the same way as equipment suppliers in other industrial areas, the future of a new solution is strongly dependent on the user’s ability to benefit from combining this with its existing resource base. A special complication for equipment used within the scientific area is the necessity of getting results published in scientific journals. The first papers accepted in reviewed journals written by Biacore’s researchers were published in early 1991. However, already at the end of 1991 the first papers written by academic authors were published, among other by the groups around Van Regenmortel, Lundström and Borrebaeck.

If Biacore utilised its place to create relationships with both national and international potential users, in the Italian case it was the relationships with local customers that were the basis for its development. The historical concentration of both suppliers of wood-working machines and users, that is furniture producers, in the same area has given a great impulse to the development of both. Localised users and suppliers represented a great advantage especially because of technological innovation. Numerically controlled machines were tested and enhanced through close located users. The evolving needs of the latter have given a great impulse to equipment innovation, perfectioning and technical advances. An example can be useful in this respect. Under the impulse of one of its local front door supplier, a kitchen producer developed the need for a specific panel processing machine capable to both bore and insert components in the wooden parts. After a joint study and design process where both Biesse and its customer were involved, the machine was developed and rapidly it was introduced in a large number of both local and not regional users.

Biesse has always made a large use of its historical relationships with local counterparts. Frequently, they are the source of innovative ideas and of incremental innovation in the machines. They are used to experiment and enhance product innovation and to promote new uses of the product. Moreover, local users’ factories are utilized to show the functioning of new equipment to other customers that are periodically hosted in Biesse and accompanied to visit different show rooms. In these terms, Italian and foreign customers are invited to make experience of real application and functioning of Biesse products and systems.

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3 In Techniques in Protein Chemistry, Journal of Immunological Methods, Analytical Biochemistry etc.
There is also another dimension of business relationships that is important in connection to place. In the observed area two competing companies are very closely situated. More precisely, Biesse is about five miles of distance from its own main competitor – the SCM Group. The two companies are both world leader and they are closely located within an area where a large number of Italian main customers are placed. This conflictual dimension of business relationships in the area has given a great impulse to Biesse’s development and it has been indirectly a positive resource which value in use has been the enhancing of innovation and the development of new resources. Through their connection with common customers and through the continuous shifting of personnel from one company to another, the two companies exchange resources and knowledge, learn about each other and develop themselves; they both are continuously pushed to innovate and search for new more efficient uses and applications.

6.3 Facilities and place related features

Facilities are characterised both of a certain size and of a certain lifetime. The facilities that the company invests in have to be placed somewhere in the physical landscape. In so doing a number of considerations are made. Some have to do with logistics – find a place where it is easy to get things to and from the facility - and other has to do with the economic context in terms of labour and capital costs – find a place where the use of the facility is cheap. Facilities are in this way placed and become more or less fixed to that place. Facilities are also often systematically related to each other either by being placed in one and the same point or by being distributed over a certain area in order to cover this. One example is the often huge investments in distribution and logistic resources with the aim to connect places to each other.

The production unit of Biacore is an interesting example of how the utilisation of place can offer possibilities to create combinations of resources located in different geographical areas. Biacore’s own production unit in Uppsala was developed in close interaction with people with a background in instrument design and production at Pharmacia Biotech, and its production unit in Umeå. Today Biacore’s own production unit in Uppsala is responsible for production of unique key component, among others the sensor surfaces, final assembling and quality control.

The influence from Pharmacia Biotech’s production facility is visible in several different dimensions. This facility was established in 1967 by Pharmacia Biotech, and was then only
supplying its mother company. Today the unit belongs to Amersham Biosciences, but also supplies other customers within the biotech and medical instrument area. The Umeå facility was responsible for the assembling of the first prototypes of a Biacore instrument, but the design was a result of interaction between several project leaders with a background in instrument, electronic and application departments at Pharmacia Biotech. Today the Umeå mill is responsible for production of certain components and systems. By its close interaction with the Umeå mill Biacore could, from its first day of production, benefit from advantages that had been very difficult and time-consuming to create by its own. Utilising not only production capacity but also experiences from facility supplying one of the largest and most advanced biotech equipment suppliers’ in the world, Amersham Bioscience, means getting access to several important resources. With an engagement in construction and assembling of biotech instruments already two decades before Biacore was on the way, and with specialities as a precision tool work-shop and circuit production in-house, the Umeå facility could offer much more than large purchasing quantities of material and components.

Another facility that could be utilised due to Biacore’s place, and which became very important during the hard period when Biotech was transformed from a project to a business unit, was the distribution organisation of Pharmacia Biotech. All kind of marketing, distribution and technical support activities was handled by this unit meanwhile Biacore was establishing its own marketing organisation. Today Biacore’s distribution organisation includes sales offices in Europe, US and Japan, and several of the key persons have a background in Pharmacia Biotech’s marketing organisation. For example, Biacore’s first marketing manager was recruited from Pharmacia Biotech, where he had been engaged in marketing and technical support since the launching of the first system solution. The introduction of Biacore in Japan was carried out by a person who had been responsible for the establishment of Pharmacia Biotech’s marketing and R&D unit in Tokyo.

Biesse uses facilities that have a very concentrated location. The founder and owner of the company has strong cultural, historical and personal connections with its own territory and he adopts a very localized production strategy. In his mind, place is really treated as a resource because of its potential or value, rooted in its historical mechanical tradition and in its historical texture of personal ties, experiences and joint developments Biesse’s production facilities are thus highly concentrated and close to the set of local suppliers. The latter are considered a company’s extended factory. In the late nineties, Biesse has given origin to a new logistic and supply model in order to support a production systems “assemble to order”. As a consequence, the company re-organized its
relationships with the set of local suppliers, specialized in tailored components and set the basis for a complete logistic, technical and technological integration. The long term tradition of connection with local suppliers has helped these processes. On the other side, it has also set some difficulties. In fact, the historical ties and texture of business relationships with many suppliers and among company’s suppliers has sometimes made it difficult to interrupt relationships, change their content and give them new directions.

Biesse has solely a second production set in Austria as a consequence of the acquisition of a company specialized in engineering processes and with good connection with the German market. The goal of the acquisition was both the completion of the range of competences through the access to more customized engineering capabilities and the use of the company as a bridge to a new difficult market; as a consequence, the location of the company and of its facilities has been viewed as a resource to access and make use of other resources and of their own combination.

6.4 Products and place related features

There are several products that are relevant for single companies. Some are used as input products and others might be those sold to customers (if it is not a service company). Every product can be characterised in how it is produced and how it is used. Both these aspects can have distinct place characteristics. Some products have a very concentrated origin. It can be due to climate or other natural reasons but it can also be due to history or connections to research. This is one of the dimensions that have been closely studied in economic geography and in studies of industrial districts. The use of a product can also be place specific. The product is often used in a systemic way where other facilities, products or specific business units’ attributes are combined. Together this combination will always be place specific. Thus, also the use of the product can be highly concentrated or varied in relation to place. The place dimension can in this way be an important strategic variable both in the usage of some input products as well as in the production of end products.

The “Biacore” instrument that is on the shelf of research laboratories today is rather different as compared to the first versions developed as prototypes in the early 1980s. The dream of creating an “all-purpose” instrument for diagnostics of protein changes had to be replaced with a more sober ambition; to create an research tool for characterising of interaction between bio-molecules. Thus,
Biacore became an exclusive and rather expensive research instrument, with a price ranging from about 40,000 to 200,000 euro. Instead of being a cheap, mass-produced standard instrument for users in the pharmaceutical and health care industry, the product must be considered as an exclusive research tool, with the main part of its customers in the academic research area. In total, a bit more than 1000 instruments have been installed. Some of the most important products on the input side are the optical device, developed and supplied by a Swiss company. Other important parts was developed and manufactured in-house, such as the flowing system and the gold-plated sensors. The interaction with other instruments on the user side must be regarded as rather restricted. However, more recently the Biacore instrument can be combined with mass-spectrometry, and the company has started a co-operation with one of the world’s most prominent suppliers of such products.

More than 90 percent of Biacore’s customers’ academic research institutes engaged in research where knowledge about interaction between bio-molecules is essential.

Combinations with other products:

Biesse designs and assembles wood working machines as well as marble and glass working machines. The product is made up of 10,000/30,000 ties giving a finished product structure of about 700/2,000 items. Some of the product’s strategic items are developed internally by the company. In particular, the company designs and develops numerical control systems and engines. Other items, partly customized and partly standardized, are developed by Biesse’s suppliers. The former are mostly developed by closely related local companies; the latter are supplied by international actors. In respect to local suppliers the company acts as a strategic centre and leverages on the product specific competences developed within the mechanical local cluster of companies; these have developed high product-specific competences and historical strong product culture exists among them on which the individual focused company gives great impulse. On the other side, an increasing number of product items are acquired from international external suppliers when a standard content is high and these “stateless” suppliers appear to be “best in class”.

Biesse’s competences in product design and development thus grew up through a long term mechanical tradition in its geographical area. The company makes an extensive use of such local advantages in relation to product development. Moreover, it also takes advantage from experiences stemming from the use of the product by local users. As we have already pointed out, such advantages are exploited through intensive and constant contacts and exchanges with local counterparts. However these exchanges are not the result of some kind of self-developing processes.
They are consciously and deliberately organized within the set of the limits given by historical structures and processes. They are therefore approached with the intent to promote company’s joint development with its own related counterparts and to exploit a “made in Italy” image quite all over the world. That implies the need for a continuous control over the product and the keeping of a product culture that is strongly rooted in the Pesaro area.

7. Discussion and concluding remarks

Although the empirical illustrations presented above were just some very short examples of how place related features can be embedded into companies resource constellations, these underlines the importance of approaching place as a resource that companies can handle and combine with other resources. The discussed four types of resources can all be related to place in different ways. Any company can be more or less aware of the possibilities to utilise the synergies that can stem from the combination between place and other resources. There might be companies that make no conscious efforts at all to utilise place where there are others doing a lot. Among the latter there will further on be a large variety in what they are doing. They can choose to prioritise local counterparts or highly international ones or combine local and international in a systematic way. Furthermore, they can choose to do it for products or for facilities or for the localisation of business units or important counterparts. Thus, they have possibilities to try to be more or less heavy in relation to the chosen places and they can also have a more or less large variety in how the places are combined.

The following diagram can be used to get a picture of how place is used strategically.

<table>
<thead>
<tr>
<th>Resource element</th>
<th>Degree to which place is used (quantity dimension)</th>
<th>The way placed is used (quality dimension)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business relationships</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Why should then companies actively use place? What can they achieve from systematically utilize place, which are the main benefits? In order to discuss this point, we have to go back to the concept of network position. While the traditional market concept is not defined geographically, if not in regional, national or global terms, the market-as a network concept, as an enacted constructed environment, has an implicit place – a geographical dimension – in the basic foundation. Being formed by nodes and strings – it consists of something substantive – it has to exist in the space dimension with identifiable locations. The single actor, in order to be identified by others, needs a position that is made up by a set of resources, place included. In order to have a position in this kind of structure there is need for investments. The heaviness of the position in a network context is dependent on the investments that the company has made and these investments are made in resources discussed above which all have a place dimension. In these terms, investing in place is a way to gain or reinforce a company’s own position in respect to other companies and to other relationships which also have a place dimension. The more the company invests in one place-specific products, facilities, business units and relationships, the more it increases the heaviness of its position visa vi other products, facilities, business units and relationships existing in or close to this place. In some cases of high investments the place can even be seen as the company itself. Sometimes the place is identified as a specific set of companies, especially when their investments are closely connected to each other.

So, by utilizing place, companies can take advantages to reinforce their own positions in relation to some specific others. But there is another partly complementary and partly contradictory aspect. By investing in several places, the company can find new ways to combine these with each other. A specific place variety can give both positional and knowledge advantages and other benefits that come from companies’ successfully leveraging on the combining of their investments in different places. Combining heaviness and variety\(^4\) in the place dimension can improve abilities to become unique both as a participant in different development processes as well as creating structural advantages. Investments in place, in fact, give opportunities of a better utilization of context-specific resources. Thus, in contradiction to the research fields that underlines the importance to overcome “friction of space”, investigating place from a resource interaction perspective points at the opposite direction: The importance of taking advantage of friction of space. The role of place in the creation of friction between resources and furthermore, how this friction between direct and indirect related resources can create new resource combinations that takes advantages of existing solutions, is a challenging issue for future research.
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