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Towards understanding interaction and resource development
- The firm as a network buffer

by

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Introduction

While other theorists have elaborated on the definition of firms, industrial network researchers have rather focused on business relationships in industrial networks (see e.g. Axelsson and Easton 1992, Håkansson 1982, Håkansson and Snehota 1995). This focus may have different reasons. First, it has grown from recognition of the actual behaviour of firms who are often engaged in long term, closely collaborative relationships with one another (Johanson 1966). Since these relationships seem to contribute to the efficiency of the firms engaged in them (as opposed to seeing them as market imperfections), it seems fruitful to explore their features and effects. Second, it can be seen as a reaction against previous market theories where firms are described as independent units acting on 'atomistic' markets (Håkansson and Snehota

1989). Owing to the main interest being focused on what takes place *between* firms, not much interest has been focused on the firm per se (for exceptions see Henders 1992, Snehota 1990). In this paper we will try to elaborate further on how a firm can be viewed in an industrial network context. In particular we will contrast the network view of a firm with the one held by the 'resource based view of the firm' (RBV) approach (see e.g. Foss 1997).

We do not set forth to argue against this view or the validity of its arguments. We do, however, intend to use the RBV to contrast our main ideas. The reason for this is that while both the RBV approach and the industrial network approach share an appreciation for the important role of resources and resource heterogeneity (both mainly inspired by Penrose 1959), the approaches seem to arrive at very different conclusions in relation to "how firms should act". Three main differences in how resources and firms are considered may to some extent explain the different implications. Firstly, while the RBV focuses mainly on the internal resources and capabilities of a firm, the industrial network view rather focuses on resource constellations that span across firm boundaries. Secondly, while the RBV discusses 'core competencies' as something that separates one firm from another, the industrial network view discusses resources as negotiated between companies, which is considered necessary for a company to fulfil its role in relation to others. Thirdly, while the RBV looks at how the capabilities and competencies are used in order to get competitive advantage over other firms, industrial network research is concentrated on how they are adapted in interaction between two or more companies to fit in relation to existing resources and resource constellations.

In short, the starting point for the industrial network approach is that a firm is in constant interaction with other firms, and that its resources interact with other firms' resources. As a result of this interaction, resources are shaped and adapted to each other, and consequently the firms try to utilise and understand this resource interaction in order to adapt its boundaries towards these other actors. The resources, capabilities and competencies that one firm develops are then consequently seen as a result of these interaction processes rather than from processes internal to the firm. The consequences of this view of the firm are immense and widespread, and have a great impact on how we analyse the firm and its context, and what tools may be considered useful for managers who deal with this context. Arguably, this way of looking at

resources can create a contrasting picture with different implications than those brought forward by the RBV.

At the face of it the main difference between the approaches seems to be how the contexts of firms are seen. However, we argue that this has far reaching consequences for the view of firms and their resources. Hence, whether we start out from focusing on interaction and relationships within industrial networks, or if we start focusing the internal resources within the firm, necessarily have implications for what we arrive at. Below, we will further introduce the two approaches and their different starting points.

Theoretical frameworks

The network based perspective

Basically, the industrial network perspective separates between three layers of entities; resources, activities and actors (Håkansson and Snehota, 1995). Each of these layers consists of a number of entities, which are related to each other. In the resource layer, individual resources are tied together in resource collections and constellations. In the activity layer, activities are linked together in chains and structures, and on the actor layer, actors are bound together in actor networks. In addition to relations within the layers, the layers are at the same time inter-related, so that for example resources are used in activities, and actors control resources. However, the logic that binds individual layers together is not necessarily similar for each layer. Thus, two different actors may very well control two resources that are strongly tied together, and two activities that are closely complementary can rely on resources from several different firms. By this, the industrial network approach contests other approaches in which firms are considered as natural objects of study. Instead, network analysis often take as its starting point a certain resource constellation or a certain activity chain, and the ensuing analysis then cuts through a number of firms. This is, for instance, done by Waluszewski (1989), Wedin (2001) and Holmen (2001). In all industrial network analysis, however, researchers are aware of the fact that the chosen layer of analysis; whether actors, activities or resources, always needs to be understood in relation to its context, i.e. the other two layers.

One may ask how, in light of this, the industrial network approach looks at firms. First, it should be mentioned that theoretically, we could draw any boundary we like in a network. No boundary is inherently better or worse than any other is. However, certain boundaries present us with a useful way of analysing certain phenomena. Since firm boundaries are realised in the real world, they may as such provide a useful starting point for discussing certain phenomena, e.g. the organising of activities (Corswant et al. 2001, Dubois 1998). This is necessarily done across firm boundaries since any individual firm only controls some of the resources utilised in the development and production of the firm's products. Hence, it is also dependent upon resources controlled by other firms. In other words, the firm's resources are a part of larger resource constellations where the interaction among its resources and those controlled by others are crucial for the understanding of the firm in its network context. Likewise, the activities performed by the firm are linked to activities outside the firm, and thus most of the opportunities for exploiting similarities and complementarities (Dubois 1998, Richardson 1972) can only be identified when analysing activities and resources in their network context.

Within the industrial network approach, actors are modelled as having roles and positions in the network. Although the definitions of roles and positions differ within industrial network literature we will further on rely on the following definitions. Anderson et al (1998) argue that positions refer to an actor's situation in the network structure. Furthermore, Henders (1992:151) argues that the position of an actor is *"defined as much by the resources and actors that it is related to through activities as those resources within the legal circle drawn around it"*. Therefore, in line with Hulthén (2002) we will further regard the position of a firm as a description of its couplings to other firms in the activity and resource dimensions, while the role of the firm is relational, i.e. it must be seen from its counterparts' perspectives. Moreover, Snehota (1990) suggests that actors could be described in terms of 'role sets', encompassing a number of roles as seen from a number of different counterparts' perspectives.

The resource based view of the firm (RBV)

The RBV is a well-established research tradition, which has received much attention in the latter years, particularly in the field of strategic management. Basically, what the RBV does is to analyse the internal resources, capabilities and competencies of the firm to consider how these resources, capabilities and competencies can be nourished, developed, exploited (in comparison with other firms) and protected (from other firms). The main goal is to make sure that the firm stays competitive (compared to other firms) and preferably that it will (through the way it handles these resources, capabilities and competencies) gain a competitive advantage against other firms. According to Foss (1997, p. 4): *"... the overall objective that informs the RBV is to account for the creation, maintenance, and renewal of competitive advantage in terms of the resource side of firms. More specifically, we are interested in linking the explanation of competitive advantage, and the dynamics of competitive advantages, to the characteristics of resources, and how these characteristics change over time."*

It is easy to see how this framework appeals to managers and consultants. This does not mean, however, that the field is not an academic one. Rather to the contrary, the RBV as an academic field builds on solid traditions within economic analysis. For instance, Foss (1997) points to Andrews, Chandler, Demsetz, Nelson and Winter, Penrose, Richardson and Selznick as main sources of inspiration for the RBV. Interestingly enough, several of these authors have also inspired industrial network research, although most often in other ways.

The RBV relies on several more or less different definitions of resources. For instance, Wernerfeldt (1984) defines resources as *"anything that could be thought of as a strength or weakness of a given firm"*, while Barney (1991) regards them as something that *"enables the firm to conceive of and implement strategies that improve its efficiency and effectiveness"*. One related concept is that of 'core competence' defined by Prahalad and Hamel (1990) as *"the collective learning of the organisation, especially how to co-ordinate diverse production skills and integrate multiple streams of technology"*. Furthermore, the concept of 'capabilities' is a related and frequently used concept (Langlois 1991, Kogut and Zander 1992).

An example of a firm and its network context

In this section, we will present a firm and show some of the complexity of the context of the firm, and consequently the many ways in which this firm's resources are tied to resources held by other firms.

Part I: The product and the technological interface

The focal company can be seen as a distributor of electronic payment terminals. The terminals sold by the focal firm are placed at sales points (shops and service providers), and purchase data are transferred from the terminal to the servers of the data collecting agent (currently, the banks and banking associations in the Nordic countries are the primary data collecting agents). The focal firm can offer a range of electronic payment terminals that deviate from each other in two major ways: 1) in the communication technology that the terminal uses in order to transfer purchasing data from the terminal to the data collecting agent, and 2) in the data being communicated. The hardware and the major part of the software for the terminals are produced by a small number of suppliers for the global market. These suppliers have distributors in each country or region, and the focal firm is a distributor for two of these suppliers in the Nordic region (which includes the Baltic countries).

A significant amount of the software in the finished product must be specifically adapted to national bank standards in each separate country (in some countries there are several bank standards). As long as terminals were produced and sold regionally, this was not considered a problem, but as the suppliers wanted to enlarge their market to capitalise on scale advantages in the production of terminals, the national standards became a challenge that needed to be handled. The solution chosen was to modularise the product, enabling the suppliers to develop standard platforms to which modules (software and/or hardware) corresponding to national standards can be added. To make this solution work, the suppliers needed actors who had the necessary competence to make the national adaptations. The focal firm is such a firm, and thus, in addition to handling distribution tasks, the focal firm is also responsible for the national software adaptations and for the administrative job of having the software licensed by the proper authorities and accepted by the customers.

This division of labour between the suppliers of the terminal platform and the distributors requires technological co-operation between the parties. In some cases, what constitutes a part of the basic platform in one country may need to be adjusted in another. For this reason, there must also be technological co-operation between different distributors when the need arise. The network for supply of electronic payment terminals is illustrated in figure A-1.

Part II: The commercial interface

The final customers for this kind of product are the vast numbers of shops and service providers in the countries where the distributors operate. The customers are only concerned about the use features of the final product and thus consider it a 'black box' device. However, the final customer is seldom the one who makes the purchase decision. The reason for this is that the electronic payment terminal is seen as a part of a bundle of banking services. Thus, when a shop need a terminal for electronic payments it usually turns to its banking partner to ask them for advice. Depending on the country, the bank may suggest a terminal, or they may give the final customer a list of licensed terminals from which the customer can choose. Moreover, the banks in the countries within the market area of the focal firm have set up banking associations to handle electronic transactions between banks, and between private and business customers and the bank. In the context of the focal firm, these banking associations play the role of being primary data collectors. This means that the banking association(s) in most cases also are the ones who actually do the licensing of electronic payment terminals. In Norway, they even own the electronic payment terminals themselves.

For the focal firm, this situation means that not only must they deal with their final customers, but they must also cope with the distribution chain to the final customer, which in most cases include dealing with the banks and the national banking associations. The roles of the banking associations and the banks may differ among countries, and so the focal firm must adopt different ways of handling the commercial side, depending on the context in each country. In addition, there is a major technological interface between the suppliers of the terminals and the systems chosen by the banking associations in their role as data collecting agent, which must be handled by the focal firm. What may further complicate this situation, is a recent

development in the Nordic countries towards banks becoming 'Nordic' as opposed to national. Thus, mergers over the last two years have seen the rise of Nordea (Norway/Sweden/Finland) and Den Danske Bank (Norway/Denmark/Sweden), and more of these Nordic banks are anticipated in the following years. Furthermore, these banks are assumed to push for Nordic standards to facilitate their integration.

The development towards multi-nation standards is also fostered by an increasingly demanding group of large, multi-national firms that want to have products (including electronic payment solutions) that are possible to use all over the Nordic area (in order to reduce the number of specific variants). These firms have already discussed with the focal firm the possibility of a specific product that fit the standards in all three countries. Technically, such a product is possible, but this would currently mean dealing with three (or four) standards simultaneously, something that may not be cost-efficient for the customers.

Finally, the international credit card companies (such as VISA, AMEX, Diners Club and MasterCard) also exert influence on the design of the terminals, since most terminals are designed to handle both national bank cards (which work on national standards) and international credit cards. In particular, it now seems as if the credit card companies will push towards introducing smart-cards to replace the current cards which are based on magnetic stripe technology. Smart-cards will require online-connections of the terminals, and will include more security-oriented software (which needs to be adapted to national standards) and the use of advanced communication technologies that are currently only used to a limited degree (ISDN D-channel and internet-based connections). This may force banks to change card technology for the national bank cards, or it may result in a need for terminals to handle two different card technologies (magnetic stripe for national bank cards, and smart-cards for international credit cards).

Part III: Communication technology alternatives

The way in which the terminal communicates with the data-collecting agent is an important technological feature of it. When electronic payment terminals first became available, there were mainly two ways of doing this. One was through a reserved data transfer cable permitting on-line connections. However, owing to the high costs associated with this alternative it was only used in the most trafficked solutions. The

solution used by most customers was a 'dialled connection'. In short, this means that the terminal uses the analogue telephone system to dial up an analogue/digital “translator” (a PAD) and transfer the purchase data through the telephone system to the data network and from there to the data collection point.

However, during the latter 2-3 years several new communication solutions have become available. Currently there are six major alternatives; reserved line, analogues telephone, ISDN B-channel, ISDN D-channel, Mobile GSM-connection and an internet-based connection. Each of these alternatives requires different communication hardware and software. Moreover, the availability of the alternatives, as well as the technology used to realise the alternatives, differs among countries. For the customers, both the values and cost structures associated with the communication solutions differ. For instance, internet-based communication requires rather extensive initial investments, but there are no separate costs for the data transmitted. The value depends on other uses of the Internet solution.

As mentioned above, a future change in the card technology will also influence heavily on the choices of communication technology. Smart cards currently require terminals to communicate either via ISDN D-channel or internet-based connections. To deal with this situation the suppliers have separated the communication module from the standardised platform. Instead it is integrated into the part of the product handled by the focal firm, since it requires adaptation to the situation in each separate country. Thus, for the focal firm this development has resulted in dealing with an increasing number of interfaces and that more advanced technological co-ordination is needed. To handle this situation, the focal firm needs to co-ordinate its adjustments to the terminal software with the suppliers of the product platforms, the suppliers of communication services, the sub-supplier of the communication modules and with the actors responsible for data collection in the different countries (currently the bank associations). It is important in this case to understand that it is almost impossible for the focal firm to change the software of the suppliers of communication services. Thus, it is very much a case of adapting to this software.

Part IV: The context of the product

Currently, the product is distributed and sold as a separate product. However, this will not necessarily be the situation in the future. For instance, electronic payment

terminals and cash registers are logically related from the point of view of the customers. Cash registers are produced by large, multinational firms and unlike electronic payment terminals, the need for national adaptations is limited. Another possibility is that both cash registers and electronic payment terminals become components in the business data system. Multinational customers have already been requesting such systems since one integrated solution in all their stores, would represent a substantial cost saving for the customer. However, since the components of such a system would require different degrees of national and perhaps even company specific adaptations, it is currently difficult to provide such integrated systems.

Part V: Data collection: A new business opportunity?

The focal firm is responsible for the maintenance and upgrading of software in the terminals installed at the customers. Maintenance is usually handled through remote guidance (usually by telephone) or remote error correction, but can sometimes be done by downloading entire software packages to the terminal in need of maintenance. Hardware errors are usually dealt with by replacing the terminal and then (if possible) working on the faulty unit in a centrally located repair facility. Software upgrading is always done through remotely controlled downloading of software to the terminals. Both these tasks require the focal firm to have centrally located servers in order to handle the software.

It is possible for the focal firm to use this competence in handling data networks to function as a data-collecting agent. In fact, recently, the focal firm has been asked to do such a job in Denmark. Large, multi-national customers have increasingly asked for such a service, both because they want to do data collection on a Nordic level (which is currently hampered by the fact that the primary data-collecting agents are the national bank associations), and because they want to use the data for purposes of market analysis and sales promotion. Finally, some of the larger companies such as IKEA and ICA have their own company-specific credit/debit card, and their own banking license, and as such would like to see a data-collecting agent which is NOT linked to the banks in the way that the banking associations are. The focal firm could become such an agent, at least when it comes to technical competence.

Analysis

Below, we first discuss the logic of the focal firm's role in the network. Thereafter, we discuss the overlapping resource constellations, in which the terminal is a part, of relevance to different actors. Finally, we discuss the anticipated changes in the network and how these may impact on the focal firm's role and position in the network.

The logic of the focal firm's role in the network

The case describes a firm who is taking on necessary adjustments of interfaces between products and technologies developed mainly by other firms. Its possibilities to influence the developments are limited and the interaction with its various counterparts is mainly focused on adapting the products to fit into the contexts of relevance for the users of the products. Its role as a 'network buffer' in between other actors seems to be the main reason for its existence. As a 'network buffer' the focal firm enables its supplier(s) to maintain the development and production of products based on standard platforms, and hence, to achieve economies of scale and specialisation. These products can, however, not be used without adaptations to the end customers. Hence, as a 'network buffer' the firm also enables these customers to maintain their view on, and use of, the product as a 'black box' device. The focal firm in our example surely have certain competencies and skills that enable it to make the adjustments. However, instead of focusing on the internal capabilities or resources of the firm we will mainly focus on its function in relation to its counterparts as we find this a more relevant route to understand its role, and possible extensions of that role, in the network.

There are similarities among the activities that the focal firm carries out for its various customers since the same resources can be activated in relation to them. Conversely, there are apparent dissimilarities among the activities carried out by the focal firm and the ones carried out by its counterparts. This, in turn, enables all of them to benefit from similarities captured by others. This is a general notion (Richardson 1972, 1995). In this particular case, the similarities captured by the focal firm appear as a result from utilising the same resources e.g. servers, knowledge about standards, hardware and software. By taking on adjustments of the technical interfaces the focal firm

enables its customers and suppliers to capture other similarities. This is also why we refer to the role played by the focal firm as a 'network buffer'.

Overlapping resource constellations - the terminal in its different contexts

The focal firm's resources, including knowledge, skills and physical assets such as servers, are all connected to various resources of other firms. The resources can be analysed in the different constellations of relevance from different actor's perspectives. For the customers the use features of the terminals are of obvious importance. Hence, the adjustments to national standards and communication solutions are of great importance to these firms. This sets the constellation of relevance for the focal firm as it needs to adjust the terminals to these standards and thus to have some knowledge about the resources of the actors developing it. Through interaction they are also able to influence some features of the standards, either directly or indirectly through the counterparts' knowledge of the focal firm's resources. Although the actors have different views on their resources and the constellations they are parts in, which impact on the ways in which they try to influence the development, they have a common interest in making the resources fit together.

Hence, the terminals are parts of different resource constellations which affects different features of them, see figure A-1.

The contexts pointed out in figure A-1 are here identified from the focal firm's perspective on the terminal. Hence, they are not general contexts but specific to the firm's perspective on the terminal. If, for instance, the terminal suppliers' perspectives were put in focus, partly other contexts would appear as relevant.

The focal firm and the anticipated changes in the network

There are a number of anticipated developments in the focal firm's network. Below we discuss these changes in relation to the role and position of the firm.

Some of the developments within the field may serve to strengthen the existing role of the firm as a "network buffer". One example is the development of communication technologies. Several "new" communication technologies have become available during the latter years, each with their own set of advantages and disadvantages

regarding their links to other resources held by the final customers. This development puts even more emphasis on the importance of adapting the standardised product platform to local and national standards, since each of these telecommunication technologies must be implemented differently from country to country. Also, since the telecommunication technology used is linked to the type of card (smart-card versus magnetic stripe card) as well as to the security software necessary (for on-line access such as the ISDN-D and Internet accesses), the number of technological interfaces for the focal firm to handle increases. Another example is the development towards separate, customised systems required by the larger customers. Again, this serves to further increase the need for adaptations in the product platform towards specific users.

However, some of the developments mentioned may also serve to reduce the importance of the role presently held by the focal firm. For example, the development towards Nordic banks may lead to an introduction of one Nordic bank standard. The development of Smart-cards initiated by the international credit card companies may reduce the number of standards even further by introducing European or even world-wide standards for the interface between terminals and bank systems. In both cases, the focal firm's role may be reduced in importance, since there may be less need for adaptations to local and national standards.

An interesting development is the idea of expanding the activities of the focal firm into taking on data collection for some of its customers. This may seem a natural extension of the focal firm's business, as it would extend its use of current resources such as servers, and be done for its present customers. However, the focal firm's role would change as a result since this would not be related to the previous role of buffering between standards. Rather, it would imply going into the content dimension of exchange, although among previously known actors. It would probably also mean that the relationships with the banking associations would have to change since data collection and exchange is the current foundation for their roles in the network. Hence, although taking on data collection would not require much investment, it would change the role of the focal firm in its network, which would call for analysis of how the changing role would impact on individual relationships and on the network as a whole.

Concluding discussion

The main argument in this paper is that the view on firms, and consequently on what they are able to do, turns out differently when considering a firm from a network perspective compared to if taking a firm internal point of view. This basically boils down to how the notion of heterogeneity is interpreted. The resource-based perspective emphasises *heterogeneity of firms* as a necessary starting point for theorising. According to Foss (1997:347) "*the overall objective that informs the RBV [...] is to account for the creation, maintenance and renewal of competitive advantage in terms of the characteristics and dynamics of the internal resources of firms*". Furthermore, the weak points identified are concerned with "*the lack of integration of the analysis of firm growth and change with the analysis of sustained competitive advantage...*" (ibid:351). This could perhaps be related to what is referred to as the 'environment problem' discussed by Foss and Robertson (2000:2): "The RBP is overly 'introspective' (Porter 1994) and has a tendency to neglect the environment or only incorporate it implicitly under the rubric of such broad competitive forces as 'the threat of imitation'." Hence, where external forces or the environment are concerned the focus is on competition. In addition, technological change is treated as being endogenous to firms Foss and Robertson (2000:3).

Below, a further discussion on the differences in views between the resource-based perspective and the industrial network perspective follows. In particular, we discuss the activity and resource layers as a ground for understanding the roles and position of the firm.

Activities

Industrial network research has been inspired by Richardson's (1972) conceptualisation of activities and co-operation. The RBV also draws on Richardson (1972). According to Foss (1997, p. 12): "*His main idea is that firms enter into co-operative relations when they need access to the services of the 'dissimilar, but complementary' capabilities of other firms.*" This statement may illustrate how Richardson's ideas have been applied within the RBV. Industrial network research has applied Richardson's model differently mainly in two ways: (1) Richardson discusses the co-ordination of **activities** and argues that co-operation is needed to co-ordinate

dissimilar and **closely** complementary activities. The latter are distinguished from complementary activities in that closely complementary activities require *ex ante* matching of plans, while complementarity among activities simply implies that they are sequentially dependent. Therefore market exchange may (as previously recognised) co-ordinate dissimilar and complementary activities, while co-operation is needed to co-ordinate activities that are closely complementary and dissimilar. (2) Richardson analyses the co-ordination of activities arguing that co-operation is a third distinct form of co-ordination (in addition to previously recognised markets and firm internal direction). Hence, the individual firm's perspective is **not** emphasised in his argument. Rather, he states that co-operation seems to be a widely applied form of co-ordination that cannot be ignored if we want to understand 'the organisation of industry'. Where resources activated by the activities are concerned it can be argued that this is another, although related, issue. When activities are closely complementary and dissimilar, and as such efficiently co-ordinated through co-operation, or relationship, the basis for this efficiency is that these activities may be similar, and thus utilise the same resources, as other activities. Where industrial network research is concerned, this points to the importance of recognising connections between relationships to understand the foundations for the organising of industry.

Resources

In the RBV, individual resources are the main units of analysis which "may in some cases be completely legitimate because the relevant resource is sufficiently well-defined and free-standing" (Foss 1997:355). However, Foss also notes that this procedure in some cases may "*lead analysis astray and result in wrong advice*". This is when "*there are strong relations of complementarity and co-specialisation among individual resources, so that it is not really the individual resources, but rather the way resources are clustered and how they interplay, that is important to competitive advantage*" (ibid). Therefore, Foss (1997: 356) suggests that "*... one should exercise much care when analysing resources on an individual and free-standing basis [...]. It may often not be the uniqueness or rareness of the resource that matters, but rather its ability to fit into a system. This question of embeddedness leads into a broader embeddedness issue, namely the firm's embeddedness in its environment.*"

Hence, one of the main features of the RBV is to use the resources controlled by a single firm as a starting point for the analysis. Where the industrial network perspective is concerned, the focal issue is not what individual firms can do with their resources but how they can be used and combined with other resources. Thus, resources are never viewed as well-defined and free-standing. By assuming *resource heterogeneity* as an important starting point, the value of a resource is dependent upon the resources it is tied to (by definition). Obviously, this notion of value is valid within, but cannot be limited to, individual firm boundaries. Rather, its essential message is that resource ties across firm boundaries need to be considered in order to understand the value of resources. Hence, the relevant boundaries in relation to any one resource do not coincide with an individual firm's boundaries, but may relate boundaries and serve as ties between resources that reside within different firms. If limiting the analysis to the firm internal ties among resources their value would necessarily turn out differently. And, the question of how resources and firms relate to 'the environment' would remain. Hence, while some researchers within the RBV are concerned that the external aspects might not have been sufficiently considered, we argue that considering the context of a firm changes the whole idea of what a firm is. Another way of expressing it is to say that external aspects can not simply be added to the internal ones.

Interaction

If the value of resources are assumed to be dependent on what other resources they are combined with, the importance of interaction become apparent for several reasons. First, through interaction the firms are able to influence, and are influenced, in the process of resource adaptation. Adaptations are made to fit resources into resource constellations that span across several firms' boundaries. This enables firms to specialise based on a limited set of resources, and still, through interaction influence connected resources beyond its boundaries. This is very different from suggesting that firms should exercise control over its resources and recommend independence of firms and their resources.

This argument points to the importance of considering the way in which resources, skills and capabilities held by several actors interact with each other, and not what particular resources a single actor possesses at a certain point in time. In line with this,

the role of the focal firm in our example becomes the framework for a process of interaction with others, which in turn shapes and develops the resources and skills of the firm as a single actor. In particular, this is of importance when contemplating how to expand the use of these resources, since the connections to other actors' resources are also functions of the other actors' roles vis-à-vis one another.

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FIGURE A-1

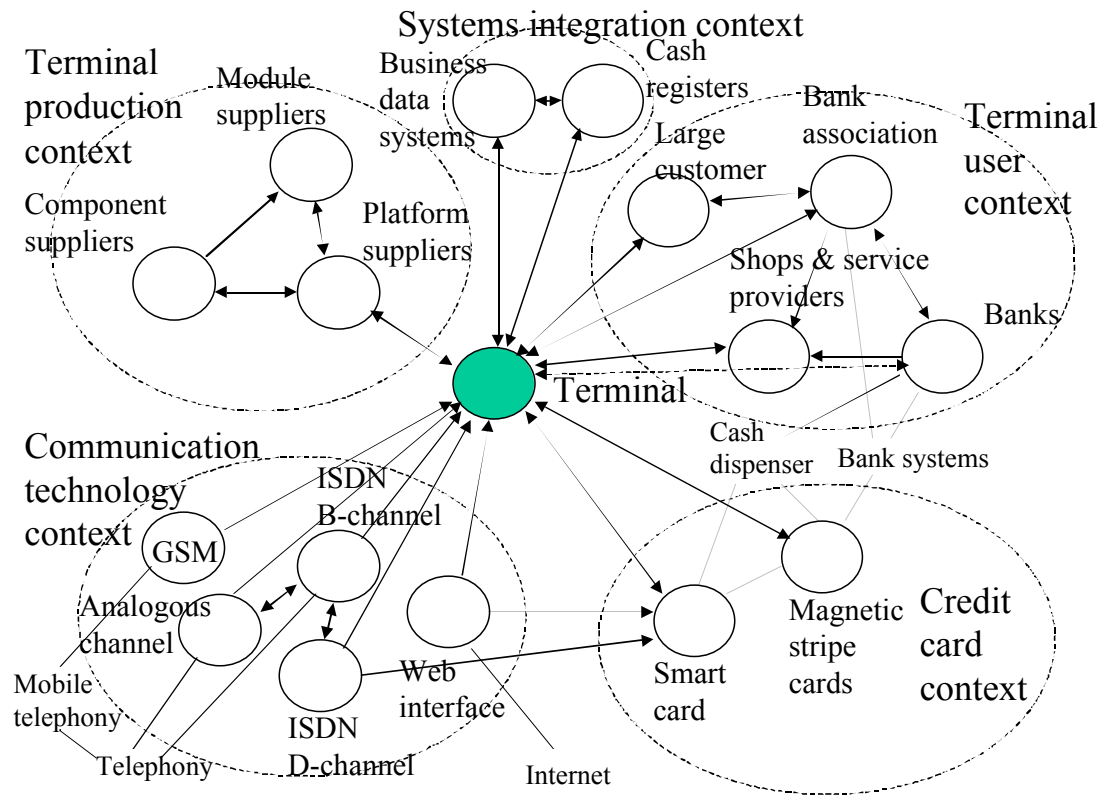


Figure A-1. The terminal in its context