

# **Applying network approach to commercialization of innovations: Case study on nets to create markets for innovations**

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## **ABSTRACT**

Commercialization and market creation of an innovation is known to be a very demanding task. However, a network may help a firm in the commercialization efforts. The study analyses how network is applied to the commercialization of innovations. The study contributes to both innovation management and network research. The study describes and analyses with two cases, how the network approach can be applied to commercialization of a radical innovation and how such nets can be formed. Theoretical background of the study stems from network and innovation literature, referring to studies on industrial networks, strategic networks and innovation networks. Results indicate that commercialization nets could be considered as strategic nets, marketing nets, innovation nets, issue-based nets and new business nets. The dissimilarity of network actors and the multidimensional structure of the network help in creating a market for a radical innovation. Trust, clear goal and agenda and commitment to the issue indicate successfulness of such network. Furthermore the study shows that the actors in the R&D network and the relations of these actors can be very important also later in the commercialization stage.

**Key words:** innovation networks, radical innovation, commercialization, market creation, strategic networks, case study

## 1 INTRODUCTION

Innovations and new products are increasingly developed within R&D networks. But after then – can network approach contribute the commercialization stage, too, when innovations are commercialized and marketed to the partners and end-users?

The transition from invention to an innovation (Schumpeter, 1934) presumes both a successful product or service launch and diffusion in the market. Investment in the innovation and R&D may be high but the risk of rejection is still quite high. This makes the manner in which the commercialization is handled important. However, the commercialization requires resources and also the newness of offerings creates various challenges for the innovating firms. Innovations “involve dramatic departures from existent products or their logical extensions” (Veryzer, 1998) and therefore customers and partners in the business environment tend to resist them (Christensen, 1997). Various researchers (e.g., Easingwood and Koustelos, 2000; Urban and Hauser, 1993) have emphasized the critical role of the launch stage. Radical innovations can be defined as new products or services, which require considerable change in customer behavior, are perceived as offering substantially enhanced benefits, and are also technologically new (cf. Veryzer, 1998).

When companies develop new complex products for a market that is not well defined or does not exist, traditional marketing tools are of limited use (Dhanaraj & Parkhe, 2006). Because of novelty, customers, distributors, partners and other actors in the business environment may find it hard to accept a new product that significantly alters the prevailing market structure (Christensen, 1997). Especially, in case of radical innovations, demand, markets and delivery channels have to be created. Past research (e.g. Ritter and Gemünden, 2003) indicates that networking with other actors provides access to complementary technological knowledge and facilitate innovation R&D networks, but overcoming the technological challenges is not enough to turn invention into innovation, i.e. to make it succeed commercially. Firms – and especially small firms - may encounter problems in the commercialization, because they lack economic and competence resources needed to reach potential customers and they may need collaboration with larger firms to achieve required managerial, financial marketing and distribution resources (Alvarez & Barney, 2001) and to provide legitimacy and reputation spill over effects for the radical innovation (cf. Teece, 1986). In this paper we suggest, that collaboration through a network may help a firm to overcome the challenges of commercialization phase. Network approach in the commercialization of innovations can be crucial, since the network e.g. of complementary organizations can promote the innovation to the customers (Sandberg, 2008). Collaboration seems to reduce the uncertainties associated with radical innovations and new markets (Slater & Narver, 2000). A network can provide access to resources of other firms (Håkansson & Snehota, 1995), to information, markets and technologies, and allow the firm to achieve its strategic objectives (Gulati, Nohria & Zaheer, 2000). Nowadays, innovations tend to be multi-technological, knowledge-intensive, and increasingly based on solution-oriented product-service combinations, that are difficult to understand and communicate, and thus new complementary competencies, for example, in marketing or distribution are required (Bullinger, Auernhammer & Gomeringer, 2004).

Additionally, the emergence of radically new business fields is increasing and this kind of business fields are characterized by both technological and commercial uncertainty (Möller & Svahn, 2008). When business moves from autonomous and simple innovations to complex ones, uncertainty increases in estimating the potential success of an innovation. The transition also increases need to mobilize a group of specialized actors to exploit the innovation and requires more supporting systems for the innovation to be commercialized. Thus, network approach linked to innovation is more and more important, since when innovations' complexity increases, firms need many competences and its is improbable that may single firm can master the situation. (Möller & Svahn 2008). Also recent finding of Reid and de Brentani (2008) show that proactive market orientations and active networking and webs of relationships formed ahead of competition are linked to early performance of innovating firms and this facilitates their ability to attract capital, early success with customers and technical competitive advantage.

There are also studies on collaborative marketing (e.g. Neves, 2007) and marketing alliances (e.g. Rich, 2003) but these studies tackle the issue on more general level without paying attention on the commercialization of innovations and new products. Salo et al. (2008) contemplated how a business network was intentionally developed for mobile marketing. Even though the study focused strongly on mobile marketing it indicated that network structure and dynamics play a crucial role in marketing innovations.

The research of innovation networks, however, has mostly been focused on R&D networks and network studies have focused on producing and distribution and R&D networks (e.g. Ritter & Gemünden, 2003).

Commercialization and marketing functions of networks have been neglected and mentioned only briefly (Möller, Rajala & Svahn, 2005; Bullinger et al., 2004; Möller & Svahn 2008; Millson and Wilemon, 2008). In other words, prior network literature have not sufficiently addressed to commercialization stage. Very seldom and only recently commercialization through networks are empirically illustrated even briefly (for example Partanen et al., 2008; Heikkinen et al., 2007). Heikkinen et al. (2007) shortly illustrate how new service development net fragmented into separate nets because actors in R&D nets continued to pursue their own commercialization goals. This research indirectly confirms that firms in innovation networks do face particular networking challenges in commercialization phase. It is therefore worth analyzing how network approach may contribute in the commercialization phase.

Furthermore, innovation networks are mostly high central networks, where a hub firm acts as an initiator and “orchestrator” (Dhanaraj and Parkhe, 2006). However, horizontal networking towards new offerings and value generation logics are increasing (Möller & Rajala, 2007). We assume that network formation and management are different in low-central horizontal nets. Previous research has concentrated on organically evolved networks, and intentionally developed nets have had less attention. (Möller et al., 2005). Therefore we are focusing on the formation of commercialization net, and especially on intentional processes to form low-central nets.

Thus, this paper concentrates on how network approach is contributing to commercialization activities related to innovations. In the paper, we are focusing on commercialization phase of innovations and analyze how several organizations are integrating their resources to create markets for innovations. The aim of the paper is to deepen understanding, *how network approach can be applied commercialization of an innovation*. This paper discusses commercialization nets, their goals, actors, structures, formation process, and manageability. The first section discusses how network approach can be linked to commercialization: How commercialization nets can be defined? What network types can be related to commercialization nets? The second section describes the actors and infrastructure of commercialization nets: What kind of actors and resources are needed in innovation commercialization net? What kind of structure can be? What is the motivation and trigger to create or participate to a commercialization net? The third section discusses, through what kind of process commercialization nets emerge or are intentionally created? What kind of challenges may emerge during formation process? After theoretical discussion, we move to the empirical part that concentrates on two cases describing how firms that developed radical innovations are aiming to use their network relations in the market creation. After illustrating the cases, analyzing and comparing them, we come into conclusions and we are suggesting some managerial implications concerning what are the challenges and opportunities of network approach in commercialization. This study aims to narrow this research gap and to contribute to both the network and innovation management research.

## **2 COMMERCIALISATION NETS**

### **2.1 Perspectives and concepts to outline the commercialization net**

The terms launch and commercialization are often used synonymously in a connection with new product introduction since they both refer to introduction of something new to the market, but some distinctions between the concepts can be made (see Lehtimäki et al., 2008). The launch refers more to new product introduction, describes a shorter activity time frame and is seen a planned set of marketing activities and the commercialization emphasizes more the new technologies and the innovation degree (Lehtimäki et al, 2008). Commercialization can be linked to brand development, launch communication and organizing distribution and services. Commercialization networks can also be linked to distribution networks, marketing networks and reputation networks, and social networks (See Partanen et al., 2008).

Several concepts within network related literature can be linked to commercialization nets. Whereas business relations are usually perceived as dyadic relations e.g. between supplier and distributor or supplier and customer, the network theory sees relations as larger entities of direct and indirect relations. A net may refer to subnets or relationship portfolios focusing on for example innovation (Ritter & Gemünden, 2003; Heikkinen et al., 2007). In this study, the commercialization net concept is use to depict a group of actors participating a commercialization of an innovation formally or informally. Nets and networking can also be linked to *alliances*. Alliance typically refers to dyadic partnerships that are simpler and short term in nature than networks (Provan et al., 2007). For example technology alliances (Awasu, 2006) can be related to licensing agreements, marketing distribution agreements, production and development agreements and joint ventures and marketing alliances (Rich, 2003).

Various network approaches and theoretical conceptualizations with various methodological and thematic emphases (for example Araujo & Easton, 1996) can be linked to commercialization phase, such as industrial networks, innovation networks, entrepreneurship networks, social networks, issue-based networks, marketing networks and strategic networks.

The commercialization network can be seen as a part of *the innovation network*. Innovation network is built to develop, produce and market innovations (Ritter & Gemünden, 2003). However, the studies on innovation networks often consider only R&D-nets, and networking related to commercialization of innovations have been mentioned only bypassing (Möller & Rajala, 2007; Möller et al., 2005; Bullinger et al., 2004) and only few studies include commercialization phase when analyzing innovation networks empirically (for example Heikkinen et al., 2007; Partanen et al., 2008).

There have also been innovation related temporal nets with a goal to establish new technological standards, such as coalitions to for the digital mobile-phone systems (e.g. GSM in Europe) (Möller, Rajala, Svahn, 2005). This kind of networks can also be described as *issue-based networks* that are formed because of a specific ‘issue’, e.g. in order to influence operational environment or to create demand in the future (Melo Brito, 1999). According to Melo Brito (1999, 93): “An issue-based net constitutes a form of association mainly based on cooperative relationships amongst actors who aim to cope with a collectively recognized issue by influencing the structure and evolution of the systems to which they belong through an increased control over activities, resources and other actors.” Actors of an issue-based network share mutual interests – not only economic, but also social and political interests. The form and structure of an issue-based network can be formalized or non-formalized (Melo Brito, 1999).

Network relations built to commercialize an innovation can also be characterized as a *strategic net* or *strategic alliance*. Strategic networks provide for the firms access to information, resources, markets and technologies, and allow them to achieve strategic objectives (Gulati, Nohria & Zaheer, 2000). The goal of the strategic net is to achieve long-term competitive advantage and mutual benefits through increasing the efficiency of value system or developing completely new business concepts. For example proactive companies aim to affect their position in the field already in the pre-market phase of the business field evolution by networking and thus to accelerate the market construction (Möller & Rajala, 2007). Several activities, such as R&D, production, logistics, and marketing, can be carried through the strategic net. The power in the net can be centralized or decentralized and the permanence of the net can vary from permanent and continuous to temporal. (Möller et al., 2005; Möller & Svahn, 2006; Jarillo, 1988). The ultimate type of strategic nets is emerging business nets that are created because the actors pursue radical changes in existing value systems of new value systems. In these nets naturally the value activities, ideas and actors are blurred and vague. The typical goals of the net are to influence the emerging field and to create new commercial applications (Möller & Rajala, 2007).

*Marketing networks* are studied as strategic networks (Rocks et al. 2005), collaborative marketing (e.g. Neves, 2007) and marketing alliances (e.g. Rich, 2003). Marketing networks are used to manage product decisions and promotional activities, to plan marketing activities, to manage distribution, to acquire marketing resources, to increase market knowledge and to market innovation (Carson et al., 2004).

*Social networks* can be related to all economic networks, since social networks typically precede resource integration and networking (Larson, 1992; Partanen et al., 2008). Social networking usually needs to extend when the innovator firm moves from offering development to commercialization (Partanen et al., 2008).

## 2.2 Activities and tasks in the commercialization phase

The commercialization net can contribute in launch phase, since actors of a commercialization net may possess required resources and relations to be used in commercialization phase. We see that required resources and occurring tasks originate firstly from features of the radical innovations by Rogers (1983), – namely complexity, trialability, relative advantage, observability, and compatibility. If the innovation is perceived as difficult to use and understand, i.e. complex, it is not usually adopted easily. On the other hand, the ability to test the innovation enhances its adoption, since trialability reduces customer uncertainty; trials may reinforce an initially favorable attitude towards the innovation, or even turn negative attitudes positive (Robertson, 1971). The innovation needs to provide new benefits for customers for example by delivering value to customers (Kaplan, 1999) and by providing them with a completely new level of functionality (O’Connor, 1998). Customers evaluate its relative advantage (Rogers, 1983) and if the benefits are not known, they need to be conveyed to the potential customers (Guiltinan, 1999). The more observable they are, the faster the innovation tends to be adopted. The benefits of an innovation tend to be more easily observable when they are compatible, i.e. consistent with existing values and beliefs, with previously introduced ideas, and with the

needs of potential adopters. (Rogers, 1983) Past studies (Beard and Easingwood, 1996; Easingwood and Koustelos, 2000) have identified that awareness building, customer education and giving customers the opportunity to try the innovation before buying are critical activities for innovation success. Customers are required to learn about a new product and therefore customer education is an important task; previous research has shown positive relationship between customer education and new product success (Eng & Quaia, 2008). Also marketing communication is important in commercialization and new product launches and especially in high-tech offerings is effective, if both "what" to say and "how" to say supports the launch. The resistance towards new product adoption can be overcome with supporting brands which reduce perceived risks of the customers and clear, uniform, synergetic messages delivered through coordinated integrated marketing communication channels (Chen et al., 2007). Some innovations seem to benefit from word-of-mouth communication (Hoeffler, 2003).

We assume that secondly, characteristics of the innovator firm influence on what kind of actors and resources are needed in the net and the formation process. When technology and science based offerings develop from offering development to commercialization, firms need large and well-known companies such as distributors and R&D partners that are able act as reference partners to enhance the innovator firm's reputation as a credible actor in the market (Partanen et al. 2008). Dropping high profile names of achieved prestigious partners and mentioning relationships with famous people or companies help in creating legitimacy and making the new venture familiar and credible to their key stakeholder groups (Zott and Nguyen Huy, 2007). Established companies with good reputation tend to create credibility also for their partners. Thus, we assume that in order to gain credibility in the market especially smaller-scale innovative firms need to get large, established companies in the commercialization net.

To summarize, we assume that in case of innovations – particularly in case of radical innovations - actors and resources related to following tasks are required in a commercialization net: trust creation, credibility establishment, awareness building, customer education, trial opportunities, distribution and complementary offerings. The challenge lies however in what kind of actors should be involved and how to get these actors interested and committed to the network. This is discussed in the following sections.

### 2.3 The actors with resources and the structure of a commercialization net

Thus, commercialization nets need compatible network actors to play tasks related to commercialization phase. Network *actors* can be persons, business units, firms or other organizations and the interaction can be based on business or non-business exchange (Håkansson & Snehota, 1995; Ritter et al., 2004). Actors in the innovation nets can be e.g. competitors, distributors, buyers, consultants, suppliers, research institutes and universities, government agencies and industry associations (Ritter & Gemünden, 2003; Möller et al., 2005; Bullinger et al., 2004). Hence, the commercialization nets are assumed to be consisted of this kind of actors.

*Resources* of actors in commercialization net can be related with technical competence, knowledge, customer knowledge, market knowledge and relations itself. When the firm with new science-based offerings moves towards commercialization and growth, it needs expert networks within local municipalities and universities to establish trust and expertise, large national wholesalers and new distribution networks of small local agents, international distributors and public authorities, who provide information and advice within their own expert area (Partanen et al., 2008).

Similarity of actors may establish trust and knowledge transfer and thus also predict cooperation success, but too much similarity could limit the novel elements of alliances. Similarities can be addressed to strategic fit or similarities between organizations in terms of technology, products, markets or cultures and administrative systems (Saxton, 1997). However, Granovetter's seminal paper (1985) illustrated how weak ties convey more new information. Therefore it is important have both weak and strong ties in innovation networks, since weak ties with different ideas and approaches compared to strong ties with similar ideas and approaches bring new ideas and therefore they are most potential for innovations (Möller and Svahn, 2006; Granovetter, 1985). In other words, those who are able to make new links between previously unlinked actors are more able to get new ideas for technology and market development ahead of the competitions (Reid and de Brentani, 2008)

The *structure* of the commercialization net can consist of vertical or horizontal relations or it may be multidimensional. *Vertical nets* are often supplier and channel nets. *Horizontal nets* can consist of cooperative arrangements and co-operation between competitors (for example air line alliances) that are made to achieve market power and reach complementary resources. These kinds of nets are created when firms recognize that they have products, channel relationships and systems that can be combined to achieve a stronger position in competition. (Möller & Rajala, 2007). However, horizontal nets are seldom purely horizontal, and they often

contain vertically positioned supplier and distributor companies and are complex diagonal multifield nets (for example airline coalitions are linked to hotel chains and car-rental companies) (Möller & Rajala, 2007; Möller et al., 2005) Möller and Rajala (2007) note that for example in Achrol's network classification (1997) all network types are formed around a single powerful hub company which integrate and control the activities and resources. They see however, that the number of horizontal or diagonal value networks in technology and knowledge intensive industries cooperating in order to develop a new technology or assemble complex offerings is increasing. *Multidimensional* value nets are usually formed by a hub organization that "creates its market offer by integrating the products and services required from a group of different types of suppliers and channel firms" (Möller et al., 2005, 1278).

## 2.4 The emergence and formation process of commercialization net

Forming a commercialization net can be considered as *a process* consisting various phases, during which actors sustain continual negotiation of mutual expectations and evaluate commitments for future action (Ebers, 1997). For example, Larson (1992) identified three phase: firstly, preconditions for exchange are set and foundation for the net is formed by reducing uncertainty, expectations are cleared and early cooperation is enhanced. Secondly, the conditions of dyadic relations in networks are built during a trial period when reciprocity and trust are created and expectations are set, and rules and procedures, implicit and explicit, begin to form. Thirdly, actors concentrate on integration and control; they focus on operational integration, strategic integration and social integration. New product development networking as a process evolves from awareness phase – that is organizational needs, core competences are potential partners are identified and selected - to exploration phase when actors need to understand partners' needs and interconnectedness, assess potential day-to-day operations and select the structure of the network. In commitment phase trust is built and alliance is implemented (Millson & Wilemon, 2008). When new business field networks are emerging, in exploration phase of future business, parties need to first perceive and interpret emerging ideas and concepts and secondly select and focus on some ideas, and this causes also conscious lock-in. Later, when actors mobilize the business, agenda need to be created and communicated (Möller & Svahn, 2008).

Organizations are motivated to participate in networks because through them they may get access to resources of other actors (Håkansson & Snehota, 1995). In commercialization nets, actors can pursue resources related to technical competence, customer knowledge, market knowledge and relations itself. The joining of complementary resources allows firms to focus on one's own resources and to utilize partners' resources in the marketing of innovations and to offer complete solutions instead of product only (Bullinger et al., 2004). SMEs, especially, are tempted to collaborate with larger organizations to achieve managerial, financial marketing and distribution resources (Alvarez & Barney, 2001). Besides, collaboration helps firms to overcome the difficulties related to internationalization (Freeman et al., 2006). Network learning is one positive outcome of networking, since organizations learn from organization around them (Provan et al., 2003). Furthermore, firms may also benefit from indirect ties; i.e. direct relation to another actor offers indirect relation to its relations, which considerably increases the resources available (Håkansson & Snehota, 1995). The growth and increased reputation of innovating firm can make the innovation firm an attractive partner for other actors in the field (Partanen et al. 2008).

The decision to enter into a commercialization net can be based on multiple, multilayered short- and long-term economic criteria and goals. Even though the actors may have private goals there should also be a common goal to motivate the formation of a commercialization net (cf. Gulati, Nohria, & Zaheer, 2000). The potential goals may be according to literature (Ritter & Gemünden, 2003; Ritter, Wilkinson, & Johnston, 2004; Gulati et al., 2000; Bullinger et al., 2004; Melo Brito, 1999) the following: growth and profit, access to new business relations access to information, knowledge and learning, access to new markets, ease of communication and organizing activities, enhancement of reputation and image, need for support because of complexity of product, access to finance, aligning strategies and roadmaps, and gaining negotiation power.

It is worth noting that if the network is based on very radical change from value creation perspective, the goals and motivations may remain somewhat blurred. At the most radical level, strategic innovation value nets are formed with a view to creating new technologies or new business concept and this requires complex collaboration and learning processes, and this kind of co-operation can be difficult to specify clearly in advance (Möller et al., 2005). However, in order to construct or choose the right alliance, the organization need knowledge about the future state and forecast the end-state vision after the alliance is commissioned (Awasu, 2006).

We also see, that motivation of the innovator firm is assumed to differ from the other commercialization net actors and therefore the needs and motivation of pursued net actors need to be identified and illustrated in

order to stimulate to participate such a net.

Networking can also bring disadvantages for innovating firms: increased capabilities and greater diversity of ideas can turn into coordination difficulties, access to technology can turn into intellectual property problems, cost reduction can turn into need to invest in network projects, and access to new markets into market opportunism and creation of 'future' competitors (Millson & Wilemon, 2008).

The main streams of formation processes are evolutionary and intentionally created nets (Möller et al., 2005). Commercialization net formation might follow one or the other path. Commercialization net can also be seen as a continuum of the R&D network (Heikkinen et al., 2007). We see that intentionally developed innovation networks are increasingly needed in commercialization, since the innovations are more and more complex and new infrastructures and groundings for innovation adaptation are needed. For example, firms need to develop relationships with political and social actors to assist the emergence of new technological paradigms and the development of new business fields (Möller & Svahn, 2008). The nature of formation process might affect the success of network. Human & Provan (2000) studied two formally constructed networks - one that succeeded and one that failed - and they found that formally constructed networks that do not emerge out of previous relationships are more likely to fail. They also found that when networks are formally constructed from scratch, dynamics of evolution differ from those join alliances that are passed on previous business ties.

The formation process can also be related to structure issues. The process of creating a commercialization net may differ depending on whether it is conducted by a hub firm or equal actors. In high-central innovation networks, hub firm can impact on network membership (size and diversity), network structure, and network position by its strategic choice of partners (Dhanaraj and Parkhe, 2006). Nevertheless, we assume that in low-central innovation networks firms widely co-operate and monitor the competencies, ideas and activities among their potential partners, and the cooperation during formation should be perceived as activity of the group.

An initiator of the formation process is needed; since inter-organizational relationships do not start their own, one actor have to act as an initiator (Larson, 1992). In innovation networks, it is usually the hub firm who acts as *an initiator*, i.e. prime mover (Dhanaraj & Parkhe, 2006). On the contrary, in low-central networks, there might be one or several initiators – for example horizontal actors without the central position or power- who are interested to cooperate. External initiatives can aid the creation of a collaborative network through the funding creation of an infrastructure. (Provan et al., 2003)

We assume that there are several *preconditions* of commercialization net formation process besides the common goal identification, such as trust creation. Preconditions for forming new network relations are based on social embeddedness and trust. Trust is a critical component of the strategic network, particularly. Provan et al. (2003) found that although attitudes toward collaboration may be positive, trust might still be problematic to achieve despite increased collaboration suggesting that trust takes longer to establish than many types of network ties. Therefore, pre-existing social relations among individuals and reputational knowledge (personal reputations and firm reputations) are often preconditions for forming new network relations since they create trust and mutual obligation (Jarillo, 1988; Larson, 1992). Also references and track-records build credibility and trust (Salminen & Möller, 2006). Trust can be generated by identifying partners' motivations and by choosing the partners with i.e. similar values and good reputation (Dhanaraj and Parkhe, 2006; Jarillo, 1988). Social relations originating from R&D relations and other business relations can be facilitate the creation of trusting relationships in the commercialization phase, but in commercialization phase the firm needs to establish new social relationships with distinguished distributors and R&D partners and transform them into collaborative relationships to achieve a suitable position in the business network, and social relations of firm owners and employees can be in great role in this (Partanen et al., 2008). Entrepreneurs may use symbolic actions such as the entrepreneur's personal credibility (communicated with symbols related to personal capability, and personal commitment to the venture), organizational achievement (winning and displaying industry awards) or establishing the quality of stakeholder relationships (presenting prestigious stakeholder and dropping high profile names) to acquire resources since they can create the legitimacy and make the new venture familiar and credible to key groups (Zott and Nguyen Huy, 2007). Especially, in new firms short history do not allow the firm to show a long track record, and therefore such credibility symbols might be important when actors are pursuing new partners and resources in to commercialization net. Zott and Nguyen Huy (2007) found that entrepreneurs who perform a variety of symbolic actions skillfully obtained more resources than that those who did not. Also reputation is generally important in collaborations, particularly in networks where collaborations vary over time (Provan et al., 2003). Reputation is an internal resource that facilitates gaining external resources, but reputation has value to potential partners as a signal within alliances, since it signals trustworthiness (Saxton, 1997). Lack of trust may create free rider problems and lead to opportunistic behavior.

## 2.5 Formation management and selection systems

Grandori and Soda (1995) note, that the selection of partners and access rules are related to the nature of coordinated action among firms, and thus *selection systems* give a view to examine the intentional net formation more deeply. Also cooperation and competition may affect on formation of commercialization net. Collaborators easily become competitors: One's collaborator at time 1 may be a competitor at time 2 (Powell et al., 2005)

The features of the formation process may be different depending on whether the process is conducted by a hub firm or equal actors. In high-central innovation networks, hub firm can impact on network membership (size and diversity), network structure (density and autonomy), and network position (centrality, status) by its strategic choice of partners (Dhanaraj & Parkhe, 2006). In low-central innovation networks, firms widely cooperate and monitor the competencies, ideas and activities among their potential partners (Bullinger et al., 2004), and the cooperation during formation should be perceived as activity of group, rather than at a mere dyadic level (Melo Brito, 1999). Hasnain-Wynia et al. (2003) found that networks with more diverse partnerships are perceived as less effective, since the size and heterogeneity brought management challenges especially regarding coordination and communication.

The manageability of networks has been subject to diverse discussion: while the resource-based view assumes that large firms are intentionally able to create and control the network, the IMP-approach assumes that inter-organizational relationships cannot be controlled by one actor because of constantly changing sets of direct and indirect relationships (Möller et al., 2005). Möller et al. (2005) state, that even if a network cannot be completely managed, the management in networks still is a crucial issue, since opportunities and coordination of different kinds of networks need conducting. The "leadership" in networks is also found to be linked to effectiveness of network; the "leader" was seen effective in keeping partnership focused on tasks and objectives (Hasnain-Wynia et al., 2003).

In high centrality innovation nets, where hub firm is an orchestrator, it can enhance socialization, promote knowledge mobility and ensure knowledge sharing within the network through formal and informal communication channels. However, in small high density nets actors can operate without a hub player since a high level of interaction replaces active coordination of a central player. (Dhanaraj & Parkhe, 2006) In this case, the cooperation may play a key role in shaping the 'rules of the game' (Melo Brito, 1999), even though there may still be confusion between the roles of orchestrator and other network actors. High differentiation occurs with low centralization and as consequence, this kind of networks are difficult to centrally coordinate (Provan et al., 2003). In the absence of a dominant player, organizations must agree upon standards that dictate how and when knowledge and information will be shared and setting agreement requires time and effort and cooperation among business partners (Awasu, 2006). Möller and Rajala see (2007) that especially R&D-innovation networks as new business nets can not be managed by one actor alone. The actors holding node positions connect multiple actors and activities are motivated by reciprocal interdependence. Ideas are often fuzzy and therefore there also is ambiguity about the possible cause and effect relationship between existing knowledge and the emergent knowledge. Self-coordination and informal leadership is emphasized.

Business relations are governed by either formal or informal agreements. In strategic nets, particularly, the social dimension, reciprocity, the coherence of goals and trust seem to be more important than formal agreements (Larson, 1992; Dhanaraj & Parkhe, 2006; Gulati et al., 2000). Network co-operation can be managed through communication, decision and negotiation mechanisms, social control, common staff, hierarchy, planning and control systems, and selection systems (Grandori and Soda, 1995). The duration of the net, rewards gained from the net, fundamental meaning of the net, the nature of the networked organization, planning, control, the centralization of power, trust, hierarchies, authority, and coordination seem to influence on the management of innovation nets (Ojasalo, 2004; Dhanaraj & Parkhe, 2006; Möller et al., 2005). When cooperation and goals are outlined, parties need to clearly state their assumptions, goals and expectations, also the tacit ones, and this will call for lengthy debates and discussion, but they should not be bypassed in the interest of hurrying up the alliance (Awasu, 2006). Collective actions seem to depend on convergent interests and provided opportunities for bargaining to define shared interests (Arajo & Brito, 1997).

It is typical of networks to change in time (Halinen, & Törnroos, 2005). Continual change in environment requires changes also in network structure and activities. Especially strategic alliances are not static since changes in organizational environment, competition and business dynamics still call for changes to existing alliances (Awasu, 2006). According to Gulati et al. (2000), both exogenous and endogenous forces shape how networks evolve over time. Previous relations and already established network relations both enable and constrain further networking. Consequently, actors can be locked in to cooperate with each other and locked out of cooperating with others. Thus, a network can be seen both 'a constraint and as an enabler'; existing relations both enable and constrain further networking, since actors can be locked in to cooperate with each



other and locked out of cooperating with others. Lack of resources and time constraints enable a firm to have only a limited number of alliances. Besides, many alliances are monogamous and preclude the parties from allying with similar others either on the basis of explicit contacts or implicit expectations of loyalty (Gulati et al., 2000). The actors hold biased assessments with whom they have had prior interactions and enact a self-confirming dynamic (Sorenson & Waguespack 2006). Relationship creation tends to be biased (originally Rapoport 1963) and individuals tend to connect to “a friend of a friend”, and from this raises an informational effect: when meeting an already known actor, other actors have full information of the previous actions of others which enables individuals to better avoid “bad risks” but they have no information when meeting random strangers (Hanaki et al., 2007). Another effect is a structural effect: networks are evolving with high clustering coefficients (Hanaki et al., 2007). These effects are assumed to shape the future evolvement of the net.

Hence, we may assume that the characteristics of the innovating firm and the basic features of the innovation and, equally, potential partners with their resources and relations influence on the structure and the formation process of commercialization net.

### **3 METHODS**

The empirical part of the study concentrates on comparative case study, where two commercialization nets are described and analyzed. A case-study strategy was chosen because it allows holistic understanding of complex phenomena that cannot be easily separated from their organizational context (cf. Yin, 1989). A further justification for the case study approach was that the number of innovation commercialization processes to be studied is rather limited. In order to facilitate the comparison rather similar cases were selected: In both cases several organizations are forming a sort of issue-based net (cf. Araujo & Easton, 1996; Melo Brito, 2001) in order to create markets for their radical innovations.

The cases were the commercialization of ‘Nordic Walkers’ (specially-designed poles for fitness walking) and the commercialization of ‘Bone Health Exercise Monitor’ (a device for monitoring the level of bone exercise) (see Table 1). The selected cases were found in the fitness industry where global competition is increasing steeply and a few big firms tend to dominate markets (The wellness boom, 2007). Thus, smaller firms need to constantly create innovations and markets, not just new products, in order to survive (Archer, 2007; cf. Woolf, 2008). Furthermore, in products whose ultimate aim is to increase the wellbeing and fitness of the users it is often very challenging to explicitly communicate the benefits of new offerings for the prospective customers and partners in a credible way.

Semi-structured interviews were used as the key method of data collection. The main data consists of interviews of key persons of innovation firms and other key networks actors. Altogether ten interviews were conducted (four in Nordic Walkers case and six in Bone Health Exercise Monitor case). All the interviews were recorded and transcribed before the analysis. Interview data was further supplemented with numerous telephone discussions and email correspondence and information obtained from public sources was compared to the data gathered through the interviews. Data triangulation was also utilized; information obtained from public sources (newspapers, internet, and business statistics) was compared to the data gathered through the interviews. In Newtest case the net was being formed during the study and thus we were able to grasp the net formation in a longitudinal research setting.

The analysis of the data was a continuous process that required repeated reading of the interview text files, the notes and the secondary data. It involved returning to the theoretical literature and to the interviewees with additional questions. We analyzed the data from different perspectives: one looking the data at the innovation management perspective and another taking a network perspective to the data. The combination of the two perspectives took place via various discussions and rewriting sessions. The emerged holistic picture combining both innovation management and networks regarding commercialization nets is presented in the next section. The two cases are described to illustrate the commercialization net formation process and required actors with various goals, roles and commitments. Later, these two cases are analyzed and compared.

### **4 CASES**

The following two cases describe how companies are trying to form a net in the commercialization of a radical invention they created. The attention is paid firstly on focal actors and their motives, desired tasks in commercialization and the form of the network and secondly on the formation process of nets.

## 4.1 Exel and commercialization net within Nordic Walking concept

A Finnish firm *Exel* was able to commercialize successfully Nordic Walkers poles and in this, the network of the firm seems to have played a crucial role.

Exel is a Finnish company specialized in designing, manufacturing and marketing composite sports equipment and industrial applications. Exel's market share grew steadily during the 1980s, but in the 1990s the overall market for cross-country skiing equipment began slowly to diminish, the market situation was becoming tighter and price competition tougher. Global warming the growing amount of leisure time and the increasing numbers of senior citizens created new potential target groups and enhanced idea generation towards walking. The idea of creating special poles that everyone could use throughout the year for exercise purposes was born in the cooperation of three actors: Exel plc, The Sports Institute and The Central Association which should be considered as R&D-network of the case.

Firstly, the main actors are introduced. *The Central Association for Recreational Sports and Outdoor Activities* (later referred as Central Association) is a non-profit organization that aims at encouraging people's interest in outdoor activities and sports by arranging and supporting outdoor sports and health-promoting events. The association produces services to municipalities, organizations, schools, societies and companies and is active in organizing big sport events for masses. The third focal actor was *The Sports Institute of Finland*, a sport-scientific and sport-training oriented organization. It is a centre of education, leisure and sports that develops, produces and markets training, exercise and educational services in the fields of physical education and leisure for coaches, for Sports Instructors, for top-level sports and for personnel of various firms. The resources of the focal actors were complementary: Exel had pole manufacturing and composite technology know-how and the widely-known sports brand and could provide equipment for the new sport. The Central Association had a non-profit image and wide connections with media and could reach the big masses. The Sports Institute had sports-related scientific knowledge related to different training methods and contacts to experts and opinion leaders, such as trainers and doctors and it was eager to find a new tool for pre-emptive health care. By combining these resources the focal actors were able to ideate a solution that would benefit each of them. They all worked towards the same goal: to change end-users attitude towards sport. Each actor saw that the new sport, Nordic Walking, could provide a solution for their aspirations although these three organizations had different backgrounds and business logics. These actors together created Nordic Walking poles and started to commercialize them to facilitate innovation adaptation. In general, the launch was a demanding task, since the strategy that was commonly used in Exel was not suitable for this new invention:

*"In a way this was a special project for us, usually companies manufacture products to fulfill a certain demand and then market the product, talk about its technical properties. But in our case, we actually had to develop a sport, market it and invent a product for it."* (Senior Vice President, Exel)

The first production run was only a couple of thousand pairs. At first it seemed difficult to get even that amount sold, since the retail trade did not believe in the product and was not keen to take it onto their shelves.

*"We introduced this to Finnish store executives by saying that walking with poles could become something big, as in how about if we start taking this further together. They practically laughed in our faces, they thought nobody would start walking with poles!"* (Senior Vice President, Exel)

The actors realized that it was necessary to build commercialization net in order to affect directly on the customers and other relevant actors in the field to make them want to adopt a new sport. Exel was the *primus motor* in the network. There was strong existing social links and trust between main actors due to the R&D-network and therefore other actors were active and committed also in commercialization phase. The launch began in autumn 1997 when The Central Association started to organize Pole Walking nights. However, the biggest problem was not awareness, but getting people to walk with poles. In order to get people to buy the equipment, it was necessary to get them first to try them. Trial opportunities were combined with education; people had the opportunity to try the sport and they were taught to use the poles at the mass events organized by The Central Association. Exel provided their walking poles for loan on these occasions.

Since the organizations were not competing with each other, the atmosphere was also favorable for cooperation and open communication. Because main actors were already committed in R&D phase, they were also motivated to commercialize the innovation. All actors were able to recruit more actors to the commercialization net and thus the net grew evolutionary but intentionally. Various diverse actors such as *national sports and health associations, experts and instructors in each country, associations, community fitness centers and sports clubs* expanded the commercialization net. The word-of-mouth communication between the *consumers* further accelerated the innovation diffusion.

The recruited actors took care of various tasks of commercialization: Awareness building was made by Exel Sports, Sports Institute of Finland, Central Association, media, health associations and doctors. Trust

generation and establishing credibility was executed by Sports, Sports Institute of Finland, Central Association, health associations and doctors. Trial opportunities were offered by Sports Institute of Finland, Central Association and sport associations. Education was provided by Sports Institute of Finland, Central Association and various sports associations. Distribution was made through traditional sport equipment retailers. Also supporting complementary offerings started to emerge by providers of complementary products and services, e.g. sports apparel and fitness clubs. Scientific evidence about Nordic Walking was needed and Exel financed a research which was conducted by Cooper Institute, Texas, U.S.A. Furthermore, cooperation with *health associations* (e.g., The Rheumatism Association, The Allergy and Asthma Federation) was utilized to convey the message that walking with poles was good for the health. Support also came from various *doctors* who publicly highlighted the benefits of the sport. Comments of doctors seem to have been particularly important: There was also a massive amount of publicity in the *media*, which was keen to cover 'the new strange sport' and to show people practicing it. 'Free' publicity for the sport was easily gained and Exel has managed to make the most of this. For example in 1998, a photograph of Pope John Paul II walking with the poles was broadcast all over the world in newspapers. Actors also decided to build a sport-instructor network. The cooperation of the sports and health associations was sought in finding *instructors*, in educating them about the new sport, and in providing them with training material and poles. The role of the Central Association was pivotal in building the instructor network and producing the training material. The network was built quickly, since people were enthusiastic about the sport. They then lent poles to people and taught groups how to use them and the right technique. The Sports Institute continued to introduce the sport to its visitors.

With this multidimensional evolutionary extending commercialization net, the innovator firm was able to break through:

*"They had people coming in their store going 'have you got any Nordic Walking poles?' and at first, many offered them hiking poles and the like, but it worked out pretty well when people started insisting that 'they have to be Exel Nordic Walking poles'. And then the store managers started calling us that 'we've got some people here who want to buy those Nordic Walking poles of yours, would you mind sending some, please?'"* (Senior Vice President, Exel)

Demand started to grow in the winter of 1997. Nordic Walkers gained commercial success extremely fast. Currently, foreign markets account for more than a half of Nordic Walkers' turnover. Exel exports Nordic Walkers to almost 30 countries including e.g. Australia, Germany, Japan, South Africa, United Kingdom, and USA. Exel has utilized basically the same kind of market creation tactics in each country and Nordic Walking started to increase strongly also in other countries, particularly in Scandinavia and in German-speaking parts of Europe.

## 4.2 Newtest and Bone Health

Newtest is a small company specialized in the development, manufacturing and sales of the human performance testing and assessment products by utilizing technological innovations. Their invention linked to the focal study is a small activity monitor worn on the hip during daily activity, called Newtest Bone Exercise Monitor. The monitor is based on Newtest's patented innovation (an accelerometer combined with a microprocessor) secured through an award-winning scientific research that the company conducted with the University of Oulu's Faculty of Medicine and Oulu Deaconess Institute. The monitor estimates and shows whether the amount and quality of daily exercise are enough to develop a bone's density and prevent osteoporosis. It has been known for long that the right kind of exercise strengthens the bones and prevents osteoporosis. Monitor is useful, because bones need diverse exercise, and body and bones adjust if people do only one type of exercise. On contrary to many health care technologies, Bone Exercise Monitor is primarily targeted to consumers, 30-50 year old women being the main target group. The product was launched in Finland in November 2005.

Newtest had formed R&D net with Oulu University and VTT Technical Research Centre of Finland to develop the monitor, but they and their contacts were not used in market creation in commercialization phase. Instead Newtest started creating a separate commercialization net from scratch. The idea of commercialization net came from two sources. Firstly, Newtest's potential customer in Japan suggested commercialization net: the networking idea could be tested in Finland and later the concept could be sold and replicated in Japan. Secondly, Newtest knew the successful Exel-case and aimed to replicate this networking pattern and success. Markets for products related to wellness and health are increasing and therefore there were many potential network partners in the fields. The benefits of "bone exercise" and need for offerings related to "bone issues" were obvious but there were no markets for such phenomenon yet. Therefore they needed to raise customers

and other partners' awareness and attraction towards "bone issues" and various offerings related to issue.

Newtest has not had resources to create awareness in the market in such a big scale than this kind of radical innovation would have needed. Besides, the distributors have not been very keen to take the new unknown product onto their shelves. The newness of the product is illustrated by the fact that Newtest had to create also a new concept 'bone exercise' to describe the exercise that strengthens the bones:

*"We know that we have got a brilliant product. We have scientific evidence supporting it. And there is a market out there! We know that the need is there. It is a challenge that the need is not recognized. We should create the demand for Bone Exercise and, after that, break through with the monitor. But we know that we don't have money to do that. [...] We'd need to have an extensive network for succeed."* (CEO)

In general, business related to wellness, fitness, sickness and health business is increasing, because people are more interested in their well-being and as the population ages, the relevance of proactive health care is even more important (Longman, 2003; Pilzer, 2002). There is a large diversity of products and service relating wellness business and offerings such as (cf. Kickbusch & Payne 2003): Health supplements, vitamins; nutrition; personal care; personal training, household care, weight loss products and services, dietary supplements, health care services, exercise and health clubs; day spas, massage services, health and wellness cosmetic products, wellness tourism; wellness and fitness clothing products, wellness media, magazines, books, programmes. Not only consumers but also media, international organizations and governments are increasingly interested in health and wellbeing. Because osteoporosis is becoming a serious health threat especially in industrialized countries, the global market potential for bone-health-related products was expected to grow steeply in the future. In the seven major markets (US, Japan, France, Germany, Italy, Spain, UK), approximately 20 % of women over the age of 50 years suffer from osteoporosis, while 37–50 % has osteopenia, a less severe form of disease. Example in the UK the combined cost of hospital and social care for patients with a hip fracture amounts are about 1,73 billion pounds per year that is similar to the 1, 75 billion that coronary heart disease costs the healthcare system each year. The ways to prevent the osteoporosis are: good nutrition, healthy lifestyle, and physical activity and exercise. There is also range of drug treatment available for osteoporosis. Thus, there was potentially a wide global market for the "issue" and it was rather easy to evoke interest among the potential partners and the media:

*"Sure, it interests people. Osteoporosis prevention is a very sexy topic. When we introduced the monitor there were journalists from over 30 newspapers. Radio and television states were there as well."* (CEO of Newtest)

In May-December 2006 Newtest ran a project for building a net that would aim at creating the market for products and services related to bone health. The project started by for clarifying the structure and potential actors in the net and it was funded by Oulu Innovation, a municipality actor that facilitates innovation business. The executive manager for the project was recruited and she started to seek the potential actors, contact them and set up further negotiations. Through association, Newtest started to recruit diverse members related to "bone-health", to form a net and to create a market together with supporting actors. The emerging net was named as Bone Health Association. Despite the increasing interest on wellness products the commercialization was, however, very difficult, since the product was first of its kind.

First, the "issue" and the common goal was *bone exercise* but soon the executive manager of "bone health" noticed that the term was too narrow and thus it changed to *bone health* because the latter was more extensive and holistic approach and allowed and attracted more actors to join the net. It was concluded that the net would aim at creating the market for products and services related to bone health. The form of the network was agreed to be a formal association with entrance or annual fee, but actors suggested that there could also be informal hang-around members, such as non-profit associations related to the issue. It was believed that through synergistic marketing promotion and knowledge sharing it would be easier to raise awareness about the importance of early osteoporosis prevention. The common goals of net were to create a clear concept concerning bone health, to gather research information about the topic for participating organizations, to produce common promotional material, and to create new synergistic concepts that offer marketing advantages for participating firms.

'Bone health promotion' as a common issue and goal was however quite radical and new. Thus this kind of new blurred issue and multi-industry networking towards the issue could be considered as an innovation itself, as the following citation illustrates:

*"It is valuable and new, if we are able to combine electronics industry and food industry through this kind of networking and cooperation."* (CEO of Newtest)

When the bone health was chosen to the common goal, in addition to obvious health care and fitness actors, some food companies were also pursued in the net, because milk products containing calcium contribute to bone health.

There were several potential desired actors related to the issue that were pursued to join in the net. The

executive manager aimed to find synergistic vertical and horizontal actors – from various industries with synergistic products and services – who would supplement each others on markets. Market leaders of each bone health related industry or offering were pursued to the net. The initiator contacted for example the following actors: provider of osteoporosis diagnosis equipments, private health clinics, various sports and health associations, sports clubs, aerobic association, dairy manufacturers and various food manufacturers and companies, functional food manufacturers, pharmacy chains, pharmaceutical industry actors such as calcium manufacturers and D-vitamin manufacturers, insurance companies, and so on. Non-profit organizations (e.g. national osteoporosis foundations, innovation promotion organizations) were also considered important since they could provide more credibility for the monitor and more support for the company. Since the device was targeted at international markets it was considered important to get also global firms to the net. Since Newtest did not have existent relations to the big international firms, it was forced to utilize its few sporadic indirect relations to get contacts with those. Danone was the first international company that was interested to commit into the net and it also motivated others to join in. However, it withdrew later from the negotiations since its marketing arguments and goals were concentrated to lightness, not the bone health. Thus it did not see enough parallel strategic goals. Also actors with established connections to doctors, trainers and media were sought. Negotiations with various complementary actors were conducted. Getting the actors to commit to the net was rather difficult, because of the newness of the idea, the risks inherent in the radical innovation and the small size and unfamiliarity of Newtest. CEO of Newtest tried to be the promoter of the new commercialization net convincing, recruiting and engaging potential partners to join the commercialization net. Mostly the contacted actors manifested their interest and support to the issue but were not willing to join the association.

*“They said that it comes too soon. Today’s business world acts on quartile bases and rests on [predetermined] strategies. It was... everybody who said no, said that this is really great, a brilliant idea, though.” (CEO of Newtest)*

Some actors saw the potential of cooperation fast. For example a device rental company saw that they had similar strategic goals with Newtest and they saw that they could utilize market potential of the monitor in their business; they could sell and rent it for their customers. This actor also noted that also some other joined actors such as a private health clinic would be an interesting partner in their future business. Because of these private goals this particular actor was keenly motivated to join the net. When the network formation progressed, it seemed that only the smaller-scale actors were interested to join the net. Organizing meetings and negotiations with the key persons of potential partner organizations and convincing them proved to be extremely difficult. For most firms it was important to be able to trust the unknown small Finnish company and to know who the other actors in the net would be. What comes to selection systems, it was also clear that it would not have been possible to get competitors to join and stay with the same net. Thus, after an actor from a certain industry joined in, other companies within the same industry were not actively approached. Hence, the creation of trust played an important role in the actor recruitment.

*“The main principle has been that competitors are not chosen in the net, but what actually is a competitor and where it is? It is difficult to define” (CEO of one of the recruited firms).*

Besides, the design and evolvement of the common goal caused challenges during the formation process. Furthermore, it was very important to be able to recognize the individual goals of each potential actor in order to get them motivated. The actors were interested in short-time pay backs and clear private trade-offs, and they were not willing to commit into the common strategic goal.

*“People lack vision. Firms do not dare to take risks. The bigger the firm the more it wants confirmation before it dares to get committed.” (CEO)*

Consequently, in March 2007 there was a meeting to set up the Bone Health Association. The founding members of the association were Newtest, Roche Diagnostics (provider of products and services related to medical testing), Steripolar (distributor of health care technologies), Suomen Terveystalo (private health care service company), Tapiola (insurance company), Respecta (provider of products and services related to prostheses and aids), Orton Hospital (specialized in treating fractures), Vitala’s Finland (wholesaler of nutrients), and city of Oulu.

In plans was that awareness building would be taken care of by Newtest, media, health associations, doctors, and recruited distributors of complementary products and services. Trust generation and establishing credibility towards the monitor and the issue would have been done by health associations, doctors, distributors of complementary products and services. Trial opportunities and education could have been provided by distributors of complementary products and services. Distribution was taken care by pharmacies, sport equipment retailer, some departmental stores, and aid device rental service providers. Additionally, an orthopedic hospital Orton lent out equipment and taught people to use them. Supporting complementary offering could have been provided by distributors of complementary products and services, e.g. health supplements and nutrition, and fitness clubs.

Later the main challenge for the net formation was to get recruited actors to adopt active roles in the net:

*“At the moment everybody is just waiting passively and no one knows how we should proceed and what can be expected.” (The Executive Manager of Bone Health)*

Newtest was willing to give the leader's and the promoter's role over to one of the big actors. There were various opinions on how the process should continue: for example, one actor saw that instead of aggressive recruitment process, they should have formed a small tight net of already committed and socially networked actors and later extend it. In this phase, it started to seem that the net was a portfolio of important contacts, not a network. Transformation from portfolio to net was not happening smoothly and the management of the net would have required extra efforts. As a consequence of this problematic process and emerged financing problems, the net formation ceased. The product was launched in 2005 and four years later, in spite of the widely recognized potential, it still has not broken through.

## 5 DISCUSSION

In both cases the innovating firm faced a need to create a new market for a completely new kind of equipment in commercialization phase. Neither equipment was not very complex but innovations required new patterns of behavior and attitudes among the prospective customers and potential business partners.

As stated in theory, in order to overcome the challenges in commercialization phase, both firms started to form commercialization nets consisting of a variety of complementary actors to be employed in commercialization tasks, such as awareness creation, benefit confirmation and distribution. Actually, awareness creation was not a problem in either of cases, since media was employed in both cases; this tends to be common interest for radical innovations, which makes it rather easy to gain unpaid publicity for them (cf. Sandberg, 2008): Experts and non-profit organizations would have been important in both cases, but only Exel succeeded to gain both profit and non-profit organizations to convince the customers of the benefits of the innovations. Distribution of the equipment and availability of supporting complementary offerings were also key issues concerning commercialization.

It seems that especially the dissimilarity of network actors and the multidimensional structure of the network improved the promotion of the radical innovation. Nevertheless, the more heterogeneous the actors the more difficult it may be for them to motivate themselves joining in the network and to recognize their own role in the network.

The direct and indirect relations of recruited actors involved seemed to have been very important in commercialization stage. Furthermore, the innovation seemed more credible when its benefits were communicated to the prospective customers by different actors. In successful case, the actors in commercialization net involved divergent resources and relations; they represented experts, medical-related actors (doctors), sport/fitness/wellness-related actors (trainers and health associations) and public media. Hence, they supported commercialization through two modes: firstly, by confirming the benefits and credibility with their distinct resources and secondly, by utilizing their divergent direct relations in order to reach the customers or potential partners.

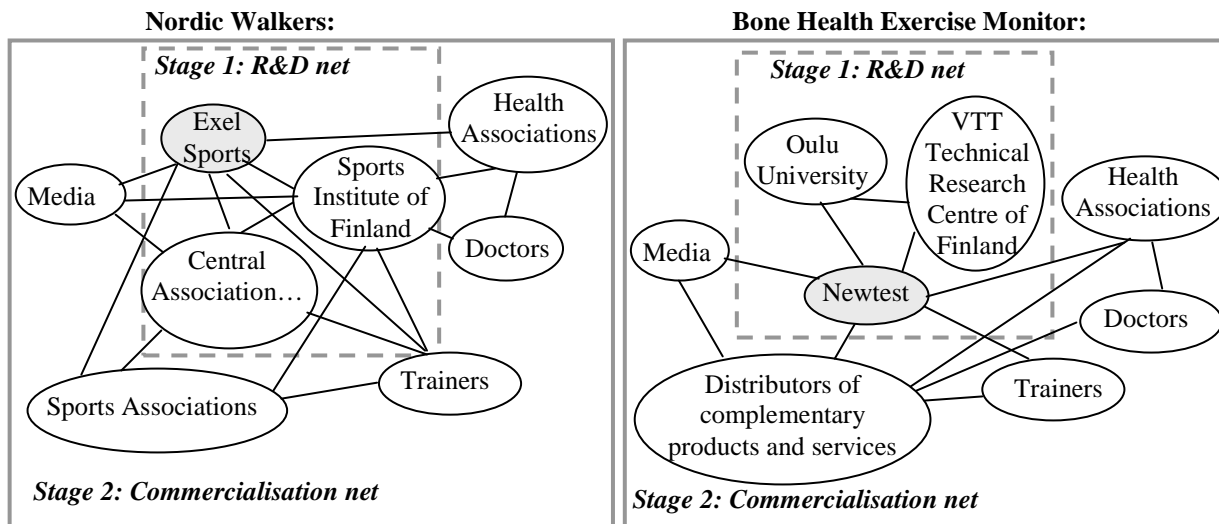
In both cases, the blurred new issue, common strategic goal, was challenging to gain, but in Exel's Nordic Walking case the goal was achieved, since actors were outlining and committing to the goal from the first beginning. In Newtest's Bone Health Association case instead, the goal was even too blurred and radical for the most of pursued actors. The networking for bone health was considered as a radical innovation itself; it was radically new for pursued business actors. This is illustrated by the following statement of a representative of a non-profit actor:

*“Is this trade policy, social policy or public health policy or not? Sure, it's like pioneering [for us].” (The municipality related actor in Bone Health Exercise Monitor case)*

The actors and formation processes of the commercialization nets are illustrated in the Figure 2. The figure shows an important difference between the studied cases: In Exel's Nordic Walking case the commercialization net was built on the groundings of R&D network and therefore it was built easily and fast. A variety of different actors was utilized in each of the market creation tasks. Because R&D and commercialization nets were embedded, and the main actors of the commercialization net were already committed to the innovation which made them keen to share their relations and to deliver benefits of the radical innovation. Trust already existed. In this case, the network expanded, when new kind resources were needed (see Figure 2). In the Newtest's Bone Association case instead, the commercialization net was artificially and intentionally created without grounding the new relations on the previous organizational or social networks. The clear goal and trust were missing. As consequence, the firm was not able to form net or use its network relations effectively.

To sum up, comparison of these two cases shows how much Exel Sports has been able to benefit at the

commercialization stage from the relations it tied already during the development stage. Committed actors in the R&D net provided contacts to other actors and created shade of trust for the strange-looking radical innovation. Instead, starting from scratch was too challenging in the Newtest case: the firm did not benefit from the indirect relations of its R&D partners and it was the only promoter of the new invention, who tried to recruit and engage more actors to the commercialization net. By looking backwards, one could assume that having one or two of these actors involved already at the development stage would have helped Newtest in the market creation.



**Figure 2** Emergence of commercialization net from R&D net with extensions through new actor recruitment

The problems in formation process also emerge from selections systems and formation paths. In intentionally created networks, the selection systems and network formation management are crucial, and small quite new firm Newtest faced serious problems when it pursued the market leaders. The commercialization net of Exel instead grew evolutionarily, and therefore intentional ‘selection’ was not in so important role. Due to this, Exel was able to successfully commercialize its invention, instead Newtest did not break through.

**Table 1** Main differences between cases

	Bone Health – Newtest	Nordic Walking - Exel
<b>Preconditions</b>		
Common goal, the issue	To get people to take care their bone health: Bone health vs. bone exercise	To get normal people to exercise easily outdoor (with Nordic walking poles)
Common activities	Marketing communication, brand, information and knowledge sharing	R&D, communication, education
Initiator	The innovator was the initiator	No need for initiator since commercialization continued cooperation originating from R&D, however the innovator was the motor
<b>Actors, the form and the structure</b>		
Form	Formal association + informal nets	Informal joint venture
The pursued structure	Horizontal-multidimensional	Horizontal-multidimensional
Actors with complementary resources and individual goals	Bone health related products and services from various industries, business and non-profit actors Actors were to incompatible: local municipality actors and SMEs and global firms	Various sports and health related actors: business actors and non-profit actors
<b>The formation process</b>		
Trust and social relations, reputation	Social relations with local actors, but no prior relations with known global actors	Reputational knowledge, trust and social relations existed due to the prior R&D net and facilitated the formation
Formation (intentionally vs. evolutionary) and selection systems; lock-in and lock out	Clearly intentional process, R&D and commercialization nets were separated First phase of selection: initiator itself negotiated Second phase of selection: Lock in/out-effect:	Mixing intentional processes and evolutionary evolvement; R&D and commercialization nets were embedded

	clear competitors excluded	
Government, communication and formal/informal agreements, commitment	Formal association – informal discussion Informal discussion how net building is managed, disagreements on selection and actor base Commitment was not achieved	Informal  Commitment originated from R&D net and involvement to the topic

In sum, we suggest that challenges of commercialization net formation originate from various individual goals, the mix of similarity and complementarity, blurredness of strategy and aim, uncertainty of pay backs and private benefits, fear that cooperation turns into competition, the difference concerning the relevance of the net (strategic net or marketing alliance), disagreement of management system and uncertainty of appropriate selection systems, lack of trust and commitment, coordination problems stemming from managing the transformation from portfolio to net, originating from low-centrality and the absence of the central hub firm.

## 6 CONCLUSIONS AND IMPLICATIONS

Innovation network and network research has previously focused rather clearly on R&D nets, even though the existence of commercialization nets has been acknowledged in some studies (e.g. Heikkinen et al., 2007; Möller and Svahn, 2008). This study contributed by focusing explicitly on commercialization and it showed how *network approach can be applied also to commercialization phase*. This study demonstrated how the network approach can assist in commercialization and market the creation of innovation and how commercialization net can be formed. Contribution of the study is addressed firstly to innovation networks – by focusing on commercialization phase instead of R&D networks and secondly on innovation management literature and commercialization literature by revealing, how network approach can be applied to commercialization. The commercialization phase with network perspectives appears to be more complicated than previously believed and discussed in the literature. The approach helps us to understand how various actors are able to contribute or hinder – the successful launch of innovation and thus have important roles in market creation. Thirdly the study contributes by analyzing network formation processes. The model and results introduced in this research can assist researchers to understand network formation and to link commercialization phase to innovation network evolution. They might also assist innovating firms and new product developers in making decisions for networking that can aid successful commercialization of new offerings. In particular, the idea of intentionally created nets seems to be relevant for innovation management but the problems and special features of the intentional formation problems should be acknowledged, too. Our results provide also evidence on the different commercialization tasks that an innovating firm needs to master in order to achieve success for the innovation. If the commercialization net is formed by gathering several horizontal and vertical business and non-business actors, the resources of the focal actors are complementary, the organizations are not competing with each other. Consequently, there might be an opportunity to gain competitive advantage in marketing by sharing openly information and knowledge and by conducting common marketing activities.

Can networking approach be applied to commercialization? In the optimal situation and in "commercialization net utopia" collaboration could happen by integrating complementary resources of service and product providers among different kind of related industries and profit and non-profit organizations who offer both horizontal and vertical dimensions to facilitate innovation adaptation and growth. However, commercialization concept stresses the innovators' viewpoints, and therefore motivating and committing the potential actors with their private benefits and motivation might be difficult to achieve. Instead we see as conclusion, that firms could use dyadic commercialization relations and portfolios of commercialization relations to provide clear benefits and trade-offs for actors who are able to contribute the commercialization. Alternatively, innovator firms could use network relations to create markets and new business fields, but this kind of networks should be built around "issues" and "new business models", not around particular innovations. This kind of contribution is useful since knowledge of how to apply network approach in the market creation for innovations is likely to become increasingly important for companies. Thus, this study stresses that firms need to initiate, handle and utilize a portfolio of interorganizational relationships to increase innovation success (cf. Ritter and Gemünden, 2003) or they need to collaborate proactively in order to create new business fields (cf. Möller et al., 2005) so that innovations are able to be survive in supportive environment. As a conclusion we see, that commercialization net might be a paradox. Instead, commercialization net should be considered as a portfolio of commercialization relations, or as issue-based market creation net that does not focus on commercialization of a particular innovation but creating markets



for innovations to survive.

We see that in commercialization, the innovator needs both similar and complementary actors. Both the similarity and dissimilarity of net actors offer competitive advantages. Similarity of actors can be related to the parallelity of the goals, values, and common activities and the dissimilarity to the complementarity of the offerings. The dissimilarity and multidimensionality of the network actors may improve marketing and the commercialization of the radical innovation by offering several kinds of thematic support and, for instance, non-profit organizations and associations can offer more objective shades in marketing. In networks consisting of dissimilar or multidimensional actors, new kind of networking and business ideas across industries can occur (Möller & Svahn, 2006). It has been acknowledged that both the ideation and development of radical innovations often require co-operation across industry borders; by combining knowledge and know-how from different branches firms may be able to create something truly new (cf. Medici-effect, Johansson 2006) and this study illustrated that this kind of radical cooperation can concern the commercialization phase, too. Thus it might be valuable to gather different types of actors, and distant actors as well, to gain new fresh ideas or totally new relations through the net. However, if diversity and dissimilarity of actors increase, the manageability and communication of actors will become more complicated. Different size of actors or different kind of strategic orientations might turn into problems in network formation. For example, large players are not willing to form horizontal nets with smaller-scale actors, if these actors do not offer a clear pay back and advantages with low risk. The existence of complementary resources among alliance partners is not enough to guarantee alliance success: instead, by combining complementary resources, firms create new, idiosyncratic resources that create competitive advantage and explain alliance success. (Wittmann et al. 2008). Especially horizontal networking seems to be problematic and vertical networking seems to be easier for firms, especially for SMEs (cf. Rocks et al., 2005). The distinction between competitors and co-operators was emphasized in commercialization nets within this study and therefore the risk of co-operators turning into competitors calls for more research. This study showed that there are plenty of possibilities how horizontal firms could be linked in marketing issues, but still marketing networks are less well used for acquiring marketing resources, planning marketing activities, marketing innovation or for increasing market knowledge (cf. Gilmore et al. 2004).

The study also stresses that combination of evolutionary and intentional formation processes might be advantageous when commercialization nets are created. The relations of the actors in the R&D network can be very important also in the commercialization stage, because they build trust, credibility and commitment to the commercialization. It is thus suggested that research should not treat R&D nets and commercialization nets separately, but rather see that the development of commercialization activities and networking is an on-going activity that starts already from the R&D phase. Thus, combinations of evolutionary and intentional creation processes indicate the success of formation process and commercialization.

The results of the study seem to emphasize the importance of a common goal and parallel individual goals of network actors. In order to be motivated, potential partners need clear goals and private motivation and clear trade-offs and direct and indirect short-term and long-term monetary rewards, especially if other actors do not see the co-operation as a strategic. The coherence of goals is important, but the more diverse the network is, the more difficult is to achieve effective coherence between private goals. Since radical innovations may bring in considerable return on investment, it is assumingly rather easy to evoke the interest in potential partners. This study also confirmed earlier findings of Human & Provan (2000) suggesting that network sustainment depended on adopting strategic orientation and support in the early stages of evolution. A clear agenda and collective activities can support all network members, but there can still be disagreements regarding to what kind of actors and activities support an individual actor (such as the focal innovator firm) and the net as a whole. The actors are committed, if the commercialization task fits with actors' natural activities and potential activities, strategy and business model. Trust comes first, especially when the emerging business ideas are vague, roles are undefined and activities are blurred. The more radical and strategic thinking the networking requires from the firm, the more trust is required.

Innovations and innovating firms face resistance, but commercialization net actors can execute various tasks that are required in order to make the innovation succeed in the markets. Important tasks such as awareness building, education and trials require resources, and this study indicates that the commercialization net can help considerably in these tasks. The actors of a commercialization net can take care of various tasks ranging from the awareness building to the customer education. Moreover, these relations may create something that may not be bought in any price and that may be particularly important for radical innovations: credibility and trustworthiness. Thus, we see that the dissimilarity of network actors and the multidimensional structure of the network foster the commercialization of the radical innovation, because different actors playing different tasks are better able to complement each other.

#### **The Evaluation and Generalisability and Limitations**

The generalisability of these results is limited due to the context specificity and embeddedness of each particular network. The two cases can not be claimed to represent all industries or firms facing commercialization situations in general. However, we feel that these cases clearly illustrate how commercialization nets are aimed to use in reality. This study does not aim at generalisation based on hypothesis testing but provides ideas and examples. Several limitations of the study should be acknowledged. Our results are based on two qualitative case studies on inter-organizational commercialization nets conducted in the consumer goods sector and studies on other business industries might give different answers. Despite the limitations, this study does contribute to our understanding on commercialization net formation and infrastructure.

### **Future Research**

Commercialization phase should be more clearly recognized and related to innovation networks and R&D networks in further studies. We need more research on commercialization of innovations and new products linked to network research. Innovation researchers should recognize networks in the commercialization phase and innovation network researchers should include and focus also on commercialization phase in the innovation networking process.

The future research may focus on the selective systems and continual evolvement of the network. That is, who decides what kind of actors will have access to the network and what kind of resources are required, how the common goals are defined and how the goals will evolve. There is clearly a need for future research on different industries and different types of innovations. We need also more research on how to manage the diverse goals of network actors and how to motivate the actors to contribute in the commercialization. The asymmetry of resources, power and goals has not been widely discussed in previous studies concerning strategic networks. Further studies should contemplate how the asymmetry of network influences on the network creation and management.

### **Managerial Implications**

Our results provide clear managerial insights on commercialization nets. The study may help managers to better realize the full potential of the actors in their existing networks and to purposefully create networks that would be of use in commercialization. Especially awareness creation, trust building, provision of trialability and education seem to require both new resources and new networking. When scanning for potential actors for their networks managers should consider their role in these tasks and also remember that non-profit organizations may contribute in a way that tends to be elusive for many profit-seeking organizations.

Commercialization nets can be considered as the portfolios of dyadic relationships or as 'autonomous' nets. At portfolio level, the attention is on the view of innovating firm and on the relations the firm needs to commercialize an innovation. Thus, the main challenge lies in how to develop and manage an optimal portfolio. At net level, the focal firm is seen as a network actor in a net and the question is what kind of actors are needed and how the net is created, coordinated and managed. (cf. Möller et al., 2005) The role of the focal firm seems to be particularly challenging when there is a shift in its position, for instance in a situation a portfolio of dyadic relations is turned into effective commercialization net consisting of equal actors.

Most important managerial implication of the focal research is that already when forming the R&D net it would be beneficial to consider what kind of relations the R&D net actors would have to those actors that would be important in different tasks required for the commercialization of innovation. It would be useful to purposefully select diverse actors who either would directly be of use when creating market for the new innovation or who would have relations to other actors that are needed in the commercialization. Hence, the most important actors of the commercialization stage would be committed to the innovation already before the commercialization begins. In other words, when actors are in the R&D phase, they already need to think the commercialization and include actors who are crucial in that phase; and when they are in commercialization phase, they should utilize their R&D network relations at least in trust creation.

## **REFERENCES**

- Alvarez, S.A. and Barney J.B. (2001), 'How Entrepreneurial Firms Can Benefit from Alliances with Large Partners', *Academy of Management Executive*, Vol 15 No 1, pp. 139–148.
- Araujo, L. and Easton, G. (1996) *Networks in Socioeconomic Systems. A Critical Review*. In *Networks in Marketing*. Edited by Dawn Iacobucci. Sage Publications: Thousand Oaks. pp. 63–107.
- Archer, S. (2007), "Fitness & Wellness Intertwine: A Major Industry Rises", *IDEA Fitness Journal*, Vol 4 No 7, pp. 36-41.

- Awasu, Y. (2006) Managing technology alliances. The case for knowledge management. *International Journal of Information Management*. Vol 26, pp. 484-493.
- Beard, C. and Easingwood, C. (1996), 'New Product Launch. Marketing Action and Launch Tactics for High-Technology Products', *Industrial Marketing Management*, Vol 25 No 2, pp. 87-103.
- Bullinger, H.-J., Auernhammer, K. and Gomeringer, A. (2004), 'Managing Networks in the Knowledge-driven Economy', *International Journal of Production Research*, Vol 42 No 17, pp. 3337-3353.
- Carson, D. - Gilmore, A. - Rocks, S. (2004) SME marketing networking: a strategic approach. *Strategic Change*. Vol 13, 369-382
- Chen, C. - Shen, C. - Chiu, W. (2007) Marketing communication strategies in support of product launch: An empirical study of Taiwanese high-tech firms. *Industrial Marketing Management*. Vol 36, pp. 1046-1056.
- Christensen, C.M. (1997), *The Innovator's Dilemma. When New Technologies Cause Great Firms to Fail*, Harvard Business School Press, Boston.
- Dennis, C. (2000) Networking for Marketing Advantage. *Management Decision*. Vol 38 No 4, pp. 287-292.
- Dhanaraj, C. and Parkhe, A. (2006), 'Orchestrating Innovation Networks', *Academy of Management Review*, Vol 31, No 3, pp. 659-669.
- Easingwood, C. and Koustelos, A. (2000), 'Marketing High Technology: Preparation, Targeting, Positioning, Execution', *Business Horizons* Vol 43 No 3, pp. 27-34.
- Ebers, M. (1997), "Explaining Inter-Organizational Network Formation", in Ebers, M. (Ed.), *The Formation of Inter-Organizational Networks*, Oxford University Press, Oxford, pp. 3-40.
- Eng, T. - Quai, G. (2008) Strategies for improving new product adoption in uncertain environments: A selective review of the literature. *Industrial Marketing Management*. In press.
- Grandori, A. and Soda, G. (1995) Inter-firm Networks: Antecedents, Mechanisms and Forms. *Organization Studies*, Vol 16 No 2, pp. 183-214.
- Granovetter, Mark (1973) The Strength of Weak Ties. *The American Journal of Sociology*. Vol 78 No 6, pp. 1360-1380.
- Guiltinan, J. P. (1999), 'Launch Strategy, Launch Tactics, and Demand Outcomes', *Journal of Product Innovation Management*, Vol 16 No 6, pp. 509-529.
- Gulati, R., Nohria, N. and Zaheer, A. (2000), 'Strategic Networks', *Strategic Management Journal*, Vol 21 No 3, pp. 203-215.
- Håkansson, H. and Snehota, I. (1995), *Developing Relationships in Business Networks* Routledge, New York.
- Heikkinen, M.T., Mainela, T., Still, J. and Tähtinen J. (2007), "Roles for managing in mobile service development nets", *Industrial Marketing Management*, Vol 36 No 7, pp. 909-925.
- Hoeffler, S. (2003) Measuring Preferences for Really New Products. *Journal of Marketing Research*, Vol 40, No 4, 406-420
- Human S.E - Provan, K.G. (2000) Legitimacy building in the evolution of small-firm networks. A comparative study of success and demise. *Administrative Science Quarterly*, Vol 45, pp. 327-365.
- Jarillo, J. C. (1988), 'On Strategic Networks', *Strategic Management Journal* Vol 9 No 1, pp. 31-41.
- Johansson, F. (2006) *The Medici Effect*. Harvard Business School Press, Boston.
- Kaplan, S.M. (1999), "Discontinuous Innovation and the Growth Paradox", *Strategy and Leadership*, Vol 27 No 2, pp. 16-21.
- Kickbusch, I. - Payne, L. (2003) Twenty-first century health promotion: the public health revolution meets the wellness revolution. *Health Promotion International*, Vol 18 No 4, 275-278.
- Larson, A. (1992), "Network dyads in entrepreneurial settings: A case study of the governance of exchange relationships", *Administrative Science Quarterly*, Vol 37 No 1, pp. 76-104.
- Lehtimäki, T. - Simula, H. - Salo, J. (2008) Clarifying the terms launch and commercialization: Reflections

- from theory and practice. In proceedings of EMAC-conference 2008.
- Longman, B. (2003) Identifying the Health-Conscious Consumer. Targeting strategies for image-conscious, ethical workaholics. Business Insights: London.
- Melo Brito, C. (1999), "Towards an institutional theory of the dynamics of industrial networks", *The Journal of Business & Industrial Marketing*, Vol 16 No 3, pp. 150–164.
- Melo Brito, C. (2001), "Issue-based nets: a methodological approach to the sampling issue in industrial networks research", *Qualitative Market Research: An International Journal*, Vol 2 No 2, pp. 92–102.
- Millson, M. – Wilemon, D. (2008) Designing strategic innovation networks to facilitate global NPD performance. *Journal of General Management*, Vol 34, No 2, 39–56.
- Möller, K. and Svahn, S. (2006), 'Role of Knowledge in Value Creation in Business Nets', *Journal of Management Studies*, Vol 43 No 5, pp. 985–1007
- Möller, K., Rajala, A. and Svahn, S. (2005), 'Strategic Business Nets – Their Type and Management', *Journal of Business Research*, Vol 58 No 9, pp. 1274–1284
- Möller, K. – Svahn, S. (2008) How to influence the birth of new business fields – Network perspective. *Industrial Marketing Management*. In press.
- Möller, K. & Rajala, A. (2007) Rise of strategic nets – New modes of value creation. *Industrial Marketing Management*. Pp. 895–908
- Neves, M.F. (2007), "Strategic marketing plans and collaborative networks", *Marketing Intelligence & Planning*, Vol 25 No 2, pp. 175–192.
- O'Connor, G.C. (1998). Market learning and radical innovation: A Cross case comparison of eight radical innovation projects. *Journal of Product Innovation Management*, Vol 15 No 2, pp. 151–166
- Ojasalo, J. (2004), 'Management of Innovation Networks – Two Different Approaches', *Proceedings of the 20th IMP Conference 2004, Copenhagen*.
- Parkhe, A., Wasserman, S. and Ralston, D.A. (2006), 'New Frontiers in Network Theory Development', *Academy of Management Review*, Vol 31 No 3, pp. 560–568.
- Partanen, J. – Möller, K. – Westerlund, M. – Rajala, R. - Rajala, A. (2008) Social capital in the growth of science-and-technology-based SMEs. *Industrial Marketing Management*, Vol 37, pp. 513–522.
- Pilzer, P. (2002) *The Wellness Revolution: How to Make a Fortune in the Next Trillion Dollar Industry*. John Wiley and Sons: New York.
- Provan, K. G. – Fish, A. – Sydow, J. (2007) Interorganisational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks. *Journal of Management*, Vol 33, No 3, pp. 479–516
- Reid, S. – De Brentani, U. (2008) What factors determine early performance in radical innovation? Learning from the top performers. In proceedings of EMAC-conference 2008.
- Rich, M.K. (2003), "Requirements for successful marketing alliances", *Journal of Business & Industrial Marketing*, Vol 18 No 4/5, pp. 447–456.
- Ritter, T. and Gemünden, H.G. (2003), 'Network Competence: Its Impact on Innovation Success and Its Antecedents', *Journal of Business Research*, Vol 6 No 9, pp. 745–755
- Ritter, T., Wilkinson, I., and Johnston, W. (2004) Managing in Complex Business Networks. *Industrial Marketing Management*, Vol 33, No 3, pp. 175–183
- Robertson, T.S. (1971). *Innovative behavior and communication*. New York: Holt, Rinehart and Winston.
- Rocks, S. – Gilmore, A. – Carson, D. (2005) Developing strategic marketing through the use of marketing networks. *Journal of Strategic Marketing*, Vol. 13, pp. 81–92.
- Rogers, E.M. (1983), *Diffusion of Innovations*, 3rd ed., The Free Press, New York.
- Salo, J., Sinisalo, J. and Karjaluoto H. (2008), "Intentionally developed business network for mobile marketing: a case study from Finland", *Journal of Business & Industrial Marketing*, Vol 23, No 7, pp. 497–506.

- Sandberg, B. (2008), *Managing and Marketing Radical Innovations. Marketing new technology*, Routledge, London.
- Sawhney, M., Prandelli, E. and Verona, G. (2003), “The Power of Innomediation”, *MIT Sloan Management Review*, Vol 44, No 2, pp. 77–82.
- Saxton, T. (1997) The effects of partner and relationship characteristics on alliance outcomes. *Academy of Management Journal*, Vol 40, No 2, pp. 443–461.
- Schumpeter, J. A. (1934), *The Theory of Economic Development. An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, Harvard University Press, Cambridge.
- Slater, S.F. and Narver, J.C. (2000), ‘Intelligence Generation and Superior Customer Value’, *Journal of the Academy of Marketing Science*, Vol 28 No 1, pp. 120–127.
- Teece, D.J. (1986) ‘Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing, and Public Policy’, *Research Policy*, Vol 15 No 6, pp. 285–305.
- Urban, G. L. and Hauser, J. R. (1993), *Design and Marketing of New Products*. (2nd ed.). Prentice-Hall, Englewood Cliffs.
- Veryzer, Jr., R.W. (1998), ‘Discontinuous Innovation and the New Product Development Process’, *Journal of Product Innovation Management*, Vol 15 No 4, pp. 304–321.
- Wittmann, M. – Hunt, S. – Arnett, D. (2008) Explaining alliance success: competences, resources, relational factors, and resource-advantage theory. *Industrial Marketing Management*. article in press.
- Woolf, J. (2008), “Competitive Advantage in the Health and Fitness Industry: Developing Service Bundles”, *Sport Management Review*, Vol 11 No 1, pp. 51–75.
- Yin, R.K. (1989), *Case Study Research. Design and Methods*, Rev. ed, 1st published in 1984, Sage Publications, Newbury Park.
- Zott, C. and Nguyen Huy, Q. (2007), “How entrepreneurs use symbolic management to acquire resources”, *Administrative Science Quarterly*, Vol 52 No 1, pp. 70–105.