Paper to be presented at the DRUID Academy conference in Rebild, Aalborg, Denmark on January

15-17, 2014

The processes of institutional entrepreneurship in the development of eco-industrial networks

Samuli Patala
Lappeenranta University of Technology
Faculty of Industrial Management
samuli.patala@lut.fi

Abstract

Environmental pressures have led to industrial firms forming inter-organizational relations aiming at decreasing environmental impacts, referred to as eco-industrial networks. However, knowledge of the different forms that these networks can take is relatively fragmented in different research fields. In addition, the processes through which these networks are formed in their social contexts are not yet well understood. This research takes an institutional point of view and examines the formation of eco-industrial networks through the processes of institutional entrepreneurship. This is a work-in-progress article that presents a preliminary conceptual framework of institutional entrepreneurship in eco-industrial networks, consisting of issue-based mobilization- and network orchestration processes. The framework will be further developed through a qualitative multiple case study. The research will contribute to the understanding on the novel and diverse ways that industrial networks can organize to increase their environmental sustainability, as well as the understanding on the processes through which organizational change agents can shape change their institutional environment to address societal concerns.

Jelcodes:M14,L22

The processes of institutional entrepreneurship in the development of eco-industrial networks

DRUID Academy Conference 2014

M.Sc (Tech.) Samuli Patala
Lappeenranta University of Technology, Department of Industrial Management
Year of enrolment: 2012
Expected final date: 30.11.2015
E-mail: samuli.patala@lut.fi

Introduction

In recent years managing environmental impacts has become an important consideration for industrial firms, leading to inter-organizational networks with an ecological focus, also referred to as eco-industrial networks. Some examples of this are industrial symbiosis (IS) networks where a group industrial firms reuse the by-products and waste formed by each other's activities as raw materials for other processes (Chertow and Ehrenfedd, 2012; Ashton and Bain, 2012), sustainable supply networks aiming to reduce the environmental impacts across the supply chain and create reverse supply chains for waste management (Sarkis, 2012; Bansal and McKnight, 2009), environmental issue networks (Ritvala and Salmi 2010) organized through mobilization and focused on corrective action and knowledge sharing on important environmental issues as well as collaborative development of eco-innovations through environmental solution networks, where industrial firms form primarily horizontal collaborations to gain access to inter-firm resources (Baraldi, Gregori and Perna, 2010). However, the knowledge on these different eco-industrial network forms is relatively fragmented and dispersed across several different research streams.

While several studies have highlighted the social context through which eco-industrial network activities become embedded in business networks (Ashton, 2008; Ahston & Bain 2012), they have focused on the self-organizing aspect of the networks and the diffusion of the environmental values and awareness among participant actors. There is relatively little research on the actions of influential change agents in shaping the development of eco-industrial networks, even though this can have a large impact on the network's development and these organizations can even orchestrate the network's activities (Paquin & Howard-Grenville, 2013).

The study of institutional entrepreneurship focuses on how change agents such as individuals or organizations can shape the institutional environment in which they are embedded to better suit their purposes. Institutional entrepreneurs can be powerful private-sector firms promoting their economic interests (Greenwood & Suddaby, 2006) but are also needed to tackle the taken-for-granted activities that can hinder progress in important societal issues, such as human health and diseases (Maguire, Hardy & Lawrence, 2004) or environmental impacts (Hoffman, 1999; Ritvala & Salmi, 2010). The purpose of this research is to shed light on how institutional entrepreneurs can introduce novel, environmentally friendly activities to industrial networks to form eco-industrial networks.

This article is a work-in-progress paper that presents a conceptual framework of institutional entrepreneurship in eco-industrial networks, synthesized from existing literature on eco-industrial networks and institutional entrepreneurship. The empirical phase of the research will consist of a multiple case study to further refine the processes of institutional entrepreneurship in this context. This research will contribute to the understanding of eco-industrial networks by taking a wider view of the forms that these networks can take, as well as highlighting the role of change agents in the formation of these networks, which is in line with the growing body of research into the impacts of the social context in which these networks operate.

Literature review

Eco-industrial networks

The term eco-industrial network has come to be nearly synonymous with industrial symbiosis networks. Industrial symbiosis (IS) refers to a novel form of inter-organizational activity where industrial firms improve resource utilization by reusing each other's wastes and byproducts. Firms in IS networks commonly have a network-level goal of realizing economic and environmental benefits through their relations. IS activities in eco-industrial networks commonly include the reuse of by-products and waste, infrastructure sharing as well as pooled use of resources such as water and energy (Lombardi and Laybourn, 2012). Early theory on IS recognized two main paths how IS networks form. The first is as self-organizing systems, where IS relations are gradually uncovered from existing business relationships, and awareness of the environmental benefits is spread among the networks members, leading to the formation of common goals and norms (Chertow and Ehrenfedd, 2012; Ashton & Bain, 2012). The second is a hierarchically planned IS network, where a central authority, usually a governmental organization recruits suitable firms to locate to an eco-industrial park where IS relations can form (Gibbs & Deutz, 2005). More recent research has also recognized a middle-ground between these two extremes, where an organization is responsible for facilitating the development of IS relations. For example, the national industrial symbiosis program (NISP) in the UK has operated in such a way since 2005, and has recruited thousands of industrial firms into the program (Paquin & Howard-Grenville, 2012). However, while industrial symbiosis has received increased academic and practitioner attention in the recent years, we can also identify other inter-organizational network forms aiming for decreased environmental impacts.

Green supply networks utilize green supply chain management (GSCM) activities to improve resource efficiency through supply chain cooperation. Its main concern ecological footprint of product through life cycle thinking: developing reverse supply chains that aim for closed-loop resource systems (Sarkis 2012; Zhu & Cote 2004). Green supply chain management is more vertically oriented compared to industrial symbiosis, and uses more formal techniques for coordinating the network's activities. It is common that there is a single dominant firm, usually downstream in the supply chain, which is in charge of 'greening' the supply chain through cooperating with its suppliers and customers (Bansal and McKnight 2009). Zhu et al. classify GSCM activities to internal firm activities: eco design and internal environmental management, and external activities done in cooperation with supply chain partners: green purchasing, customer cooperation for environmental concerns and investment recovery (Zhu et al. 2013). Nestle and Unilever are examples of major consumer firms that have made initiatives to improve the sustainability of their supply chain (Peters et al., 2011).

Industrial firms developing eco-innovations can also form alliances with firms complementary offerings to form environmental solution networks (Baraldi, Gregori and Perna, 2010). Often, these eco-innovations take the form of product-service systems (PSS), where some customer needs can be fulfilled through intangible value instead of physical products, leading to decreased material usage and thus lower environmental impacts (Mont, 2002). An industrial firm offering PSS often requires inter-firm resources, leading to collaborative alliances with other firms along

the value chain (Baraldi, et al., 2010). A focal firm is commonly in charge of integrating the solution, and it has to be able to mobilize suitable technology resource form network actors as well as engage in co-creation and technology adaptation processes with the involved actors (Baraldi, et al., 2010).

Additionally, industrial firms can partake in environmental issue networks (e.g Ritvala and Salmi 2010; Veal and Mouzas, 2010), which are networks organized through mobilization and focused on the corrective action of an important environmental issue by increasing awareness and promoting pollution control and prevention measures. They include actors from various different sectors in addition to industrial firms, and provide industrial firms a legitimate way of communicating their environmental responsibility, as these networks are seen to not have a vested interest in the issue. Additionally, industrial firms can find new business opportunities through the network's activities.

Table 1: Comparison of eco-industrial network forms

	Industrial symbiosis networks	**Green supply networks**	**Environmental solution networks**	**Environmental issue networks**
Focus of action	Improving eco-efficiency of production through by-product and waste reuse, utility and service sharing, information exchanges	Decreasing environmental footprints of products through life cycle thinking	Developing eco-innovative solutions that integrate the resources and capabilities of multiple network actors	Pollution control/prevention measures and increased awareness on environmental challenges through collaborative projects
Actors	Complementary industrial firms from various industries; authorities; NGOs	Industrial firms, typically from the same supply chain; vertical connections	Horizontally and vertically connected actors with complementary resources, mostly industrial firms, their customers, and research institutes	Industrial firms; municipalities; authorities; NGOs; research organisations
Common network resources	Shared knowledge, and tangible resources and / or energy	Shared GSCM information and product life cycle knowledge	Shared knowledge; potentially shared intellectual property rights and technology	Shared knowledge and potential other intangible assets (such as legitimacy and brand)
Network coordination processes	Formal exchange of resources, shared norms, social embeddedness	Formal mechanisms for flows of information and materials; standard operating practices; cooperative green actions	Mobilisation of network resources; co-development; technology adaptation	Mobilisation of actors; negotiations; formal agreements

Table 1: Comparison of eco-industrial networkTable 1 summarizes the four different forms of eco-industrial networks that can be identified in the literature. The four networks forms have several distinct differences in their focus of action, involved actors, common resources, as well as the processes involved in coordinating network action. While the development of eco-industrial networks has been addressed in previous research, much of the research focuses on the self-organizing aspects of the networks (e.g Ashton & Bain, 2012, Chertow & Ehrenfedd, 2012). However, the adoption of sustainability practices for industrial firms is fundamentally a result of changes in the institutional environment (Hoffman, 1999; Jennings & Zandbergen, 1995). The next sections will present a conceptual model of how eco-industrial networks are formed through institutional entrepreneurship.

Institutional entrepreneurship

The new institutional theory has emerged in the recent decades as a highly influential theory to explain the social context of organizations (Dimaggio & Powell 1991; Scott, 2014). Institutions can be defined as the regulative, normative and cultural-cognitive elements which provide stability to social activities (Scott, 2014). Organizations adapt to these elements to establish themselves as social acceptable or legitimate actors (Suchmann 1995). Institutional stability is provided through the mechanisms of coercive, normative and mimetic isomorphism processes which over time effect to make organizations similar (Dimaggio & Powell, 1983). But while institutions can be persistent, they also undergo change over time. Institutional change can be emergent, or it can initiated by a change agent (Scott 2014). This process of actors deliberately attempting to reform or change the institutions is referred to as institutional entrepreneurship (Dimaggio, 1988).

Institutional entrepreneurship requires actors with sufficient resources and a will to leverage those resources in order to enact institutional change that they value (Dorado, 2005; Maguire, Hardy & Lawrence, 2004). Institutional entrepreneurship can be initiated by various kinds of actors: individuals, organizations, professions, networks, associations or social movements (Hardy & Maguire, 2008). Typically, institutional entrepreneurs in emerging fields tend to be actors who occupy positions providing them with legitimacy with respect to diverse stakeholders and who are able to bridge those stakeholders, giving them access to diverse set of resources (Maguire et al., 2004).

There have been several studies attempting to identify the interventive processes involved in institutional entrepreneurship. They include the mobilization of resources, including material, social, political, financial and cultural resources required for institutional change (Battilana et al. 2009; Hardy & Maguire, 2008). Secondly, entrepreneurs commonly use framing techniques in order to rationalize the institutionalization project to the various actors involved. Careful framing is required to establish legitimacy for the action, especially when the action is in contrast with prevailing institutional norms (Hardy & Maguire, 2008). Thirdly, entrepreneurs need to be able to build relations between actors to facilitate collective action. This can include the formation of new collaborations, coalitions and alliances. (Maguire et al. 2004; Hardy & Maguire, 2008)

Institutional change and eco-industrial networks

Institutional theory offers an interesting perspective for the study of eco-industrial networks. Environmentalism is fundamentally a social movement comparable to issues such as civil right or gender equity (Hoffman, 2003), and is thus affected by institutional processes. While the conventional view of an institutional field has been one focusing on a specific industry and its constituents, institutions can also form around issues, such as environmental problems (Hoffman, 1999). These issue-based fields, or issue-based nets, form arenas of power relations of multiple constituents with varying interests, being separate but interrelated with other networks such as business and social ones (Hoffman, 1999; Brito, 2001). The dynamics of eco-industrial networks are next discussed from an institutional point of view, focusing on the mechanisms of change through institutional entrepreneurship and isomorphism.

We can observe institutional entrepreneurship for example in the issue-based mobilization of actors, including businesses, governmental organizations, NGOs and other constituents; around environmental issues, such as the degrading state of the Baltic Sea (Ritvala & Salmi, 2010, 2011). While the examples in these studies show the mobilization of actors around collective environmental goals, the networks display a lack of clear logic of how to integrate the action into the business logic of participating firms. The participation of business actors in these networks is heavily dependent on the personal value of their managers. Business benefits have also been realized, but mostly through a serendipitous logic. Additionally, such networks are usually temporary, and dissolve as the issue loses significance. Thus, the primary focus in this study is on issues which aim for permanent change in industrial networks.

Industrial symbiosis has emerged as a collective-level goal in many industrial networks around the world (Chertow & Enhrenfedd, 2012), and institutional change is often aided by facilitating organizations, such as the National Industrial Symbiosis Programme (NISP) in the UK. Because industrial symbiosis is a novel way of organizing industrial operations, the facilitators first need to establish its broad legitimacy to a wider set of constituents as well as its pragmatic legitimacy to potential participators of the network (Paquin & Howard-Grenville, 2013). As the networks develop, the facilitating actions shift to expanding the network and capturing value from participants. Another research stream focusing on the self-organization of industrial symbiosis highlights the diffusion of the awareness of environmental benefits and personal values in the networks development, with the eventual institutionalization of the activities (Chertow & Ehrenfedd, 2012).

Studies of institutionalism in green supply chain management have mostly focused on how organizations react to pressures in their institutional environment. They have for example highlighted the diffusion of GSCM activities through institutional normative, coercive and mimetic pressures (Zhu et al. 2013). Institutional entrepreneurship has also been observed as a catalyst for GSCM (Peters et al. 2011). The institutional entrepreneurs in the observed cases have included NGOs (such as WWF) and large and influential MNEs for whom sustainability is a competitive advantage (for example Unilever, Nestle). The key capabilities that were needed by the entrepreneur included the integration of external stakeholders, different business functions and loosely coupled business units; implementation of supply chain actions and process improvements as well as the cultural framing of the issue (Peters et al. 2011).

Actors with complementary resources can also be mobilized around an ecological issue by integrating their resources to form an integrated technological solution (Baraldi et al. 2011). The institutional entrepreneur in this case is a technology integrator which simultaneously forms a new environmental issue-based net. The integrator needs to be able mobilize the technological resources of network actors as well as facilitate co-development initiatives and technology adaptation (Baraldi et al. 2011).

These different viewpoints of institutional entrepreneurship in eco-industrial networks are summarized in figure 1. The development of eco-industrial networks through institutional entrepreneurship can be conceptualized by the two broad processes of issue-based mobilization and network orchestration. Issue-based network mobilization refers to activities involved in raising awareness and establishing legitimacy for the issue, mobilizing resources as well as forming a plan for action. Network orchestration in turn includes the processes related to coordinating the network's internal activities, such as connecting actors and finding new solutions. Additionally, the mechanisms of institutional isomorphism affect the diffusion of the network's activities. The focal actor undertaking these activities is the organization or a group of organizations proactively working towards institutional change, hereafter referred to as the initiator.

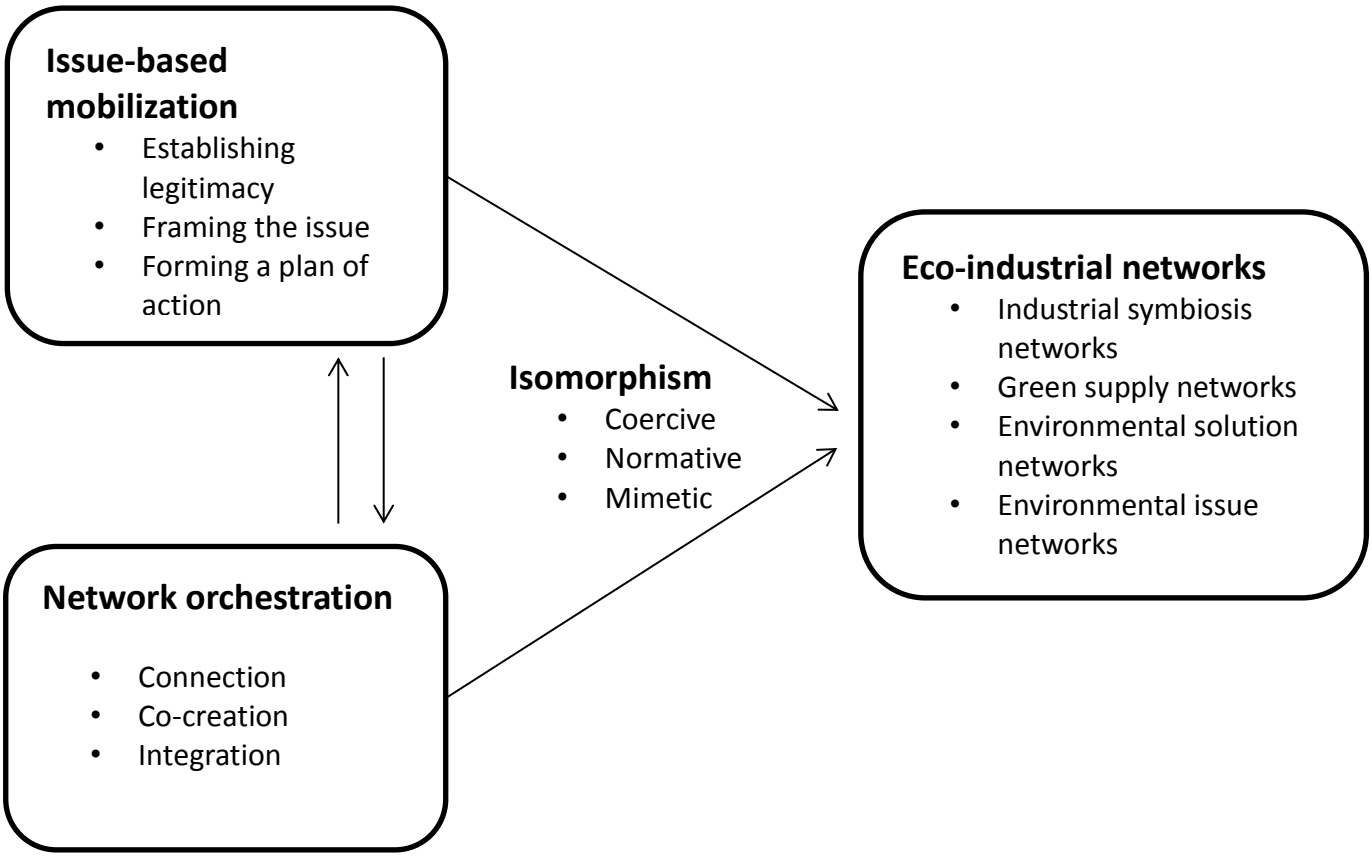

Figure 1: Conceptual model of eco-industrial network formation through institutional entrepreneurship (Adapted from: Baraldi et al. 2010; Paquin & Howard-Grenville 2013; Peters et al. 2011; Ritvala & Salmi 2011; Ritvala & Salmi 2010)

Issue-based mobilization

Issue-based mobilization refers to the actions done by the initiator to increase the legitimacy and influence of the network. The term 'issue' refers to the focal societal issue that forms the collective goal for the network (Ritvala & Salmi 2010). The issue can also be a new, environmentally friendly way of action for industrial firms, such as industrial symbiosis or green supply chain management.

Mobilizing the issue-based network initially requires establishing the legitimacy of network action, which is especially important for activities that differ from the prevailing institutional logic of business (Paquin & Howard-Grenville, 2013). The value of the network must be communicated to the external constituents of the network as well as the potential participants. As the resources of the network initiator are most likely limited, there is usually a balance that must found between the broad legitimacy targeted to external constituents and the more pragmatic legitimacy targeted to potential participants (Paquin & Howard-Grenville, 2013). Initiators commonly use framing as a technique to convey the value depending on the target: for example gaining public support for the network as producing environmentally friendly practices, or highlighting the business benefits to potential participants (Peters et al. 2011; Ritvala & Salmi, 2010).

Resource mobilization is another key activity for institutional entrepreneurship (Hardy & Maguire, XX).. Iniators need to the able to mobilize various kinds of resources to enable further action, including material, technological (Baraldi et al. 2010) financial and political (Ritvala & Salmi, 2010) resources. The existing relations of the iniator also offer the social resources to recruit members to the network (Paquin & Howard-Grenville, 2013).

Thirdly, beyond the initial activities of making the issue salient for the public and potential actors, institutional entrepreneurs must also formulate a more concrete plan of action for further activities (Paquin & Howard-Grenville, 2013; Ritvala & Salmi, 2010). This requires gathering information on potential opportunities to develop the network, such as information on resource flows in the case of industrial symbiosis (Paquin & Howard-Grenville, 2013), or complementary technologies in the case of environmental solution networks (Baraldi et al. 2010).

Network orchestration

While the processes of issue-based mobilization are more concerned with how the network fits into its societal and industrial context, network orchestration refers to the processe through which the network's activities are coordinated. They include the processes of facilitating the formation new network ties, working together with network members to create new solutions and integrating the activities of several actors to achieve benefits that are more than the sum of their parts.

Connection actions refer to the actions aiming for new network ties. The facilitator needs to broker new relations between suitable members of the network. This requires acting as a knowledge bank or a knowledge broker (von Malmborg, 2004) and engaging the members

through shared interaction spaces, such as resource synergy workshops in the case of industrial symbiosis (Paquin & Howard-Grenville, 2013). The connection actions can be either goal-oriented, purposeful connections between suitable members or serendipitous, where the facilitator facilitates the interaction between members but does not attempt influence the outcomes (Paquin & Howard-Grenville, 2012).

The initiator can also take a larger role in the development of relations in the network through co-creation. They can work with the members to find the technical solutions and innovations required to form new ties (Paquin & Howard-Grenville, 2013; Baraldi et al. 2010). This can result in valuable process improvements (Peters et al. 2011) but also requires greater resource investment from the initiator. The initiator can for example work with firms to find solutions for the reprocessing of waste in industrial symbiosis (Paquin & Howard-Grenville, 2013).

Thirdly, iniators can use integration activities to bridge several actors together to form more complex solutions. Past studies suggest that such actions are prominent if the iniator is also participating in the network. For example, in green supply chain management, hub firms can undertake integration activities which aim to decrease the environmental impacts of the whole supply chain instead of individual firms (Peters et al. 2011). Another example is provided by a hub firm integrating the technologies of network members with complementary offerings to form an eco-efficient solution (Baraldi et al. 2010).

The institutional entrepreneurs can be external facilitators of the networks, or participant actors. Logic suggests that the processes of institutional entrepreneurship take different emphasis depending on the position of the actor in relation to the network, as well as the type of eco-industrial network activities that is the focus of entrepreneur's action. The processes can also demand various capabilities from the orchestrator such as ability to mobilize diverse resources and technical expertise required to find solutions required to develop network activities. Thus it's feasible to believe that there might be several participating organizations in the entrepreneurial process.

Methodology

The conceptual framework presented in the previous section will be further developed through empirical evidence. The research process is abductive in nature, and thus the conceptual framework will be refined through an iterative process between existing theory and collected data (Dubois & Gadde, 2002). The research methodology chosen is a multiple case study. The case study methodology is particularly suitable for studying complex social phenomenon in an area where a limited amount of previous research exists Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 2008). The case study approach offers the opportunity to gain in-depth understanding on network processes (Halinen and Törnroos, 2005), which in this research are the processes of institutional entrepreneurship.

As the unit of analysis in this research is the network level, suitable existing eco-industrial networks are carefully selected for empirical analysis. Theoretical sampling is used to choose the cases (Patton, 2002). The cases should include all of the eco-industrial network forms identified in the literature. They should also include an organization which is actively developing the eco-industrial network activities. Following the logic of Garud et al. (2007) institutional

entrepreneurs are those actors that break with existing rules and practices associated with the dominant institutional logic(s) and institutionalize the alternative rules, practices or logics they are championing. To ensure a comprehensive understanding of the network's activities, the data will be gathered from multiple organizations in the case networks, including the entrepreneur as well as other focal organizations. The networks will be delimited by the key environmental issues around which the involved actors are organizing.

The main form of data collection will be in-depth interviews and focus groups with managers in the focal organizations to uncover the processes of institutional entrepreneurship. This will be complemented with secondary archival data to gain a better understanding of the network's structure and involved actors. Detailed, interpretive analyses of the data will be conducted to gain understanding of the processes of institutional entrepreneurship and how they are perceived by the actors.

Expected results

The results of this research will have important implications on the research on eco-industrial networks. Firstly, it will present a wider view of eco-industrial networks as collaborative arrangements that decrease environmental impacts, as the current knowledge is fragmented in several different research streams such as industrial symbiosis and green supply chain management. Academics, practitioners and policy-makers will benefit from this wider view by as the diverse eco-industrial network activities can increasingly interplay in complex industrial networks but awareness and action is commonly focused on a single type of activity such as industrial symbiosis. Secondly, it contributes to the increasing (e.g Ashton & Bain, 2012; Paquin & Howard-Grenville, 2012) stream of eco-industrial network research which highlights the social context in which the networks operate. Thirdly, the multiple case study will increase the understanding of the different forms that institutional entrepreneurship can take within the broad issue of sustainability. Past research has studied institutional entrepreneurship around environmental and societal issues (Eg. Ritvala & Salmi, 2010; Ritvala & Granqvist, 2009), but there is a lack of knowledge on issues where environmentalism is integrated into the core business logic of involved firms; as in the case of industrial symbiosis, green supply chain management and environmental solution networks.

References

Ashton, W.S., Bain, A.C. 2012. Assessing the "short mental distance" in eco-industrial networks. Journal of Industrial Ecology 16 (1), 70-82.

Ashton, W. (2008). Understanding the organization of industrial ecosystems. A social network approach. Journal of Industrial Ecology 12(1), 34-51.

Battilana, J., Leca, B., Boxenbaum, E. (2009). How actors change institutions: Towards a theory of institutional entrepreurship. Academy of Management Annals, 3(1), 65-107.

Bansal, P., McKnight, B. (2009). Looking forward, pushing back and peering sideways: analysis the sustainability of industrial symbiosis. Journal of Supply Chain Management, 45(4), 26-37.

Baraldi, E., Gregori, G., Perna, A. (2011). Network evolution and the embedding of complex technical solutions: The case of the Leaf House network. Industrial Marketing Management. 40(6), 838-852.

Boons, F.m, Spekkink, W., Mouzakitis, Y. (2011). The dynamics of industrial symbiosis: a proposal for a conceptual framework based upon a comprehensive literature review. Journal of Cleaner Production, 19, 905-911.

Brito, C. (2001). Towards an institutional theory of the dynamics of industrial networks. Journal of Business & Industrial Marketing, 16(3), 150−166.

Chertow, M and Ehrenfedd, J. (2012). Organizing self-organizing systems- Towards a theory of industrial symbiosis. Journal of Industrial Ecology, 16,(1), 13-27.

Dorado, S. (2005). Institutional entrepreneurship, partaking, and convening. Organization Studies, 26(3), 383–413.

DiMaggio, P. (1988). Interest and agency in institutional theory. In L. B. Zucker (Ed.), Institutional patterns and organizations: Culture and environment (pp. 3—21). Cambridge, MA: Ballinger.

DiMaggio, P and Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American sociological review, 48, 147-160.

DiMaggio, P., & Powell, W. (1991). Introduction. In W.W. Powell & P.J. DiMaggio (Eds.), The new institutionalism in organizational analysis (pp. 1–38). Chicago, IL: The University of Chicago Press.

Dubois, A., & Gadde, L. -E. (2002). Systematic combining: An abductive approach to case research. Journal of Business Research, 55(7), 553–560.

Garud, R., Hardy, C., Maguire, S. (2007). Institutional entrepreneurship as embedded agency: An introduction to the special issue. Organization Studies, 28(7), 957—969.

Gibbs, D., Deutz, P. (2005). Implementing industrial ecology? Planning for eco-industrial parks in the USA. Geoforum 36, 452-464.

Greenwood, R., & Suddaby, R. (2006). Institutional entrepreneurship in mature fields: The Big Five accounting firms. Academy of Management Journal, 49(1), 27–48.

Eisenhardt, K. (1989). 'Building Theories from Case Study Research.' Academy of Management Review, 14, (4), 532-550.

Hardy, C., & Maguire, S. (2008). Institutional entrepreneurship. In R. Greenwood, C. Oliver, R. Suddaby, & K. Shalin-Anderson (Eds.), Handbook of organizational institutionalism (pp. 198–217). Thousand Oaks, CA: Sage.

Halinen, A., Törnroos, J.-Å. (2005). Using case methods in the study of contemporary business networks. Journal of Business Research, 58(9), 1285–1297.

Hoffman, A. J. (1999). Institutional evolution and change: Environmentalism and the U.S. chemical industry. Academy of Management Journal, 42(4), 351−371.

Hoffman, A. J. (2003). Linking social systems analysis to the industrial ecology framework. Organization & Environment, 16(1), 66−86.

Jenning, D., Zandbergen. P. (1995). Ecologically sustainable organizations: an institutional approach. The Academy of Management Review, 20 (4), 1015-1052.

Lombardi, D.R., Laybourn, P. (2012). Redefining industrial symbiosis. Crossing academic-practitioner boundaries. Journal of Industrial Ecology, 16(1), 28-37.

Von Malmborg, F. (2004). Networking for knowledge transfer: towards an understanding of local authority roles in regional industrial ecosystem management. Business Strategy and the Environment, 13, 334-346

Maguire, S., Hardy, C., Lawrence, T. (2004). Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada. Academy of Management Journal, 47(5), 657–679.

Miles, M. and Huberman, A. (1994). Qualitative data analysis. Thousand Oaks: Sage Publications.

Mont, O. (2002). Clarifying the concept of product-service systems. Journal of Cleaner Production, 10, 237-245.

Paquin, R.L., Howard-Grenville, J. (2012). The evolution of facilitated industrial symbiosis. Journal of Industrial Ecology, 16(1), 83-93.

Paquin, R., Howard-Grenville, J. (2013). Blind marriages Blind Dates and Arranged Marriages: Longitudinal Processes of Network Orchestration. Organisation Studies, 34 (11) 1623-1653

Patton, M. (2002). Qualitative research and evaluation methods, 3rd Edition. London: Sage.

Peters, N., Hofstetter, J., Hoffmann, V. (2011). Institutional entrepreneurship capabilities for interorganizational sustainable supply chain strategies. The International Journal of Logistics Management, 22 (1), 52-86.

Ritvala, T., & Granqvist, N. (2009). Institutional entrepreneurs and local embedding of global scientific ideas — The case of preventing heart disease in Finland. Scandinavian Journal of Management, 25 (2), 133−145.

Ritvala, T., Salmi, A. (2010). Value-based network mobilization: A case study of modern environmental networkers. Industrial Marketing Management, 39(6), 898-907.

Ritvala, T., Salmi., A. (2011). Network mobilizers and target firms: the case of saving the Baltic Sea. Industrial Marketing Management, 40, 887-898.

Sarkis, J. (2012). A boundaries and flows perspective of green supply chain management. Supply Chain Management: An international Journal, 17, (2), 202-216.

Scott, W.R. (2014). Institutions and organizations. Thousand Oaks, CA: Sage.

Veal, G., Mouzas, S. (2010). Learning to collaborate: a study of business networks. Journal of Business & Industrial Marketing, 25 (6), 420-434.

Yin, R. (2008). Case study research, Fourth edition. Beverly Hills: Sage Publications.

Zhu, Q., Cote, R.P. (2004). Integrating green supply chain management into an embryonic eco-industrial development: a case study of the Guitang Group. Journal of Cleaner Production, 12 (8-10), 1025-1035.

Zhu, Q, Sarkis, J., Lai, K. (2013). Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices, Journal of Purchasing and Supply Management, 19, 106-117