CINET – LESSONS FROM AND FOR A COMMUNITY OF PRACTICE

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ABSTRACT

This paper presents and analyzes the Continuous Innovation Network (CINet) and its development over time from the perspective of community of practice theory. In contrast to most of the existing literature, this research has focused on an inter-organizational community. It appears the differences between intra- and inter-organizational communities are small. Furthermore, the research identified a range of factors whose interplay influences the development of this kind of communities. The paper is concluded with a number of recommendations for the further development of CINet.

Key words: Communities of practice, Networks, Longitudinal case study

1. CINET: 1994-2006

1.1. FROM (EURO)CINET TO …

In June 1993, John Bessant from Brighton University had just given a presentation to the EurOMA conference on the gearwheel model of continuous improvement. His presentation was the last in the session, and during the coffee break, the discussion continued between John and, amongst others, Per Lindberg from Chalmers University, Sweden and Harry Boer from the University of Twente, The Netherlands. One of them suggested to do something together in the, for Europe, new field of continuous improvement. An excellent idea, they all thought, and John suggested they could perhaps get some funding for that initiative.

In September 1993, a next meeting was organized at Helsinki University of Technology. At that meeting it was decided to go for a Eureka project to be formally launched at a next meeting in Copenhagen. In October 1994 that meeting took place to launch the European Continuous Innovation Network (EuroCINet) as Eureka project EU1222. The meeting recognized that joint activity would be needed to keep the group together. The idea was launched to develop a "quick and dirty" survey of the state-of-the-art of continuous improvement in Europe, which could eventually lead to "an article in the Financial Times". Brighton would develop and administer that survey, and organize a research meeting allowing the group involved to present and discuss their findings. The survey was posted in a number of European countries and also in Australia. Ross Chapman, of the University of Western Sydney, had visited with CENTRIM and had become interested in the initiative.

In 1995, the data were collected and the first reports were written. On 6 December 1995,

the meeting took place near Gatwick Airport, with 28 present from 10 countries. A selection of the papers presented was invited for a special issue of the International Journal of Technology Management (IJTM). The first EuroCINet publication was a fact.

The general feeling at the meeting was: we want to continue this. It was decided to organize a second event, hopefully bigger and attracting people not so far involved, to take place at the University of Twente in September 1998. Called the 2nd EuroCINet conference (thus recognizing the Brighton meeting as the 1st EuroCINet conference), that meeting attracted 100 participants from 28 countries, and featured the first PhD Workshop with around 10 participants. Masaaki Imai, the Kaizen guru, addressed the conference. A selection of the papers was published in Integrated Manufacturing Systems (IMS) and IJTM.

Between the Brighton and Twente conferences, the network met six times. After the Twente conference, the group decided to continue meeting and organize a 3rd conference. Aalborg University, Denmark, hosted that conference, in September 2000. Robert E. Cole, Berkeley, USA was the keynote speaker. Representing 14 countries, 104 delegates attended. The PhD Workshop was repeated, with great success.

1.2. … CINET

In the meantime, discussions within the network led to a couple of conclusions and actions.

First, continuous improvement is not a specifically European activity or area of interest. From the beginning, there was strong interest from Australia, but other countries were also represented at the meetings and, especially, the conferences.

Second, the "name of the game" was changing. By the end of the 1990s, various articles had been published (e.g. Brown and Eisenhardt 1997, Weick and Quinn 1999), which suggested continuous *innovation* as the next hot topic. Particularly the work of March (1991) on exploitation (including improvement) and exploration (including innovation) and the increasing need for many companies to combine these two capabilities effectively, however difficult that may be, was quite influential in that respect. Also, quite a few researchers within the network appeared to be re-directing their focus, with topics such as innovation and learning playing an increasingly important role. Corso's paper on *continuous* product innovation, presented at a product development conference and published later as Corso (2002) is just one example. So, around the Aalborg conference, it was decided to change the name of the network into Continuous Innovation Network, CINet. The theme of the conference, "CI 2000: From Improvement to Innovation" reflected that transition, and so did Cole's key note "From continuous improvement to continuous innovation" (later published as Cole 2001). The conference resulted in a journal special of IJTM. The editorial to that special was entitled "From continuous improvement to continuous innovation: A (retro)(per)spective" (Boer and Gertsen 2003). Another conference special was published in IMS.

Third, the network decided to establish a board of five members (four Europeans, one Australian) to take care of the governance and support the further development of CINet.

Fourth, so far the network had been administered in Brighton. The University of Twente was prepared to take over the administration of the network. This came into effect just after the Aalborg conference. In 2001 the CINet website was launched and gradually developed since (http://www.continuous-innovation.net/). A document issued by the board in 2001,

but based on discussions going back to 1999, described the transition "From EuroCINet to CINet: An incremental yet radical change" and addressed issues like the CINet vision, mission, research products and process, organization and management, and PhD Network.

Finally, until 2002, membership had been free. In January 2003, the members were asked to pay an annual fee of € 75 (full members - € 35 for PhD students), in order to cover some of the cost made by the network, especially the secretariat. By May of that year, CINet had 60 paying members, a number which increased to 121 by the end of 2006.

The 4th CINet conference was held in Helsinki, in September 2002, with 102 participants from 15 countries. Special issues were produced in IMS, Knowledge and Process Management (KPM), and Production Planning and Control. In 2004, the conference went "down under", to Sydney. That 5th conference attracted 104 participants from 18 countries and resulted in special issues in IJTM and KPM. Just before the conference it was decided to start organizing the conference annually, so that the next event, "back home" in Brighton, already took place in 2005. Not unexpectedly, the numbers dropped a bit, to 74 participants from 12 countries. The conference resulted in special issues of IJTM and CIM. In 2006, it was Italy's turn. Lucca attracted 77 delegates from 15 countries. Two journal specials published by IJTM and CIM will be the result. At the AGM of that year, the proposal to increase the number of board members to seven was accepted. All these conferences featured the usual PhD Workshop.

In May 2003, the first one-week PhD Seminar was held in Brussels, organized together with the European Institute of Advanced Studies in Management (EIASM). Thirteen students took part. The year after, the seminar attracted fewer students than economically feasible for EIASM. Yet, CINet decided to continue this event, and the 2nd seminar took place in Aalborg, with 10 students taking part. The 2005 seminar had to be cancelled – not enough participants. The year after, interest picked up again – in Aalborg, 17 students met and worked together for a week in March 2006.

1.3. RESEARCH – THE CORE ACTIVITY

In addition to meetings, conferences and workshops, collaborative research was what kept the development of CINet going. In addition to a range of local studies and events, various network-level projects were undertaken, in particular:

- 1st EuroCINet survey (data collected 1995-1996).
- Ericsson project (Continuous improvement in new product development) (1996-1997).
- CIMA (*C*ontinuous *I*mprovement and global Innovation *Ma*nagement – ESPRIT 26056) (1997-1999).
- 2nd CINet survey (data collected 2003-2004).
- CO-IMPROVE (Collaborative improvement tool for the extended enterprise – GRD1-2000-25827) (2000-2003).

These projects resulted in a wealth of papers and articles, many co-authored, and a joint book (Boer *et al*. 2000).

2. RESEARCH QUESTIONS

Most literature focuses on intra-organizational communities. Inter-organizational communities are not excluded, but have not been studied widely (Huang *et al*. 2002, Van

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Membership	N.A.	28	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	75	92	117	121
• Female	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	19%	23%	28%	29%
• Male	N.A.	N.A	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	81%	77%	72%	71%
• PhD Students (%)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	23%	30%	34%	39%
• Full members (%)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	77%	70%	66%	61%
• Total number of countries	N.A	8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	19	22	20	22
• European countries	N.A.	100%	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	74%	68%	70%	68%
Board members	-	-	-	-	-	-	5	5	5	5	5	5/7	8
Meetings													
• Network meetings	1	5	3	3	3	N.A.	N.A.	-	-	-	-	-	-
• Board meetings	-	-	-	-	-	-	1	4	3	2	2	4	3
• AGM	-	-	-	-	-	-	1	-	1	-	1	1	1
• Conferences	-	1	-	-	1	-	1	-	1	-	1	1	1
○ Participants	-	28	-	-	100	-	104	-	102	-	104	74	77
○ Papers	-	10	-	-	39	-	37	-	57	-	85	52	63
○ Countries	-	8	-	-	14	-	12	-	15	-	18	12	15
• PhD Workshops	-	-	-	-	1	-	1	-	1	-	1	1	1
• PhD Seminars	-	-	-	-	-	-	-	-	-	1	1	-	1
• Research Seminars	-	-	-	-	-	-	-	-	-	1	-	-	-
• Supervisor Workshops	-	-	-	-	-	-	-	-	-	-	-	-	1
Research projects													
• 1st Survey		9											
• Ericsson			7										
• CIMA				7									
• CO-IMPROVE								5					
• 2nd Survey										10			

Table 1 Key figures indicating the development of CINet in the period 1994-2006

Winkelen 2003, Moingeon *et al*. 2006). We take our starting point in theory on intra-organizational communities but aim at developing an answer to the question:

What can an analysis of the history of CINet contribute to the current knowledge on inter-organizational *communities of practice?*

We will approach this question from a couple of angles. First, "[c]ommunities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger *et al*. 2002). "A community … is different from a *network* in the sense that it is "about" something; it is not just a set of relationships. It has an identity …, and thus shapes the identities of its members. [It] exists because it produces a shared practice as members engage in a collective process of learning" (Wenger 1998). Furthermore, membership of, or belonging to, a community may vary from being in the core group to having a peripheral position. These considerations raise the following sub-questions:

- Who are the people involved in CINet?
- What is their concern, problem, passion? And what is the identity of the CINet?
- Do/did the members produce a shared practice? How do they interact and deepen their knowledge and expertise in the area? Are they engaged in a collective learning process?
- What is the structure of the CINet in terms of belonging?

Then, various models have been published to describe the development of communities of practice. Wenger (1998) distinguishes the stages depicted and explained in Figure 1. Wenger *et al*. (2002) present a slightly more managerial-oriented five stage model. This raises the sub-question:

- What development process did CINet go through? How was that process "governed"?

Finally, this paper is based on the premise that CINet actually is a community of practice. However …

- … *is* the CINet (still) a community of practice?

3. ANALYSIS

3.1. WHO ARE THE PEOPLE INVOLVED IN CINET?

The network has grown steadily, from 28 in 1996 to 121 by the end of 2006, a growth rate of nearly 16% per year. The membership came from 22 countries, including 7 outside European. More than 70% of the members were male; 39% PhD students; 61% seniors. Most members were working in academia. Less than 10 members worked in industry or were consultants.

3.2. WHAT IS THEIR CONCERN, PROBLEM, PASSION? AND WHAT IS THE IDENTITY OF THE CINET?

The CINet members share an interest in continuous innovation. However, this is a broad area which is developing continuously. Topics studied by the membership include continuous improvement, learning, knowledge management, innovation, and a variety of perspective including (the development of) tools and techniques, processual studies, and design/configurational aspects of innovation (Boer and Gertsen 2003). The passion they share, though, is continuous innovation.

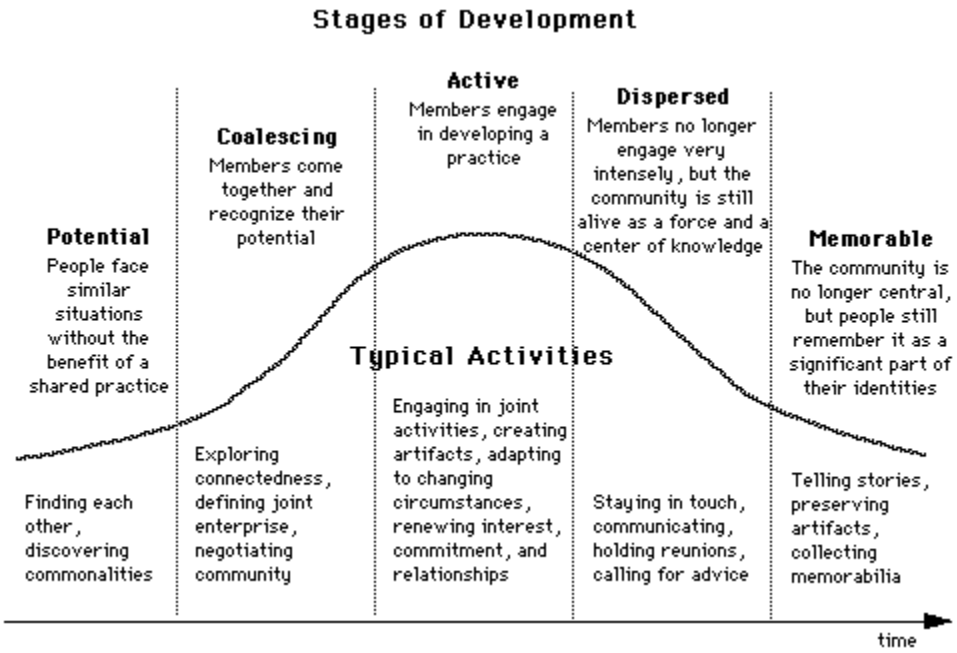

Figure 1 Stages of development of communities of practice (Wenger 1998)

		1st Survey	Ericsson project	CIMA	CO-IMPROVE	2nd Survey
Aalborg University	Aalborg Denmark	√	√		√	√
Brighton University	Brighton UK	√	√	√		√
Trinity College Dublin	Dublin Ireland		√	√	√	√
University of Twente	Enschede Netherlands	√	√	√	√	√
Chalmers University of Technology	Gothenburg Sweden	√	√	√		√
Helsinki University of Technology	Helsinki Finland	√	√			
Monash University	Melbourne Australia	√				√
Politecnico di Milano	Milan Italy		√	√	√	√
University of Western Sydney	Sydney Australia	√		√		√
Norwegian University of Science and Technology	Trondheim Norway	√				
City University	Hong Kong					√
Central Queensland University	Rockhampton Australia					√
Stavanger University	Stavanger Norway					√
Technical University of Valencia	Valencia Spain					√
ETH Zürich	Zürich Switzerland					√

Table 2 Participation in (Euro)CINet activities

3.3. *Do the members produce a shared practice? How do they interact and deepen their knowledge and expertise in the area? Are they engaged in a collective learning process?*

The members deepen their expertise in the area in different ways and different contexts. Most of them are active researchers, and present their work at the CINet conferences. Furthermore, they learn from each other through joint research (Table 2) and exchange activities (see Table 3). Many members are also active in other networks, notably the European Operations Management Association and the EIASM International Product Development Management Conference.

Many of the younger members of the network got engaged through the PhD Workshops, started in 1998, and/or the PhD Seminars, started in 2003 and aimed at teaching and discussing various methodologies and how they may contribute to theory development in the area of continuous innovation. A recent addition to the CINet portfolio of activities concerns the Supervisor Workshops, which also coincide with the annual conferences.

3.4. *What is the structure of the CINet in terms of belonging?*

The core of the network has changed considerably over time. On the one hand this is a natural phenomenon – people come and people go. On the other hand, the change of governance in 2000 has had a clear influence. Various members active in the informal phase (1994-2000) continued attending the conference, but as they did not join the board while at the same time network meetings were dropped as a communication mechanism, they moved towards the periphery of CINet. Other, mostly younger, people moved in. The joint projects appeared to play an important role here. Many of the leading people involved in the 1st (Euro)CINet survey and, especially, CIMA moved into the centre of the network. Most members of the first board also played a core role in the CO-IMPROVE project. The 2nd survey had a positive influence, with new universities joining the consortium (see Table 2). Two staff of these universities joined the CINet board in 2005 and 2006, respectively.

3.5. *What development process did CINet go through? How was that process "governed"?*

A group of researchers meeting after a presentation at an Operations Management conference discovered they had a common interest and were actively interested to invest time in trying to set up something together. None of them had ever dreamt this would lead to the CINet as it is today. From its inception, (Euro)CINet has been a distributed and relatively heterogeneous network in terms of countries represented, male/female membership, distribution of age, function (ranging from PhD students to full professors; some practitioners – mostly consultants) and disciplinary background (although academics with an engineering and/or management degree have always dominated the membership).

In other respects, the first six EuroCINet years (1994-2000) differed significantly from the CINet period (2000-present). The network started spontaneously and functioned in that spirit for the first couple of years. This was also the most collaboration intensive period, especially as regards non-funded (EuroCINet itself, the survey, the Ericsson study) and funded (CIMA) research projects. The two–four network meetings held every year were informal and aimed at presenting these projects and identifying new ideas for collaboration. The network was small, but all members took active part in the meetings and the projects.

to / from	Aalborg University	Brighton University	Trinity College Dublin	University of Twente	Chalmers University of Technology	Helsinki University of Technology	Politecnico di Milano	Central Queensland University	University of Western Sydney	Stavanger University
Aalborg University			PhD student		PhD student	PhD student	PhD students staff teaching	PhD student	PhD student	visiting professor
Brighton University				junior staff						
Trinity College Dublin	visiting professor			PhD student; staff teaching			PhD student			
University of Twente	visiting professor PhD student		PhD student					MSc student		
Chalmers University of Technology										
Helsinki University of Technology										
Politecnico di Milano	PhD student; staff teaching			joint PhD student; staff teaching	MSc student	MSc student				
Central Queensland University	senior staff									
University of Western Sydney	senior staff									
Stavanger University	PhD student									

Table 3 Exchanges between the core universities.

In 2000, some of these characteristics changed. While formality increased only slightly, perceived centralization increased significantly with the establishment of a board, and after a while the level of joint activity started to fall. The general network meetings were abandoned, while attempts to involve the membership in the activities of the CINet, by establishing teams for various activities (e.g. PhD Network and research development) failed. In contrast, the 2nd survey attracted more participants and also CO-IMPROVE involved quite a few members (and their organizations), all of which were in the core of the network, including most board members. Furthermore, the network grew considerably, from around 60 in 2000 to 121 at the end of 2006. In 2005 the conference went annual, but

continued attracting a good number of delegates. The PhD Workshops were an ongoing success. The PhD Seminar, first organized in 2003, was a mixed success. The Supervisor Workshop is the latest activity started.

4. INTERPRETATION

How can we interpret these patterns, especially the differences between the pre-2000 and post-2000 periods? Consider the interplay between the following factors:

- Centralization (institutionalized governance).
- Funding, including paid membership.
- The focus (name and mission) of (Euro)CINet.
- Size/growth.
- Formalization and diversification.

4.1. EXPLANATORY FACTORS AND THEIR INTERPLAY

Until 2000, the network had not had any form of **central governance**. Although the board, established in that year, tried to keep **formalization** as low as possible, tried to stimulate activity within the network, tried to involve members in board activities, the spirit of the network "by the members for the members" disappeared nearly overnight. **Growth** probably aggravated that effect. Consequently, the level of joint research activity started to drop as well. After completion of CO-IMPROVE, no joint research projects were initiated. In effect, the level of exchange activity (Table 3), which peaked around 2003 due to the intensive collaboration between various research groups involved in CINet (Table 2), has dropped lately. An attempt to develop CINet in an EU-funded Network of Excellence failed. The only, albeit non-funded, research activity still alive is the CINet Survey. In 2006, the preparations of the 3rd release started – it is still unclear how much collaboration that will create.

The change of **focus** had a positive impact, and may actually be one of the main factors explaining the **growth** of the network. A Google search in June 2004 using the term "continuous innovation" scored 29,500 hits. In December 2006, that number had increased to 338.000, a growth of over 8% per month. This suggests continuous innovation is a hot topic and, thus logically attracting research interest. Was the decision to change the **focus** of the network a stroke of luck? No. One of the benefits of a community is that it enables the exchange of ideas and experiences. Corso's (2002) article and the works of scholars like March (1991), Brown and Eisenhardt (1997) and Weick and Quinn (1999) made a few core members realize that continuous innovation, not only of products, but of processes, organizational structures and systems as well, would be the new name of the competitive game. That, plus the recognition that the interests of various people within the network had gone beyond continuous improvement, made the step towards renaming the network and reformulating its mission an easy and logical one. **Growth**? The byproduct.

One of the usual by-effects of **growth** is further **formalization**, while also the **diversification** question is bound to pop up – what more can we do for our membership? The response to the **diversification** question involved the development of new events, in which the CINet secretariat played a key role. **Paid membership** made it possible to professionalize the secretariat significantly, which made it much easier to intensify existing, and initiate new, events. The conference and the PhD Workshop became annual in 2004;

the PhD Seminar was launched in 2003; the Supervisor Workshop in 2006.

As to **formalization**, little happened, really. The network was registered as a foundation in The Netherlands, which brings with it some formalities, and also implemented a procedure for board elections, and that is more or less it. The CINet website (still) says: "*The function of the CINet is to stimulate and facilitate interaction and collaboration … between the participants in the network and between the network and its external stakeholders. In organising and managing the network a … balance is sought between self-organisation and centralisation, … co-incidence and control, … flexibility and institutionalisation. Perhaps the strongest way to achieve such a balance is through a shared view of what the network is all about, i.e. its vision, mission and strategy. Furthermore a strong culture is the key to the success of the CINet. Formal positions and arrangements are kept to a minimum*" (http://www.continuous-innovation.net/_Who_are_we/Organisation.html). In other words, "we are and want be a community". However …

4.2. … IS THE CINET A COMMUNITY OF PRACTITIONERS?

Yes and no or, rather, both. In this paper, the word "network" has been used frequently. Logically, as the entity studied is called Continuous Innovation *Network*. Wenger and Snyder (2000) compared communities of practice with, amongst others, informal networks – see Table 4[1].

	What's the purpose?	Who belongs?	What holds it together?	How long does it last?
Community of practice	To develop members' capabilities; to build and exchange knowledge	Members who select themselves	Passion, commitment, and identification with the group's expertise	As long as there is interest in maintaining the group
Informal network	To collect and pass on business information	Friends and business acquaintances	Mutual needs	As long as people have reason to connect

Table 4 A comparison between communities of practice and informal networks (based on Wenger and Snyder, 2000).

The differences between a community of practice and an informal network are rather vague and CINet has characteristics of both. This suggests CINet is a community of practice, indeed, as well as a network. However, how does that relate to the fact that CINet is a foundation, has paying members, and also has a governance structure (including a board and an election procedure)? This brings us to the issue of community management. As Wenger and Snyder (2000) note, "… communities … are fundamentally informal and self-organizing". However, according to these authors, they will benefit from a (suitable) infrastructure and measurement and communication of their value. And this is exactly what CINet has tried to put in place after the year 2000. The principle is: there is a community, which has developed according to the book. The question was, using Wenger and Snyder's (2000) metaphor, how can we grow the seeds sown, and develop a beautiful continuous

[1] CINet is not a formal workgroup or a project team, the other two forms mentioned by Wenger and Snyder (2000).

innovation garden? The answer: implement a board, establish a secretariat, develop a website, intensify the activities, start a PhD network, stimulate staff and student exchange, and keep the bureaucracy minimal. Rather, try and maintain a culture in which people feel at home. Some of these purposes were achieved, others struggled:

- The board and the secretariat were established and have undertaken many activities.
- The website was posted and developed ever further in the course of time.
- The bureaucracy was kept minimal: a foundation, needed for legal reasons, was established under Dutch law with minimal statutes, and a governance document was developed regulating the election of board members.
- A PhD network was established but hardly developed any activity.
- The level of staff and students exchange grew, peaked and is somewhat stabilizing now.
- Existing activities were continued (survey, PhD Workshops), or intensified (the conference became annual in 2005) and new activities were developed (PhD Seminars, Supervisor Workshops).
- The volume of research within the CINet also increased considerably with the growth of the network. However, with the completion of CO-IMPROVE, the number of joint research projects dropped to zero. The 3rd survey may trigger new collaboration.

5. CONCLUSION

5.1. LESSONS FOR COMMUNITY OF PRACTICE THEORY

This paper presents a case of an inter-organizational community of practitioners researching and teaching continuous innovation. The analysis of that network suggests inter-organizational communities have all the characteristics of intra-organizational communities. One major and logical difference is that the community governance cannot be drawn from within an organization. In the case of CINet, the people assuming this task come from within the community.

A community may actually consist of sub-communities. In the case of CINet, the core consists of the board, members involved in the joint activities, and event organizers. Most other members "only" have their local activities, send students and young members of staff to the PhD and supervisor workshops, and attend the conferences, but do not take part in other, or initiate new, community activities.

The following factors and their interplay seem to affect the development of this kind of communities:

- **Centralization** – knowing there is a board which will take care of the network has a negative effect on self-organization and "bottom-up" activity within the community; a central support organization has a positive effect on internal and external communication, event organization and **diversification**.
- **Funding** – enables the community to improve existing and develop new activities.
- **Focus** – keeps the community together, may attract new members and, thus, lead to **growth**.
- **Size** – provides critical mass, a "market" for activities (events, exchange, joint projects) and income if combined with **paid membership**, but also reduces self-organization.
- **Formalization** – facilitates the governance of the community but does not kill its informal character if kept to a minimum.

- **Diversification** – in response to membership needs, and enabled by a central administrative organization.

5.2. LESSONS FOR CINET

The findings presented here hold some lessons for the network. First, there is nothing against having a board, born from within the network. The ambition to keep formalization minimal seems to fit well to the community concept. At the same time, ways have to be found to rejuvenate joint research activity within the network. Otherwise, the gap in terms of involvement and commitment will grow, and too much of the membership will move into the dispersed stage (Wenger, 1998).

(Continuous) innovation is one of *the* buzzwords in politics and industry. This creates opportunities but also threats – competition is increasing. In order to cope with that, the network needs to evaluate its focus and activities continuously and so as to provide the most attractive "home" for its (prospective) members.

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