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How many networks are we to manage?

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How Many Networks Are We To Manage?

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(1) Coping with a networks as multi-level-phenomena

The continuous transformation of the industrial society into a service and knowledge society is accompanied by profound change of demand: Customer requests will increasingly focus on individual products, shorter delivery times and appropriate prices. To encounter these challenges under the conditions of a dynamic global market and inter-regional competition, the CRC 457 “Non-Hierarchical Regional Production-Networks” at the Chemnitz University of Technology focuses on SME and investigates ways to implement customer-oriented, temporary networking of smallest autonomous value added units (“competence cells”) in the region of South-West-Saxony, Germany.
Considering size and internal complexity of a network phenomenon integrating ideally all mechanical engineering competencies of a traditional mechanical engineering region of about 1 Million inhabitants, we are confronted with functional, structural and element-regarding problems of network management. Firstly, we have to assume that networks in general have enormous difficulties in coordinating functions, concentrating resources and – from a certain size onwards – in coping with the complexity of a given task (cf. Castells 2001). Secondly, concerning the structural dimension of the development of network cooperation, the major problem is to establish a balance between stability and adaptability (cf. Kruse 2004, Sydow/Möllering 2004, Sydow 2003, Mildenberger 1998, Bellmann/Hippe 1996). Thirdly, we have to cope with the problem of steady state not only on the level of the structure of the network, but on the level of the constituting elements of the network, too: competence cells are designed as basic and autonomous production units, which are economically and legally completely independent and are bounded to their core competencies (cf. Prahalad/Hamel 1990). In order to guarantee the general structural flexibility of the network, we also have to demand of the competence cells that they are adaptive and able to cooperate. In so far we need this form of adaptability respective to the customers orders not only on the level of the competence network, but also on the level of each single competence cell, in order to guarantee the sustainable capability to establish specific and successful temporary production networks (cf. Fig. 1).

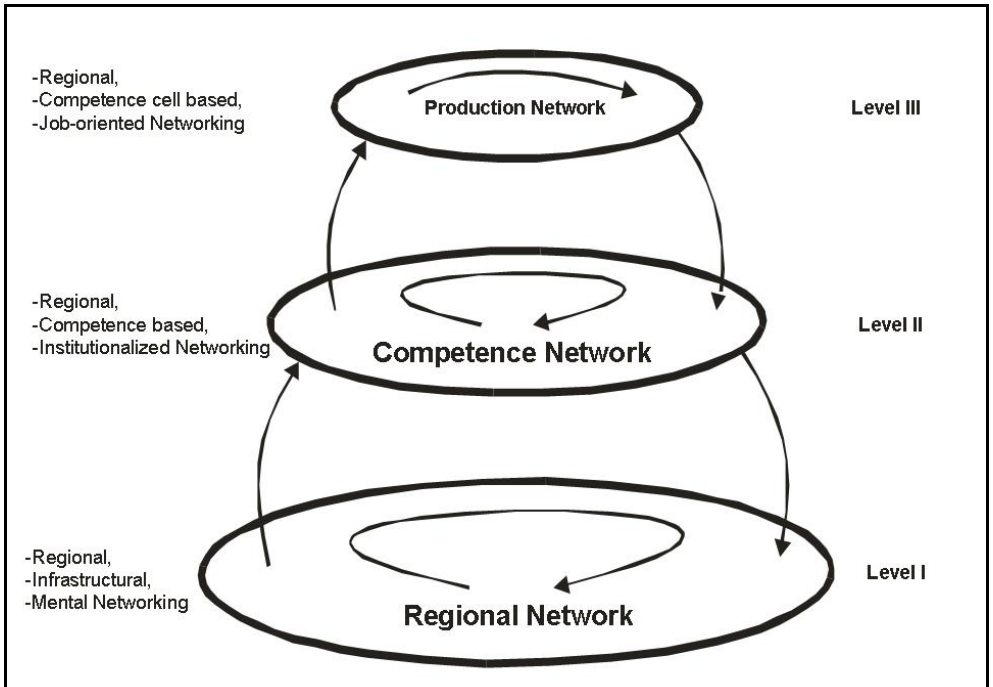

Figure 1: Model of competence cell based networking (CRC 457)

This required self-adaptation and the thereof resulting autonomy to self-control are at least partly contrasting the necessary strategic orientation of the network as a whole.
Therefore, the question of controllability is central to the current network-debate, yet without providing final solutions so far (cf. BLa03, Win02, SWi00). At present, we are able to identify three incommensurable assumptions concerning controllability in context of networks (un-controllability, cultivatability, controllability) which in the following section will be introduced and systematically related to the three-level-model of networking sketched in Figure 1. By doing so we develop a model of three-level-(un-)controllability (2). Subsequently we focus on the system "competence network" which we introduce as an instrument to implement production networks. Thus, we enhance the basic three-level-model with this new perspective on the competence network, by on the one hand, trying to draw most precise distinction possible to the other two levels of networking (3), and one the other hand, by identifying these distinctions as fundamental structural challenges in the process of network-management. In the following, the structural and the process-perspective can be unified to form a cyclic multi-level-model of basic tasks in the context of network management (4), which presents itself as a starting point for further investigations (5).

(2) The Three-Level-Model of the (Un-)Controllability of Networks

In the intersdisziplinary network research, it could not yet have been accomplished to develop an appropriate concept of network, which takes all phenomena into account (cf. Aderhold/Wetzel 2005, Aderhold/Wetzel 2004, Hessinger 2001, Windeler 2001, Tacke 2001, Jansen 99). From time to time in this context it is even spoken of a babylonization (vgl. Faßler 2001; Roth 2002): Apparently, there exist as many networks as observers, rather more. Respectively the concept of network appears to be „... die charakteristische Gesellschaftsstruktur des Informationszeitalters" (Castells 2001: 423).
According to this most general concept - and according to the works of network pioneers in anthropology, ethnology or (urban) sociology (e.g. Radcliff-Brown 1977; Coleman 1957; Barnes 1972) - networks can be seen as given in any social context. Regarding a specific region, we have to assume that there is a broad array of infra-structural, mental and communicative relations; that, as a whole, we call the *Regional Network*. This level can be defined as the basic level of competence cell based networking; specific elements (competence cells) of this network are then necessary resources of the following level.
The second level of networking we call *Competence Network*. The first continuous task of this network is to identify competence cells according to relevant parameters - that may be defined by customers´ orders or, in view of new market entry, be generated by the Competence Network itself. The second task is to arrange these cells along a product specific value chain and, by this means, to create temporary production networks. Concerning both of these tasks, the third is to find a non-hierarchical mode of negotiation. Regarding the latter usually the question emerges, whether we have to treat networks as a new resp. as an intermediary mode of coordination between market and hierarchy (cf. Podolny 2001, Sydow 2001, Heidling 2000, Kocian 1999, Biggerio 1999, Picot/Reichwald/Wigand 1996), or as a social phenomenon of a new quality (cf. Aderhold/Wetzel 2005, Powell 1990).
On a third level, temporary alliances of basically autonomous competence cells can be observed. These alliances can be compared with "… the most frequent form …" of networking that "… is the installation of so-called supplier relations that are interpreted as networks" (Quayle 2000: 120, cf. Peters/Becker 1998]. Nonetheless, there are major differences between those concepts of strategic alliances, industrial networks or districts and the concept of "Non-hierarchical Regional Production-Networks": In the latter concept, there is to be no focal enterprise dominating smaller and middle ones. Each competence cell is an element having equal rights in a temporary, product specific value chain. After executing their

order, these *Production Networks* dissolve and all of the constituent cells re-enter the second or – in case of misfortune or final satisfaction - even the first level of networking. Thus, the constituent elements of the networks do not have to trust in more or less stable relations to one or several specific other units of the network, but in the network itself.

Distinguishing these three levels of networking, we cope with the concept of network as a multi-level-phenomenon (cf. in other terms: Pawlowsky/Menzel/Wilkens 2005: 343). Generalising our observation, we now assume that every phenomenon labelled as regional or industrial network or district should be investigated in view of (these) different levels of networking, in particular if we are interested in dealing more efficiently with the problems of network management. Hence we now are to answer the question "*Which* (of these) networks are we to manage?" first before asking *how*.

Concerning the latter, a synopsis on the discourse on managing networks shows three major approaches:

1) Networks are assumed to be *uncontrollable* (cf. Castells 2001), as they are self-organised systems selecting external control impulses only by their own criteria of relevance. So we have either to adapt the logic of the target system (which implies self-adaption) or to take the risk of being totally ignored. Keeping this in mind we can't speak of control in terms of causal logic.

2) Networks are assumed to be *cultivable*: According to Wenger and Snyder (2000) for example, networks are uncontrollable but - like a gardener - we are able to set adequate general conditions for their "growth" and continuity.

3) Networks are assumed to be *controllable*: For authors like Sydow (2000) networks are to be seen as hybrid forms of coordination recombining aspects of market and hierarchy. Thus, recombining the classical means of control will finally lead to the ability to manage networks (cf. Bellmann/Hippe 1996).

Visibly, each of these approaches focuses on specific aspects of networking, thus, each of them is creating a self-contained concept of networks: Castells refers to networks as a basal nexus of (global) interconnectedness that, like the Regional Network in our case, obviously can't be managed. Wenger and Snyder are interested in network-organisations that (like Competence Networks) also can't be controlled, but can be implemented by and embedded in other social systems (cf. Grabher 1993). Eventually, Sydow observes networks of more or less autonomous organisations corresponding to our Production Networks which are indeed controllable by more or less classical means of management.

So, as a first approach to a concept of multi-level network management we suggest to combine our three-level-concept of networking with these three otherwise totally incommensurable controllability assumptions (cf. Figure 2):

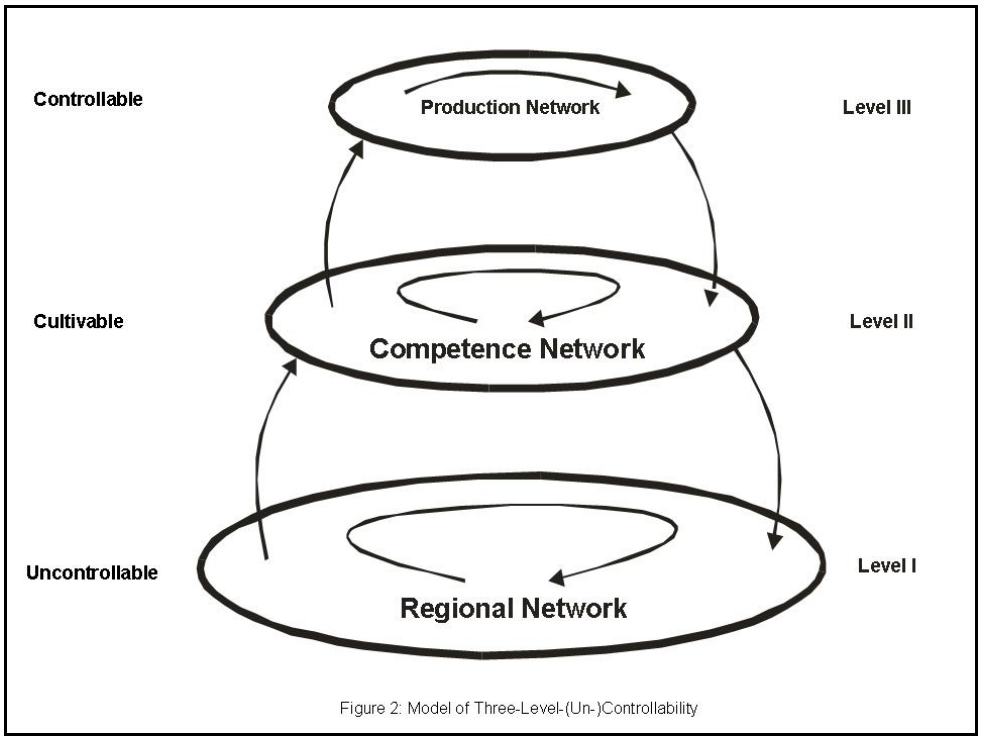

Figure 2: Model of Three-Level-(Un-)Controllability

On the level of a basic network – meaning the broadest, rather *unorganized network* of networks relevant for the aim of research – providing the other levels of "denser" networking with the necessary resources, we cannot speak of control if we assume control to be more than a general form of co-evolutive adaptation.
On the second level we observe the setting-up of *organizing networks*, which is in our case the competence network, so the regional competence cell based networking of – still many, but not longer all potentially relevant – elements of the basic network. Organizing networks may emerge quite spontaneously – e.g. mechanical engineers meeting as a group of regulars after work, thus establishing an institution. The emerging of these networks can also be supported by the setting-up of suitable general conditions; we might think about economic, scientific or political decision makers providing alternatives to institutionalized groups of regulars, e.g. a virtual locality (WWW). Nothing else is meant by cultivation. Here potentials are realized which can materialize for a given period of time in the shape project-related cooperation.
On the level of the organized networks, in our case on the level of executing the customers orders, the relevant processes can be controlled as good or as bad as in the production context of SME, departments of bigger companies or in die well-known cases of inter-organizational networks. Organized Networking means formal organization for a certain period of time: The matching competence is decisive in the sense of a membership-rule for the participation in the order-specific production value chain. Respectively, at this level it can be spoken of controllability, if we will not want to question die concept of controllability in general. Doubtless in this context specific challenges of temporary production networks can be identified, which require special attention: Working in ideally spoken always optimal, and thus, frequently fluctuating constellations confronts the participants with ever new challenges. These are already well-discussed in the context of organization theory.

(3) The boundaries of network-organizations

Using the three-level-model of networking, we can observe a network-phenomenon as one *a* multi-level-phenomenon. This point of view is quite fruitful as it is sketching the previously

described as well as any other case of networking as a process of continuous structuration and de-structuration. Networking would therefore be *organisation-making in progress* being kept in action by mechanisms of interruption, usually by techniques of temporalization. In terms of social system theory (cf. Luhmann 1987, 1997) – and therefore by referring to a gigantic theory of social evolution being not the only one to identify increasing degrees of organization as major trend of functional differentiated societies (Luhmann 1997: 828) – this could be expressed as follows (cf. Figure 3):

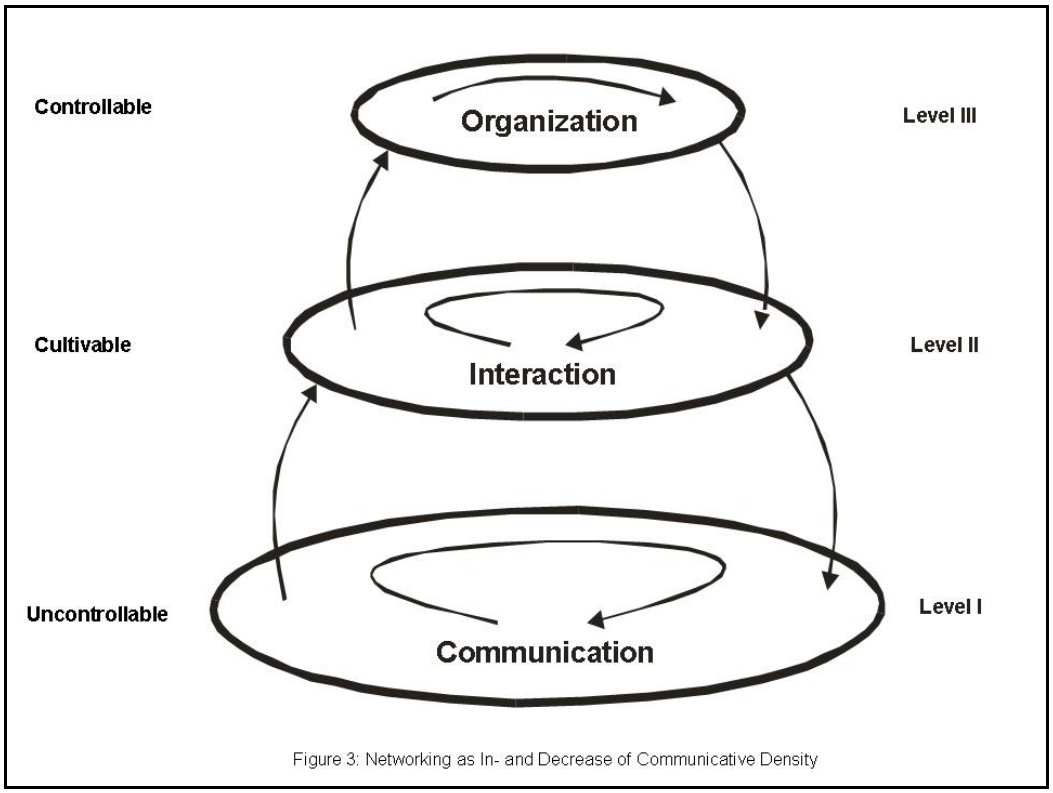

Figure 3: Networking as In- and Decrease of Communicative Density

In the context of non-hierarchical regional networking we may a complex amount of communications. The trick is now to concentrate the relevant communications, in other words: to gather competence cells communicating competence and interest as potential cooperation partners. The institutionalized network as a location of information-technology based interaction [1] of the interested and therefore „present" competence cells substitutes conversation within an institutionalized group of regulars, which can be thought about as a SME-variant of the less geographic or neighbourhoodly shaped old-boys-networks [Quelle]. Competence network and institutionalized groups of regulars can here be treated as functional equivalents. However, the competence network functions additionally as an easy available address for customers as well as cooperation partners, e.g. when in case of executing an order or generating of ideas relevant competencies are missing. In both cases, the execution of the order proceeds under contractual secured, organized conditions; but whereas in the classic variants on behalf of the members usually permanent organization[2], in the other case only temporary organization is the aim.

In sum a picture emerges that shows a rising, result-oriented condensation of communication (and vice versa). But, in the context of a multi-level-phenomenon this is only one perspective: The observation of the level-transcending phenomenon of non-hierarchical regional networking as a whole. From this point of view, it is in deed difficult to define the boundaries

[1] Systems of the communication of presence/absence (cp. Luhmann 1997: 814)
[2] Systems of the communication of decisions (cp. Luhmann 1997: 831).

of a network or of its limit regulation mechanism (cf. Boss/Exner/Heitger 1992; Weber 1996). According to Aderhold/Wetzel (2004: 5), in particular this can be demonstrated by the problem of membership-rules: "Membership in a co-operation (as well as in every organization) is relatively easy to record, i.e. the limit can be clarified without any problems via the member-ship. For networks it is much more difficult or even impossible to answer this question be-cause coordination and cooperation relations are more open, less binding and more fluid". This is agreed, because: Who is actually a member of the network-phenomenon? Does the network consist of the potential of latent competencies embedded in the region, or does it consist of the at least definable pool of competence cells on the level of the competence network? Or does the network exist only as the concrete cooperation on the level of the factual production? How are we able to control, if we do not know, what and especially who we are to control?

At first, we circumvent these justified as well as harassing questions by arguing that

1) The observed multi-level-phenomenon actually is not *a* network, *an* organization or *a* system, but – what is kind of usual in the context of the observation of a regional network or district – a huge chosen cut-out of society. But if we have a closer look, we may find that it is an agglomeration of several or even a lot, but all well-definable systems being observable as specifically coupled from a certain point of view.
2) It is not the aim of a – neither network-shaped nor classic-hierarchical – organization to condensate the latent to something manifest resp. to condensate communication to the point of decidability. This is only one means of shaping communication (and its outcoming results).

So we draw the following picture: In a given region the existing competencies or other resources are to be re-arranged according to the challenges of the inter-regional or global competition. For this purpose a system, or rather an „Organisation als Instrument …" (Luhmann 1997: 844) is to be modelled, to be implemented and to be operated. This system and the region also thinkable of as a system are therefore environment to each other. This basic distinction cannot be challenged even if one of the systems – the competence network in our case – is to be organized non-hierarchical and network-shaped, and is – in the course of its implementation - to develop from external control to a self-organization as fast as possible[3].

As a result of the existence of the new implemented System we expect new forms of cooperation to be observable in the given region: the temporary production networks between SME in our case. If we mentally would translocate these production networks "out of" the regional network and "into" the to-be-established competence network, we did the same as if we assumed a cooperation emerging from the context of a group of regulars was to be carried out in this very same context of this group of regulars. In other words: The production networks emerging because of the activities of the competence network do so in the environment outside the competence networks; they describe nothing less und nothing more than a specific cut-out of the region.

Still we do not want to give up the third observational level of networking; but we express clearly, that on this level we observe the environment of the competence network only, as we also do in case of the observation of the first level. However, the major difference between the first and the third level of networking is the following: On the level of the regional network we observe the region *before* and *after* the intervention of the competence network (t_0, t_2, ...), on the level of production networks we cope with a specific cut-out of the region *during* the intervention of the network (t_1, t_3, ...). In short: Despite of all dilemmas of the control of networks yet discussed (cf. Lang et al. 2002) the competence network structures the communication in and by this the production regime of the region. In concrete, this happens

[3] Similar, but less designed processes of self-cultivation we can see while observing the conversion of agrarian co-operatives in course of the liberalization of the global agricultural market (cp. Roth 2005).

as the organizing network identifies relevant communications on the level of the unorganized network (cf. Fig. 4).

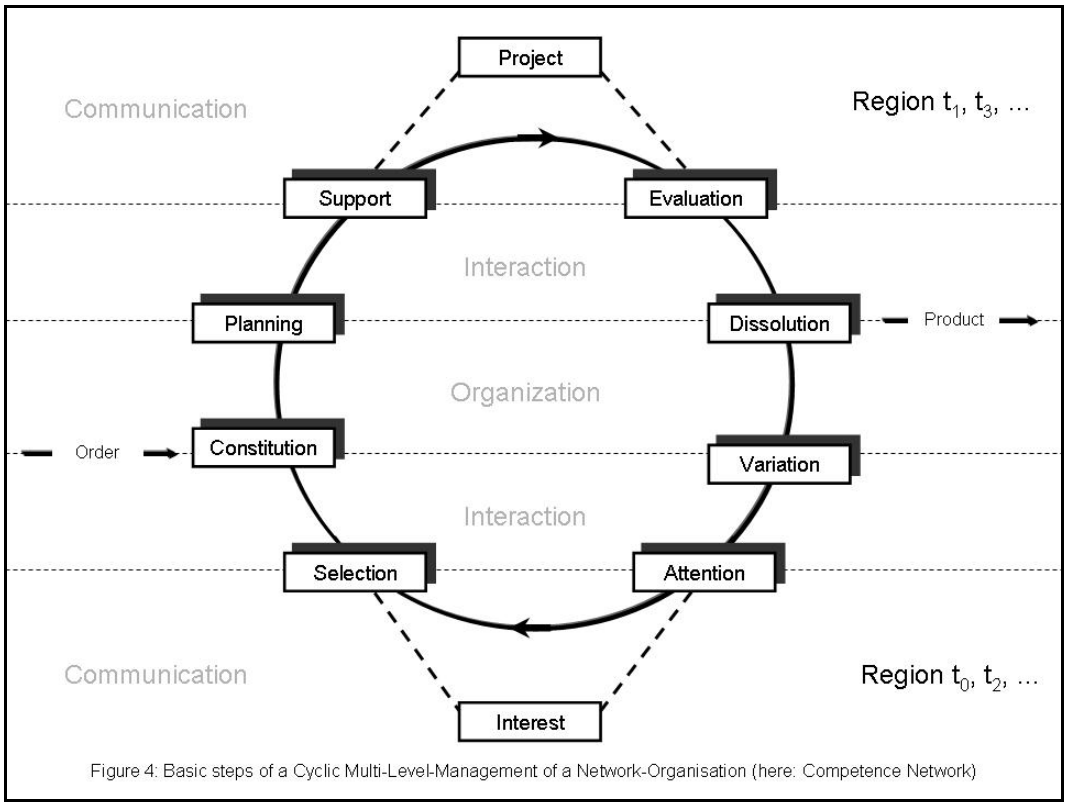

Figure 4: Basic steps of a Cyclic Multi-Level-Management of a Network-Organisation (here: Competence Network)

In our case we see that the competence network has to observe the regional network in regard of being able to identify and understand regional actors revealing themselves as interested and competent contacts in the relevant market segment (Attention)[4]. On this level we have to deal with *communications* following neither the logic of decision of the competence network nor taking place in the context of interactions structured by this network. Concerning the next step of networking we have to assume, these testimonies of competence and interest will have to meet some requirements concerning form and content; on this level of competence cell based networking the decision is made, which ones of the interested parties really seem to meet the expectations of the competence network and therefore will be treated as being present in (view of) it: regional actors turn into *interaction*-partners, thus, a pool of competence cells is emerging (Selection). On the next level we observe the job-oriented decision concerning the question „Which of these specific competence cells will be part of the specific process of the execution of a specific customer order?" Regarding a specific customers request the network is establishing itself visibly (Constitution). On this level we locate the central organizational performance of the competence network. Subsequently, the network acts only as an institutional frame. By providing infrastructure and know-how, it supports the job-oriented processes of interaction between the chosen competence cells (Planning). The concrete execution of the discrete job-steps according to the parameters defined before is the concern of the competence cells involved and are usually realized in the contexts they normally work in; at any rate in a regional context and autonomously to the greatest possible extend. The competence network might only in case of some crisis come to communicative interventions (Support): The competence of the competence network does not reach that far that it would be allowed to control the work of the autonomous competence cells. Later on, and again by using

[4] Each single phase can be imagined as starting at the border of the preceding and as ending at the border to the proceeding phase.

the infrastructure provided by the network, the result of the project work will be evaluated (Evaluation) until, after fulfilling their order, the actual value resp. production chain will be dissolved (Deconstruction). Finally, the constituent competence cells may stay more or less contently in the pool of potential cooperation partners or leave (Variation).
Thus, the network by completing one cycle influences the region twice: On the one hand, by installing co-operations that did hitherto not exist, on the other the processes of Evaluation or finally the Variation of the network have an impact on the region, too. In the cases of regional and production network we are involved in the observation of one and the same phenomenon from different perspectives and at different points of time.
Withal, the boundaries between all these levels of networking do not seem to be too fluent to deal with, with the competence network obviously being an organization being capable of „riesige Mengen von Interaktionen aufeinander abzustimmen (cf. Luhmann 1997: 837]. In this respect, we also can assign the concerning interactions to the organization „competence network" – at least we can justify this as much as in cases of classic-hierarchical organizations[5]. In addition to that, concerning the network we also are able to observe membership rules; the concepts of interest and competence function here as decisive criteria for the selection. Some kind of liberalization of membership-rules may have taken place; but the declining influence of the concept of qualification in favour of – in a Weberian sense – the rise of more charismatic concepts of self-expression like competence have been sufficiently documented [Quelle], but not in terms of de-organization of the organization observed.
We further argue: If a network can be interpreted as an organization, then it can also be interpreted as a system. An organization as a system of decisions chains decisions with decisions. From our point of view, this also can be observed in the case of networks, which here we think about as systems of the communication of conversions, namely as specific forms of decisions. Thus, networks are in fact lying crossways to the functional differentiated society (cf. Aderhold 2004) and „their" organizations (cf. Luhmann 1997: 841), as the most important and largest organizations form themselves with the functional systems and adopt their codes (cf. idb.: 840). Normally operating on the basis of one (dominating) code, these classical organizations can be observed as organizations of one specific functional system. From this point of view a bank, chaining payments with payments, is an organization of the economy as a functional system.
According to that we now assume networks to be found along the boundaries of these functional systems. In these networks the difficult task of converting the codes of the functional systems, which are basically codified incommensurable values, is carried out. Networks are systems of exchange: neighbourship networks convert social capital and economic[6], network of citation transfer cultural and social capital, co-operative networks moderate questions of fair distribution with questions of profit maximation. In exactly this sense networks are systems which we are able to observe as "structural coupling" (cf. Kämper/Schmidt 2000, Roth 2005).
Thus, we formulate in the following section: network management is the management of conversions. Which in the context of this work does not mean more than: It starts at identifying the structural fix- and turning points of our newly developed "octagonal" life-cycle of networks[7].

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[5] Es sei denn, wir wollten – was unter Geschichtspunkten der Theoriepflege durchaus eine Überlegung wert ist – behaupten, dass Interaktionen und Kommunikationen, die im Rahmen einer als Bank bezeichneten Organisation stattfinden, nicht der (Ebene der) Organisation (einer) Bank zuzurechnen wären.
[6] If a neighbourship network would only reproduce social capital, it would be even easier to see that it is a social system, in that case chaining communications producing social capital.
[7] Other authors are distinguishing up to seven steps in network processes (cp. Schliffenbacher 2000, 67; Hessinger 2001, 212). Not only seen in terms of numerology the most similar model is the life-cycle-concept of networks developed by Thoben (2001, 428) distinguishing between four operational phases: *Preparation of a network, Setting up of a network, Operation of a network* und *Decomposition of a network.*

(4) Control *in* network organizations

First, the idea of giving up voluntarism-shaped concepts of leadership in favour of the insight that social systems of any kind are much to complex to be managed on the basis of causalistic models of control had to be established with some effort (cf. Knyphausen 1991). In the meantime, the management of the complexity in networks in the sense of consciously dealing with social complexity has been recognized as a management task of immense importance strongly influencing the economic success of a corporate network (cf. Sydow 2001). Quite quickly it was " ... easy to see that traditional topdown, control-oriented, BHO (Bureaucratic hierarchical organization) management concepts will be antithetical to such an open, participative, collaborative form of organization where executive and employee matrices spontaneously form and dissolve around problems, issues, information, and decision making" (Allcorn 1997: 7). The development of more and more complicated models is no longer seen as the silver bullet of control in the sense of the setting up of (internal) complexity in order to cope with (environmental) complexity (cf. Kappelhoff 1999). Instead, now the capability to use the self-organization potentials of social systems (cf. Knyphausen 1991), for example to acknowledge them as exploitable resources (cf. Moldaschl 2005), moves into the centre of attention.
This view is contrasted by the following: „Autopoietische Organisationssysteme können Autoritätsverluste kompensieren, die unvermeidlich werden (…). Organisationen bilden dann eigene Verfahren der Unsicherheitsabsorption aus" (Luhmann 1997: 837). In other words: „Normalerweise wird, wenn (…) mit Überraschungen (…) zu rechnen ist, von seiten der Organisation Autonomie, das heißt: lockere Überwachung, konzediert, um das System abzupuffern gegen die Eigendynamik …" (ebd.: 832f) of the perception at the systems´ external borders with respect to the problem to intentify a potential need for decision. Here an issue is explained – and that happens to be without giving up the concept of organization itself, and without following the common euphoria concerning self-organization – which by refering to Foucault even more serene described as transformation from external constraint to self-constraint, thus a tendency so far leading to everything else but less organization.
But in any case, organization seems to translocate. At least the thinking about organization does: Where once organization seemed to be defined by its core competencies (Prahalad/Hamel 1990), or at least defined by a radius of oscillation of autopoietic reproduction, today the opposite can be stated. Thus, regarding networks as well as organizations, most contemporaries are no longer interested in – for example – the relatively well-definable structure of actually actualized competencies but in the fluid pool of potential competencies[8] (cf. Weber 1996: 137), thus in the difference between availability and accessibility (cf. Aderhold 2004: 206ff). And even the concept of the management of organizational boundaries, already standing with its back to the core of the organizations which it observes (e.g. Beck 2004), is more and more confronted with the dissolving of organizational boundaries in the context of network research and challenged by better adapted concepts like the model of the control of context conditions (cf. Naujoks 1994, Obring 1992).
Meanwhile a „transcendental" concept of structural coupling emerges even out of the function- and boundary-focussed social system theory (cf. Simsa 2002; Lieckweg 2001); in other cases the merger of network and social system theory cumulates in a scenario of a total un-controllability resulting from the vision of universal networking (cf. Castells 2001), on which basis only "pacing-and-leading"-concept as that of lateral control (cf. Kühl/Schnelle 2003) make sense, if ever.

[8] This is making sense in so far as the concept of competence itself describes a potential.

During the network-debate the organization core, so the decision programme, increasingly comes out of the focus of observation, and is substituted by the picture of an interactive society, and therefore by the picture of a more and more interacting society (vitual interaction). However, from this picture we do not conclude a however shaped dissolving of organizational cores, but we stress that organizational cores are still traceable. Moreover, meanwhile these cores appear to us in such a highly condensed and standardized forms, that a organizational core be implemented via an information-technological infrastructure – as in our case, via a programme for the competence based selection of optimal value-chains according to customers´ orders. So in networks this organizational core is taken that much for granted that it does not seem to require special attention. Thus, more "peripheral" phenomena come into focus: Respectively in this field theoretical and empirical works usually try to show, how a overall commonly shared understanding can be established by the mediation of generalized aims of the system "network" (why) and the subjective understanding (who/what) of the single cells (cf. Meyer/Aderhold 2004, Meyer/Aderhold/Teich 2003, Bachmann/Knights/Sydow 2001, Hacker 1999).

Instead of coping with questions of the chaining of decisions, network theory usually focuses on new ways of the mediation of decisions, as if decisions were made in the context of its mediation. Network research primarily reacts on and deals with problem of mediation of more and more standardized resp. automated decisions. Following the elective affinity to the trend of self-organization, the solution to this problem is seen in the overcoming of hierarchical chains of command by new forms of interaction integrating all persons or groups affected.

From this point of view, networks are exactly not "new wine in old bottles" (cf. Aderhold/Wetzel 2004), but the opposite is case: The core of our competence network is represented by a programme for the production of optimal value-chains, which sure can match the expectations on *non-hierarchical* networking, if only because of its programming. The selection of the suitable partner for the project-level takes place on the basis of a throughout complex model of decision integrating even question of the social compatibility of the potential cooperation partners (cf. Meyer/Aderhold 2004). According to that, the user-friendliness of this mega-tool is decisive in view of the question, whether decisions are made on a comparably transparent and fair, or else only virtual executive's office. Basic decisions as the parameters fort he selection of partners or the aimed orientation toward self-organization as soon as possible, lie in the hands of the programmers and not in the hands of the members still to find.

Concerning the controllability of networks the statements can be made: Looking from external point of view at the total phenomenon of non-hierarchical regional networking according to the three-level-model we find a picture as drawn in Fig. 2: A region as a whole is uncontrollable in general; forms of institutionalized networking can be implemented and cultivated; on the level of organized, contractually secured, inter-systemic networking rather classical concepts of control may be fruitful, as here on the level of the realization of the single steps of the production we are to think of work within all other but uncontrollable SME.

If we only focus on the level of institutionalized network as an instrument for the implementation of organized networking we get the following impression concerning the questions of internal resp. self-organization of the former externally cultivated network (cf. Figure 4, Section 3): The best level to control is the level of the organizational core. Modifications on the information-technological model-core (IMK) imaginable and even

wanted[9], after all the results of the evaluation of the executed order ought to influence the parameter of selection processes in the future. Something similar is also imaginable as a reaction to unwanted variation effects, e.g. if to many competence cells leave the network unsatisfied. Regarding the future, and regarding a certain experience in course of the evolution the competence network, we can think of a scenario in which the network becomes as good or bad controllable as a bigger company, or – more democratic – as one of the Mega-Co-operatives mentioned before.

The projects´ operations planning and its evaluation as well as variation and selection processes concerning membership are equally uncontrollable as the competence network as a whole. They can only be cultivated by continuous adaptation of the relevant parameter in the IMK and during of continuously recurring and institutionalized interaction-processes on the affected levels. In this infrastructural flanked interactional context it is presented in detail how is to do what, hoping that the individual competence cells will obey. Ideally we can think about this as a process of self-organization.

Only on the levels of the support of the execution of the production process and the stimulation of interests the competence network meets its limits resp. boundaries. At this point, problems can only be solved situativly, and even that only in terms of the system "competence network" being attentive towards communications of specific cut-outs of the environment and reacting on what it has understood. At best a NLP-training or the study of the concepts of lateral leadership can be recommended to those network-agents or project-coordinator acting in this immediate border area to the other levels of networking. The region of the "unmarked space" given in this context can not be controlled but only be skilfully observed. Unwanted events in the course of the execution of a project by autonomous economic units can only be influenced communicatively. Otherwise we could think about the expelling of individual competence cells or by the termination of the whole project, in other words by specific forms of destruction of networks (cf. Castells 2001; Roth 2002). However,

(5) How many networks are we to manage then?

The present paper leaves several unanswered questions behind: Firstly we have to examine if our multi-level life-cycle-model of competence networking can also be adapted to the other levels of the non-hierarchical regional networking. Secondly we would like to review our model developed for SME-networking can also used in other contexts of networking. Thirdly it is necessary to locate relevant management tasks according to our cyclic multi-level-model more precisely. Fourthly we still have to think about how the idea of networks as systems of conversion can be integrated more sustainable in the architecture of the social systems theory in order to develop a new perspective on the discourse on the concept of structural coupling and in order to being able to ask systematically how a system can be the resource of another.

But what we already can answer is the question: How many networks are we to manage then? The answer is: Always three:

1) We can interpretate the whole world or one of its´ cut-offs relevant for the interest of research as an *un-organized network* that cannot be managed but only challenged resp. irritated by the implementation of new network-systems that may fail or survive.

[9] In the case of the mega-co-operatives mentioned before the respective algorithms are constant reasons for reasoning (cp. e.g. Old/Peursem/Locke 2001).

2) Thus, these emerging or implemented systems mentioned can become the interest of research themselves. These systems as any other systems have a function; in the special case of implemented *organizing networks* this function is to implement further systems. Once emerged or implemented, these systems can be cultivated externally or by themselves.

3) Network-systems having been organized by an organizing network we call *organized networks*.

In general, the answer on the question of which of these systems or networks observed in a special cut-out of society is the organizing or one of the other two types of networks depends on the interest of observation. For example, if we are interested in the establishment of the organizing network "competence network" we might find out, that it has been implemented e.g. by agents of adjustment policy and is an organized network itself. If we are interested in the implementation of "production networks" by the means of a "competence network", the second is to be seen as the organizing and the first as organized network. Last not finally the production networks can be seen as organizing networks, as the might – in some degree – influence the functioning of the SME concerned or even the region as a whole.

In our case we were especially interested in the functioning of the competence network as an organizing network. Comparing its elements, structure and functioning to those of BHO we found enough similarities to argue: Networks are organizations and, thus, systems, too! Both forms of organization chain decisions on decisions and are able to moderate large amounts interactions. Additionally we could show that networks like BHO have definable boundaries such as membership-rules which are in the case of networks more "liberal" ones, of course: In difference to BHO, on the level of their constituent elements networks do not know employment contracts but pools of potential cooperation partners. But arguing that this pool of loose coupled members – selected by parameters defined by the network-organization - does not "belong to" the organization would mean that a newspaper whose journalists primarily are freelancers is not an organization, too. Equally, we found that the organizational program, so the mode of decision-making, does not a priori differ much between both of these forms of organization: In the organizational core of both network and BHO we find highly condensed and standardisized communications.

Thus, networks cannot be seen as new ways of decision making, and thus, we can speak of the network as a new principle of organization. Rather, we have to assume that networks provide new solutions concerning problems of mediation of more and more standardized and complex decisions. According to this assumption we find that network research primarily reacts on and deals with problem of structure and mediation. Thus, networks are "old wine in new bottles", so exact vice versa as commonly assumed.

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