Failure of Networks and Network Management

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Introduction

The idea of a failure causes unpleasant associations. The word implies not only a lost battle but final defeat in war, not only a faulty wheel in the system but the end of the entire construction. The word carries something absolute and is loaded with negative emotions. There are only a few positive aspects that can be derived from it.

One is that failure can be anticipated. As a threat it motivates conscious action and foresighted planning to avert adverse endings. A second aspect is that something must have worked before it could actually fail. For network management, such considerations are not merely philosophical dry runs. Rather, the provocative question about the reasons for failure provides an excellent occasion for a critical examination of the conditions and possibilities of effective network management.

Especially, because we do not really know a great deal about this relatively recent field of work. We lack comparable empirical studies, the "how-to" literature is modest and can be rather confusing. Also, there is no institution that would bring forward generalizable quality standards for network management and its certification. Therefore, it is safe to say that this special form of management stands right at the beginning of a stony path to professionalization with uncertain outcome – despite all prospects for success.

The increasing interest in networks comes along with the broadly supported idea that we are witnessing an organizational revolution (Snow, Miles, & Coleman, 1992). For the challenges posed by an economic and social order affected by digitalization, globalization and innovation, networks seem to be the adequate answer (Castells, 2010; Chesbrough, 2003). Accordingly, it is considered effective to establish networks or to organize work in network manner. This leads to an empirical omnipresence and diversity of networks which makes it hard to find a

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common ground in the "network jungle" (Windeler, 2003). Instead, we are confronted with competing and incompatible network theories (Thompson, 2003), and we are still far away from a mutual network understanding (Jappe-Heinze, Baier, & Krol, 2008; Provan, Fish, & Sydow, 2007, p. 480).

This in mind, we decided not to examine the very few existing works which explicitly deal with failure of networks consecutively (especially Alter & Hage, 1993; Grabher, 1993, 2005; Miles & Snow, 1992). This would have only reproduced the confusion of the network discourse and presumably would have discouraged even the most interested readers. Instead, the question of failure can only be answered after radically reducing the multitude of meanings and connotations of networks. *"As for anything else there need to be limits to the embrace of networks."* (Thompson, 2004, p. 422).

Therefore, as a first step we propose to search through the thicket of theories for the unique characteristics of networks. One promising approach is to delimitate networks and network management from modern organization which is characterized by formality and hierarchy and which is fundamentally connected with the classical management understanding (Schreyögg, 2003). Instead, we will show that networks are characterized by negotiation, trust and flexibility. These three criteria implicate the need to rethink the role of management in networks radically. We will use examples from research and our own work with network managers to demonstrate how and why neglecting the unique logic of networks leads to failure. Moving on from these insights we will put forward recommendations for good network management.

A Network Concept Far Too Broad

Unsurprisingly, all those terms which roll off our tongue easily in everyday life turn out to be highly indeterminate. Think, for example, of the words "structure", "culture", and "system" all of which are most unspecific and therefore usable as descriptions for almost every imaginable constellation. The expression "network" often joins this list of empty shell catchwords.

In its most general definition networks form a set of nodes which are somehow interconnected by links (Brass, Galaskiewicz, & Greve, 2004, p. 795). This definition reduces networks to a simple methodological axiom. It postulates that things are related to one another. Using this heuristic any form of connection or relationship between randomly defined units can be analysed. The focus of interest is therefore not on a specific subject but on the analytical possibilities provided by this method. Network analysis can deal with huge amounts of data by the possibilities of digital processing. Its strength is to visualize complex structures very vividly and to draw a clear picture from a confusing set of data. Relationships can thus be brought to light and unrecognized structures may be discovered (Wellman, 1983, p. 171). Network analysis represents a strong tool for the visualization of cooperative structures and for the evaluation of success or failure of a defined unit.

Take, for example, regional subsidies policy which is often guided by the concept of the networks resp. clusters (Lundequist & Power, 2002; Porter, 1998). Local governments depend on the ability to base their decisions on valid data about the state and nature of regional economy. Through structural network analysis the cooperative relationships of an industry can be well represented and its need for support can be derived. The same applies to companies. They also increasingly perceive themselves as part of a network, evaluate their position in the industry and strategically align their business relationship in front of this background (Burt, 1992; Sydow, Schüssler, & Müller-Seitz, 2016). The development or decline of networks defined in this manner can easily be visualized by comparing two analyses made at different times. Based on the increase or decrease of nodes or links seemingly the success or failure of networks can be visualized objectively (e.g. Powell, Packalen, & Whittington, 2012, p. 448).

However, this portrayal of so called networks can give very limited insight into deriving network management guidelines to avoid network failure. Firstly, it must be noted that the preparation of such analysis requires a specific methodological knowledge and is therefore usually purchased in the form of scientific studies or consulting services (Glückler & Hammer, 2013). In addition, visualized networks of that kind do not allow to draw any conclusions about the causes which lead to an increase or decrease of networks.

The most fundamental objection against the structural network perspective for management concerns derives from its unrestricted scope. As any cooperation can be also defined as a network of nodes and links every failure or success of cooperation becomes a failure or success of a network. A project that fails could be interpreted as a network failure; an organization that fails could be defined as network failure; an association that dissolves could be called a network failure, etc.

Due to their universalistic claim theories about general mechanisms for accomplishment or dissolution of cooperation (Axelrod, 2006; Deutsch, 1973) appeal to the explicit or implicit basic assumptions of management concepts – and to networks as well (Faltin, 2012; Helmcke, 2008). Certainly, such general approaches could likewise inform thinking about networks. However, in order to develop a more specific strategy against the failure of networks it becomes necessary to elaborate the unique features of networks.

The Specific Network Concept

From failure of all kinds of cooperation we now turn to failure of a very specific, delimited cooperation – a "genuine" network. The constituents of networks that make it an independent form of cooperation and coordination are investigated by governance discourse (see Benz, Lütz, Schimank, & Simonis, 2007). Commonly network steps beside the traditionally duo of market or hierarchy (firms and state) as a third alternative: In political discourse networks are located beyond state and market (Jessop, 2003). In the economic debate the network is positioned between or beyond markets and hierarchy (Powell, 1990; Williamson, 2005).

This new theoretical interest both in political and organizational studies has mainly empirical reasons. The debate arose due to the plain fact that numerous empirical findings do not fit adequately into the market or hierarchical logic (e.g. Powell, 1996). Such examples of new and apparently stable cooperation and transaction structures call into question the accuracy of a dualistic model. However, one has to keep in mind that markets and hierarchy are merely idealized theoretical models which naturally never achieve empirical reality. To say that networks are "intermediate" or "beyond" the distinction of ideal-type market and hierarchy will make it very easy to discover networks in everyday life. Accordingly, it becomes undisputable to speak of networks or to claim to be part of one. Such a network understanding (just as in the structural network approaches shown above) disintegrates into infinity. Hence, the axiom that should guide governance theory and management practice can be following: a network is an empirical but also analytical unique and delimited form of cooperation and coordination.

Network failure in terms of governance means the end or change of such a specific form. In this view, it depends on the perspective to consider failure as "bad" instants. For example, a broad life-cycle consideration might lead to the conclusion that a network represents only an intermediate stage of a more global development (see the example in the box). From that superior external position network failures can be assessed as good or natural. Conversely, insights to the management of networks have to take an inner perspective. Taking the functioning of networks as management reference point failure definitely should be avoided.

Case study

Transformation of Governance

A few young students meet on the university campus. They find each other interesting and sympathetic. They start meeting regularly, discussing their studies and how to do something good in the world. Each student is connected to the others in his own way and all act on the same level. No one is thinking about organizing meetings. Sometimes other acquaintances join the group. Suddenly discussion develops into an innovative idea. Nobody can say who actually came up with it or how the idea was further developed. They simply did it together. It is this form of cooperation that can be ideally characterized as a network.

After materializing the idea into a prototype, the students jointly apply for a business idea event. They win the competition. Afterwards venture capitalists offer financially support to promote the idea. Due to financing requirements, the developers found a startup company. At this point the network comes to an end. The network fails or changes into an organization while the innovation spreads into the world. From the perspective of the innovation process one could speak of a "successful network failure". The quality of the relationship between the involved actors will be supplemented by the formal structures of a bureaucratic organization and classical management procedures. As this process gains prerogative practices the old network eventually becomes a myth.

The following scenario is also conceivable. The students submit the prototype but their idea is dismissed. Everyone goes home deeply disappointed. One begins to question the idea. Exams need to be passed. The exigencies of life triumph over the vision. The meetings become less frequent. After graduation party the students apply at different companies. As life passes on they lose contact with each other. The network fades. A few years later two of the former students meet during negotiation talks as representatives of their companies. The market-related interests of each firm require that personal relationships are left out of negotiations. Finally, the former network failed by turning into a market relationship. And perhaps the end of the network has a positive side, too – as the idea may have never been viable.

But which constituents essentially characterize a network? The traits of a network in the example formulated in the box remain comparatively vague: A relatively loose collective of people who have personal relationships with one another and pursue a common idea. A further restriction is that such a collective is neither separated by the principle of the market nor held together by the formal guidelines of a hierarchic organization.

We would like to put some theoretical flesh on that narrow and intuitive definition. Therefore, we will only select the most significant arguments that determine the perspective on networks today.

Network Pillar 1: Negotiation Through Mediation and Moderation

The most prominent network theorist is the Nobel Prize winner Oliver E. Williamson. His reflections on transaction economics gave important impulses for the economic theory of networks (Williamson, 1991, 2005). As the name implies the theory is dedicated to transactions between two business partners. It tries to clarify the type of contracts which govern this exchange. Williamson differentiates contract types and assigns them to the governance models market and hierarchy as well as hybrids between market and hierarchy. Hybrids – which also include networks – are based on neo-classical contract law.

Neo-classical arrangements do not define all possible terms of the contract beforehand and instead explicitly propose to renegotiate or mediate in the event of a conflict between the contracting parties in order to avoid forbearance. As a result, long-term relationships arise which preclude the contractual fixing of all parameters. Joint ventures are one example of such relatively long-range business relationships.

Obviously, we cannot enter further into the vast realm of transaction cost theory and Williamsons role for network thinking here. Instead, we will selectively highlight some assumptions that come along with this view. The foremost important benefit that managers can take from transaction cost theory is to select different types of contract arrangement according to the "asset specificity" of a given transaction object. Against the background of the parameters of an exchange transaction it can be deduced whether a network-like relationship is to be preferred to others. Again, if

the specificity of the exchange object changes with time the resolution or conversion of the exchange relationship is strategically favourable. Thus, a network only fails if the management is unable to establish a (contractual relationship) that defines a network and to maintain it in the event of contractual disputes. As a result, transaction cost considerations reduce the competency of network management to its capability to reach agreements through negotiations between the exchange partners (see Mayntz, 1997).

If the relationship or the exchange modifications are to be negotiated in networks, the task of network management is to manage these processes by methods of moderation or mediation. This plain deduction is in line with the results of research on regional networks. They conclude that success and failure of regional networks depend on good or bad moderation practices (Aderhold & Wetzel, 2005; Baitsch & Müller, 2001).

Previous considerations suggest that network management is not a task for an individual organization or, more precisely, for the managers who are players in the transaction process. However, this perspective of the individual firm or manager dominates the economic debates on networks. *"Theories and perspectives that focus on the individual or organizational actor have a long tradition in social research and have guided most knowledge over networks. These views (. . .) are concerned with trying to explain how involvement of an individual or organization in a network affects its actions and outcomes"* (Provan et al., 2007, p. 483).

According to this common point of view, network management is the task and the manner of a company to position itself well in its environment. In contrast, if one considers the network as a whole, network management emancipates itself as a self-standing entity within the network. Its task is to establish negotiations between the individual managers (i.e. network members) as well as their ability and willingness to cooperate. Only by means of this fundamentally changed understanding network and network management both arise as autonomous instances beyond the dominant realm of organizational thinking and as two variables which constitute an internal coherent relationship between one another.

Network Pillar 2: Trust Based on Common Culture

A second organizational researcher who must be mentioned in connection with network governance is Walter W. Powell. His considerations have strongly influenced network concepts in theory and practice. Powell offers a perspective distinct to that of Williamson (Powell, 1990). He pays particular attention to the aspect of trust in networks. More precisely it is the anthropological understanding of reciprocity which lies at the heart of network organization. Although Powell only addresses networks in the economic field he formulates a principle for the formation and stability of networks that follows anything but the maxims of the homo oeconomicus. Both, trust or reciprocity, refer to a social norm that opposes the economic idea of deliberate decision making (Göbel, Ortmann, & Weber, 2007). This perspective replaces the individual and short-term benefit maximization (which

is for example the basic model of Williamsons approach) by obligations that originate from being a member of a social community. As part of a network community one can expect or trust to be protected against opportunistic behaviour. But this reference to the anthropological norm of reciprocity does not suffice for grasping the unique core of networks. That is because the norm of reciprocity insofar as it comes along with human existence is likewise to be found in organizations or in the market.

Nevertheless, Powell's approach provides important and somehow provocative new impulses. That is mainly because his reference to the community and its values and norms leads consequently to the aspect of culture. The most important maxim that underlies the concept of culture is to respond to the complexity of life by means of holistic thinking. Unfortunately, most of such holistic approaches tend to level differences. Put bluntly, the concept of culture itself remains empty unless it can be distinguished from at least one other concept. Although Powell does not further investigate the concept of culture and thus is not concerned with its methodological issues he proposes such a differentiation: Networks are *"more dependent on relationships, mutual interest and reputation – as well as less guided by a formal structure of authority"* (Powell, 1990, p. 300).

It is this quite unrecognized thesis which leads to a completely new understanding of networks and their management. Unrecognized because one possible – yet quite radical – interpretation that could be derived from this quotation is the differentiation between culture (as an umbrella term for relationship, mutual interest and reputation) as constitutive element of networks on the one hand and formal structure of authority as constitutive for (hierarchical) organization on the other.

Through this differentiation the concept of culture does not embrace the formal structure of organization as many examples of organizational culture would suggest (Schein, 2010). Instead, it is possible to develop the network concept by delimiting it from the principal of formal structure of organizations (Thoma, 2016). Consequently, network management primary involves developing of a common network culture and identity.

Network Pillar 3: Flexibility Through Change and Innovation

Powell, like nearly all other researchers, characterizes networks according to their function. Networks appear to be preponderant when it comes to the issue of sharing tacit knowledge, that is, know-how bound to individuals (Castells, 2010; Powell, 1990; Rammert, 2003).

This characteristic explains the triumph of the network concept within innovation theory. Instead of the one-sided causality of demand-pull or technology-push innovation networks are characterized by the interaction between technology developers and customers (Kowohl & Krohn, 2000; cf. Rammert, 1997). Such networks of people enable recursive learning processes and the use of implicit knowledge, thus creating the basis for innovation.

Table 1 Causes of failure in network organization (Miles & Snow, 1992, p. 64)

Type of network	Stable	Internal	Dynamic
Operating logic	A large core firm creates market-based linkages to a limited set of upstream and/or downstream partners	Commonly owned business elements allocate resources along the value chain using market mechanisms	Independent business elements along the value chain form temporary alliances from among a large pool of potential partners
Primary application	Mature industries requiring large capital investments. Varied ownership limits risk and encourages full loading of all assets	Mature industries requiring large capital investments. Market-priced exchanges allows performance appraisal of internal units.	Low tech industries with short product design circles and evolving high tech industries (e.g. electronics, biotech, etc.
Extension failure	Overutilization of a given supplier or distributor leading to unhealthy dependence on core firm	Extending asset ownership beyond the capacity of the internal market and performance appraisal mechanisms	Expertise may become too narrow and role in value chain is assumed by another firm
Modification failure	High expectation for cooperation can limit the creativity of partners	Corporate executives use "commands" instead of incentives to intervene in local operations	Excessive mechanisms to prevent partners' opportunism or exclusive relationships with a limited number of upstream or downstream partners

Due to the ability to exchange tacit knowledge fast and to gather or reinterpret new information (Castells, 2010) networks become flexible by their very nature. Unsurprisingly, in today's innovation-oriented economy the implicit or explicit challenge to management of companies, particularly large ones, is to turn their business into a network structure. Miles and Snow (1992) provide a typology of networks and show what failure in management can occur by leading such network organizations (see Table 1).

One peculiar characteristic of this typology is that networks are always threatened with failure if the degrees of freedom between cooperation partners are restricted, that is, if the logic of the hierarchy again takes over the market.

However, it is questionable whether the hierarchical organization is actually able to adopt the functionality of networks only by allowing sufficient competitiveness and rivalry (see Grabher, 2005, p. 65). In spite of the omnipresence of the management mantra "responding to change" (e.g. Miles & Snow, 1992, p. 69) or "open innovation" (Chesbrough, 2003) in the present economic world, or even "innovation society" (critical Krücken & Meier, 2003), one should not forget the elaborated success model of modern organization. It lies in the ability of organizations to act reliably and predictably despite the fact that they operate in a permanently changing environment. This is, however, a characteristic which leads back to its structural

inertia (Hannan & Freeman, 1984). Flexibility, that is, the ability to adapt easily to new situations is anything but the strength of hierarchical organizations. And innovations, that is, new products available on the market, more adequately represent the opposite to the monotonic and therefore reliable output of the modern organization.[1]

These considerations highlight that the function of networks is, above all, the openness to innovation and change and that this function distinguishes it from formal organization.

From Network to Network Management and Its Failure

At the end of this admittedly highly selective course of argumentation we can summarize three central pillars which determine networks and their management. These are:

- Negotiation through mediation and moderation
- Trust based on common culture
- Flexibility through change and innovation

This definition delineates both the network and the tasks of network management. They form two sides of the same coin: A system characterized by negotiation requires a management that it able to moderate and mediate in the case of conflict. A system that is based on trust needs someone who is actively involved in developing, communicating and promoting a common culture. A system based on flexibility requires a management to ensure that new partner constellations and cooperation ideas evolve.

It becomes clear that in the initial case study all components of a network were fulfilled without the presence of any management. The emergence and dissolution of the network occurred as an almost natural process. Management only comes into play if networks are initialized strategically and if they should be established as a lasting form of cooperation. Based on that decisive aim typical management errors can be detected. In the following we will show how and why networks fail and provide alternative views and practices in order to overcome common management failure in networks.

Failure 1: The Mindset of Classical Management

Unfortunately, the term management suggests that networks could be managed just like organizations. This association leads possibly to the biggest misinterpretations of network practice. One has to keep in mind that the concept of management is

[1] See also von Stamm (2018).

deeply connected with the modern organization and consequently with the principle of hierarchical command as confirmed by the work of Max Weber and his bureaucratic legitimation of the legal power to direct (Weber, 2005). The legitimacy of instructions in modern organizations is based on the formal rationality of the bureaucracy which in turn is based on objective and logical criteria of effectiveness and efficiency. From this maxim, however, great difficulties arise as long as networks are taken as hybrids according to Williamson (see pillar 1).

A hybrid is composed of two differing parts. In the sense of Williamson's approach an obvious conclusion is that networks are hybrids of the opposites of the market and the hierarchy principals. Jörg Sydow, the leading German network theorist and undisputed pioneer of network management, derives due to this hybrid character of networks a series of further tensions that need to be balanced by the management. These include autonomy and dependency, trust and control, cooperation and competition, flexibility and specificity, diversity and unity, stability and fragility, formality and informality, economy and polity (s.a. Sydow, 2005, 2010, p. 404). While it is not difficult to identify and name these contradictions within all networks one could point out polemically that the whole social world, and thus also the network, is composed of contradictions while all logic is concerned with avoiding them (Luhmann, 1987, 488ff.). A management concept which gives the indication of dealing with contradictions in networks therefore rather outlines a problem than offers a solution.

However, as one takes a closer look at the issues at hand the formulated problem itself leads into a dead end. The requirement that management has to deal with contradictions in networks ends up in a paradox. As stated above, the legitimacy of classic management lies precisely in giving consistent, that is, non-contradictory instructions. Good instructions would have to pursue the goal of shutting out the complexity of the network world into a rational, thus not contradictory, structure. Good management would therefore paradoxically permanently dissolve the properties of its management subject and the flexibility that characterizes the network in a functional manner.

Our experience gained in interviews and workshops with cluster and network managers as well as the literature corresponding to that field show that there have been numerous attempts to transfer old management practices and assumptions that have been tested in organizations into networks. The usefulness of established methods and tools for network practice cannot entirely be denied. But it is important that the managerial mindset adapts to the new targets and problem settings indicated by the unique network specifics. In this sense Jörg Sydow and Frank Lerch advice that network management needs to be approached "reflexively" proofs most promising (Sydow & Lerch, 2013).

Failure 2: External Network Management

Another misjudgement results from relying too much on the ability of networks to self-organize. References to self-organization generally imply two aspects. On the

one hand an observer (e.g. politicians, financier or manager) defines a system running according to certain regularities. On the other hand, the observer comes to the notion that the functioning of the system would not improve by external intervention. These assumptions exemplary describe the market. Here, the famous, invisible hand (of God) replaces human management.

Every establishment of a network management restricts the momentum of pure self-control of a market. In other words, the development of a network should not be left to faith but should be actively guided. This management task for example comes into play when the natural market of firms and research institutions in one region should be transfer into a cluster. This endeavour usually is taken over by networking or technology transfer agencies. Their goal is to offer professional "network services" to existing and potential network and cluster members (Buhl & Meier zu Köcker, 2009). These so called cluster initiatives represent an indispensable element for the development of regional networks or clusters.

Nonetheless, this approach tends to attribute network management the role of an external service provider, that is to say, one of other players in the market. As a consequence, management and members diverge and are not integrated into a whole. To support a network and by this creating opportunities for its development is not quite equivalent with being a part of a whole network and creating its structures from within. Such approaches are backed by theories which blur the identity of a network to an intangible potential (Wetzel, Aderhold, Baitsch, & Keiser, 2001). But if network management is reduced to an external entity the concrete cooperation between the network members also remain unaffected by management and are left to self-organization. Success stories of networks however show not only the importance of effective network services but also the crucial role of the network manager to bring up interpretations and self-descriptions of the network. If this pursuit of identity is not put on the management agenda, networks impend to fail.

Failure 3: Network as a Formal Structure

Another cardinal failure in network management which can be observed repeatedly is the reduction of networks to their formal structure, for example, when the legal form of a network association leads to the belief that the chairman of the board is in fact the leader of a network because he or she occupies the central decision-making power instance due to formal structure. Or when networks break down into individual projects in which the behavioural rules are also formalized by project plans and contracts. Network management in this view solely is dedicated to the completion of funding requirements which are mostly organized in form of project plans and action tables.

However, this form of pure administration can only seemingly be considered equivalent to a network management, seemingly because not the network logic but only the formal structures, i.e. the formal organization, form the basis for decision processes. Certainly, formal structures provide support and orientation. They represent a principle which every network member knows from his home organization

and which he or she continues to be committed to after he or she steps out of the network realm. The problem lies in the fact that the concept of the formal organization just does not count inside the logic of networks.

Without an instance that strategically pushes network formation forward the partners are only integrated until the end of projects or the expiry of funding measures. The overall effect of this formal logic is that networks are professionally set up, managed and terminated. A cynical conclusion could be: Most of the strategically initialized networks fail professionally.

The importance of a sound administration for networks should not be neglected. We would just like to point out that due to the dedication to the formal structure the actual aspects of shaping a network may fall behind in network management practice.

Failure 4: Retreat to the Back Office

The tendency to reduce networks to their formal structure leads to a further misinterpretation of the task of network management. Instead of actively pushing the design of networks many network managers retreat to the back office. This type of withdrawal is, of course, favoured by the tight financial resources available to network management. The reduction to management and organization often happens as a simple response to the overwhelming expectations of the network members and serves as self-protection.

Without doubt it requires resources, courage and commitment to leave behind the formal roles and to test new ones. Many network managers and members are afraid of this. However, the assumption of an active shaping role is essentially hampered by the seemingly paradoxical circumstance that the management in networks lacks the formal authority – an unavoidable consequence that arises when networks are not understood as formal hierarchies.

A network manager who deliberately decided against the administration in the "back office" described his situation in an impressive way*: "I am a king without a kingdom!"* This sentence emphasizes most accurately the new task description of the network management. Despite the absence of hierarchy, it is up to the network managers to take over the shaping of networks. The role of this new form of rule is outlined by a network member in the following statement: *"Sometime a network manager must also go into the line of fire. He has to clinch and build confidence and say to the members:* '*I have understood your objections and I take that into my hands*' *"*(NW member) In order to outline the new role profile for network management it is promising to take a closer look at the typical problems that derive from network logic.

Failure 5: Latent Conflicts, No Negotiation

We have shown that negotiation represents a constitutive pillar of networks. Surprisingly, the moment of the negotiation hardly takes place in many self-pronounced networks. Why is that so?

The necessity for genuine negotiation comes only into play once legitimate interests meet and compete. Although theory and practice are full of evidence of contradictions and competition in networks they seldom occur in the form of open clashes within the network. This is because networks are built on cooperation and based on the expectation to trust. This norm keeps potential controversy latent. Not only in network but also in organizations disharmonies are deemed as disruptive for effective processes. Particularly, where disputes arise emotions are generally assumed to be superior to reasoning. The classical avoidance strategy in organizations is to escalate conflicts to the next level of hierarchy. This procedure is based on the hope that on the staircase of hierarchy rationality will increase with each step to a higher level.

Today there are voices that demand a revision of this assumed rationality of organizations (Becker, Küpper, & Ortmann, 1988). Namely the importance of informality (Böhle & Bolte, 2002; Kühl, 2007) or of micropolitics (Neuberger, 2006) urges such new reflections. For network management these considerations are highly interesting. The empirical insight that an objective rationality from which means (and objectives) of organizations are to be derived is questioned leads to the conclusion that conflict and rationality no longer stand against each other. From group research, it is already known that flexible systems are characterized by their open handling of conflicts. In such groups the absolute number of contents increases while the relevance of each single conflict for the system is reduced (Coser, 1956). This in mind and according to the picture of contradictions, in networks it is anything but rational for management to avoid controversy. Conversely, one may admit that networks lose their flexibility if they fail to allow controversy. Instead, contests are the driving force behind change – also in networks.

Failure 6: No De-personalization

One of the most important functions of network management is to enable network partners to negotiate. As described previously, appropriate action is only required if partners already developed a conflict of interest or if negotiation has already started and network members threaten to end participation. For network management it is therefore either a matter of raising latent tensions well-controlled to the network surface or of transforming ongoing disputes into a negotiating situation.

Since conflicts process an enormous destructive power network management comes close to playing with fire. In order not to burn themselves network managers have to handle two issues skillfully. They have to deal with mutual recrimination while at the same time legitimizing their own moderating or facilitating role in the event of a conflict. For this purpose, it is very helpful to reflect on the two different strategies that can be brought into play when it comes to discovering the reasons for the malfunction of any system. Either mal-functions are attributed to the entire system or they are assigned to one individual element.

In formal organizations, typically single employees are blamed in case of failure. Therein lies an important function for self-protection of the organization, as Niklas

Luhmann recognizes. As problems can be attributed to the misconduct of individual members, their personal sensitivities or individual interests, there is no reason to question the functioning of the organization as a whole (and all other members). Alternatively, malfunction can be traced back to the paradoxes of systems. The fault for wrong developments or even failure then goes beyond the individual manager (despite the fact, that he/she did wrong, too) and is traced back to counterproductive incentive structures or to the corrupt culture of the system. The adequacy of each argument has always been contested by moral philosophers, and the controversy about the reasons for the global financial crisis and the role of some banks culture or the managers' behaviour proofs the currency of this twofold way of thinking.

If networks are characterized by contradictions, it is obvious that they accommodate conflict, that is to say, they lead to disturbance or deviance. What seems to be a problem at first may serve as a potential because conflict can become a normalized issue in networks. More precisely, conflicts are a sign of a healthy and vivid network. Network managers who know the structural properties of their networks and how they lead to contradiction can use this insight to legitimize up-coming conflict situations. Thereby disputes do not have to be ascribed to the misconduct of individual persons. Besides, the pursuing its own interests in a network not automatically becomes an indication for breaking with the values of cooperation and trust but as a justified intention. Due to this strategy conflicts are de-personalized. This increases the chances of debating rationally thus making productive use of the contradictions as an innovative and creative force of networks. In contrast, if conflicts are not skilfully brought to surface by the network management the apparent avoidance of disharmony inhibits communication and possible new ideas are not followed up. The network falls asleep.

Within this process of communication, the network manager needs to be legitimated, too. Despite the importance of the personality and the presence of network managers mentioned earlier in this text the principle of de-personalization also underlies the new understanding of the network management's role. As a person the network manager must remain neutral in respect to each network partner's perspective. In mediation, it is often an external person or entity that due to its impartiality qualifies as a neutral third party. Usually, this leads to the question of how to find an instance that is accepted by the conflicting parties. Instead, network management is committed to the network as a whole. This position can be used to legitimize that it forces itself, unprompted, into a conflict situation or that it urges the contesters to remain at the negotiation table. Network management failures are therefore based on the fact that the logic and the role of network management are not appropriate reflected.

Failure 7: Only Trust and No Distrust

The reference to the cultural basis of networks and the need to build up trust holds a paradox. Trust becomes only relevant for transaction if the important parameters of the exchange cannot adequately be reduced to explicit figures. This is true, for

example, with implicit knowledge, human capital, market power, etc. Nevertheless, some theoreticians argue that trust can be calculated and thus reduced to a rational decision (Coleman, 1990, p. 99). In contrast, we believe that trust and calculus are incompatible (Ortmann, 2008; Williamson, 1993). If trust cannot be rationalized, how can it then be managed? In order to escape from this seemingly paradoxical situation it is necessary to look more carefully at how trust works.

At the culminating point of a hopelessness no good drama forgoes the appeal: "You have to trust me!" However, this expression induces something disconcerting. Either it insinuates that something really is not in order and should be further investigated. As a result, the sentence leads precisely to the opposite of its intention. Or the affirmative character of the utterance prevails. But then the addressee decides to trust against reasons and to indulge in self-deception (Möllering, 2009). For the sake of starting or maintaining a (business) cooperation both alternatives turn out unrealistic. Such demands to trust will probably be answered: "You first!" The norm of reciprocity and trust is nothing someone can count on in a network unconditionally. Besides, it is just not appropriate as a "starting mechanism" (see Gouldner, 1960, p. 176f.; different at Axelrod, 2006). So if one can neither invoke nor control trust one ought to investigate indirect measures to promote the positive aspects of trust in networks.

An alternative is the conscious handling of distrust. In everyday language and also in some theory distrust finds its place as merely the opposite of trust (as in Deutsch, 1973). However, social relationships and human minds are far more complex than this simple juxtaposition suggests (Lewicki & Bunker, 1996; Lewicki, McAllister, & Bies, 1998). The coexistence of trust and distrust does not result from a linguistic sophistry but from their distinct effects on social action (Luhmann, 2009). Distrust has not to be understood as absence of trust but as its active counterpart. Despite our intuition distrust can be functional.

One positive side of distrust is to protect networks from lock-ins. In networks, excessive confidence in a technology and in a particular partnership can blindfold its members and can lead to neglect important changes in the environment. Gernot Grabher has described this effect for regional networks as a lock-in (Grabher, 1993). One way to preserve for instance the crusted German industry networks form this kind of failure is to inject well defined doses of distrust in order to survive within global competition (Kern, 1996). To use distrust as a strategic impetus for change and innovation it has to be cultivated as a productive factor (Ellrich, Funken, & Meister, 2001).

Admittedly, distrust is a provocative term. Regardless whether in the initiation of collaboration or in long-standing relationship one is more inclined if anything to use less radical expressions such as scepticism, inhibition, doubt. The benefit of the concept of distrust is that it addresses another level at the same time: Distrust is mostly based on mis-representations and conjectures that lack a rational foundation. This inevitable correlation of the potentially rational and irrational highlights the core issue for the cultivation of distrust by a network management.

As shown in the example above, to open Pandora's box by raising trust issues explicitly in a communication probably results in destabilizing the foundation of a

relationship. But the same goes for the communication of distrust. By communicating issues of distrust in networks one can turn conjecture into facts and get rid of groundless suspicion. Thus, the task of network management could be summed up as follows: Instead of trying to build up trust in networks a productive approach to distrust can be a promising alternative because network management can at least go about the latter actively and thus prepare strategically against a lock-in based on too much trust in trust.

Summary

In the end, we return to the introductory thesis: The possibility of failure insinuates that something has been functioning before. However, it would be optimistic to think that the discussed pillars that form a network are actually established in many so called networks today. It is much more plausible to assume that the logic of the network fails because it simply remains unrecognized. Put another way: A network provides the breeding ground for technical innovation but at the same time it calls for a management innovation by itself.

To promote networks first and foremost managers has to complement the unique logic of networks. Only then tools and tactics can be put into action that anticipate – and at best – prevent failure of networks. We consider the arguments in this article to be an impulse to rethink the management of networks and to bring forth the necessary professionalization of network management – so that in future fewer networks fail and more move on successfully.

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