Network governance for dealing with IT-enabled Inter-organizational cooperation

When should network IT - such as social media - be used and how to govern it (Working Paper Draft version)

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 Abstract

IT-based networking trends such as the rise of social media, crowd sourcing, open innovation, and cloud computing enable a profoundly different way of working and collaborating that challenges significantly traditional approaches of companies towards governance, i.e. the mechanisms a company employs to achieving business results and safeguarding information. Standard practices developed with a hierarchical model of the company in mind, are inadequate for providing sufficient correlation between governance mechanisms deployed and results achieved.

Popular literature on the subject states that dealing effectively with such new technologies in a business environment requires relinquishing control and subverting to trust. This paper makes the case that deploying successfully new IT-based networking tools rather involves shifting one's trust from a well-established and well-known governance system based on hierarchy and control towards another governance system, termed in the literature as network governance. This paper assesses when network governance is the better suited governance system. The presented theoretical model helps to understand how companies should use arising new technologies and which tasks are suited for network-driven IT-applications. Furthermore, the model enables to understand how network governance works to achieve business results and to safeguard information exchanges.

Key words: Entrepreneurship, Innovation, Network-IT, IT Governance, Information technology, Network governance theory.

1. Introduction

Current governance practices are questioned by arising new international networks driven by changing institutional conditions such as the application of new IT technologies. A global economy is arising in which new technologies change sector conditions. IT technologies make it easier for a company to enter new markets, which may imply that foreign competitors can enter your market virtually overnight. These developments, leading to global competition in many markets, do affect big as well as small and medium sized companies alike. Companies need to be aware, therefore, what the potential opportunities and threats are of these developments.

In this paper, we study how governance can be used to deal with the consequences of these developments, thus investigating how network IT (for example social media), IT solutions can be deployed to allow inter-organizational collaboration Information and communication technology is changing the way IT is used and managed within a company. For example, companies outsource activities to companies on other continents or buy IT services abroad. Or employees are interacting with experts in different time zones to solve an acute problem in their work.. Within the 'new' economy coordination mechanisms need to be redefined and hybrid governance mechanism seem to appear (Elsner (2004).

In this paper we combine current theory on network governance (Jones et. al. 1997), with new insights within inter-organizational cooperation within IT-governance (Ibrahim & Ribbers 2009). The combined theory provides insights in what types of tasks are suitable for a networked collaboration

approach, and what type of mechanisms allow networked collaborations to be effective. To frame it in popular terms: When do social media offer opportunities to organisations and how should these kind of opportunities be governed? We do not use the word management here, because it suggests a hierarchical relationship. The lack of (formal) hierarchy appears to be a characteristic of the use of network IT, inter-organizational cooperation and network governance.

Governance indicates a set of – formal or informal – processes and decision rights that together support accountability (Jones et. al. 1997, De Graaf & Herkströter 2007). The assessment of the relevance of IT solutions to the companies' success and how the pertinent IT solutions are organized and implemented are governance questions. Within this governance perspective, we assume that the board will try to create new fruitful interdependencies, without becoming solely dependent of forces they do not know nor understand and do not control. They should be able to assess:

• when network IT offers a preferable approach to achieving business objectives,

• when and how employees of the company should be allowed to communicate and build networks with the outside world freely,

• when IT systems and business processes can or should be performed in collaboration with outside entities, and

• how these activities can be expected to achieve business results and how information flow will be safeguarded.

This paper focuses on the third and fourth of these questions: When and how should network IT (for example social media) be used by organisations? Within our perspective, following Jones et al. (1999), we define network governance as "a select, persistent, and structured set of autonomous entities (individuals or companies, as well as non-profit agencies) engaged in creating products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges" (Jones et. al., pp. 914).

Our paper is structured as follows. Below, in section 2, we will elaborate on the emerging developments within current economies, often coined as the network economy. Thereafter [section 3], we will elaborate on developments within corporate governance, in particular on network governance. These developments have preceded the emergence of the network economy, but offer useful tools for understanding and governing inter-organizational cooperation. We highlight the differences between a traditional governance perspective and theoretical perspectives on network governance, mainly based on (Jones et. al. 1997, Ibrahim & Ribbers 2009).

Within the fourth section, we come back to the question when an inter-organizational approach is preferable and when network governance becomes the better perspective. In the fifth section, we provide a better understanding of how network governance works to achieve business results and to safeguard information and how management could use network governance to maximize benefits.

2. The Network Economy

The term "network economy" is generally meant to denote the business environment that has emerged as a result from ubiquitous information technology allowing access to information anytime and anywhere, irrespective of time and location. Some descriptions of this kind of environment have been described in a number of popular books, including those by Kelly (1998), Malone et al. (1998), Chesbrough et al. (2006), Fingar (2006) and Tapscott and Williams (2006).

With the advent of social media, individuals play increasingly independent roles in the network economy. This also implies that employees have active relationships and communications with others within as well as outside the company. This can lead to undesired situations, such as employees reacting directly to aggravated customers complaining on the internet or employees developing new product ideas with people outside the company. However, social media can also be powerful tools for knowledge management and relations management.

The governance of issues related directly to the use of social media is outside the scope of this paper. We concentrate rather on inter-organizational cooperation. In academia, the term inter-organizational cooperation is most used to discuss critical cooperation between companies (Nooteboom 2000, 2004). Within this literature, the division between companies is not strictly defined and relationships are more than contracts between a buyer and a supplier.

Traditionally, the different business functions within a company were located close to where the business dictated, e.g., close to prospective customers, resources, or the decision making unit of the company. The emergence of information technology and the global spread of access to the internet have allowed much more unconstrained location of business functions and of the individuals contributing to those functions, and ultimately the delegation of responsibilities for certain business functions to other organisations (outsourcing) and/or collections of more or less unorganised individuals (crowd sourcing).

- Outsourcing: This is a fairly common practice, where – typically non-critical – business functions are handed over to an outside party. One of the advantages of outsourcing is that it allows a company to focus on its key business processes. One example of an industry branch that has made extensive use of outsourcing is the automobile industry, where the production of many of the components of cars has been outsourced to different companies. Deciding which business processes are key and which are not has led in extreme cases to companies that focus themselves on

only one business process, e.g. Nike which is essentially a – albeit very successful – marketing & sales organisation.

- Crowd sourcing: An interesting phenomenon is the creation of products via the contribution of many – often unpaid – professionals. Examples are the operating system Linux and the internet encyclopaedia Wikipedia. In these examples, a task is outsourced to a – often unspecified – group of individuals, i.e. the crowd, who then each contribute according to his or her interests and abilities.

This paper focuses on situations where a business performs part of its business endeavours via a temporary collaboration with other businesses and/or individuals. The decision to perform a business task via a temporary collaboration in itself may not always be made explicitly according to traditional governance rules. The absence of guidance means that employees may enter informal collaborations outside of proper channels, simply because the "proper channels" have not been defined. In this paper, we discuss governance in view of the network economy from the perspective of one business, i.e. the primary business that ultimately makes the sourcing decision. In doing this, we build further on earlier work of McAfee (2010), which stresses the critical role of Network IT with these types of collaboration. Besides network IT, he defines functional IT and enterprise IT.

The network economy signifies a philosophy of innovation and entrepreneurship where multiple parties contribute according to their specific strengths. Although cost reduction is a typical primary objective of sourcing, other benefits derive from allocating functions to other parties according to respective strengths, such as quality and innovative strength. The latter provided one allows outside

parties to become contributors to innovation processes. This opening up of innovation processes to outside parties is also termed "open innovation", see for example the work of Chesbrough (2003).

The basic underlying assumption in "open innovation" is that there is more creative and innovative talent outside a company than inside. This talent can be tapped by making the innovation platform of a business transparent. By combining outside ideas – including those of customers – with inside business models and development platforms, a business should be able to improve upon its innovative power. A current example are the IPhone Apps, where Apple has invited the general public to develop new applications for its IPhone and IPad products, resulting in literally hundreds of thousands of new applications developed by outsiders, but sold through Apple's distribution channels. Key differences between open and more traditional "closed" innovation are given in Table 1.

Table 1. Differences between Closed and Open Innovation

Closed innovation	Open innovation
All relevant smart people work for the company	There are more smart people outside than inside the company
The company only profits from R&D when the company explores, invents and develops in house	The company profits from other's R&D. provided sufficient
If the company invents something themselves, they will be first to market	A company can profit from the inventions of others outside the company
Whoever communicates an invention first, is the winner	A good business model is more important than being first to market
Those who have the most and brightest new ideas, wins	Those who make the best use of anybody's new ideas, wins
A company has to protect intellectual property to prevent others from benefiting	A company benefits from others using their intellectual property and a company should be able to use others' intellectual property

These examples have in common that business results, specifically innovation, are achieved by collaboration between temporarily and loosely coupled entities (other businesses and professional workers). The question that arises is: how does a business manage its ongoing business and innovation while adopting ways of working from the network economy and how does a business benefit from the network economy?

Developments that are allowing businesses to allocate business functions to more suitable outside functions also are also responsible for a considerable change in the relationship between a company and its employees. Since the industrial revolution in Western economies, the role of businesses as primary providers of employment has been growing. Businesses had become by the end of the twentieth century relatively stable organisations with employees set on life-long employment. But the last decade, the number of self-employed professionals has been growing again (Van den Born, 2009). While – on the one hand – companies want to be flexible in hiring and firing employees as ever faster market developments dictate, professionals – on the other hand – are becoming more aware of their value and are increasingly seeking interesting projects irrespective of the company

commissioning the project. As a consequence IT governance has to accommodate for an increasingly fleeting relationship between a business and the professionals it employs to pursue its business endeavours.

3. Network governance and application to inter-organizational cooperation and IT

When we assess corporate governance literature, governance is about the conflict of interest between various groups that are involved within a company. In 1932, Berle & Means discussed the development of the modern firm in the United States. These big companies where owned by a large group of shareholders, but controlled by managers that had an own interest. Between shareholders (principals) and managers (agents) a critical conflict of interest existed, as Berle and Means claimed. Governance mechanisms should enable to create an optimal balance between the shareholder and the manager. Distrust, control, contracts and the need for transparency which would enable shareholders to make the management accountable – are key elements in this perspective. This so-called agency theory is still guiding governments, managers and shareholders all over the world (De Graaf & Williams, 2009).

New societal and technological developments have led to the arisen of network governance. Within this perspective, not the conflict of interest between principals and agents is central, but companies operate in networks which enables them to create 'products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges" (Jones et al., p. 914).

Network governance seems to make the world more complicated than described by Berle & Means. Critical distinctions in business, for example between the inside and the outside of the company, seem to disappear. For example, within corporate governance theory, a distinction is made between internal governance, how the various parts of the company are structured and where decisions are made, and the external governance, how the company is dealing with stakeholders, for example shareholders and the government (Gillan, 1998).

A new theoretical starting point seems to develop, as displayed in Table 2. Where traditional corporate governance focuses on tensions within a one-to-one relationship, network governance is all about groups and peers. Under external pressure, organizations are "forced"

to a different governance strategy in which not the conflict of interest between the agent and principal is critical, but they have to "wheel and deal" with a network of actors, for example companies. Besides contracts, the concept of 'reputation' becomes a critical determinant for control on markets that are not stable and transparent, but instable and rapidly developing. Within exchange relations, the contributions of specific individuals have become critical which are not merely bound with contracts, but with personal commitment: only a particular specialist can do the job.

Table 2. The difference between traditional corporate governance and network governance

	Agency perspective on governance	Network governance
Unit of analysis	Relation between principal and agent	Network of companies and other relevant actors
Control system	Contracts	Reputation
Market demand	Stable and transparent	High product demand uncertainty and/or stable supply
Human Resources relations	Based on stable contract settings	Customised exchanges high in human asset specificity.
Task characteristics	Well defined tasks that lead to accountable results	Complex tasks under intense time pressure which are difficult to assess by non-specialists
Boundaries of the firm	Clear and stable division of labour between costumer and supplier	Frequent exchanges among parties.

These arising new conditions are not relevant for all tasks and operations (Jones et al., 1997). Many can be standardised within contracts. Within innovation and complex processes, distributed among multiple collaborating parties, new governance conditions arise. The remainder of this paper will focus on when network governance is needed and how this would look like.

4. Network governance and inter-organizational IT

IT is pervasive in most companies, although in different roles and in varying degrees of requiring IT governance for their the company's health. McAfee offers a useful categorization of IT being used within companies (McAfee, 2010). McAfee distinguishes Function IT, Network IT and Enterprise IT. Function IT is the kind of IT that supports in the execution of a task. From a governance perspective, this type of IT is not very relevant, as long as it is dependable enough. Network IT is IT that supports collaboration, within or outside the company, such as email. Enterprise IT is IT that supports, and possibly coincides with, business processes.

Critical in this development is network IT: i.e. IT applications that enable users to share information, work together across borders, co-develop products, and off-shore and outsource business processes. All forms of knowledge transfer are directly affected by network driven IT in which it is not always clear who is the owner of what and related to that, who can control what. The platform, the software, the applications of the software, the exchange of information and the knowledge creation is in the hands of many. In this way Network IT may affect Enterprise IT. From a governance perspective, Network IT and Enterprise IT both require rethinking. Currently, academics and practitioners are struggling with how to create new interdependencies and, related to that, new coordinating mechanisms (Elsner 2004). Until now many popular authors focus on success stories, using examples based on crowdsourcing (e.g. Linux and Wikipedia) or social media on how companies use IT to innovate by co-developing products. There is much less attention, however, for the struggles and the failures.

Network IT on the one hand requires governance to set norms for the use of such IT and on the other to determine if and how Network IT can be used to perform tasks. Typically, employees start using

Network IT such as social media and blogs on their own accord. When left unchecked completely, this may lead to undesirable leakage of information and damage to brand perception, for instance. Rules stipulating what can and what cannot be communicated will help to mitigate these risks. Furthermore, Network IT can be used as a tool to perform company tasks effectively, such as knowledge management and company-wide discussions towards developing a new strategy.

Network governance (Jones et al., 1997) deals with this type of collaborative work. Network governance takes input from social network theory and transaction theory to understand the mechanisms involved that allow networked communities to achieve results and to safeguard information exchanges. Key elements to network governance are social embeddedness (i.e. relationships are not just dyadic, but embedded in a network of relationships), informal social contracts, and reputation (i.e., some form of social commodity participants in a network seek to maximize). An interesting question is whether these three elements can be tailored to "engineer" desired performance of a particular social network.

Enterprise IT performs business processes, i.e. coincides with the way a company is doing business, and warrants therefore considerable attention to IT governance.

Developments in IT and the network economy are also changing the conditions that drive the need for and approaches to IT governance. For long, IT governance would be considered as an internal governance issue. However, technical and economic opportunities make various IT solutions currently an issue of external governance also. For example, technical advancements allow processes such as customer relationship management and pay rolling increasingly to be implemented using solutions based on cloud computing. This introduces dependence on resources and functionality developed and maintained outside the organization. A step further is outsourcing of responsibility for executing processes to other organizations, possibly even abroad, to organizations not owned or controlled by those companies.

These examples also illustrate that there exist varying degrees of delegation in Enterprise IT. We argue that these varying degrees require also varying governance systems, ranging between agency governance and network governance. Certain outsourcing relationships dealing with clearly defined, compartmentalized business processes, are very well suited for an agency approach, including formal and stable contracts, well-defined tasks and accountable results, and a clear division of labour between customer and supplier.

On the other end of the spectrum, we see outsourcing relationships that are better suited for a network governance approach. These are relationships that cannot be captured in formal and stable contracts, but, for instance, require investing in social capital to make the relationship work (Rottman, 2008) or require a relationship based on collaborative innovation of business process to support continuously evolving market demands (Willcocks & Craig, 2009).

Although this model is focussing on a client-supplier relationship Kraljic's portfolio purchasing matrix (Kraljic, 1983), can shed light on inter-organisational cooperation. Kraljic's matrix uses the two axes supply risk and profit impact. In our adaptation, supply risk is exchanged for specificity. The rationale being that the more specific a task is, the fewer potential suppliers there are and the higher the supply risk is. Furthermore, specificity is a notion used in the theory on network governance. Profit impact is translated into added value to encompass benefits that are not purely financial and do require executive attention, thus governance. In Kraljic's matrix, generic and low value contributions are related to commodities. Typically, those can be addressed well by formal contracts and an agency governance approach. Contributions that are specific, require substantial investment in a close collaboration which is only affordable if the contribution has sufficient added value. It could be argued that a task with high specificity, but low in added value should not be outsourced at all.

Figure 1. Adaptation of Kraljic portfolio purchasing matrix
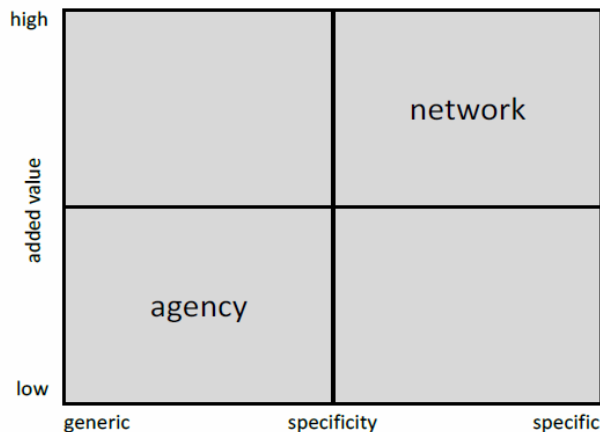
When a situation of high specificity is also characterised by task and demand uncertainty , e.g. typical for explorative, innovative processes, Jones stipulates that network governance becomes the automatic governance system for dealing with the ensuing interactions. When we use Kraljic's model in assessing inter-organisational cooperation, we could specify the governance mechanisms used by studying network theory. This will be done in the next section.

5. Making network governance work

Literature on the use of social media in an organization (e.g., Li, 2010) or on the evolution in offshoring (e.g., Willcocks & Craig, 2009) often state that managers should learn to relinquish control and to resort to trust. This is difficult to ask of a manager and also beside the point. Traditionally, agency-based governance does not offer total control: it does not guarantee business results, nor does it make information leaking or fraud impossible. Managers have learned to trust that the mechanisms involved in governance in general merely increase the likelihood of desired outcomes and decrease the likelihood of undesired outcomes to acceptable levels. It is the unfamiliarity with network governance that makes that "trust" in new mechanisms is not yet sufficiently developed and requires an uncomfortable leap of faith. We argue that adopting network governance requires learning to extend one's trust in one governance system with trust in another governance system. This becomes easier when one understands the mechanisms involved in network governance systems.

Jones et al. (2009) identify a number of reasons for networks to come into existence. These reasons lead, under certain conditions, to some kind of social structure, social embeddedness, in which four social mechanisms underpin the, so called, 'network governance system' (see Table 3)

Drivers of network governance	Structural embeddedness	Social Mechanisms within a network
Human asset specifity Task uncertainty Demand uncertainty Frequency of tasks		Restricted access Macroculture Collective sanctions Reputation

Table 3. How Interaction of Exchange Conditions Leads to Structural Embeddedness and Social Mechanisms in Network Governance (Jones et. al. 1997)

Participants in a network endeavour seek to optimize their reputation, interacting according to norms that may be implicit, but are well accepted within the network community and that define the culture within the community. Access restriction and collective sanctions offer means for the network community to reward or sanction individuals which increases or decreases the individual's reputation.

The notion of 'reputation' may appear fairly soft from a business perspective. However, reputation has direct consequences for an individual's opportunities to participate in future business endeavours and provides, thus, a firm incentive to contribute constructively to business objectives. Reputation even may provide a stronger incentive in certain situations than traditional methods for rewarding and sanctioning employees in an agency setting. Therefore, trust in the effectiveness of a network governance system is – in the right circumstances – not that much of a 'leap of faith'.

Ibrahim and Robbers (2009) have introduced the two notions competence trust and openness trust. These notions help to understand better the concept of trust in a network governance system. Competence trust denotes the level of confidence one needs to have in the competences of, in this case, a supplier. Outsourced tasks that require only low competence trust are those tasks that are common and not very well developed.

Openness trust denotes the level of confidence that a counterpart will handle information relevant to the relationship with transparency and equity. Having openness trust in a partner means on the one hand trust that information is not shared outside the relationship and on the other hand trust that a partner is open and transparent to the partner with respect to information relevant to the collaboration and the relationship. Openness trust supports intensified collaboration and innovation. When only competence trust is critical, and the awareness of the needed competences is very critical, hierarchy and contracts will be the main governance mechanisms. When competences are important but it is not well known which competences are necessary, a certain level of openness is critical.

Network governance appears better suited for tasks with high competence trust and high openness trust requirements. Such tasks require partners with established, but rare competences that contribute in an open, explorative style on the development of systems and processes. Thus, the notions of competence trust and openness trust can be used to answer the question whether either an agency governance system or a network governance system is more suited for handling the relationship with suppliers or partners (see Figure 2).
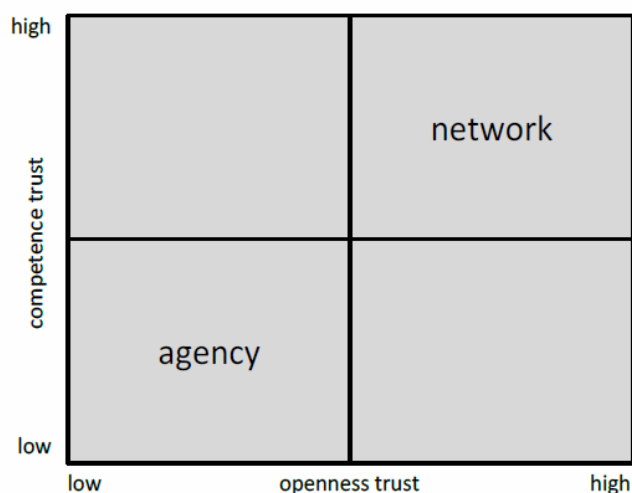
Figure 2. Competence trust and openness trust as indicators for suggested governance style in networked business relationships.

Another question one can ask oneself is which type of activities need to be done within the hierarchy of the company and which type of activities can be sourced reliably outside the company. Competence trust and openness trust also provide some inside for this. We illustrate this via the example of publishing a newspaper.

The assumption is that a newspaper's competitive edge is based on the quality of its editors and its columnists. Both good editors and distinguishing columnists are rather rare. This implies that there should be high competence trust in the abilities of both the editors and the columnists. There is a difference regarding openness trust between editors and columnists. Columnists derive much of their value for the newspaper from their role in the outside world and are supposed to interact quite freely with parties outside the newspaper. Therefore, the need for openness trust in this case should be low. Resorting to agency style contracts, requiring exclusiveness, can be used to mitigate the risks associated with a lack of openness trust. Openness trust regarding editors, however, needs to be high to guarantee the identity and competitive edge of the newspaper.

Other activities such as printing and distribution are more common and therefore lower on the competence trust scale than editors and columnists. Printing and distribution are both commodity type activities that require less competence trust (which does not mean that these activities shouldn't be executed dependably). But printing does require a higher level of openness trust than distribution. When a paper is being printed, the contents are still confidential. Once the paper is being distributed, the openness trust is need for gone.

The four roles of columnist, editor, printer, and distributor can be placed in a trust matrix as illustrated in Figure 3. The activities in the lower left corner (low in both competence trust and openness trust) can most easily be sourced from outside the company and can be governed according to an agency style (as shown in Figure 2). Activities in the top right-hand corner, however, require, when sourced, a network governance approach.
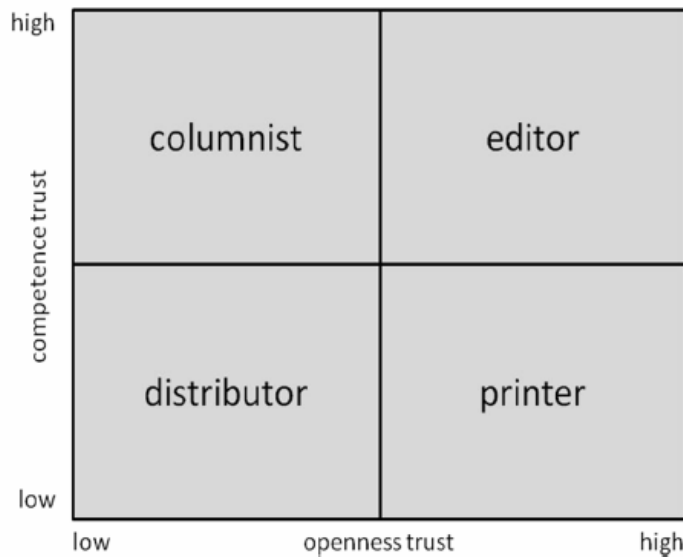
Figure 3. The need for competence trust and openness trust as indicators for suggested governance style in networked business relationships.

A tendency would be to organise business activities that require high competence trust and high openness trust within the hierarchy of the company. However, there will be situations where this is not feasible, as suggested by the drivers of network governance as illustrated in Table 3. When tasks are characterised by human asset specificity and task uncertainty, there is a need for high competence trust. These are situations where activities require certain competences which are difficult to assess by managers or where the outcomes of the activities are so uncertain, that hierarchical management styles and contractual relationships will not lead to the needed outcomes. Furthermore, when tasks are characterised by demand uncertainty as well as a frequent recurrence of tasks, there is a high dependence on these resources while keeping the required resources standby permanently might be too costly. In such situations a company may decide to bring in certain specialists – that are known by the management – from outside the company to do these complex tasks, or to bring a problem into the outside world because it needs specialists that are not directly known. In such situations, openness trust becomes an issue.

Network IT facilitates the type of intra- and inter-organisational collaboration of a network governance system. There exist now social media platforms, both internal to an organisation (e.g. Yammer) and external. The advent of such platforms within companies has in many cases been ad hoc and unregulated. But sooner or later the question should arise whether Network IT and the network governance system it supports be turned into an purposeful instrument for performing business activities. Analogous to the discussion so far in this section, it would follow that those activities that are characterised by human asset specificity, task uncertainty, demand uncertainty and frequency are prime candidates for such an approach. An example of such a task is the formulation of a new strategic plan, or the development of a new product idea. By using the notions of competence trust and openness trust one can assess the suitability of a Network IT approach to any given task.

Based on our matrices, decision makers can decide how much competence trust and openness trust is necessary and what kind of governance measures are necessary. This can lead to actions and policies. When trust is necessary, the differentiation between openness trust and competence trust makes it possible to focus in decision making by asking the question: Am I able to approach the right people (could make competence trust necessary, if competences are not inside the company) and am I able to figure out what the solution should be (openness trust, if solutions, products are not inside the company)? Also, it makes clear what are critical items of network governance, so on which

features managers/entrepreneurs should develop policies in a non-hierarchical context. Accessibility, cultural items, sanctions and reputational mechanisms should be developed together with the network partners. In these processes, these mechanisms are not only developed in formal arrangements but, more important they come into existence in cooperating, in developing something else. This is the real challenge of network governance. You do not develop a contract together, sign the contract and start. In network governance cooperation develops and as far as contracts exist, they are often implicit and developing. Only at certain stages within the process, contracts need to be made explicit.

Concluding remarks

We described when Network-IT (e.g. social media) enable opportunities for companies and when trust in openness and competences is necessary and when not. Precondition is that companies should know their core competences. Also we have assessed when network governance is needed and which mechanisms are relevant.

We have described changing practises in current economies, leading to the growing importance of networks in the development of companies. Emerging new IT-technologies lead to changing practices on markets. Outsourcing, crowdsourcing and open innovation lead to new corporate arena's. For management it is often difficult to detect fads and business opportunities. Also it is difficult to understand what new forms of inter-organizational cooperation asks from management: When does governance need to change within IT and when is it possible to keep existing hierarchical structures in place?

Companies such as Apple seem to know when they have to act according to traditional business patterns, when to use hierarchy as critical governance mechanism and when more open-sourced approaches to governance need to be used. The company creates an environment in which trust can become the critical control measure, for example in developing new apps, when on other moments it uses traditional control modes and is focussing on contractual relationships, for example in production.

We have demonstrated that trust and openness are critical in some situations, where on other product segments and on other moments in the lifecycle of a product, traditional approaches should e followed. This theoretical model could help practitioners to develop a strategy towards emerging business practices. Especially the conditions for network governance developed by Jones et. al (1997) seem to be helpful in this respect.

Researchers could draw on our model, when understanding why companies take a certain approach towards new practices such as open innovation and outsourcing. Why are some companies more innovative in certain markets than others. Why is Microsoft very hierarchical and why do big companies team up with smaller companies.

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