Trust in Network Organizations - A Literature Review on Emergent and Evolving Behavior in Network Organizations

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Abstract
This systematic literature review examines different forms of evolving and emergent behavior in network organizations (NO) with an emphasis on trust. Because of the difficulties and importance in researching emergent behavior in network organizations, this review summarizes the main aspects of 17 papers and tries to disclose open research points by combining the different perspectives of behavior and forms of NOs. Due to the complexity of those organizations, there are several “soft aspects” that affect the partnership implicitly. In particular, trust is intertwined with other facets (e.g. legal aspects). IT governance and IT systems can have an impact on trust and vice versa. Therefore, maintaining a trustworthy relationship in a network organization is undoubtedly an enormous challenge for all participants. At the end of this literature review, we discuss some open research gaps like the influence of different cultures in NOs or the visualization of emergent behavior.

1. Introduction

In an era of organizations’ focus on core competencies and specialization, the relevance of network organizations (NO) is increasing. NOs range from loosely coupled, short-term virtual enterprises to long-term strategic alliances based on formal contractual relationships. Examples are project networks, logistics chains, private-public partnerships or airline alliances.

Generally, a network organization is a highly decentralized and closely connected social and technical system for common communication and maximizes mutual influences [5, 41]. Based on the definition of Bonen [4], NOs are complex sociotechnical systems. Network organizations evolve over time and “many people and inanimate systems interact together to perform a set of functions/missions” [4]. NOs can be described as a subset of business ecosystems (BE), i.e. "an economic community comprised of a number of interacting organizations [...] and other stakeholders, that produces goods and services of value for the customers" [37]. Due to globalization, partners from different countries and cultures have to be integrated resulting in a higher complexity of the network. As a consequence, forms of regulation or governance have to be established in NOs over time. Emergent and evolving behavior (like culture) is also vital for the network organization, allowing collaborative work among organizations and maintaining good partnerships. The network has to recognize trust as one significant behavior for establishing a common mindset. To understand NOs completely, intended behavior (governance and regulations) as well as emergent behavior needs to be analyzed- omitting one of the two can lead to significant disadvantages for the network. Focusing on emergent behavior, NOs can lose the possibility of changing the environment intentionally. Network organizations, which disdain emerging behavior, forfeit the ability to react quickly and flexibly to changes in the environment. Both forms of behavior are vitally important for the preservation of the network organization [35]. Both forms of behavior have been researched, but it can be stated that the majority of research is focused on intended behavior. One reason is the immense effort invested in observing and analyzing emergent behavior in NOs [10]. Hence, we want to identify suitable research methods, which support the generation of relevant knowledge efficiently.

The focus of this review is on emergent and evolving behavior with an emphasis on trust that we believe needs a summarization and identification of open research gaps.

The following questions form the basis for this research:

1. Which emergent and evolving behaviors in network organizations have been identified in scientific literature?
2. What is the role of trust in network organizations and how is trust intertwined with other aspects in network organizations?
3. Which research methods are applicable to support the exploration of emergent and evolving behavior in network organizations?

This literature review provides an extract of the relevant points in the IS area of emergent and evolving behavior with respect to trust in NOs and consequently, to present further potential fields of IS research. It defines the concept of NO in section 2 and continues by describing the emergent and evolving behavior with respect to trust. In the third section, we outline our methodology for the literature review and present its results in section 4. In section 5, we formulate and interpret existing intertwinement between trust and interactions, the use of power and legal aspects as well as IT. Lastly, we determine the research agenda by identifying research gaps.

2. Theoretical background

In recent years, interest in NOs has grown exceedingly both in practice and research due to the rapidly emerging specialization of organizations. Considering this fact, NOs cross the traditional borders and comprises a sphere of influence and action areas among organizations [12]. However, in theory and in practice a great number of different views on network organizations can be found. Such a plurality makes it difficult to compare the different approaches and methods for NOs. In this section, we present our theoretical background on network organizations as well as emergent and evolving behavior with an emphasis on trust.

2.1. Network Organizations

A multiplicity of definitions with different focal points exists in the literature for NOs and similar organizational forms [23]. Alter and Hage [3] define interorganizational networks as “unbounded or bounded clusters of organizations that, by definition, are nonhierarchical collectives of legally separate units” in order to comprise different forms of collaboration.

Other similar forms and terms of NOs can be found in the literature, including virtual organizations (VO), interorganizational relationships (IOR/IR), cross-boundary information sharing (CBI) initiatives, IT outsourcing relationships, etc. Jones et al. [23] also cites in his paper a collection of different terms for NOs that reflects the variety of this topic.

Network organizations have three different stages [53]. In the first stages, the initializing stages, key partners form the network and establish a preliminary set of rules. In the processing phase “value-creating exchanges in the interorganizational strategy are expected to occur” [53]. The last phase is described as a reconfiguring phase, resulting in a rearrangement or dissolution of the network.

A variety of different interorganizational (information) systems (IOS/IOIS) are used in all stages and can be “defined as a set of IT resources shared among organizations, which provides shared IT services and supports information processing and communication across organizations” [6].

Despite the different forms and interpretations of network organization, the definition of Alter and Hage [3], given above, applies to all forms and stages of a network organization and therefore, forms the basis of our research. We believe that legally separated members of a network have to exhibit a huge amount of emergent and evolving behavior (in particular trust) in order to cooperate or compete with each other in every stage. Therefore, we focus our research on the emergent and evolving behavior that is discussed in the examined literature.

2.2. Emergent and Evolving behavior

Intended and emergent behavior in organizations is a long discussed topic in research [e.g. 2, 34, 46]. Intended behavior is a sequence of actions with an explicit plan which can be performed almost automatically [1]. A well-defined and standardized process is a good example for intended behavior. In contrast, emergent and evolving behaviors are “not designed in advance, but evolve, based on sequences of collected events” [18]. In general, emergent and evolving behavior can be seen as a nondeterministic characteristic of a complex sociotechnical system like a network. “Such characteristics emerge when the whole system is put to use and changes over time, depending on how it is used and on the state of its external environment” [47]. Emergent and evolving behavior in network organizations covers organizational culture, organizational commitment and organizational learning in each member as well as the whole network [16]. In literature, organizational culture has been characterized as a set of shared values, beliefs, assumptions and practices that shape and guide people’s attitudes and behavior in the organization [26, 39, 52]. Chan et al. [7] state that emergent and evolving behavior reduces the effort to perform complex tasks in organizations. Emergent and evolving behavior oftentimes occurs
during phases of uncertainty (e.g. in crises and disasters) allowing a quick and flexible response. A common mindset within the NO supports collaboration and partnership [42], coordination [33], distribution of power [38] as well as knowledge creation and sharing [42]. In order to safeguard the exchanges and minimize variance in parties’ expectations within the network, trust is a key essential in establishing a network and acting in it [40].

2.3. Trust

An integral part of emerging and evolving behavior in NOs is establishing trust between the parties. Due to the fact that trust is an object of study in many disciplines (sociology, psychology, economics, management sciences etc.), several definitions of trust from different perspectives exist. Thus, the context of trust has to be taken into account [20] as well as the mechanism for trust development [45]. Rousseau et al. [45] detect and distinguish between three different mechanisms of trust development in a literature review. The first mechanism is calculus-based trust. In that form, the involved parties weigh the risks and benefits of their actions on a rational basis. The second mechanism is institutional trust. For example contracts, guarantees and laws are used to regulate and manifest the relationship. If one organization does not behave as expected, the other organization can demand any compensation so that the interactions are not that risky. The third mechanism is relational trust, which “derives from repeated interactions over time between trustor and trustee” [45]. Due to positive experiences trust as an emotional foundation will increase over time [45].

With respect to individuals or organizations, Luna-Reyes et al. [27] defines trust “as a two-party relationship, in which one party A (an individual or an organization) accepts the inherent risk of a relationship with another party B”. Thereby, the person or the system shall behave according to the expectations and assessments of the actor. The assessment is based on experience and the actor is aware of the risks that will follow. The trust-building basis is viewed in these definitions as a long-term process aiming at collected experiences. “Trust has always been a critical component of relationships between organizations” [44]. However, this position does not hold for all forms of NO. Due to a finite life, spans of collaboration with defined roles and duties in some forms of NOs e.g. virtual teams, developing trust has to be a dynamic process instead of a long-term, constant building one. This form of trust is called “swift trust” [32]. They state that in virtual workplaces lacking interpersonal relationships, this dimension is de-emphasized and trust is focused on action. In contrast to traditional forms of trust, trust is apparent if the group activity is beneficial.

But although trust has been cited as the most influencing factor in regard to a successful relationship [15, 53], it has also been stated that building trust alone is not sufficient. More factors and interdependencies have to be considered. Mayer, Davis and Schoorman [31] argue that the balance of power between the parties has a positive influence on trust-building. Öberg and Svensson [38] state that “the degree of trust increases with increasing power”. Power in this context is defined as “to be able to coerce others to do what one wants them to do, even when they do not want to do it” [19]. Trust shares interdependencies with interaction mechanisms, for example, communication, conflict resolution and knowledge sharing [24]. Trust “acts as a substitute for the traditional mechanisms of control and coordination” [24]. In contrast, Das and Teng [11] argue that trust and legal aspects like control are not substitutes but rather two aspects strongly influencing each other. These interdependencies regarding trust will be discussed in this literature review.

Table 1. Sources and number of relevant papers

<table>
<thead>
<tr>
<th>Journal / Conference</th>
<th>Number of relevant papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Journal of Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>Information Systems Journal</td>
<td>-</td>
</tr>
<tr>
<td>Information Systems Research</td>
<td>2</td>
</tr>
<tr>
<td>Journal of AIS</td>
<td>-</td>
</tr>
<tr>
<td>Journal of Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>Journal of MIS</td>
<td>1</td>
</tr>
<tr>
<td>Journal of Strategic Information System</td>
<td>1</td>
</tr>
<tr>
<td>MIS Quarterly</td>
<td>2</td>
</tr>
<tr>
<td>Americas Conference on Information Systems</td>
<td>-</td>
</tr>
<tr>
<td>European Conference on Information Systems</td>
<td>-</td>
</tr>
<tr>
<td>Hawaii International Conference on System Sciences</td>
<td>4</td>
</tr>
<tr>
<td>International Conference on Information Systems</td>
<td>1</td>
</tr>
</tbody>
</table>

3. Research approach and Methodology

To summarize the recent literature on emergent and evolving behavior as well as trust in NOs and to
identify research gaps, we undertook an extensive literature review. In order to perform a systematic literature review, we used the review process suggested by Webster and Watson [50]. Our first step was to define the scope by using a mind map which contained potential search terms in the nodes. On the basis of the mind map we defined the search terms “network(ed) organizations”, “behavioral”, “trust” and “emergent and evolving” to employ these for research in the basket of journals proposed by the AIS as well as in 4 selected conferences. The dates of our searched literature range from 1993 to 2012, in order to find relevant literature of the last 20 years. Based on the results of a full text search performed by at least two persons for each journal and conference, 58 papers were found.

In the next step, the established literature was reviewed again by at least two persons reading the full text of each paper. We identified 12 papers from the journals and 5 papers from the conferences as relevant (see table 1). Adequate papers need to address and discuss explicitly the aspects of NOs as well as the other search terms. Other papers that discuss behavioral aspects but are not pertinent to NOs are not considered further in our literature review process. Most of the relevant papers are selected from the Hawaii International Conference on System Sciences, the European Journal of Information Systems and the Journal of Information Technology.

4. Essentials of the literature review

In the following section, the essentials of the established papers will be presented. The result of the literature review can be found in table 2. Firstly, the type of NO is categorized. In the next columns, the core concepts of the papers are reflected. In the fourth column, the researched stage of the network of each paper is named. The presented methodology of the paper is categorized. These could be newly developed models for visualizing the interrelation of behavioral and IT aspects, frameworks to give a clear guidance on how to handle specific situations within the NO or case studies. The next column summarizes the behavioral issues like collaboration, coordination, dependency or trust within the observed type of NO. To determine in which way IT has an impact on the behavior, the two perspectives are identified: IT governance and system use. The majority of the papers discuss IT governance related topics about structures, processes and relations in NOs. The use of IT systems in form of hard- and software and how they will support NOs is discussed in only 6 of the 16 papers.

4.1. Type and Stage of Network Organizations

The literature review supports the argument that there is no commonly agreed term with regard to NOs. This plurality makes it difficult to compare the different approaches. In contrast, there are quite a few synonyms used. The network organizations range from short-term virtual organizations [9] to long term IT outsourcing relationship [25, 36] and strategic alliances [30]. Other articles however focus on specific forms of NOs. Chongthammakun and Jackson [9] refer to virtual organizations. Fernández and Underwood [14] address metateams. Jarvenpaa et al. [22] focus on global virtual teams. In contrast, Malhotra et al. [29], Subramani [48] and Zhang et al. [54] concentrate on supply chain relationships. Finally, Kern and Willcocks [25] and Miranda and Kavan [31] address the form of IT or IS outsourcing.

Most of the papers focus on the initializing and processing stages of the network organizations [e.g. 21, 22, 54]. Only two articles [19, 36] consider the last stage of a network organization. It can be assumed, that the reconfiguration stage is difficult to research and new research methods and approaches have to develop.

This variety of terms indicates the diversity and the complexity of NOs. This topic is studied from different perspectives. In the paper, sociological [9, 25] and psychological [9, 22] concepts are used to explain interorganizational relationships as an expanded form of communication between individuals or groups. In contrast, computer sciences focus on the realization of interorganizational relationships based on information system and technology. Transaction costs from economics are used in three papers [14, 21, 48]. This indicates the great potential of interdisciplinary research in this area.

4.2. Core concept of the paper

One part of our literature review focuses on the motivation behind the papers. The table shows that the majority of the articles focus on the impact and influence of behavioral aspects on NOs [9, 14, 15, 18, 21, 25, 29, 30, 36, 43, 48, 49]. This impact is addressed directly in reference to governance [9, 21, 30, 54] and also in reference to relation supporting information systems [28, 43] as well as financial aspects such as transaction costs [14, 21]. Context and legal aspects are mentioned in some articles as well [e.g. 25, 48, 49]. These are also one aspect to be considered when establishing a functioning IR portfolio [42]. Next to IR portfolios as a result of professional handling with IOR, other benefits are topic in some papers. These benefits range from strategic benefits [8] to financial payoffs like reduced transaction costs [14, 21].
### Table 2. Result of the literature review

<table>
<thead>
<tr>
<th>Paper</th>
<th>Type of network organization</th>
<th>Core concept of the paper</th>
<th>Stage of the network</th>
<th>Theoretical foundation of the paper</th>
<th>Behavior</th>
<th>IT Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chongthammakun and Jackson, 2010 [9]</td>
<td>VO</td>
<td>Emergent behavior of virtual organization in governance</td>
<td>Initializing</td>
<td>Model</td>
<td>Collaboration, coordination, trust, information sharing</td>
<td>Governance</td>
</tr>
<tr>
<td>Fernández and Underwood, 2003 [14]</td>
<td>VO</td>
<td>Trust, conflict discovery and communication in emerging organizations</td>
<td>Initializing</td>
<td>Model / Case Study</td>
<td>Trust, conflict, communication</td>
<td>Governance</td>
</tr>
<tr>
<td>Gil-Garcia, Guler, Pardo and Burke, 2010 [15]</td>
<td>CBI</td>
<td>Determinants of trust in CBI</td>
<td>Initializing &amp; processing</td>
<td>Case Study</td>
<td>Trust, knowledge sharing, communication, collaboration</td>
<td>Governance</td>
</tr>
<tr>
<td>Hekkala and Urquhart, 2013 [19]</td>
<td>VO</td>
<td>Influence of power on IOIS projects</td>
<td>Initializing &amp; processing</td>
<td>Case Study</td>
<td>Power, trust, collaboration</td>
<td>Governance</td>
</tr>
<tr>
<td>Islamoglu and Liebenau, 2007 [21]</td>
<td>IOR</td>
<td>Dependence of transaction costs, behavior in IOR and governance</td>
<td>Initializing</td>
<td>Case Study</td>
<td>Power, trust</td>
<td>Governance</td>
</tr>
<tr>
<td>Jarvenpaa, Shaw and Staples, 2004 [22]</td>
<td>VO</td>
<td>Role and effects of trust in global virtual teams</td>
<td>Initializing &amp; processing</td>
<td>Longitudinal study</td>
<td>Trust</td>
<td>Governance</td>
</tr>
<tr>
<td>Kern and Willcocks, 2000 [23]</td>
<td>IT outsourcing relationship</td>
<td>Factors for successful outsourcing relationship</td>
<td>Processing</td>
<td>Case Study / Framework</td>
<td>Trust, commitment, cooperation, conflict, dependency, power</td>
<td>Governance</td>
</tr>
<tr>
<td>Lyytinen and Damsgaard, 2011 [28]</td>
<td>VO</td>
<td>IOIS adoption</td>
<td>Initializing</td>
<td>Model</td>
<td>Adoption through trust, power, resource dependency</td>
<td>System Use</td>
</tr>
<tr>
<td>Malhotra, Gosain and El Sawy, 2005 [29]</td>
<td>IOR</td>
<td>Knowledge Management in supply chains</td>
<td>Processing</td>
<td>Framework</td>
<td>Coordination, knowledge creation</td>
<td>System Use</td>
</tr>
<tr>
<td>Markus and Bui, 2011 [30]</td>
<td>Interorganizational alliances</td>
<td>Inter-organizational governance choices in INI</td>
<td>Initializing &amp; processing</td>
<td>Case Study</td>
<td>Coordination, trust, vulnerability</td>
<td>System Use</td>
</tr>
</tbody>
</table>
4.3. Theoretical foundation of the paper

In 10 of the 16 papers, models to outline emergent and evolving behavior in network are described. One example is the model of Zhang et al. [54] to explain determinants (like trust) of relational governance in NO. Other articles are based on qualitative case studies [14, 15, 19, 25, 30, 43, 48] and derive their results of the behavior in NOs from experience in various cases. To a lesser extent, frameworks such as the absorptive capacity framework [29] and a framework for client supplier relationship in the outsourcing industry [25] are presented.

As a result, mostly qualitative research methods are used to derive knowledge in this research field. Only one paper [22] uses a quantitative approach. Due to the complexity of network organization, this seems comprehensible. But it appears to be an open and discussable issue on how to include quantitative research in this research field, which can enhance objectivity, replicability and causality.

4.4. Behavior

Based on the search terms used for this literature review, we are interested in emergent and evolving behavior. In the heterogeneous papers different forms of behavior are addressed.

Obviously, the most addressed behavior is trust [8, 9, 14, 15, 21, 22, 25, 28, 30, 36, 42, 49, 54]. Trust is for example a determinant in the concept of relational governance and therefore, a precondition for a good relationship of NOs that makes the collaboration more effective. This leads to a decrease of the overall project costs because it is about fairness and sustainability of contract negotiations or commitments [9, 14, 15, 54]. Trust is also often mentioned with knowledge creation and knowledge sharing so that the NOs can work effectively together [15, 29, 36, 42].

Another broadly discussed behavior is the influence of power [19, 21, 25, 28]. Power must be used in the right balance to have a positive effect, for example, in IT projects [19] and to change the behavior. Otherwise, it has a negative effect when the power is used very dominantly or in a very controlling way.
Furthermore, uncertainty is named as a negative influence on the maintenance of NOs [e.g. 42, 54]. Especially the cooperation, coordination and communication become more difficult if uncertainty increases [9, 14, 15, 25, 30, 42, 54].

4.5. IT Focus

The focus of IT within NO was also examined. In general, the reviewed papers focus on two IT concepts. The first concept deals more with the effects of IT governance [51]. Therefore, the mentioned structures, controls and processes of large IT development projects in NOs [14, 19] are relevant in this context. As one example, Chongthammakun and Jackson [9] argue that IT governance refers to knowledge management among institutions. The second focus is about the use of IT systems among organizations. Malhotra et al. [29] and Kern and Willcocks [25] discuss for example concepts of knowledge management systems to share information.

5. Trust in organizational networks

Our literature review shows that trust is an exceedingly mentioned behavioral aspect with regard to NO. To cope with this fact, we analyzed the concept “trust in NOs” in the given literature to a greater extent. The results are presented in the following section. The literature review also revealed that there are other aspects influencing trust between the parties in an organizational network and thus directly influencing the success of interorganizational relationships. Selected interdependencies will be displayed in the following chapter regarding trust.

5.1. Trust and interaction

An interdependence highlighted in many of the reviewed articles is the intertwinement between trust and interactions. [e.g. 14, 15, 22, 30, 36, 54]. These interactions are defined inter alia as communication, collaboration and knowledge sharing. Communication is the foundation of any successful relationship, not only in-between businesses. Thus, communication is important regarding trustworthy relationships in reference to the exchange of information and expectations [14]. It enables joint solving of conflicts and problems [14]. Thus, the communication and conflict resolution between partners has to be frequent in order to be effective and trustworthy [22, 36]. This furthermore avoids “rework, escalation and even litigation” [14]. While communication facilitates trust, trust also facilitates open communication. Trust improves communication because “the behavior of team representatives during conflict resolution events affects the level of trust” [14]. Knowledge sharing will also be facilitated with “shared identity, beliefs, expectations, and understandings” [36]. The sharing of knowledge is crucial because it enables a shared mutual understanding between the partners. The partners become comprehensible, and trust evolves.

5.2. Trust and power

One factor affecting trust is power of the involved partners in a network organization. Power is referred to a resource dependency between the cooperation’s parties [36]. If one of the parties is in possession of a valuable resource which the other party is longing for, the level of power of the possessor increases. This asymmetrical relationship is present throughout the whole cooperation in terms of decision-making. The dependent partner will be “forced” to follow the opponent’s position and take actions despite increasing personal vulnerability [36]. An example for this can be the selection of the underlying communication channel between the cooperation partners. While this may be valuable from an economic view, we conclude that it’s adverse from a psychological view. We believe that trust will be supported and supportive if the parties have similar or equal rights. From our perspective, an unbalanced relationship is viewed as unlikely to be trustworthy. This position is also expressed in [14]. Farrell argues that an asymmetrical relationship leads to mistrust on the side of the powerless partner because the powerful partner can be so dominant that he cannot make credible commitments. As a result, mistrust arises. In contrast to that, power can have a positive impact on trust because “powerful actors are perceived as more trustworthy” by others [38]. Furthermore, trust can also be absent in symmetrical partnerships, especially in those with a low level of power on both sides. This will lead to skepticism and mistrust.

5.3. Trust and legal aspects

Not only intertwinements between trust and other behavioral aspects such as power and interactions have been mentioned in the reviewed literature, but there are also interdependencies between trust and legal aspects. In this context, legal aspects involve contracts and governance structures. Legal aspects have a high influence on organizational behavior, in general and on trust, in particular. As a result of the literature review we conclude that “legal formalizations of an interorganizational alliance promote the stability of the alliance” [30]. Grundei [17] argues that “a formal
control system may take some of the load off the actors to verify behavior”. This stability results in trust among the parties, in order to have long-term and stable collaboration. The commitment of the parties will be documented [36]. Another factor influencing trust is the choice of governance in NO. In the reviewed literature, different kind of “relational governance” [54], including “participant-governed, “lead organization” governance and governance by a “network administrative organization” [30] are mentioned. The choice of one governance structure will influence trust between the parties based on the distribution of power and clarification of roles. If roles are clarified but a role is not fulfilled to complete content, distrust would evolve in such a party. The same situation arises, if roles are not clarified at all. Therefore, choosing the right governance structure and clarifying the roles and responsibilities are essential for trust-building.

5.4. Trust and IT

Finally, the impact of trust on the extensive usage of IT systems to facilitate and support operation in a network organization is highlighted in some papers. This support ranges from simple communication in order to coordinate the partner’s activities to establishing a virtual organization, where the partners are dependent on the usage of IT. Although not mentioned directly, electronic data interchange (EDI) usage may increase trust in the collaboration with the partner [8, 30]. Thus, EDI “supports quick response to consumer demand and enables initiators to compete” [8]. As a result, trust in the reliability on the partners’ abilities will be increased. However, a reference to effects on trust in regard to usage of IT systems in NOs from a psychological view is not researched in the reviewed literature. This can be a topic for future research following an increase in the number of virtual alliances which are purely ground on IT system usage.

6. Research agenda

Based on our literature review, we can observe a lively scholarly debate about emergent and evolving behavior in NOs and the effects of trust in these kinds of networks. While a few aspects like the role of trust in NOs and the intertwinement with other aspects such as interactions and legal aspects have been widely researched, other relationships have been neglected. In relation to trust, the interdependence between trust and power - or rather trust and IT usage - features in but a few papers. Power has been a core concept in organization theory and is present as a broad concept in the social sciences, yet it is still missing as a factor in many contemporary academic debates. This could be part of future research.

More investigation should also be done in the field of the influence of culture on NOs. Although mentioned in many papers, the focus of our reviewed papers still lies on trust in interorganizational relationships between parties of the same social culture. However, due to emerging globalization, global alliances are an important aspect nowadays. This is also a possible area for future research.

Most of the papers focus on the initializing and processing stage of NOs. It remains an open question, whether emergent and evolving behavior used in the first two stages is applicable to the reconfiguration stage.

New technologies like social media and cloud computing can support emergence in network organizations. Information can be shared more rapidly allowing an easier establishment of trust in the network. A stronger consideration of new technological innovations and their impact on emergent and evolving behavior in NOs should be given.

As stated above, research methods examining network organizations are oftentimes qualitative. The valuable results need to be complemented with quantitative methods. First approaches can be found [e.g. 22, 38] but a stronger inclusion of quantitative methods in the research process and mixed-methods approaches is an important future research question.

Visualization concepts illustrating trust and other emergent behavior in networks are lacking. The exemplification of frequently hidden behavior fosters a common culture and understanding. New members of a network can understand the network architecture more easily. Innovative new concepts such as sociotechnical mapping are necessary to close this research gap.

Finally, the papers are only focusing on NOs. These networks are embedded in Business Ecosystems and other forms of complex sociotechnical systems. It could be interesting to examine emerging and evolving behavior in BEs and complex sociotechnical systems in future research. Thus, one could investigate if there is a different behavior needed in NOs or in complex sociotechnical systems.

7. Conclusion

As a conclusion, we argue based on the literature review that trust and IT are the central aspects to be considered in reference to NOs. Because of growing globalization, specialization and virtualization, the use of IT has become crucial for the success of the participants in NOs. This refers to IT as IT governance
function and as IT systems usage as well. However, it is only one essential aspect to be considered. This also refers to trust. We identified that trust on its own is not sufficient to achieve a successful collaboration with partners in a network. Other behavioral perspectives like interactions (e.g., knowledge sharing) and power also needs to be considered. Because of such a high degree of intertwinement, it becomes crucial to view the network as a whole and not merely to focus on specific aspects.

Although this literature review is limited to the top journals and conferences in the IS research fields, it provides a summarization and identification of open research gaps. The research questions given in the first section are answered.

Nevertheless, we see that a wide range of authors and publications, especially from areas like organization sciences, psychology, and sociology, have already researched in this field and have not been included in this literature review. Therefore, it remains to be seen whether including more journals and conferences will further enhance the set of emergent and evolving behavior in network organizations. Synonyms for network organizations have not been used for the literature search. Their inclusion might lead to more fruitful and expansive results. Furthermore, the evaluation of the searched literature is based on subjective interpretations. Therefore, each article was analyzed by at least two persons to mitigate this risk.

As a main result, this systematic literature review provides an overview and summarization of emergent and evolving behavior in network organizations with an emphasis on trust. It provides an appropriate entry point for researchers new to the field and also a starting point for future research.

10. References