

Classification of dynamic organizational forms and coordination roles

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Abstract. The paper introduces a heuristic for the identification of coordination needs in interorganizational arrangements. Based on a classification of interorganizational arrangements coordination needs in dynamic organizational forms are identified. The classification criteria are used to specify corresponding coordination tasks. Elaborating on the concept of coordination roles, tasks are assigned to particular types of interorganizational arrangements.

1. Introduction

New ways of communication and information processing, trends towards globalization and changing market structures have a deep impact on the creation of economic value. The significantly lower costs of obtaining, processing, and transmitting information and the emerging (electronic) information links between firms spur radical changes in the ways companies operate. This has led to the so called “Networked Economy” and the emergence of fluid and flexible relations between value creating partners. The new information and communication infrastructures redefine the roles and relationships between organizations, allowing new ways of value creation and interorganizational arrangements and process designs.

2. Emergence of new interorganizational arrangements

2.1 Reasons for the emergence

Several, partially overlapping objectives drive the formation of interorganizational networks: (1) risk reduction, (2) economies of scale and/or scope, (3) technology exchanges, (4) co-opting or blocking competition, (5) overcoming government mandated trade or investment barriers, (6) facilitating international expansion and opening new (global) markets, (7) linking complementary contributions of the partners in a value system (vertical quasi-integration) and (8) achieving of synergies [1] [2].

The wide range of opportunities and potentials leads to a variety of interorganizational arrangements. Several concepts (like business networks, alliances, value webs, virtual organizations etc.) have been developed in order to describe new business trends and to illustrate the respective interorganizational arrangements. The terminology, however, is rather confusing. Countless concepts address certain aspects, but provide neither a comprehensive picture nor generic classifications. The paper addresses this void by presenting a classification based on characteristics of interorganizational arrangements. We are, however, not trying to define each specific type discussed in the literature.

2.2 Need for coordination

The opportunities and potentials of interorganizational collaboration are manifold and attractive. Yet, they cannot be achieved without additional cost and effort, instead, they are

accompanied by an increased need for coordination of the value creation activities. There is a trade-off between the advantages of cooperation and the requisite coordination needs to achieve those advantages. Numerous coordination aspects underline this claim: Coordination implies (1) a set of two or more actors (e.g. a network) (2) who perform tasks (e.g. collaborative value creation) (3) in order to achieve goals (see list of objectives above) [3] [4]. Coordination means managing the dependencies between activities [5] and is therefore a core aspect of interorganizational value creation. The variety of interorganizational business models leads to a broad variety of coordination tasks.

2.3 Structure of the paper

The findings of the paper represent preliminary research on the “Management of Dynamic Organizations”, a research proposal submitted to the IST program. The paper focuses on the emergence and dynamics of interorganizational arrangements. It introduces a heuristic for the identification of coordination and management needs based on the type and characteristics of interfirm arrangements. We present a taxonomy of classification criteria, which can be used to identify and describe specific types and real cases. We will outline typical coordination needs and tasks for interorganizational arrangements. Furthermore tasks may be combined with and bundled to roles, which to be fulfilled by certain network members. The paper presents early findings of ongoing research activities. Nevertheless, the presented ideas may yield critical feedback from practitioners and facilitate discussions within the scientific community.

3. Classification of interfirm arrangements

Interorganizational arrangements differ in many ways, e.g. in the functional focus of the collaboration, the mechanisms for establishing a relationship as well as in their duration. Therefore various types are discussed in the literature and several classification characteristics can be distinguished. The table below gives an overview of selected criteria and characteristics, followed by a more detailed explanation of the most relevant ones.

Classification criteria	Extensions	
Duration of collaboration	Strategic (long-term collaboration)	Onetime (short-term, one project)
Value chain focus	Vertical (cooperation along the value chain)	Horizontal (cooperation on one stage of the value chain)
Rules for network entry	Open (entries welcome)	Closed (stable barriers)
Functional focus	Resource (internal) view (procurement, R&D, personell)	Market (external) view (Distribution, customer-oriented)
Differentiation of partner roles	Focal (dominated by one partner)	Polycentric (partners have similar influence)
Stability of network group involved in value creation	Dynamic (partners involved depend on specific project)	Stable (always the same partners involved)
Industrial sector focus	Production	Services
Regional sector focus	Global	Local
Settlement nature	Contract based	Trust based

Table 1: Classification criteria [6].

3.1 Classification criteria in detail

The *duration of collaboration* means on the one hand *short-term* collaboration in one single project, where the partnership is dissolved after the end of the project. (e.g. construction projects or standardization bodies). While it is true that the same partner constellations can come together for a new venture, they are not set up for a long-term purpose. On the other

hand *long-term* collaborations with strategic character and close linkages between partners exist (e.g. strategic alliances).

Interorganizational arrangements can have different *foci concerning the value chain*. *Vertical* arrangements consist of partners along the value chain or in other words of partners with different core competencies, where each partner brings in his specific strengths to complement each other (e.g. Supply Chain Collaboration). In contrast *horizontal* arrangements mean cooperation in one functional domain (e.g. distribution). They mainly consist of partners on one value chain stage. This requires the cooperation of competitors, often referred to as “coopetition”.

The *rules for network entry* reach from open to closed arrangements. Open networks can be joined by every interested party corresponding to the aims of the network. Completely closed arrangements have clear borders and intend to occupy specific market positions (e.g. strategic alliances). New entrants are only put up in critical incidents, e.g. when a partner leaves the network. Hybrid forms exist which are actually open but have in fact certain entry barriers because of technical standards or specific process set-ups.

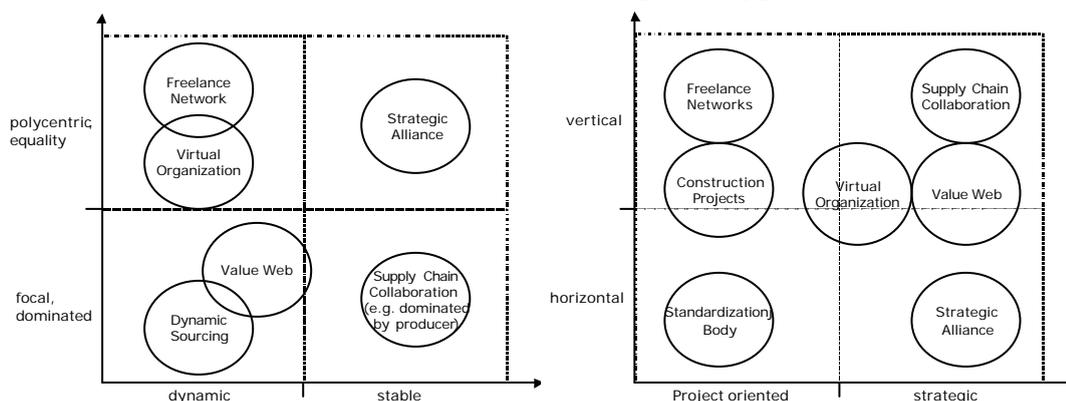
Functional focus can be either (internal) resource development or market transactions. Arrangements with an internal focus typically address research and development (R&D), procurement or collaborative personell recruitment. The *market or transaction* oriented arrangements focus on market-oriented value creation, which can be the creation of ready-to-sell goods or the management and execution of customer individual projects.

In polycentric arrangements, the *differentiation of partner roles* is low, while it is high in focal networks, which are typically dominated by a single actor, who takes out most of the coordination work. *Focal* networks are for example supplier networks dominated by the producer. In *polycentric* networks coordination work has to be allocated to single members.

The *stability of the value creating group* can be high or low, i.e. the partners involved can differ from project to project or stay the same. An example for a *stable* arrangement is a specific value chain cooperation where all partners contribute to the value creation. An arrangement with a *dynamic* establishment of the value creation group is characterized by coopetition in the network. Several partners exist for each single task, so that a selection has to be made at the beginning of an activity.

3.2 Visualization

The classification criteria give insight into the variety of interorganizational arrangements. Each case and each type of arrangement can be characterized by the combination of its characteristics. Furthermore two-dimensional grids can be build to exemplary position single types of interorganizational arrangement in the resulting “hyperspaces”. This allows a visualization of the classification (figure 1). Some instances shall be described a little closer in the following chapter before assigning the coordination tasks and roles to the classification characteristics and therefore to the specific types.



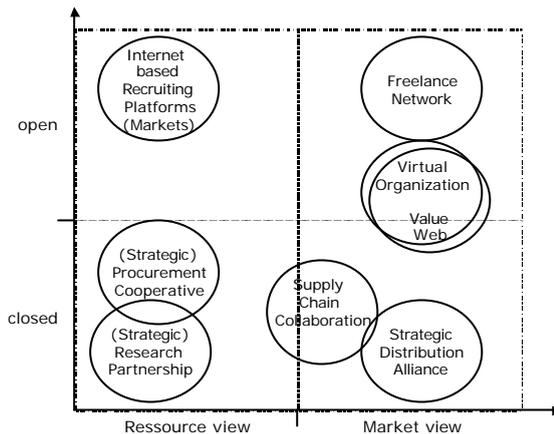


Figure 1: Combination of classification dimensions for positioning types of interorganizational arrangements

4. Exemplary types of interorganizational arrangements

4.1 Virtual Organization

One of the most popular interfirm arrangements is the virtual organization, which is a network of generally small and medium sized companies collaborating to realize projects which would not be possible without cooperation. The members want to achieve “virtual size” by maintaining their small firm flexibility at the same time. The individual partners build a stable and mainly trust based structure, which can be called the “pool“. The pool is able to cover a wide range of competencies, while each member concentrates on particular core competencies. The virtual organization provides customer individual services. In case of a customer order a specific network is ad-hoc formed up to process the order. This “order network” is limited in time and decomposed after finishing the order.

Relating to the classification criteria the virtual organization can be characterized as a mainly *vertical* cooperation where each partner concentrates on core competencies. But it can also have *horizontal* characteristics, since there can be several partners with the same competencies to guarantee sufficient capacities. This leads to coepetition in the pool. The formation of the pool has strategic and *long-term* character. Nevertheless the order networks have short-term project character, their formation is *dynamic*, i.e. the value creating partners change from order to order. Furthermore, the virtual organization is *polycentric* (partners have mainly equal rights), *open* to a great extent and *market-oriented*.

4.2 Strategic Alliance

In contrast the strategic alliance is a cooperation of mainly big companies, often competitors, which cooperate to profit from synergies, to get greater or often global market access and to therefore improve their own market position. Strategic alliances can deeply change market structures which leads to a competition of alliances. Examples come from the telecommunications (e.g. Global One, Concert and World Partners) and the travel sector with its global airline alliances (e.g. Star Alliance, Oneworld Alliance, Qualiflyer Group).

An alliance of course is *strategic* and has a *horizontal* orientation by concentrating on one functional area (competitor collaboration). It is *stable* and usually *polycentric*, but there can also be some asymmetrical differences which result from company sizes or market shares. A strategic alliance is usually *closed* because the partner specific constellation is one of the competitive advantages. Besides alliances can have both, *resource or market orientation*.

4.3 Supply Chain Collaboration

The supply chain collaboration is also long-term oriented network of partners along a value chain to serve a specific market. It focuses on value chain wide process calibration and integration (supply chain management) with interfirm information processing to improve time to market, to reduce costs and to better address customer needs. It is clear that a supply chain collaboration is a *vertical* cooperation with a certain *market view*. It is also *strategic*, because the information sharing relationships require high investments and the benefits can only be realized over time. Besides the partner constellation is *stable* regarding the specific single value chain. A supply chain collaboration is usually *closed* (entries are not easily possible) and often *dominated* by one partner, who often is the initiator (e.g. the automotive sector with just-in-time delivery in supplier networks, e.g. Volkswagen).

4.4 Freelance Network

A freelance network is an open market platform for freelancers to bring in their particular competencies. An example is guru.com, where experts can join existing projects or set up new projects and look for interested parties to join. The experts bring in their competencies to the projects (*vertical* character). But freelance networks do not have a stable basis like the virtual organization's pool. It is more like an *open* market, where projects have *short-term* and *onetime* character. The partner constellations are *dynamic* with equal rights of each expert (*polycentric*). The focus is on performing services for customers (*market view*).

4.5 Value Web

The last example of the selected interorganizational arrangement is the *value web*, an arrangement comparable to the virtual organization but with one decisive difference: The value web broker is the central actor initiating and dominating the value web. "It is the value web broker that organizes this particular community and therefore enjoys more rights than the other parties concerned." [7] Beyond it, the links between the value web broker and the other participants are stronger than in a virtual organization and the value creation has not necessary project character.

5. Tasks and roles for the coordination

As pointed out in the beginning, coordination is one of the major challenges for interorganizational arrangements. Coordination starts with the set-up and has to be continuously taken out throughout the value creation activities in the network. In short-term engagements the liquidation of the network has to be coordinated as well (see figure 2).

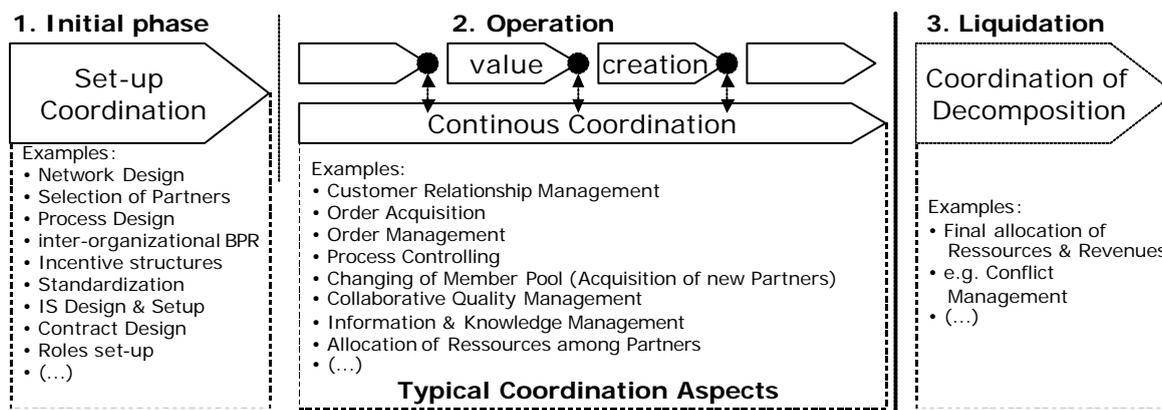


Figure 2: Typical coordination phases

The coordination tasks to be pointed out in the following mainly concern the second phase. Nevertheless these tasks have to be assigned in the network in the set-up phase. Hence they have to be taken over by network members, which is addressed by the concept of roles. Instead of describing each connection between characteristics and derived coordination tasks in detail, table 2 gives an overview. Beyond these tasks, other more general tasks - which are not addressed here - have to be fulfilled in almost any network (e.g. IS maintenance).

Characteristic	Specific coordination tasks
Strategic, long-term nature	<ul style="list-style-type: none"> • Settlement of interorganizational links. • Knowledge Management (Learning relationships), continuous improvements.
Onetime project nature	<ul style="list-style-type: none"> • Project planning, project management and dissolution
Vertical	<ul style="list-style-type: none"> • Order transaction, process management, e.g. close processes coupling.
Horizontal	<ul style="list-style-type: none"> • Management of coepetition aspect: identification of synergies, capacity management, conflict management.
Open	<ul style="list-style-type: none"> • Entry management: attraction & acquisition of new members, integration of new partners.
Closed	<ul style="list-style-type: none"> • Management of lock-in effects.
Market view	<ul style="list-style-type: none"> • Marketing, Promotion for the network (Communication, branding) • Order acquisition, Customer Relationship Management.
Resource view	<ul style="list-style-type: none"> • Resource allocation management (in case of R&D, procurement) • Property rights management (R&D)
Dynamic	<ul style="list-style-type: none"> • Configuration of specific value chain / partner constellation. • Cherry picking: selection of best partners.
Stable	<ul style="list-style-type: none"> • Establishment of close linkages between partners (information processing, process linkages, communication paths and rules)

Table 2: Overview of specific coordination tasks derived from characteristics

6. Coordinative Roles

The concept of roles can be illustrated on the example of the virtual organization. Inferred from the characteristics (table 2) several tasks have to be assigned. Göransson/Schuh identify five interfirm roles fulfilling the necessary tasks in a virtual organization (figure 3) [8]:

- The *network coach* is responsible for the entry management, the infrastructure development and settlement of the relationships between the partners of the pool (characteristics: *open, long-term*).
- The *broker* takes care of the customer relationship management, the order acquisition and other market specific tasks (*market view*).
- The *performance manager* configures the order specific value chain, the order network (*dynamic*).
- The *order manager* is responsible for the order transaction, the process management and if necessary the project planning and management (*vertical, project nature*).
- The *auditor* takes care of coepetition aspects, especially the conflict management (*horizontal*).

Another approach distinguishes only two roles, one concerning the pool and the other related to the order network [9]. Consequently the first role, the *network coordinator*, takes over the network development, infrastructure management, the broker role and the conflict management. In contrast to this the second role, named *order coordinator*, is responsible for the configuration of the order network and the order processing, as well as the project management. The concept of the Net Broker by Franke/Hickmann identifies only one central role to fulfill all necessary coordination tasks. The Net Broker is responsible for the initiation of the virtual organization, the maintenance of the pool (they call it virtual web)

and the formation of order networks (which they call virtual corporation) [3]. Thus the concept is similar to the value web broker concept [7].

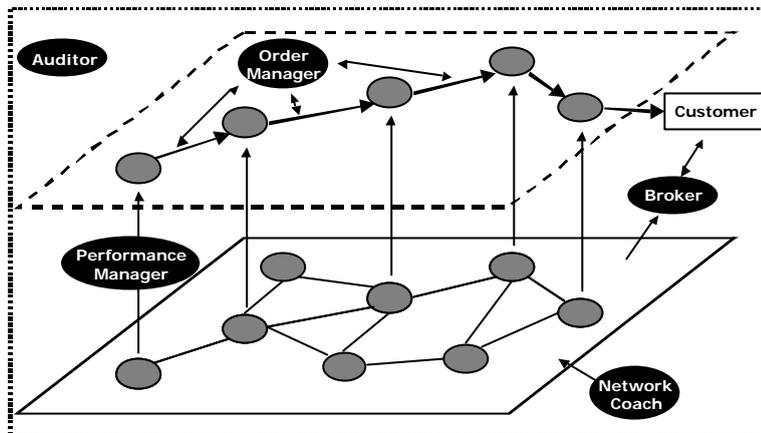


Figure 3: Interfirm roles in the virtual organization according to Göransson/Schuh [8].

Beyond that virtual organization example other roles can be derived from characteristics and related tasks. Examples are: The *contract designer* is needed in contract based network arrangements. The *boundary spanner* is needed in long-term arrangements, he is responsible for the establishment of close relationships and the formation of trust. He supports the interorganizational change management.

7. Conclusions

The presented approach, which classifies interorganizational businesses using criteria and characteristics can be taken to describe particular real-life cases. Assigning coordinative tasks and roles and furthermore general management methods to single characteristics can help to make specific conclusions regarding to management needs in single cases of dynamic organizations. Additional classifications and the identification and assignment of further coordinative tasks, roles and management methods have to be made with the opportunity of setting up a database driven tool which can provide reference cases for the management in dynamic organizations.

References

- [1] F.J. Contractor, P. Lorange (eds.): Cooperative Strategies in International Business, Lexington MA: Lexington Books, 1988.
- [2] P.S. Ring, A.H. Van de Ven: Structuring Cooperative Relationships between Organizations. *Strategic Management Journal* 13 (1992) 483-498.
- [3] U. Franke, B. Hickmann: Is the Net-Broker an Entrepreneur? What role does the Net-Broker play in Virtual Webs and Virtual Corporations. <http://www.virtual-organization.net>.
- [4] T. W. Malone: What is Co-ordination Theory, Working Paper, Sloan School of Management, Cambridge.
- [5] T. W. Malone, K. Crowston: The Interdisciplinary Study of Coordination. *ACM Computing Surveys* 1 (1994) 87-119.
- [6] J. Sydow: Management von Netzwerkorganisationen – Zum Stand der Forschung. In: J. Sydow (Ed.): Management von Netzwerkorganisationen. ISBN 3-409-11488-2. Gabler, Wiesbaden, 1999, pp. 279-305.
- [7] D. Selz: Value Webs. Emerging forms of fluid and flexible organizations. Dissertation St.Gallen, Nr. 2310. Difo-Druck, Bamberg, 1999.
- [8] A. Göransson, G. Schuh: Das Netzwerkmanagement in der virtuellen Fabrik. In: G. Müller-Stewens (Ed.): Virtualisierung von Organisationen. ISBN 3-8202-1157-8. Schäffer-Poeschel, Stuttgart, 1997, pp. 61-82.
- [9] T. Hess, M. Schumann: Koordinator im Netzwerk. *IoManagement* 5 (2000), pp. 80-83.
- [10] Klein, S.: Interorganisationsysteme und Unternehmensnetzwerke - Wechselwirkungen zwischen organisatorischer und informationstechnischer Entwicklung, DUV Verlag, Wiesbaden, 1996.