

exchanges as firms, it is clear that they will compete. On the contrary, their integration would result in a big monopoly. Similarly, electronic markets would emerge in several places simultaneously and initially be unwilling to merge. Only as competitive pressure increases they would integrate horizontally, probably forming a national market. Thus, I agree with Schmid that electronic markets are (or better, can be) open systems *technologically*. However, there are serious *non-technical* reasons, why traditionally increasing computerised exchanges are unwilling to integrate horizontally, forming a 'global, open stock exchange' [7, p 470].

Conclusion

Thus, we are confronted with a paradoxical finding: If one wishes electronic markets to come into existence because of their superior allocation efficiency, one has to provide a proper incentive structure which will enable actors to organise electronic markets and enforce membership rules. This, however, will lead to

competition among several electronic markets causing the establishment of barriers to market entry between them (via, for example, membership rules). There will be an imperfectly competitive market for electronic markets. ■

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Coordination Strategy and the Configuration of Inter-organisational Relations

IOS affect dimensions such as the boundaries of firms, interorganisational division of labour as well as decisions about governance structures and industrial organisation. While there is a strong trend in the current literature to argue in terms of economic logic, such as "the contingencies of the economic rationale determine the selection of governance forms", we want to emphasise the role of strategic calculations with respect to the choice and combination of different forms of governance. Consequently, strategic management should be augmented by coordination strategy which covers the different aspects of the design and maintenance of inter-organisational arrangements.

Coordination strategy comprehends governance decisions as well as decisions about the design of IOS. It is recognised, however, that the concept of the

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firm is changing as firm boundaries become increasingly blurred. While the firm is regarded as the unit of decision-making and strategic consideration, the boundaries of the firm themselves may become a subject of coordination strategy. On the other hand, new forms of collective strategies, e.g. in cooperative networks are emerging, which suggests that interorganisational arrangements in themselves may become units of strategy building.

Like any other strategy, coordination strategy has to take restrictions and contingencies into account. At the same time, strategy is not only re-active and adaptive but also actively shaping its own environment, i.e. the (potential) impact of strategy has to be considered. In order to depict

coordination strategy rationale, we will discuss the duality of contingencies and impact of coordination strategy. Given the plurality of interorganisational arrangements and the multiplicity of interorganisational relations, we propose a research framework that comprehends elements that at the same time affect and are affected by coordination strategy (see Figure 1, the arrows indicate contingencies and impact of coordination strategy):

1. market and industry structure,
2. governance structures,
3. transaction and relationship attributes,
4. resource base.

Each of these elements encompasses options for strategic design, such as the position of a firm in a network, the selection of governance forms in relation to different business partners, the shaping of different layers of interorganisational relationships and the choice of forms of resource usage and development. 'Configuration' refers to the arrangement of

complex combinations of design options in relation to the four elements of the framework. The research proposition is that interorganisational relations have to be interpreted as complex, multi-layer configurations of organisational parameters.

Contingencies, Impact and Options for a Coordination Strategy

Coordination strategy is at the same time responding to contingencies of the framework elements and affecting these very elements by the design of interorganisational arrangements and IOS in particular. The description of the framework elements and the analysis of their interdependencies covers three steps. The initial step summarises contingencies of market and governance structure, of transaction attributes and the resource base on the coordination strategy. The second step focuses the reverse impact of coordination decisions on these four elements. Finally, different options for the configuration of interorganisational relations are distinguished.

The hypothesis is that firms form multiple, multi-layer relationships with different partners and groups of companies in order to sustain their competitive position. While, in relatively stable industries, new interorganisational arrangements are emerging slowly, Ciborra [2] has developed the concept of a platform organisation, based on a thorough analysis of Olivetti. „The most characteristic quality of the platform organization is its flexibility, movement and transformation ob-

tained from the intersecting, penetrating and collating of different organizational arrangements, such as network, the matrix and even hierarchy." [2, p 98]

The design and flexible adaptation of these configurations - rather than the selection of one efficient governance form - is a major goal of coordination strategy. The design parameters are encompassed by the elements of the framework: (1) the position of the enterprise in interorganizational relations, be it a network, groups of networks or markets, (2) combinations

structure like the establishment of an electronic market where previously hierarchical structures have dominated. If IOS are deployed within given governance structures, they affect attributes like the transparency and volatility of markets or the standardisation of products.

Configuration options: The configuration options on this level refer to different aspects of a firm's position, within the market, possibly within networks and the position of the network in relation to other networks [4]. The position of a firm can be

governance decisions of companies in a sector will have an impact on the governance regime. As Holland and Lockett [6] have shown, IOS have the potential to make chosen governance forms more efficient.

Configuration: The configuration options cover combinations of interorganizational arrangements with different partners. Kambil and Short [7] used the roles and linkages model to describe the spectrum of options within a given business case.

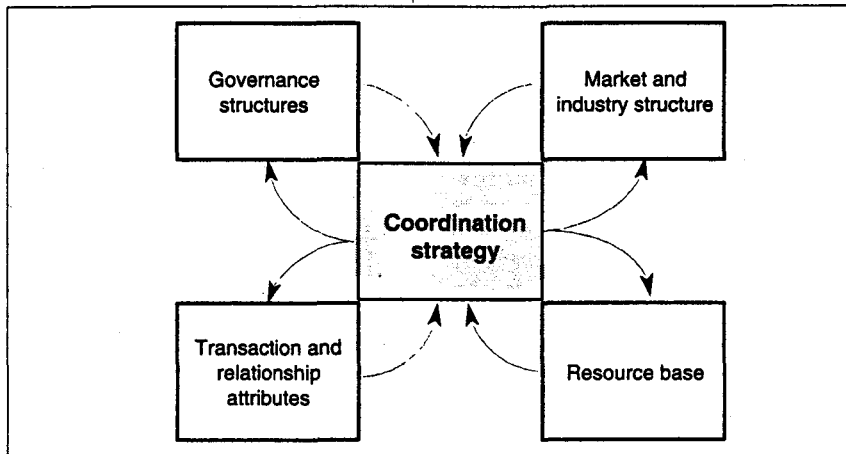


Figure 1: Research framework

of governance forms with different partners similar to the mixed-mode hypothesis, (3) combinations of governance forms within a given network of relations referring to the different layers in interorganizational relations, namely the institutional, the operational and the technical layer, and (4) combinations of proprietary, shared and pooled resources.

Market and Industry Structure

Market and industry structure define the fundamental setting of a business: products and services as well as the structure and intensity of competition.

Contingencies: Market complexity, dynamics, uncertainty, degree of concentration and dominance are the most frequently quoted structural features of markets and industries that affect governance decisions. Within specific product markets, price and product volatility and the complexity of product descriptions are the most important determinants.

Impact of the coordination strategy: Governance forms, like mergers and acquisitions or other forms of vertical integration, are chosen in order to improve the relative market position of the firm. By the same token, the design and initiation of interorganizational arrangements, like cooperative networks, affect the market position of the participants. The introduction of IOS can fundamentally change the market structure, especially if it is combined with a change of the governance

described in terms of the definition of its business and its role in complex value chains.

Governance Structure

The governance structure refers to different types of institutional arrangements between firms. Major interorganizational coordination forms are market, hierarchy or network.

Contingencies: Governance regimes, i.e. existing patterns of interorganizational arrangements, such as a high degree of concentration in the grocery retail industry, influence governance decisions. Within various sectors a trend has been observed to adopt dominant governance forms - so-called isomorphism [3]. When firms are part of existing and successful networks within an industry, individual firms' decisions are determined by these networks. It is increasingly difficult to compete against groups of companies and with every competitor joining one of the existing networks, the scope of action becomes more and more restricted [4]. Tietz [11] coined the phrase 'contract-oriented market economy' to describe this constellation. Interorganizational arrangements have their own dynamics that cannot be controlled by any single participating organisation but affects the participants' strategies.

Impact of the coordination strategy: The main task of coordination strategy is the selection of governance forms for various business relations. The sum of

Transaction and Relationship Attributes

While governance structure refers to institutional arrangements, the concrete design and patterns of relationships within these arrangements can vary considerably. We have, for example, distinguished different coordination and matching mechanisms - such as offer/accept, extended matching, and auction - within a market relationship [1].

Contingencies: Transaction cost theory hypothesises that the choice of governance forms is contingent on the transaction attributes, frequency, asset specificity and uncertainty of transactions [10]. Further relational and related attributes have been proposed in the literature, such as the continuums dependency - autonomy and opportunism - trust or centrality and integration of transactions, information complexity, defection risk, switching cost. Oliver [8] proposed a framework of determinants for the formation of interorganizational relationships: necessity, asymmetry, i.e. the desire for autonomy and control, reciprocity, efficiency, stability and legitimacy.

Impact of the coordination strategy: Interorganizational arrangements are designed and implemented in order to affect transaction attributes, e.g. interorganizational networks reduce risks of opportunism and, at the same time, maintain some of the incentives of competition. The design of IOS, in particular the degree of standardisation, affects relationship attributes. Open systems reduce the asset-specificity and related cost and risks, such as switching costs and the risk of one-sided dependencies for the participants; they increase, however, the defection risk for the initiator of a system.

Configuration: Several different layers can be distinguished within the set-up of interorganizational arrangements. (1) The institutional layer relates to boundaries of a network, to rules for participation and coordination forms. It refers to the specification of the governance form within a business relationship. (2) The operational layer deals with organisational integration and alignment of procedures. It encompasses; for example, the selection and combination of coordination mecha-

| | Contingencies | Impact of Coordination Strategy | Configuration |
|--------------------------------------|--|--|--|
| Market and Industry Structure | Complexity, dynamics, uncertainty, degree of concentration, price and product volatility, complexity of product description | Design of interorganisational arrangements in order to affect relative market position, IOS affects market attributes: transparency, volatility, standardisation of products | Different aspects of network position, defining the business and the governance structure (roles and linkages) |
| Governance Structure | Isomorphism of governance forms, existing patterns of interorganisational arrangements (governance regimes) | Choice of governance forms; IOS make chosen governance forms more efficient | Combinations of inter-organisational arrangements with different partners |
| Transaction Attributes | Dependency-autonomy, centrality of transactions, asset specificity, defection risk, switching costs, opportunism-trust, information complexity | interorganisational arrangements affect transaction attributes, e.g. network reduces opportunism risk, IOS reduces switching costs | Set-up of the different layers within the relationship: institutional, operational, technical, intra-organisational integration of IOS application |
| Resource Base | Relative resource position (e.g. resources that are facilitated and enhanced by sharing) affects coordination strategy | interorganisational arrangement affects the resource base, e.g. cooperation enhances learning | Different resource-based strategies (protect, pool, share, exchange resources) and related governance forms |

Table 1: The three steps of analysis based on the coordination framework

nisms. (3) The technical layer refers to design parameters of the IOS, such as the intraorganisational integration of IOS application or IOS-related governance decisions. In order to reduce risks, different arrangements can be maintained on the different layers, such as a market-like institutional arrangement combined with a hierarchical governance of the IOS.

Resource Base

The resource-based paradigm of business strategy has focused on the individual competencies of firms and their development and maintenance. However, a resource-based rationale is also an important element of coordination strategy, since competencies can be acquired and developed within interorganisational arrangements. Within the context of the ongoing discussion about the impact of IT on industrial organisation, we will argue that the resource-based theory augments and partially complements the transaction-cost-focused theorising.

Contingencies: The relative resource position of a firm or of a group of firms (e.g. resources that are facilitated and enhanced by sharing) affects coordination strategy. Weder [9] showed that a complementary resource position of firms favours the development of cooperative coordination forms, in particular joint ventures. In times of volatile technological developments, the joint development of resources reduces the financial risks for the participants.

Impact of the coordination strategy: While the resource-based strategy literature focuses - with few exceptions - on the intraorganisational development and isolation of firm-specific resources, interorganisational arrangements are often chosen in order to get access to complementary resources or to pool resources and develop them within a network. Hamel [5] showed the potential of inter-partner learning. IOS facilitate and accelerate the ex-

change of resources such as marketing or partner information and they provide a platform for resource sharing and pooling.

Configuration: Depending on the relative resource position and the quality of the resources, different strategies, such as protecting, pooling, sharing or exchanging of resources, can be chosen. Some of the resource strategies can be combined with different governance forms. The following table summarises the three steps of configuration analysis in relation to the elements of the framework.

Conclusions

This article proposed a framework for the analysis and design of coordination strategies which are focused on organisational and technical arrangements on an interorganisational level. The analytical and - to a limited degree - the normative potentials of the framework have been illustrated. The following propositions summarize the underlying assumptions and future areas of research:

1. Governance decisions reflect a complex, multi-dimensional set of contingencies that encompass market, industry, interorganisational and firm-related factors. At the same time, it has become evident that the coordination strategy is directed at affecting some of the contingencies and at changing the firms' competitive position.
2. Governance decisions and decisions about the design of IOS are closely interrelated and together constitute the coordination strategy. However, complementary arrangements can be chosen in order to combine the benefits of more open, market-like arrangements and more restricted, controlled hierarchical arrangements.
3. Rather than a singular decision or a simple choice among alternatives, coordination strategy faces a complex

set of interrelated configuration options. IOS not only make existing governance forms more efficient, they also - and even more importantly - facilitate changes and combinations of governance forms that make firms more flexible and more fluid. ■

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