THE TRANSFORMATION OF TRADITIONAL ORGANIZATIONS INTO VIRTUAL ORGANIZATIONS

Dirk Swagerman

*University of Twente, Enschede, The Netherlands
Faculty of Technology and Management
Department of Business Information Systems /
Financial Management and Business Economics
E-mail: d.swagerman@worldonline.nl
Telephone: +31 53 4893504
THE NETHERLANDS*

Arjen Wassenaar

*University of Twente, Enschede, The Netherlands
Faculty Technology and Management
Department Business Information Systems
E-mail: d.a.wassenaar@sms.utwente.nl
Telephone: +31 53 4893519
THE NETHERLANDS*

The trend of isolated outsourcing of non-core activities in the early nineties culminated in the transformation of traditional organizational structures into new, dynamic sourcing-based virtual organizations. A certain migration path can be identified in this transformation. The 'deconstruction' of traditional, single organizational structures into new, inter-organizational and virtual arrangements of interdependent organizational units is enabled by new technologies in IT. The (financial) shared service center is put forward as an example of a new virtual structure that virtual organizations use. This is illustrated by a case study in which the outsourcing of part of the accounting tasks at the University of Twente to a new organizational structure, the 'accounting house,' is described.

Keywords: virtual organizations, accounting house, outsourcing

1. INTRODUCTION

The trend of isolated outsourcing of non-core activities in the early nineties culminated in the transformation of traditional organizational structures into new, dynamic sourcing-based virtual organizations. This paper examines the concept of virtual organizations, dynamic sourcing and the organizational reengineering that

The original version of this chapter was revised: The copyright line was incorrect. This has been corrected. The Erratum to this chapter is available at DOI: [10.1007/978-0-387-35585-6_68](https://doi.org/10.1007/978-0-387-35585-6_68)

leads to the formation of new virtual organizational structures. It is put that the transformation follows a certain migration path, in which various (inter-) organizational structures arise for the resource exchange between virtual organizations. The organizational reengineering towards a new organizational structure is illustrated by a case study in which the outsourcing of part of the accounting tasks at the University of Twente to an 'accounting house' is described.

1.1 Background: from isolated outsourcing to dynamic sourcing-based virtual organizations

Outsourcing refers to the contracting out of part of the activities of a firm. Three different perspectives on outsourcing dominated the literature during the nineties. The first set of transaction economics models focuses on why managers might choose specific contractual modes of governance instead of governing through hierarchies implemented by vertical and horizontal integration. This normative, static-oriented model explains the most important determinant of outsourcing causing the shift from hierarchy to market, but does not take into account the process of outsourcing.

The second set of strategic and alliance-oriented models considers the role of organizational resources and capabilities in maintaining and leveraging core competencies (Prahalad and Hamel, 1990). Others introduced the term "strategic outsourcing". They note that while many companies look at outsourcing only as a way of reducing short-term costs, a strategic outsourcing or partnership approach can yield significant additional benefits such as lower long-term capital investments and leveraging of their own unique core competencies. They suggest that if firms concentrate on their own unique "core competencies" and strategically outsource those for which the firm has no strategic need for special capabilities, managers can leverage their firms' resources and skills to achieve increased competitiveness.

The third set of political and implementation-oriented models considers outsourcing as a phase-based, stakeholder-driven decision-making process (Lacity and Hirschheim, 1995). In particular, the role of stakeholders and their interests is a central topic of study, giving rise to questions such as: what are the objectives of stakeholders (vendors, top management, IT management) for evaluating outsourcing decisions? What problems do stakeholders attempt to solve with outsourcing? Do organizations initiate outsourcing for reasons other than cost efficiency?

By the mid-nineties the total outsourcing approach had evolved into a more selective and dynamic sourcing environment (Lacity et al., 1996). The standardized IT infrastructures such as EDI, Internet and World Wide Web enlarged the range and richness of information exchange between economical actors (Keen, 1990; Ewan and Wurster, 1997). New developments in IT also enabled the outsourcing of finance and accounting. For many finance and accounting outsourcing providers, accounting is their core competence and they are experts in managing, executing and recruiting for the field. By setting up a new 'virtual' organization, the 'shared service center' (Dhervilly and Swagerman 2000), outsourcing providers are able to use economies of scale to their and their clients' advantage.

1.2 Objective and outline of the paper

This paper examines the transformation of traditional organizations into virtual organizations. It is put that the transformation follows a certain migration path, in which various (inter-)organizational structures arise for the resource exchange between virtual organizations. A case study will be used to illustrate the creation of a new virtual structure.

In the first paragraph of this chapter we introduced the trends in outsourcing that will lead to the formation of virtual organizations. Chapter two offers a more theoretical look at the principles of virtual organization, the concept of dynamic sourcing and a migration path for the transformation into a virtual organization. The third chapter presents a case in which the outsourcing of part of the accounting tasks at the University of Twente to a new organizational structure, the 'accounting house,' is described. Finally, chapter four presents some conclusions and final remarks.

2. THEORETICAL FRAMEWORK

We define the concept 'virtual organization' and describe some of its important features as developed by Sieber (1998) and Wassenaar (1999). A framework, in which the nature of the exchanged resources is linked with the transaction governance, is used to determine whether virtual structures offer the best form of coordination. The shared service center is defined as an example of a virtual structure. Finally, a migration path for the transformation from a traditional organization into a virtual organization is deduced from the framework.

2.1 The virtual organization and its features

The virtual organization phenomenon emerged in literature in the early nineties. It is known under different labels such as intelligent enterprise (Quinn, 1990), dynamic network organization (Hoogeweegen, 1997), virtual corporation or enterprise (Campbell, 1997) and alliance (Douma, 1997).

Our virtual organization concept is based on the dynamic networking concept of Miles and Snow (1992) and thinking in reverse (reversed marketing) as described by Jarvenpaa and Ives (1993). Virtual organizations mostly occur in information-intensive environments with digital products and services, such as the IT industry, the banking and insurance industry, education and publishing industry, government and the entertainment industry. In this paper special attention is given to the outsourcing of accounting tasks to virtual organizations.

One of the central concepts of virtual organizations is the business network (Venkatraman 1991), in which resource exchange between the organizations takes place. In order to achieve efficient coordination it is important that there is some kind of common business understanding. One of the features of cooperating virtual organizations is the emergence of a network strategy. Virtual organizations cooperate repeatedly with one another, with different motives at different times. They are therefore all part of a business network. The shape and size of the business network is not entirely predetermined. It evolves with time. Working on joint

projects creates an organizational structure between two organizations, which becomes clearer and more formalized as the number of projects increases.

2.2 Dynamic sourcing in a business network

The main feature of the relationship within business networks is resource exchange, the nature and frequency of which changes over the course of time and this in turn leads to the evolution of the network. The number and type of organizations in the network also changes. There are three motives for the creation of a business network:

- 1) The first motive for a business network is to increase process efficiency between the partners involved. Each partner in the *value chain community* looks for opportunities to regulate the processes by means of formalization, standardization and automation (McFarlan, 1995).
- 2) Representatives of the partner organizations meet to consider pooling their activities in a *quasi-holding*. Efficiency could be created through economies of scale and pooling competencies to deliver a product or service. The quasi-holding may be given a separate legal form.
- 3) Organizations come together to consider possible *virtual projects* without yet having a particular order. A core of organizations constantly examines the necessary requirements and determines who in the business network should undertake any necessary investments for a prospective contract (Miles and Snow, 1992).

In this section a framework will be given that links the nature of the exchanged resources with the type of transaction governance (Sieber and Swagerman, 2000). The three motives, as mentioned in the previous section, lead to the creation either of a value chain community, or of a quasi-holding, or of virtual projects. However, in order for these virtual structures to be efficient they must apply to a specific kind of exchanged resources. Another important aspect is whether an efficient market exists.

The framework (see Figure 1) indicates the advantages that the virtual structures can offer. Where virtual structures do not lead to long-term efficiency, other forms of transaction governance are mentioned that are better suited for the resource exchange. In summary, there are three efficient forms of interorganizational resource exchange, which - in our view - do not lead to internalization, even in the long term:

- I. Discrete work packages are outsourced. The organization that is in contact with the customer puts these together as appropriate (Macneil, 1974, 1978).
- II. Shared pools are created, from which all organizations draw resources. Ideally these organizations have different workload peaks. Examples are reciprocal shareholdings and joint ventures. The case described in this paper shows (among other aspects) a structure that falls into this category.
- III. A problem is worked on jointly. This requires the use of tacit resources. Resources only acquire value through being exchanged.

	Value chain community	Quasi-holding	Virtual project
Tangible or intangible resources: efficient market available.	I Reduction of interfaces and automation	B Outsourcing or insourcing	C Procurement and sales via electronic markets, Temporary effects
Tangible or intangible, codified resources; market not available or inefficient.	A Licensing, internalization, close relationships	II Economies of scale and knowledge sourcing	
Intangible, tacit resources; no market exists.		D e.g. joint ventures	III Economies of scope and knowledge creation

Figure 1 - Resource exchange and transaction governance in virtual organizations

All other forms of resource exchange (a, b, c and d) are inefficient for virtual organizations. They lead either to a long-term relationship, in which the resource streams are always the same and thus to inter-organizational hierarchies, or to mergers or takeovers, or to an electronic market (Holland, 1997).

We introduce the concept Shared Service Center ('SSC') as an example of a structure that is used for the exchange of codified resources, for which no efficient market exists. Control does not take place through the hierarchy, but through 'Service Level Agreements' (SLAs). The SCC forms a quasi-holding with the other operational group companies. The shared pool can enable competitive advantage through economies of scale and knowledge sourcing, by combining the individual financial departments.

Although most people directly relate a SSC to financial services, this is not always the case (Dhervilly and Swagerman, 2000). In this paper we will concentrate on the financial shared service center, which will be referred to as SSC. We define a SSC not as a simple treasury center. In our opinion it covers not only treasury-related operations, but also management of the general ledger, of the accounts payable and receivable, and is in charge of processing third-party domestic payments and collections in every country. In this case it is also important to mention that the SSC concept goes far beyond the 'centralization' concept, as there is the 'internal customer' notion. A SSC is a provider of services to the other operational group companies and acts (or should act) in the same way as any third-party supplier ("at arms length"). The notion of SLA and the quality of the transactions performed are of great importance.

The findings of Dhervilly and Swagerman (2000) indicate that although the use of SSCs offers significant advantages for companies, several obstacles to the

creation of a SSC exist. Firstly, some companies enjoy their fully or partially decentralized organization, which they inherited from the past, i.e. groups being a 'federation' of several companies that still have their own individuality. Furthermore, these companies will not want to make any changes that could disrupt their internal culture and efficient way of doing business.

Secondly, setting up a SSC means a significant investment in terms of people dedicated to the project (internal and consultants), and technological investments (buying new IT systems). It also means setting up a special purpose vehicle ('SPV') in a specific country and moving people from existing locations to the SSC's location or hiring local people. Our case study can be seen as an example of the reengineering challenge the management faces in creating a (partial) SSC.

2.3 Organizational reengineering: the transformation of traditional organizations into virtual organizations

Given the concept of quasi-internalization and the framework presented in figure 1, a migration path from a traditional organization to a virtual organization can be identified (Sieber and Swagerman, 2000). This development can be identified as illustrated in the figure below.

Figure 2 - Migration path from a traditional organization to a virtual organization

Basically the transformation of traditional organizations into virtual organizations begins with the 'deconstruction' of the existing single organizational and forging links externally with customers, suppliers and other business partners. A value chain community is created, in which the process efficiency between the partners involved in the business network is increased by means of formalization, standardization and automation. Next, non-core activities (i.e. financial services) of the individual organization are pooled (dynamic insourcing and outsourcing). Because no hierarchical structure exists we speak of a 'quasi-holding'.

The final step in the migration to a virtual organization is the cooperation between the organizations in the business network in virtual projects, in which 'tacit' resources are used. Virtual organizations use different structures for their transaction governance, they switch between an open, loose cooperation in the business network and a closed, narrow cooperation within individual projects (virtual project) or for certain defined tasks (value chain community and quasi-holding). In our case study we will show that the first two steps in the migration path to a virtual organization take place inside the 'traditional' organization, hence deconstructing the traditional structures and enabling dynamic sourcing.

3. CASE STUDY DESCRIPTION

3.1 Methodology

This case study is based on a real-life organizational reengineering project in which one of the authors was involved. Since the reengineering project has yet not been finished, this case describes the first steps in the process.

3.2 The case of the University of Twente

The University of Twente ('UT') has about 6000 students and 2600 employees. The structure of the UT can be characterized as a business unit structure. At the central level there are a number of service departments (i.e. IT, facilities, central treasury, personnel), but almost all tasks are decentralized and are executed in one of the faculties.

Finance is a good example of a decentralized process. Although a relatively small central treasury department exists for accounting tasks that involve the UT as a whole, the rest of the accounting tasks take place within the faculties, which all have their own financial department. The departments are led by administrators who report directly to the dean of the faculty. The administrators meet monthly with each other and a representative of the central department.

Since the management of the central department is concerned with the organization of the financial processes, and aims at maximum efficiency, it has recently conducted a study into the possibility of pooling part of the accounting tasks of the faculties into an accounting house ('AH'). A similar study was conducted ten years ago, but then it was concluded that this would lead to massive paper flows from the faculties to the AH and vice versa. At the time there were no easily applicable IT solutions that could facilitate the digitization of these paper flows.

The recent study indicates that the advantages of pooling activities in an AH include increased efficiency, enhancement of service quality, and reduction in the process time for various accounting tasks. To achieve these advantages, however, the accounting tasks that are now carried out within the financial departments of the faculties need to be standardized and paper flows must be digitized. In order to do this the UT is now implementing workflow management software in its financial processes.

The new organizational structure will be roughly as follows (see figure 3, in which solid lines indicate a hierarchical relationship and dotted lines a 'virtual' relationship). Most of the accounting tasks of the financial departments of the faculties will be concentrated in the AH. Within the faculties very small departments, led by a controller, remain for the purpose of direct communication with the 'customer' and to support the dean in financial matters. Financial data is exchanged via the UT intranet; communication between the controllers and the AH takes place via account managers, each of whom looks after two faculties. To ensure quality of service, the controller concludes SLAs with the AH.

At first the AH will be hierarchically placed under the central financial department, but it is possible that the AH will be outsourced in the future or will be

combined with other universities’ AHs. With the application of digitization and workflow management to the financial processes, the physical obstacles to outsourcing have been removed; other obstacles, however, have proven to be far greater.

Figure 3 - The accounting house as a virtual structure in a quasi-holding

The possible creation of an AH has met with much resistance in the organization. Most employees do not like radical changes in the way they do their jobs. Other obstacles to the creation of an AH are the need to invest heavily in new hardware and software, and the investment in terms of people dedicated to the project (internal and consultants).

4. CONCLUSIONS AND FINAL REMARKS

4.1 Conclusions

Recent literature indicates that traditional organizations are transforming into virtual organizations. New technologies in IT enhance the ‘deconstruction’ of traditional, single organizational structures into new, interorganizational and virtual arrangements of interdependent organizational units. Deconstructed interorganizational structures have a strong requirement for dynamic sourcing. Dynamic sourcing is becoming a core characteristic of a virtual organization of interdependent

organizational units aiming for specific core competencies and cooperative advantages, especially in information-intensive industries.

For different kinds of resource exchange, different virtual structures emerge to enable efficient dynamic sourcing. In this paper a framework is used to indicate where virtual structures can offer advantages. Three efficient forms of interorganizational resource exchange, which - even in the long term - do not lead to internalization, are identified: The *value chain community*, the *quasi-holding* and *virtual projects*.

A certain migration path can be identified in the transformation from traditional organizations to virtual organizations. Firstly, companies reduce their breadth of resources by outsourcing, but without losing strategic control over the emergent network. Here, value chain communities and quasi-holdings emerge first. The virtual project is seen as the most complex form for enhancing innovative ability through the quasi-integration of external expertise. The cooperation between the organizations in the business network in virtual projects in which 'tacit' resources are used can be seen as the final step in the migration to a virtual organization.

In the paper we looked more closely at the quasi-holding. By pooling accounting tasks in a SSC, organizations create a quasi-holding structure. Previous studies indicate that although the use of SSCs offers significant advantages for organizations, several obstacles exist to the creation of a SSC. The main obstacles are the resistance in traditional organizations to changes in the existing structures, the significant investment in terms of people dedicated to the project (internal and consultants), and technological investments.

Most of the theoretical findings are supported by our case study into the creation of an AH, in which the accounting activities of the faculties at the University of Twente are being pooled. We see that new IT technologies enable the 'deconstruction' of the traditional structures, thus making dynamic sourcing possible. We also see that, before migration to AH (or SSC) takes place, activities that are typical for a value-chain community take place first: the efficiency of processes is increased by means of formalization, standardization and automation. The quasi-holding will coordinate resource exchange with the AH by means of SLAs. The reengineering process presents a great challenge to the management of the financial department. The obstacles to the creation of a SSC that are identified above all appeared in our case study.

4.2 Final Remarks

The case we presented in this paper culminated in the approval by the management of the financial department in October 2001. Further developments in the creation of the accounting house will be presented at the PRO-VE 2002 working conference.

Acknowledgements

We would like to thank Jeroen Vijver for his important contribution to this article and especially to the case study at the University of Twente.

REFERENCES

1. Campbell, A., *Creating the Virtual Organisation and Managing the Distributed Workforce*, University of Paisley, United Kingdom, 1997.
2. Dhervilly, D.M. Swagerman: Some considerations about shared service centers in Europe, in: *Treasury Management International*, 2000.
3. Douma, M.U., *Strategic Alliances Fit or Failure*, Thesis University of Twente, Enschede, 1997.
4. Ewan, P. and T.S. Wurster, Strategy and new Economics of Information, in: *Harvard Business Review*, September-October 1997.
5. Holland, C.P., The Evolution of Electronic Hierarchies in Business Markets, in: *Wirtschaftsinformatik* 39 (1997) 3, pp. 245-253.
6. Hoogeweegen, M.R., *Modular Network Design: assessing the impact of EDI*, Doctoral Dissertation, Erasmus University Rotterdam, 1997.
7. Jarvenpaa, S.L. B. Ives, The global network organisation of the Future: Information management Opportunities and Challenge, in: *Journal of Management Information Systems*, 10 (4), 1994, pp. 25-57.
8. Keen, P.G.M., *Shaping the future*, Harvard Business Press, Boston, 1991.
9. Lacity, M.C., R.Hirschheim, *Beyond the Information systems outsourcing bandwagon*, Wiley Chichester, New York, 1995.
10. Lacity, M.C., L.P. Willcocks, and D.F. Feeny. The value of selective IT sourcing, in: *Sloan Management Review* 37 (3), 1996, pp. 13-25.
11. Macneil, I.R., *Contracts: Adjustment of Long-Term Economic Relations under Classical, Neoclassical, and Relational Contract Law*, Northwestern University Law Review 72 (1978) 6, pp. 854-905.
12. Macneil, I.R., The Many Futures of Contracts, Southern Californian, in: *Law Review* 47 (1974) 3, pp. 691-816.
13. McFarlan, F.W., R.L. Nolan, How to manage an IT outsourcing alliance, in: *Sloan Management Review*, Winter 1995, pp. 9-23.
14. Miles, R.E., C.C Snow, *Organisational Strategy, Structure and Process*, McGraw Hill, 1978.
15. Prahalad, C. K. G. Hamel, The core competence of the corporation, in: *Harvard Business Review*, May - June 1990.
16. Quinn, J.B., *The Intelligent Enterprise*, New York The Free Press, 1990.
17. Quinn, J.B., F.G. Hilmer, Strategic outsourcing, in: *Sloan Management Review*, 35 (4), 1994 pp. 73-87.
18. Sieber, P., *Virtuelle Unternehmen in der IT-Branche - Die Wechselwirkung zwischen Internet-Nutzung, Strategie und Organisation*, Bern, 1998.
19. Sieber, P., D.M. Swagerman, Operational Logic in Virtual Organizations - Example of Application Based on a Case Situation, in: *electronic Journal of Virtual Organization*, January 2001.
20. Venkatraman, N., C. Henderson, *Architecture of Virtual Organizing: Leveraging Three Interdependent Vectors*, Discussion Paper, Systems Research Center, Boston University School of Management, Boston, 1996.
21. Wassenaar, D.A., Understanding and designing Virtual Organisational forms, in: *VoNet Newsletter*, Vol. 3 no. 1, 1999.
22. Wassenaar, D.A., D.M. Swagerman, *Transaction platforms as flexible interorganisational systems enabling dynamic sourcing based virtual organisations*, paper: 'International Conference of Information Systems', Bayreuth, June 2001.