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**TOWARDS THE VIRTUAL CORPORATION:
A COMPLEX MOVE ALONG THREE AXES**

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ABSTRACT

Suggesting a three dimensional model for virtualization, this paper examines the strategic movements companies may perform in order to become virtual corporations. Literature research and qualitative data from German banks demonstrate plausibility of the model and lead to specific questions to be answered by organization theory.

Key Words: Virtual Corporations; Organization Theory; Strategic Management

TOWARDS THE VIRTUAL CORPORATION: A COMPLEX MOVE ALONG THREE AXES

INTRODUCTION

It all started when an almost academic definition made it to the cover of Business Week:

„Big, complex companies usually can't react fast enough. Small, nimble ones may not have the muscle. What's the answer? A new model that uses technology to link people, assets, and ideas in a temporary organization. After the business is done, it disbands. It's called the virtual corporation.“ (Business Week, Feb. 8, 1993: Front cover)

About the same time, Davidow & Malone (1992) described the virtual corporation as a borderless, fluid unit, and a virtual product as the immediate result of an interaction between a customer and a producer. Virtual stores emerged, such as the bookstore AMACOM, virtual in its form, but fortunately still selling real books. Virtual shopping malls grew in the internet, trying to make use of the fascinating prospects of electronic commerce. All of these companies try to detect the specific and individualistic customer need, in order to provide fast and professional solutions.

„The concept of the virtual corporation is proving to be much more than another catchy phrase. With most companies already to do things better, faster and smarter, the virtual model challenges managers to think about things that aren't even possible today.“ (Bottoms, 1994: 61)

Behind this idea of flexible and cost-minimal creation of customer benefits, the term „virtual“ plays an important role. It suggests that even though certain physical attributes are missing, the object still keeps its functionality. Examples for this understanding of virtuality reach from virtual memory in the computer up to virtual pets and from virtual departments to virtual organizations.

„The word virtual has become popular in the field of Future Work. If something is virtual, it is said to have the effect but not the form.“ (Birchall & Lyons, 1995: 18)

The discussion of virtuality has been reflected in various conceptional frameworks, dealing with various of aspects such as technology (e.g. Bleecker, 1994), information technology (e.g. King, 1994), service companies (e.g. Klein, 1994), and Human Resource Management (e.g. Snell, 1994). At the same time in Europe, academic researchers intensively studied virtual organizations, basically three research groups in Nürnberg/Germany (Mertens & Faisst, 1995), Bern/Switzerland (Griese & Sieber 1996) and Saarbrücken/Germany (Scholz, 1994), leading to extremely controversial discussions with most of the rest of the academic community, as well as to several books on this subject (e.g. Scholz 1997; Hedberg 1997).

Even though the idea of virtual corporation definitely bears the potential to become an important contribution not only to informatics (where it already is an essential element of the discussion), but also to organization theory, it has not yet lived up to that expectation. This becomes evident when looking for this topic in the relevant journals and the proceedings of the various management conferences.

„Today, the virtual label is used to describe everything from virtual coexistence to virtual communities. It's enough to confuse virtually any prospective virtual manager.“ (Bottoms, 1994: 61)

In particular, three lines of criticisms emerged:

Lack of conceptional clarity. Due to its closeness to concepts like the strategic alliance or the multifirm spherical network (Miles & Snow, 1995), the virtual corporation appeared as a rather vague suggestion.

Lack of theoretical basis. Even though various theoretical connections (Scholz, 1997: 330-347) can be made to game theory (e.g. Axelrod, 1984), agency theory and transaction cost theory (e.g. Williamson, 1991; 1996), and to social constructivism (e.g. Berger & Luckmann, 1966), there is still no sound and broadly accepted theoretical basis for the concept of virtual corporation.

Lack of empirical basis. As a consequence of the above, the phenomenon „virtual organization“ is hard to grasp on a sound empirical basis. Except of several collections of case studies, there seems to be no serious and successful attempt to measure the degree of virtuality in virtual organizations.

The following paper does not intend to solve these problems. It rather tries (1) to present a specific framework derived from a literature review and (2) to illustrate this model by strategic moves of several German banks.

LITERATURE REVIEW

In order to define the characteristics of virtual corporation, an intensive literature search has been conducted. Literature from 1992 to 1996 was reduced to 20 publications which covered various types of work (ranging from editorials to monographs), types of authors (from practitioners to academics), and type of perspectives (from IT to organization theory).

The interesting part was to identify the characteristics which were believed to be different to the existing organizational structural alternatives. Knowing that modern organization theory mainly

deals with the objective to increase organizational effectiveness, the specific pattern of objectives for virtual organizations had to be focussed, as well as its unique set of instruments and means to realize the objectives.

Table 1 gives a brief summary of some of the findings. It can be seen that basically the authors agree on the objective „flexibility“ as well as on the mean „information and communication“. But also various other means have been suggested, such as the feeling of Co-Destiny within the virtual corporation or the existence of trust. „Information and communication“ does not only refer to computers. Some authors stress the fact that a virtual corporation is possible even without any computer.

TABLE 1
Objectives and means of virtual corporation

	Objectives				Means				
	Reduction of Time to market	Increase of capacity and know-how	Reduction of expenditure	Reduction of risks	Increase of flexibility	Information and communication	Trust	Co-Design	Fairness
Arnold et al. (1995)	X	X	X	X		X		X	
Barnatt (1995)						X			
Behme (1995)	X	X			X	X	X		X
Bleecker (1994)			X			X			
Bleicher (1996)					X	X			
Boone (1994)						X			
Bottoms (1994)	X			X	X				
Bullinger/Thaler (1994)	X	X			X	X	X		X
Byrne/Brandt/Port (1993)	X	X	X		X	X	X	X	
Daconta (1994)			X			X	X		
Davidow/Malone (1992)	X					X	X	X	
Flaig (1992)	X		X		X	X	X	X	
King (1994)	X	X	X			X	X		
Klein, M. (1994)	X	X	X	X	X		X		
Klein, S. (1994)		X			X		X		
Kuttner (1993)			X		X				
Mertens/Faisst (1995)				X		X	X		
Müller (1993a)		X	X			X			
Müller (1993b)						X			
Olbrich (1994)	X	X	X		X				
Scholz (1994)		X			X	X	X		
Snell (1994)	X				X				

It became obvious that virtual organizations, being a contractual form very close to the market contracting, aims to rely on means which were known as „soft facts“. They were supposed to substitute explicit contracts and thus to avoid more transaction costs than alternative organizational forms. Currently, a large number of definitions can be found, between others, in the internet (table 2). These definitions have certain similarities, such as a focus on strategic aspects of information technology. Several key points dominate, to be used in the next section.

TABLE 2
Typical definitions of a virtual Corporation, as taken from the Internet Jan

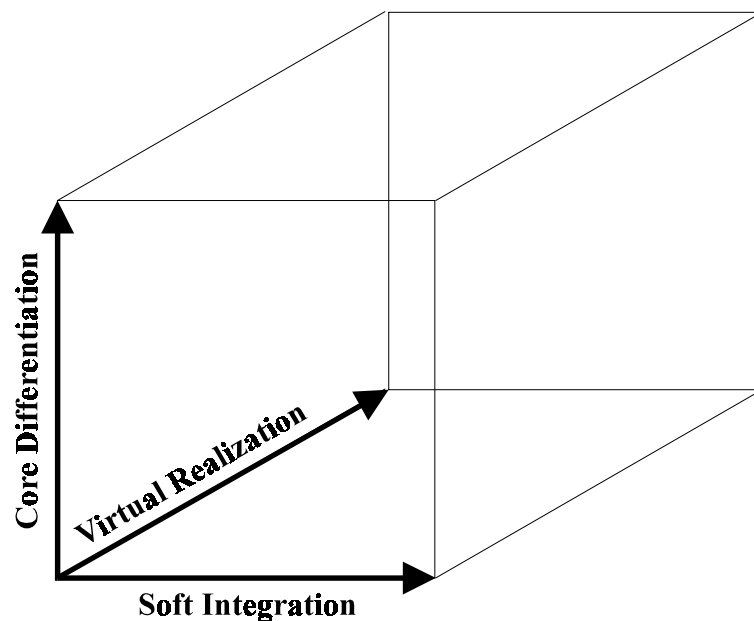
<p>http://www.zdnet.com.au/wsources/filters/v/virtualcompany.html</p> <p>An organization that uses computer and telecommunications technologies to extend its capabilities by working routinely with employees or contractors located throughout the country or the world. Using faxes, modems, data and videoconferencing, it implies a high degree of telecommuting as well as remote workgroups and facilities. The extreme virtual company is one that hires only temporary help and whose office facilities are little more than a post office box and answering machine.</p>
<p>http://www.whatis.com/virtualo.htm</p> <p>A virtual organization or company is one whose members are geographically apart, usually working by computer e-mail and groupware while appearing to others to be a single, unified organization with a real physical location.</p>
<p>http://www.iwi.unibe.ch/~sieber/vu/index.htm</p> <p>A virtual corporation is a kind of horizontal and/or vertical enterprise cooperation of independent firms with the possible participation of institutions and/or persons to achieve a service or product on the basis of a common understanding of business. Each company will contribute primarily what it regards as its core competencies. There is a time limit on the existence of the virtual corporation caused by fulfilment of its business purpose. From the viewpoint of an external observer, the virtual corporation appears as a unitary enterprise.</p>
<p>http://www.skyrme.com/insights/2virtorg.htm</p> <p>Virtual is usually taken to be something that does not exist in reality. So a typical definition of a virtual corporation (taking the dimension of time) is: "a temporary network of independent companies linked by IT to share skills, costs, and access to one another's markets" (Business Week) . However, another definition relates to an organisation not having a clear physical locus. Here a typical definition is: "an organization distributed geographically and whose work is coordinated through electronic communications." Both definitions show how information and communications technologies can be used to exploit the dimensions of time and space. A virtual corporation is a specific example of a networked organisation. Many smaller companies are now realising the benefits of being part of a virtual corporation, which can give them the benefits of the resources of a large organisation while retaining the agility and independence of a small one.</p>
<p>http://www.sando.com/busart3.htm</p> <p>The virtual corporation, although technically and legally a joint venture, is more than a mere partnership between businesses to accomplish an objective. It is an entity that comes into existence quickly, accomplishes its members' objective of creating a single product or service, and then dissolves. The virtual corporation not only is revolutionizing the way products are designed and produced, and services delivered, but may profoundly change the way the virtual corporation's constituent businesses are structured -- the vertically integrated conglomerate form of business enterprise may become much less common.</p>
<p>http://megahertz.njit.edu/~neuman/virtual2.htm</p> <p>When a group of people and/or companies having their individual legal entities join together for a specific task or project, they form virtual corporation. An outsider to such a virtual corporation sees only the front of the combined forces of the members of this group who act as a single entity for the specific project. A virtual corporation is like a network of experts or expertise represented by the nodes. All the requisite skills and knowledge to accomplish the specific task are brought together in a virtual corporation.</p>

THE FRAMEWORK

At the beginning of the academic efforts to conceptualize virtual organizations, a binary concept of virtual companies has been pursued in which a company was either virtual or not. However, there were more ways regarded as possible to implement a virtual organization so that this strict separation could no longer be the leading idea.

As a result of this literature research, a three dimensional model for the virtual corporation was developed. It has a similarity with the traditional model of differentiation and integration known from Lawrence & Lorsch (1967). This enlarged model suggests various degrees of virtual corporation as well as various types, basically by moving the company in a three dimensional space (figure 1).

Figure 1
The three dimensional model of virtual corporations: The VC-Cube



Core Differentiation

Most of the authors dealing with virtual organizations emphasize that the partners in this type of organization have to focus on their core competences. In fact, this seems to be the only way to achieve the goals of the virtual corporation.

„In a virtual corporation, organizations form temporary partnerships in which each participating company brings to the table its core capabilities.“ (Englman, 1993: 28)

Following this concept of core competences (e.g. Prahalad & Hamel 1990; Hamel & Prahalad 1995), a company focuses on where it (a) has a natural tendency towards it, (b) is superior to its competitors and (c) has a substantial market. In an extreme way, the value chain is narrowed down to the particular element where the company has a sustainable competitive advantage.

„What’s critical, experts say, is that each participant in a virtual corporation brings to it a core company that complements the expertise of the other partners working toward the same goal.“
(King 1994: 29)

The dimension is labelled „core differentiation“ to point out, that not every attempt- to differentiate automatically leads to a core competence. If a company splits up into smaller parts and if these smaller units do not have markets for their products and services, this movement has nothing to do with moving into the direction of becoming a virtual company.

To sum it up: „Core Differentiation“ is a task for strategy and business policy. By the current state of organization theory, this task can be solved. However, it will be a very demanding task: though the increased necessity for speed, there will be less time for designing implementation concepts than ever before. Thus, the leadership capabilities of organizational leaders are skills with increasing importance.

Soft Integration

A completely different reflection underlies the second axis. Here, the task of integration has to be executed. By the logic of processes, it has to follow differentiation.

However, it is not only integration in the mere sense of putting together separated parts, but also a specific type of integration. Additionally, two conditions have to be met during integration: The independent core competences have to be combined to a unit, which produces a total optimization across the whole value chain and a „one face to the customer“.

„The emerging model for successful business is the ‘virtual enterprise’. Its basic goal is to deliver to the customer, in as timely a fashion as possible, the lowest-cost, highest-value product that the entire value chain - not just a single company - can produce.“ (Flaig, 1992: 153)

It is important to note that not all mechanisms for integration are movements towards a virtual corporation. Since the basic idea of a virtual corporation is its flexibility and its efficiency, most authors stress that a virtual corporation has to be constructed without bureaucratic structures and without administrative overhead. This brings up the question, whether other means of integration may be suitable. Except of „information and communication“ (which will be covered by the third

axis), the means of co-destiny, shared vision and goals, fairness, and a „culture of virtuality“ are meaningful alternatives.

Co-Destiny. Partners in a virtual corporation find themselves in a situation, in which they win together, but also loose together. Contrary to a neodarwinistic view, in which always the strong partner defeats weak partners, the units in a virtual corporation can only survive when they rely on each other, because there is no slack planned to compensate a loss of a unique core competence. They must have the mutual understanding of an almost symbiotic coexistence.

Shared Vision and shared goals. If no bureaucratic mechanisms for integration exist, an implicit coordination by shared goals and - even better - by a shared vision allows the partners to direct themselves into the same direction.

„Virtual organizations perform best with shared goals.“ (Coyle & Schnarr, 1995: 41)

Fairness. Even though it might sound old fashioned, a virtual corporation must rely on a specific code of conduct, on a specific professional sense of fairness. This can be observed in highly professional teams in the internet community as well as in Mafia-type organizations. Fairness in this professional sense is not pure altruism: It is coupled with a transparent system of negative reinforcement in case of one partner breaking the implicit fairness code. By that, integration resembles in some parts the clan culture (Ouchi, 1980).

„Culture of virtuality“. Extending the three aspects mentioned above, a corporate culture of virtuality is necessary. Even though all partners establish their own, particular culture, all these cultures have common values, such as strict customer orientation, focus on technology, and a feeling for polychronity (in the sense of Hall & Hall, 1990).

Summing up: None of these mechanisms of integration is structural, they all rely on „soft“ factors. Dealing with them and bringing them into a managerial form is the real challenge. It has to be addressed at organization theory.

Virtual Realization

As can be seen from table 1, IT is a dominant way to accomplish both the *Core Differentiation* and the *Soft Integration*. Therefore, virtual corporations are strongly linked with IT and, in particular, with the concepts of virtual reality and cyberspace.

„The concept of ‘cyberspace’ is crucial to an understanding of virtual organizational forms. Put simply, cyberspace refers to the medium in which communications flow and computer software operates.“ (Barnatt, 1995: 83)

By virtual reality, it is possible to act without physical attributes. Many sites and services can be addressed via computers nowadays, since the internet has become the most time-flexible and ubiquitous communication media. The dramatic quantum leaps in data processing capacities enable companies to use the virtual reality to reach customers on a global scale. Moreover, companies no longer address their customers one-way, but customers more and more actively search for information and services in the internet by themselves. Thus, it is the challenge to create a presence in virtual reality.

This presence in virtual reality is also very helpful for virtual corporations. They can use the technical means to communicate about the foundation of a virtual company and are no longer bound to their local environment while searching for partners. Furthermore, they can create the „one face to the customer“ by using the modern communication technologies.

Nevertheless, *virtual realization* does not just mean to simply transform a data model into the computer. It also has to deal with emotions and feelings: Optical and acustical stimuli can be used to establish a customer-corporation relationship. Further developments may emerge, like the use of haptical stimuli.

Summing up: Even though the third dimension seems to call for information science, the behavioral science is also challenged, since the creation of attractive interfaces between customers and virtual corporations gets more and more important.

EMPIRICAL EVIDENCE

Background

The Schmalenbach-Gesellschaft – Deutsche Gesellschaft für Betriebswirtschaft e.V. is the largest professional society for management in Germany, aiming to link academia and practice. It represents over 1,600 personal members as well as 345 companies, among them almost the complete German Top-100. It is organized in several divisions, one of which currently deals with networks and virtual organization (Nathusis & Winand, 1998). The author of this paper is in charge of the subgroup which focuses on virtualization in the financial sector. This subgroup has already been existing for three years which indicates that virtualization in the banking sector has been noticed as a major challenge very early.

Since about four years, the banking industry undergoes a dramatic change (e.g. Köppen, J.; Canals, 1997): For instance,

- non-banks and near-banks, such as car manufacturers and insurance companies, enter the banking business,
- the deregulation as part of the movement towards the Common European Market and the freedom of capital transfers to expand across borders,
- new developments in telecommunication technologies,
- new products and services such as electronic-cash, and
- new customer requirements,

call for strategic action.

„This could be bad news for banks. What if phone companies offered their own brand of E-money?“ Holland & Cortese, 1995: 46)

These movements are not only observed in Germany, but internationally: as Dwyer (1995) puts it, we perceive signals for a „Banking Showdown in Europe“.

The different strategic reactions of banks facing deregulation and financial disintermediation are reported in literature (e.g. Canals, 1997: 333-334): transforming themselves into universal banks, achieving a larger scale by internal or external growth, diversifying into non-bank and non-financial activities, globalizing, and using new organizational forms to respond more flexible to industry changes. By these single or combined strategies, banks are attempting to prevent further deterioration and regain competitive strength.

Germany's banking sector is different from the one in United States, Japan, or Spain. The particularities of the German banking system are that universal, not specialized banks have a high degree of concentration in their industry. Their economic power is relatively high for they are allowed to hold shares of companies, are present on company boards, and act for shareholders in companies. Nevertheless, regulation of bank's behavior and industry structure is not very high. There are also several important state-owned banks in Germany.

In this paper, it will be interesting to examine which steps are taken in Germany in respect to the new organizational forms, because banks are very free in their strategic decisions and interestingly choose very different ways of coping with the environmental challenges.

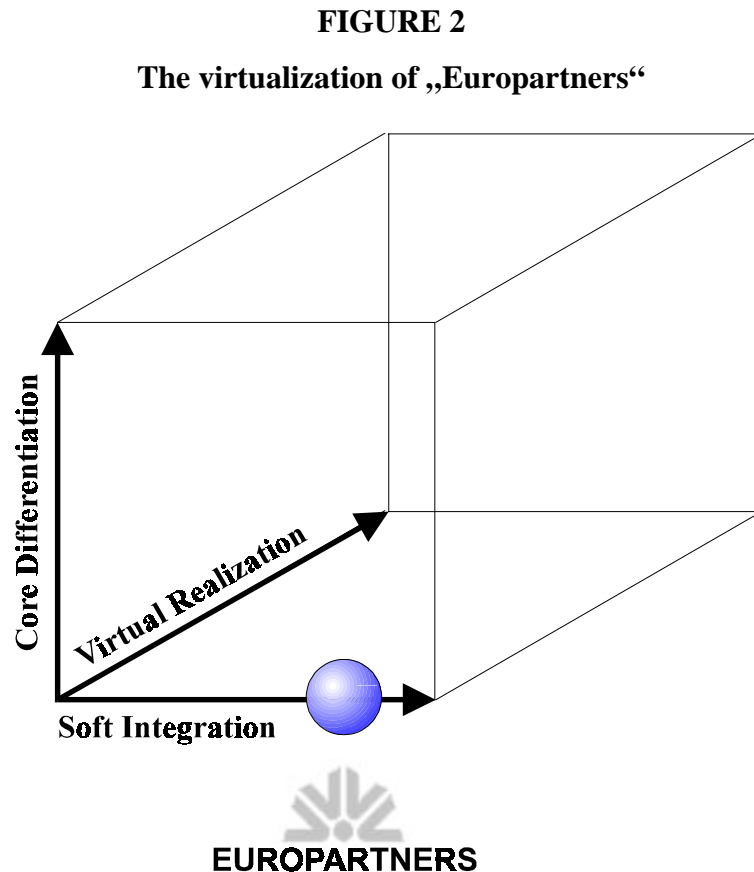
Findings

The research group captured the changes of the financial institutions by means of several case studies (Scholz, 1998). These case studies were examined by expert meetings, accessing protocols of internal decision processes of the focussed banks, and interviewing the managers in charge of the restructure process. The findings represent three completely different moves in regard to the cubic model of virtualization: just focussing on soft integration, just focussing on virtual realization to create virtual environments, or combining all three directions to move into the cube.

Soft Integration: The case of the Europartners. The search for integrated solutions of structural challenges has a long tradition in the financial sector, especially in an international setting. Therefore, 1970 the Commerzbank from Germany and the Crédit Lyonnais from France started a partnership called Europartners. In 1971, the Banco di Roma, and 1973, the Banco Hispano joined the group. Their basic goal was to form a multinational banking group, with one identical face to the customer, where everybody would bring in their competences. Without labelling it this way, they tried to form a virtual corporation. However, there was not a substantial process of concentrating on core competence, reducing work which one of the partners could perform better and outsourcing - it was more like an addition.

Since this was to be accomplished in a cross-cultural setting, this was also a case for cross-cultural communication, a task, which was taken very seriously by the institutions involved: All kinds of integrative mechanisms were used to reduce barriers and to enrich the potential for cooperation (Scholz & Sydow, 1996).

The project did not live up to the expectations and got cancelled 1990. Although a variety of reasons seem to explain the failure, among others, the lack of focus on core competence was important. The partners basically not only did the same business, but, at the end, even close to each other in the same cities (such as Frankfurt). They did not only lack this focus on the beginning, they even lost the rest of it (the regional aspect) at the end. In our framework (figure 2), Europartners moved perfectly on the horizontal axis (*soft integration*), but did not move on the vertical axis (*core differentiation*). They also realized hardly any IT-connection, not to talk about any move along the diagonal axis (virtual realization).



As a result of this and similar experiences, financial institutions in Europe such as the Dresdner Bank and the Banque National de Paris, currently aim for less integration and more differentiation. They head just for smaller partnerships (between two companies) with more distinctive roles. An alternative is to attempt a mega-merger like the recent formation of the United Bank of Switzerland with the objective to differentiate under this roof.

Creating Virtual Environments. In Germany, customers of financial services are regarded to be very conservative. The slow and low acceptance of automatic teller machines is considered to be an evidence for this. But also the banks are rather traditional, which can be explained beside other reasons by the history of the financial system in Germany. Just a few years ago, all banks issued strong statements that they would never enter the „insecure world of the world wide web“. Currently, all banks are on their way into the internet.

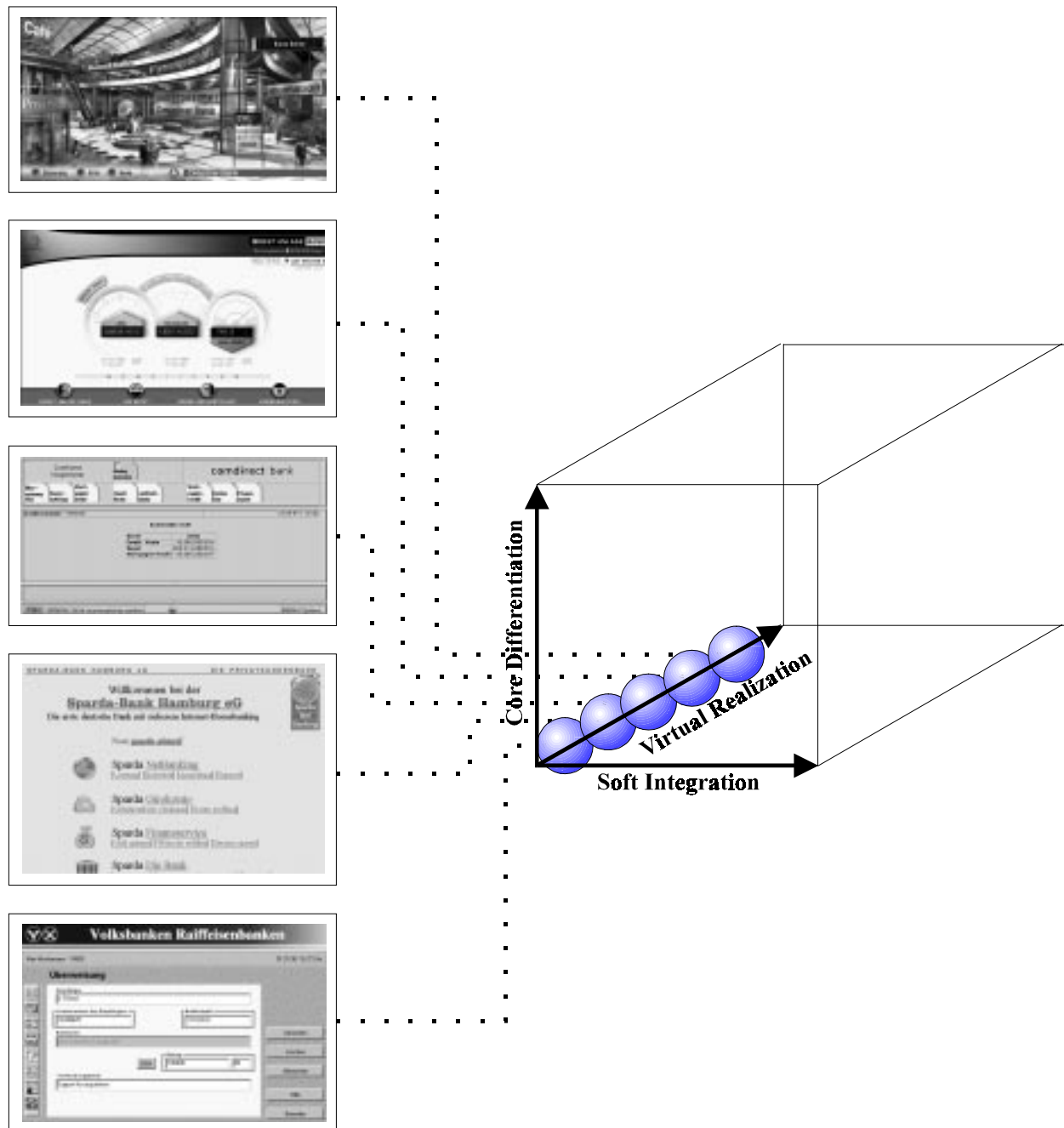
What we observe, are the results of the insights into the fact that the changes are occurring in reality, whether banks like to take notice of or not. The organizational adaptation to changes has to overcome strong cultural barriers against change first before the strategic movements are undertaken. Thus, in Germany we do not always find first-mover-strategies.

The interesting point is not, that some German banks are behaving this way. The interesting point is how they are doing it.

- The „Raiffeisen-Kassen (<http://www.vr-banken-bayern.de>), small, cooperative societies) with an extreme low tendency towards innovation, sometimes simply put the traditional BTX-formular onto the screen.
- Larger Banks, like the ComDirect (<http://www.comdirect.de>) as a direct bank subsidiary of the Commerzbank, provide functional online services via internet where the banking products are sold. The same holds true for the small SPARDA-Bank from Hamburg (<http://sparda-hh.de>).
- Banks like the Direkt Anlage Bank (<http://www.diraba.de>) as an online subsidiary of the Hypo-Bank, provides a control panel to receive the most recent exchange data. Important is the socio-emotional involvement of the client who is attracted by the graphical presentation. Other banks like Dresdner Bank (<http://www.Dresdner-bank.de>). really form a virtual service hall which transports all attributes of a real service hall to the computer screen and links them with the adequate functions, similar to the „classic“ internet presentation of the American Network Bank SNFB(<http://www.sfnb.com>).

Referring to the model of virtualization, they all move along the diagonal axis (virtual realization), but reach different stages (figure 3).

FIGURE 3
Virtual realizations of banks



Banks, such as the SNFB definitely can be labelled as a „virtual bank“, since for its customers it only exists in the internet. Currently, most of these players try to move further along this axis since they aim at building up an intense relationship with their customers in order to increase their emotional switching costs and so prevent them from changing the bank.

The move into the cube: The ADVANCE-bank. Right now, it looks as if it is empirically hard to move into the cube and to follow all three axes at the same time. The only major German example, which proves the opposite, is the ADVANCE-bank. Founded as a subsidiary of the Bayerische Vereinsbank, it enjoyed from the beginning a rather strong autonomy.

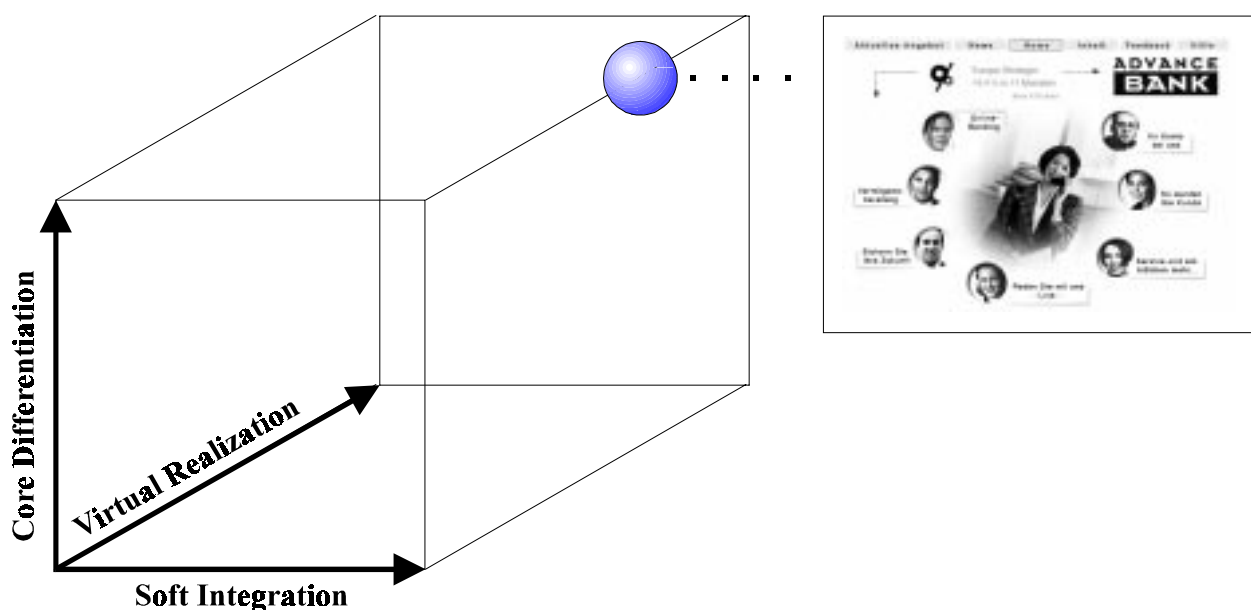
Even though the ADVANCE-bank is a legal entity, it combines almost as a broker various core competences, such as

- offering a broad range of banking and financial services,
- pooling pension insurance offers and offering an information center in the internet for interactive decision support,
- cooperating with ISDN-providers to offer adequate online banking support,
- using the capacities of different computer centers for data processing.

By offering far-reaching value-added services, it concentrates on its competence to coordinate financial offers, links them together and provides them for the customer in an interactive internet surrounding - that means, building a virtual corporation.

FIGURE 4

The ADVANCE-bank moves into the cube



Since it was as almost virtual corporation without real structural ties to the parent company, it was easy for the bank to be sold to the Dresdner Bank (for reasons currently not really clear).

The current discussion

As to the moves towards virtual banks, in Europe currently three trends can be observed:

At the *Virtual Realization* axis, the financial institutions try to improve the virtual reality aspect of the internet presence, probably up to the point, where the customers really move themselves by mouse or joystick through the service hall. All this will come close to what Michael Douglas experienced in the movie „Disclosure“ when he had his VR-experience.

At the Core Differentiation and the Soft Integration axis, larger banks begin to establish specific partnerships. One example for this is the National Westminster Bank, which builds in all these countries, where it does not have own subsidiaries, „Virtual Banks“ together with local partners. Additionally, it also uses strongly the Virtual Realization axis.

Smaller banks (such as the savings banks) think about building new virtual units to fight the competition of the larger banks. They have to concentrate on their competences which especially lie in serving the private customers. Thus it will be their task to accompany the private customers on their way to modern technological solutions.

Summing up, it seems that none of the isolated solutions of one axis which have been described (core differentiation, soft integration, virtual realization) is alone ideal for restructuring banks and adapting them to new competitive situations. The move towards virtual banks will integrate movements on all of the three axes.

The solutions which are chosen can be implemented more or less successfully depending on the bank's history, the prevalent management culture, the leadership styles, the available resources, and the political power each bank has in competition. Nevertheless, it seems to be inevitable that movements on the axes will take place because the new organizational forms have distinct advantages over the traditional organizational forms.

CONCLUSION

This paper addressed the conceptualization of virtualizing corporations and its applicability to the German banking sector. One of the most interesting finding of the paper is that the VC-Cube which has been developed can currently be used in several different ways:

As a tool for classification. It is evident that there is definitely more than just one type of virtual corporation. These different models of virtual corporations as well as several stages in the process of virtualization can be distinguished by using the VC-Cube.

As a management tool. Even though empirical evidence is still rare, already some heuristic considerations can be made. Following the idea of the VC-Cube, three stable situations seem to exist, each of them bearing its particular challenges (figure 5):

1. A company strongly concentrates on the *virtual realization* axis. Examples for this are the stores that transform themselves into internet stores. Here it is important really to instrumentalize the multimedia environment in order to acquire and to keep customers. Consequently, this company has to deliver a complete range of products and services instead of just restricting itself to one single core competence. In the end, a virtual corporation exists, consisting of just one company (**S1**).
2. Several companies, each of them differentiates into specific core competences, join together into a virtual corporation by means of soft integration mechanisms. Important here is (a) really to focus on core competences and (b) to resist the temptation of creating structural, bureaucratic mechanisms of integration. In the end, a virtual corporation is created, consisting of several independent companies (**S2**).
3. As a combination of S1 and S2, several companies join their core competences by use of virtual realization. The ADVANCE-Bank is an example for this type of stable situation (**S3**).

All three alternatives seem stable and are strategic meaningful options.

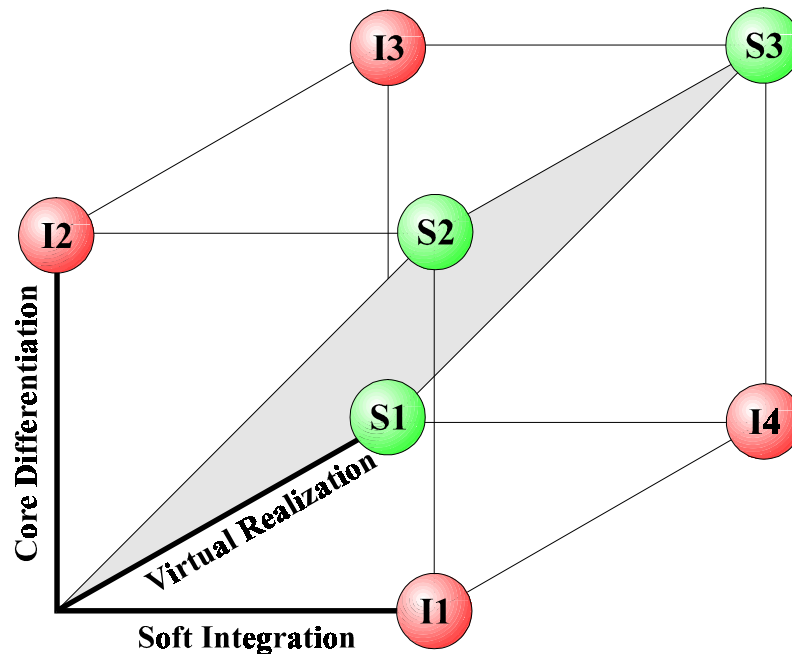
Other movements along the axes could turn out to be of low efficiency and of high instability, such as:

1. companies trying to integrate similar units which do not represent core competences, such as it is shown in the case of the Europartners (**I1**),
2. simply differentiating into core competences without caring for integration (**I2**),
3. companies focussing on core competences and making them accessible via IT while not providing a complete solution for the customer needs (**I3**),
4. highly integrating as partners and at the same time taking strong efforts to use virtual realization without checking for similarities in the core competences (**I4**).

As it looks right now, I1 through I4 are no real strategic options.

FIGURE 5

Stable and non stable situations for virtualizing corporations in the VC-Cube



As a starting point for empirical research. All three axes must be operationalized in order to allow empirical research. In addition to the descriptive task, the hypothesized stabilities must be evaluated empirically. Substantial empirical research in the style of the classical Aston-Studies (Pugh & Hickson, 1976) relies on the development of a data collection instrument which is capable of dealing with the topic in a very differentiated way. It should be investigated, in which situation and with which additional features the alternatives I1 through I4 could be transformed into meaningful solutions. Hypotheses will be not too difficult to derive: For instance, in case of I3, the company may just present a singular core competence, but allow by its strong IT other companies to make use of it.

Especially the last point should be the real challenge for organization theory. Building virtual corporations without a solid empirical base seems meaningless. Nevertheless, all three axes need further work, for instance, (a) how can we establish sustainable core competences, (b) how can we develop counterforces against bureaucratic integration, and (c) how can we make efficient use of IT?

Notwithstanding, building on the promising idea of virtual organization, this „new“ knowledge should make even stronger use of the core elements of existing theories, integrate them in an

efficient way under the roof of the vision „virtual corporation“ and represent the solution by the fascinating new media to academia and the business world.

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