

Stehling, Frank; Moormann, Jürgen

**Working Paper**

## Strategic positioning of e-commerce business models in the portfolio of corporate banking

Arbeitsberichte der Hochschule für Bankwirtschaft, No. 33

**Provided in Cooperation with:**

Frankfurt School of Finance and Management

*Suggested Citation:* Stehling, Frank; Moormann, Jürgen (2001) : Strategic positioning of e-commerce business models in the portfolio of corporate banking, Arbeitsberichte der Hochschule für Bankwirtschaft, No. 33, Hochschule für Bankwirtschaft (HfB), Frankfurt a. M., <https://nbn-resolving.de/urn:nbn:de:101:1-2008071673>

This Version is available at:

<https://hdl.handle.net/10419/27799>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

**No. 33**

**Strategic Positioning of  
E-Commerce Business Models in  
the Portfolio of Corporate Banking**

**Frank Stehling / Juergen Moormann**

October 2001

ISSN 1436-9761

**Authors:**

*Frank Stehling*  
Strategic Development  
HVB Group  
Bayerische Hypo- und Vereinsbank AG  
Munich  
Germany  
frank.stehling@hypovereinsbank.de

*Prof. Dr. Juergen Moormann*  
Hochschule fuer Bankwirtschaft  
University of Applied Sciences in  
Banking and Finance  
Frankfurt/M.  
Germany  
moormann@hfb.de

**Publisher:**

Hochschule fuer Bankwirtschaft  
Sonnemannstraße 9-11 D-60314 Frankfurt/M. Germany  
Phone: ++49/69/154008-716 Fax: ++49/69/154008-728

# Strategic Positioning of E-Commerce Business Models in the Portfolio of Corporate Banking

Contents:

|   |    |
|---|----|
| Abstract.....   | 3  |
| 1. Introduction.....  | 3  |
| 2. Foundations of B2B e-commerce .....  | 4  |
| 2.1. Strategic roles in B2B e-commerce networks.....                          | 4  |
| 2.2. Areas of business processes in B2B e-commerce networks.....              | 6  |
| 3. Identification of relevant business models.....                            | 7  |
| 4. Methodological approach for evaluating B2B e-commerce business models .... | 10 |
| 4.1. Development of the portfolio matrix .....                                | 11 |
| 4.2. Value analysis.....  | 13 |
| 5. Application of the evaluation system .....                                 | 15 |
| 5.1. First level evaluation of B2B e-commerce business models.....            | 15 |
| 5.2. Second level evaluation of B2B e-commerce business models.....           | 16 |
| 6. Discussion of the results.....   | 18 |
| 7. Conclusion.....  | 20 |
| References .....  | 22 |
| Appendix.....   | 26 |

Keywords: e-commerce, business model, business-to-business (B2B), corporate banking, strategic evaluation

*This paper has been accepted for the Hawaii International Conference on System Sciences, January 7-10, 2002, Big Island, Hawaii. It will be published - in a shorter version - in the Proceedings of the conference.*

*Copyright 2002 IEEE.*

## **Abstract**

The emergence of e-commerce leads to a fundamental change for the financial industry. The transition into a digital economy produces numerous new opportunities as well as great risks. B2B e-commerce in particular is considered a promising field for the future. As B2B is very closely related to corporate banking, emerging B2B e-commerce business models should constantly be evaluated to see how they fit into the portfolio of current corporate banking activities.

This paper provides a framework for a systematic examination of B2B e-commerce business models and their position in the portfolio of corporate banking. The framework is based on recent work on roles and tasks in business networks. The evaluation of 17 selected business models has been performed by a two-step-approach which includes interviews with experts and a specific scoring model. The paper indicates that certain business models, like e-marketplaces, seem to be less attractive despite of huge investments of German banks in this field. However, models combining a bank's core competence with new technology offer a high potential in e-commerce activities.

## **1. Introduction**

The world of banking and financial services is in the midst of a dramatic change, moving away from traditional "brick and mortar" banking and focusing on new promising opportunities. The emergence of electronic (e-) commerce leads to a fundamental re-thinking of banking. New market structures and new business models must be analyzed and evaluated from a strategic point of view. Business-to-Business (B2B) e-commerce is especially considered a fast-growing area for the future, e.g., information brokerage services, e-procurement services, portal provider, e-marketplace services. In the context of banking, B2B is very closely related to corporate banking. Therefore, a bank must constantly assess which business models would be appropriate and may fit into the strategic portfolio of its corporate banking activities. Although this problem is highly relevant for banks, we find a substantial lack of methodological concepts.

Up to now, the process of strategic positioning happened in a rather intuitive manner. A systematic approach not only needs to incorporate well-known instruments of strategic planning but also new tools which lay an emphasis on e-commerce structures. The latter comprises models of business networking, roles and tasks within these networks, customer processes, etc.

This paper will show how B2B e-commerce business models can systematically be investigated and positioned in the context of corporate banking. For this

purpose, we will discuss three areas of interest: (i) The general structures of B2B e-commerce as well as a range of business models. (ii) A methodological approach of a bank-related procedure for evaluating and positioning B2B e-commerce models. (iii) We will deliver and discuss results of a recent evaluation of e-commerce business models for enhancing the portfolio of corporate banking. The evaluation focuses on the German banking industry.

## **2. Foundations of B2B e-commerce**

B2B e-commerce is the part of the economy which deals with Internet-based or Internet-supported commercial activities between two or more different companies or parts of companies [25]. Commercial activities are processes like procurement, sales, and transaction services which include the needed communication (e.g., inquiries, service requests) respectively.

The Internet not only enables supply and sale of products and services but also allows the emergence of much more complex business structures. Thus, a systematic approach must not only comprise the classification of products and services and the related business models but also the quite different dimension of virtual organizations and dynamic networks [9, 44]. Virtual organizations are networked, locally distributed, or even mobile organizational units which participate in a coordinated process of value creation [32]. The total of these structures is called a dynamic or strategic network [41]. Participating companies achieve a higher level of resources, competencies, and capacities within the network. They are expected to react much faster and more flexible on changing customer demands. From the banks' perspective, virtuality and networks will change their business processes completely. Therefore, we have to analyze the general structure and the strategic roles of virtualized value chains.

### **2.1. Strategic roles in B2B e-commerce networks**

The discussion of network structures in theory primarily includes commercial networks and virtual organizational structures [e.g., 1, 37, 46]. One of the most important objectives of such networks is seen in the efficient connection of processes beyond company boundaries. Rayport and Svoilka emphasize the shift of physical processes of an existing world – “market place” – into the “market space” of the Internet [9, 36]. The literature offers a range of concepts on B2B e-commerce networks which mainly differ by the accentuation of different tasks and roles.

Oesterle focuses on inter-organizational processes and develop the roles and functions needed in a B2B e-commerce environment [29, 30]. The basic structure of this concept consists of three components. The backbone of the network is a *Business Bus* which is a standardized interface to receive services from and to deliver services to the network. Within the network we find “integrators and aggregators”, so-called *Intermediaries*. They are responsible for the bundling of supply and demand and the mediation of services. The third component comprises *Service Suppliers and Product Suppliers*.

The approach of Wise and Morrison primarily concentrates on the identification of roles and trends to describe a B2B e-commerce network [47]. In the center of their model we find huge aggregators (*Mega-exchanges*) which function as “... central hubs for the execution of most transactions ...” [47, p. 93] and which represent the medium for the communication between the buyer and the sales organization. The authors also predict the emergence of *Specialist Originators* for satisfying complex customer needs. *E-speculators* perform arbitrage and speculative transactions. Finally, *Solution Providers* will emerge. They will generate added value by further processing and bundling of information and other services.

A clear distinction between strategic roles and business models has been delivered by Cameron et al. [4]. Their concept consists of four roles which refer to Porter’s model of generic strategies [33]. With this approach, companies will specialize on certain parts of the value chain. The major task of *Attractors* is customer management, i.e. identification and satisfaction of specific customers’ needs. The next step in the value chain will be performed by *Transformers*. These are pure transaction companies which transform „...diverse inputs into goods and services more valuable than the sum of their parts“ [4, p. 7]. Cameron et al. assume that the supply of a technical infrastructure and related services will be of great importance. This job will be done by *Enablers*. A *Niche master* is a “[s]pecialized attracter, transformer, or enabler company with a narrowly focused business mission – like industry-specific Internet services” [4, p. 7].

Each of the models contribute valuable insights into certain aspects of e-commerce network architectures. However, the combination of intra-organizational processes and the exact specification of strategic roles and business models is still missing. In order to develop a framework which can serve as a basis for evaluating B2B e-commerce business models, a modification of the roles suggested by the literature may be necessary.

In accordance with the development of virtual organizational structures, four basic roles can be defined. With the rise of inter-organizationally linked supply chain systems and the strongly increased networking of companies through Internet technology, the need for the Web has been recognized in most companies.

*Enablers* build their business on enabling Internet activity for enterprises and thereby giving them the opportunity to participate in Internet-based networks. This role corresponds in general terms to the role of the enabler defined by Cameron et al. The next phase showed the emergence of new electronic services and led to the development of *Internet-based Aggregators* whose major tasks consist of bundling supply and demand in fragmented or non-transparent markets. In addition, they serve as digital platforms for the management of existing business relations, e.g. contractual agreements. The emergence of *Product & Service Providers* is a result of a global disintegration. Tasks of this strategic role are e.g. the carrying-out of outsourced processes. Another emphasis lies on the development and supply of new products and services. Oesterle, Wise and Morrison, and Cameron et al. agree on the necessity of this role. A fourth role emerges in the process of further disintegration and specialization. It will drastically affect existing business structures. *Internet-based Distributors* specialize in providing the company's customer interface of a value chain. Their core competencies are marketing, sales, and customer services.

## **2.2. Areas of business processes in B2B e-commerce networks**

The integration of core competence aspects into the B2B e-commerce evaluation framework needs to include an intra-organizational process view as well. Thus, strategic roles and B2B e-commerce business models can be placed in relation to the most important areas of business processes.

The starting-point is the value chain suggested by Porter [34]. Based on this model four areas inside or outside of a company can be identified: Business Network, Business Support, Supply chain, and Management Support. These areas of business processes are characterized by different procedures, inputs, and outputs. They are the reason for any advantages or disadvantages of a company's ability to compete [3, 11, 20]. Processes of the *Business Network* area deal with the needs of the fast-growing networking of companies. *Business Support* processes (e.g., human resources) will continuously be investigated regarding their outsourcing potential or their partial substitution. The process areas *Supply Chain* (i.e., intra-organizational value chain) and *Management Support* are assumed to belong to the core competencies of the respective company.

Based on the characteristics of open B2B e-commerce networks and the understanding of intra-organizational processes a classification grid for the strategic positioning of B2B e-commerce business models has been developed. The matrix consists of one dimension showing certain strategic roles (i.e., representing the aspect of core competencies) and a second dimension showing the defined areas of business processes.

### **3. Identification of relevant business models**

Which new business opportunities are offered to a bank in the context of B2B e-commerce in order to position itself in the perspective of ever-changing value chains? The goal of this section is to systematically represent business models of B2B e-commerce and arrange them in the above described classification grid.

There is plenty of literature available on the discussion of new B2B e-commerce models. A broad definition of business models has been delivered by Gloor. "Under the term business model, I understand first what a company does and second how it makes money from doing it" [10, p. 40]. Although this definition seems to be plausible, it can not serve as a systematic explanation. . Oesterle demands answers concerning the future business areas, market services, customer needs, core competencies, alliances, but also concerning the organization and the application of information and communication technology [29]. Timmers defines a business model as "... an architecture for the product, service, and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues" [42, p. 4].

As a basis for our study, we follow Heinrich and Leist who differentiate between external and internal aspects [13]. The external issue determines the market appearance (e.g., potential customers, core products and services [6], customer process orientation, sales channels) whereas the internal issue describes the company's competencies and strengths, its generic strategy [33], its strategic role within the B2B e-commerce network, its organizational structure and its alliances. These internal aspects are necessary for the realization of the external goals. Using this concept, B2B e-commerce business models can be systematically described and – in a further step – matched with the strategic roles of a B2B e-commerce network.

Three criteria have been used for the selection of a diversified pool of business models ranging from bank-specific to rather general undertakings relevant for the German banking industry at the time of the evaluation:

- The respective business model should be used and discussed worldwide at the point of time of our study.
- The model must show a certain degree of relevance.
- The business model must apply to the Internet very strongly. In this context we differentiate business models which can only be implemented through the Web or with Internet technology, and others whose emergence is supported by the Internet. For our purpose, it is required for a significant portion of the business to get transacted via the Web.



The choice of models based on these criteria has certainly been influenced by our own insights and understanding. On the other hand, the selection process has been supported by a wide range of literature. Thus, our selection reflects the mainstream opinions on this topic.

*Table 1. Overview on seventeen business models used in the investigation*

| <b>Business model</b>                           | <b>Core products and services</b>  | <b>Exemplary companies</b>  |
|---|--|---|
| Sell-Side Provider                              | <ul style="list-style-type: none"> <li>- Selling and application of third party products via company-owned portals by others</li> <li>- Creation and operation of customer process portals [29]</li> </ul>                           | db-business-direct.com (Deutsche Bank AG); AvnetMarshall  |
| Personnel Management                            | <ul style="list-style-type: none"> <li>- Personnel administration</li> <li>- Internet-based personnel legal advice</li> <li>- Internet-supported personnel recruiting</li> </ul>   | Administaff.com; Emploease.com; Automatic Data Processing Inc.; Ceridian                              |
| Back Office Services [28, 30]                   | <ul style="list-style-type: none"> <li>- Transfer of bookkeeping</li> <li>- Administration of foreign business [26]</li> <li>- Internet-based document archiving</li> <li>- Electronic bill presentment</li> </ul>                   | PriceWaterhouseCoopers; Microsoft Office eServices; PAGO (50% participation of Deutsche Bank); PayNet |
| Risk Management & Controlling Services [30]     | <ul style="list-style-type: none"> <li>- Credit and rating information</li> <li>- Debitor management [26]</li> <li>- Innovations in finance</li> <li>- Demand-portfolio control for trade or financial services companies</li> </ul> | Moody's; Hermes; OnExchange   |
| Financial Services <sup>1</sup>                 | <ul style="list-style-type: none"> <li>- Cash management, escrow services</li> <li>- Insurances</li> <li>- Online credit granting, factoring</li> <li>- Investment advice</li> </ul>   | Deutsche Bank AG; Gerling AG with Trusted Trade; TransPoint   |
| Application Hosting & Service Provider [24, 44] | <ul style="list-style-type: none"> <li>- Supply of host capacities for the administration of software applications</li> <li>- Management and administration of software applications</li> </ul>                                      | Made2Manage.com; SAP AG; Deutsche Post electronic services  |
| Information Brokerage Services [30, 42]         | <ul style="list-style-type: none"> <li>- Business directories</li> <li>- Specific and highly current market information (usually originating from large market places)</li> <li>- Information collection and edition</li> </ul>      | Dun & Bradstreet; One Source; Boni Trust AG (subsidiary of DCI AG)                                    |

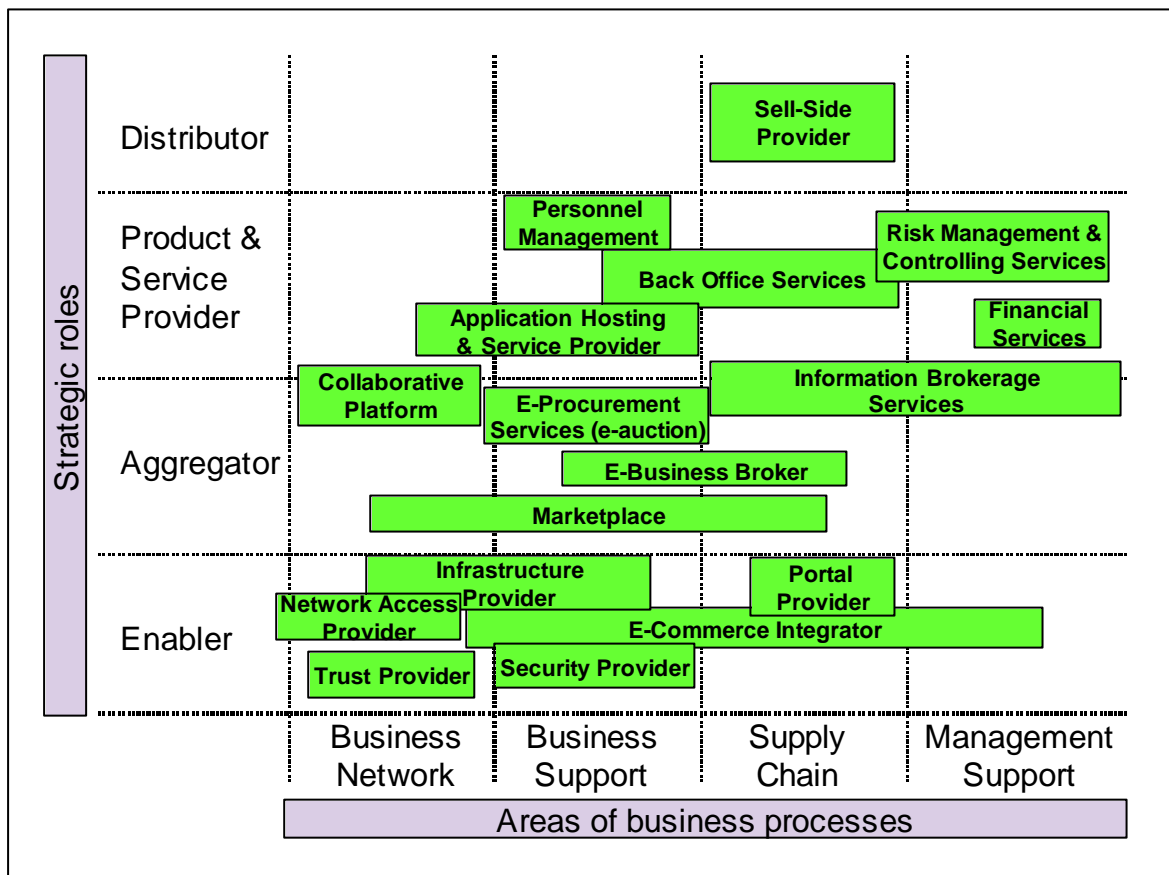
ctd.

<sup>1</sup> See the offers from DB Marketplaces ([www.db.com](http://www.db.com)), Tradesafe.com (<http://www.tradesafe.com>).

|                                 |   |  |
|---------------------------------|---|--|
| Collaborative Platform [42]     | <ul style="list-style-type: none"> <li>- Special software, e.g. for inter-organizational design or engineering projects</li> <li>- Project support</li> <li>- Workflow management</li> </ul>  | GEN; ICS                                       |
| E-Procurement Services [25, 42] | <ul style="list-style-type: none"> <li>- Application service providing (ASP)</li> <li>- Centrally hosted catalogue solutions</li> <li>- Execution and handling of Internet auctions</li> <li>- Participant selection of participants</li> <li>- Analysis of auctions</li> </ul> | Works.com; Portum AG; emaro AG                 |
| E-Business Broker               | <ul style="list-style-type: none"> <li>- Middle man function for purchase and sales between large market places</li> </ul>  |  |
| E-Marketplaces [2]              | <ul style="list-style-type: none"> <li>- Support of buying and selling through product catalogue systems, auctions, information and special services (e.g., logistics)</li> </ul>   | Chemconnect.com; Farnpartner.com; Commerce One |
| Infrastructure Provider [44]    | <ul style="list-style-type: none"> <li>- PC services</li> <li>- Server services</li> <li>- Data storage</li> </ul>  | Sun Microsystems; IBM; Hewlett Packard; Cisco  |
| Network Access Provider         | <ul style="list-style-type: none"> <li>- Internet access</li> <li>- Telecommunication services</li> <li>- Data transfer and protection</li> </ul>   | Mobilcom; British Telecom                      |
| Portal Provider                 | <ul style="list-style-type: none"> <li>- Creation and maintenance of portals resp. sell side solutions for companies</li> <li>- Selling of pure portal technology</li> </ul>  | Commerce netbusiness AG; abaXX                 |
| E-Commerce Integrator [38]      | <ul style="list-style-type: none"> <li>- Strategy development</li> <li>- Marketing</li> <li>- Web design</li> <li>- Technology integration</li> <li>- Business processes design</li> </ul>  | Sapient; Accenture; Viant                      |
| Security Provider               | <ul style="list-style-type: none"> <li>- Data encryption technologies</li> <li>- Network safety systems (e.g., firewalls)</li> </ul>  | Secaron GmbH (HypoVereinsbank AG)              |
| Trust Provider [31]             | <ul style="list-style-type: none"> <li>- Authenticity certificates</li> <li>- Electronic notaries</li> <li>- Trust consulting</li> </ul>  | Identrus Inc.; TC Trust; HypoVereinsbank AG    |

As a result of our research, 17 business models have been identified (see Table 1). A standardized form was used for the detailed description of each of these models. Appendix A shows such a description with the example of e-procurement services (business model # 9). The information on the strategic role and the area(s) of business processes of each model can be derived from the detailed descriptions. Both criteria allow for the positioning of the business models in the B2B e-commerce classification grid developed in section 2 (Fig. 1). This matrix will be the basis for the following steps of our evaluation.

Figure 1. Positioning of 17 business models in the B2B e-commerce classification grid



#### 4. Methodological approach for evaluating B2B e-commerce business models

Two assumptions will be used for the evaluation procedure: (1) Choosing B2B e-commerce business models by focusing on core competencies and resources helps to identify the most attractive ones.<sup>2</sup> (2) Certain non-core competencies and resources of banks can get transformed into core competencies and primary market resources to enter B2B e-commerce markets. To assess these business opportunities by an evaluation system, one faces several barriers such as a large number of business models, interdependencies between new and existing businesses, limited information, research costs as well as the limited availability of market and company analysis [7] (see also the “Baker-Criterion” in [39]).

<sup>2</sup> Despite other approaches (e.g., market or opportunity driven) the resource-based view appears to us as best supporting the idea of identifying and ranking new but bank-affiliated business models.

When following opinions of Laakmann and Kreilkamp, one can overcome those obstacles. By analyzing the relevant steps of different evaluation processes, Laakmann identified a rough evaluation, a detailed evaluation, and a controlling phase [23]. Kreilkamp listed a preliminary and an advanced selection [21]. A combination of both experts' approaches treats the costs of research and output economically by filtering out irrelevant business models. Therefore, the structure of the evaluation system should contain a rough evaluation as the first level evaluation delivering business models relevant for a bank out of a portfolio of available business models without the input of detailed information, time, and costs. The detailed evaluation as the second level evaluation helps to analyze and define how attractive a business model is for a bank.

Qualitative methods turn to quantitative methods with an increase of information in every phase of strategic decision-making to quantify the economic impacts of corporate activities [16, 27]. While the first level evaluation needs qualitative methods, the advanced level needs quantitative ones to score the chosen pool of models. Using Wilde's evaluation methods classification [45], the first evaluation level will be processed by using a portfolio matrix. Such models help to concentrate on few relevant key criteria and thus save time as well as costs of an extensive research. The second evaluation level will be performed by a value analysis. This analysis aggregates the values of critical factors and weighs them to generate a total score showing the total value of each alternative business model [15, 19, 45, 48]. It simplifies by dividing up the comprehensive system of economic factors into evaluation dimensions (e.g., market attractiveness, competitive situation). The value analysis boosts decision-making transparency and makes it easier to control decisions, their results and assumptions [8, 15]. Both evaluation models also allow to flexibly integrate the resource-based view and banking industry-specific aspects into the evaluation system considering the conditions and limits of this particular selection problem. The resource-based view builds upon the understanding that resources and the connected core competencies are the center of the creation of new strategic approaches [12].

#### **4.1. Development of the portfolio matrix**

In order to identify business models relevant for a bank, we use a two-dimensional portfolio matrix differentiating company-external and -internal criteria [23].

The first dimension of the portfolio matrix will be the degree of core competencies and resources available for the operation of a business model. This dimension covers all necessary internal criteria, such as special know-how, personnel resources, information systems, and financial resources [22, 43]. The second dimension should be the market attractiveness which includes external factors

[14]. Unfortunately, this dimension would take a lot of research and there is little information existing about the markets of the business models. To save time and costs at this step of the evaluation, it is favorable to switch to a related dimension like market maturity which can indicate the market attractiveness as well. This dimension determines the maturity of products and services, existing competition, and the market size. Together with core competencies and resources of banks, such criteria provide a sufficient understanding of whether it makes sense for a bank to enter a market with a certain business model [3].

Because this is just the first level evaluation, we will scale both dimensions by only differentiating between a high, medium/average, and low degree. The portfolio matrix will be separated into nine fields in which the available business models can be positioned according to their scores. Furthermore, the portfolio can now be divided into two sections by a diagonal line across. The top right section contains the business models which should be examined further at the second evaluation level. The bottom left section holds business models that are not relevant for banks at the time of the evaluation. Business models positioned on the diagonal line have to be examined before taking them into the second evaluation.

The portfolio matrix contains the following assumptions:

- Business models on the top right side of the diagonal line are more relevant for a bank because they carry a more desirable relation between the core competencies and the market maturity.
- The higher the degree of core competencies in banks and the lower the market maturity the more favorable a market entry would be. The chances to gain a significant market share and to develop high quality products are high.
- It will not be profitable for a bank to enter a mature market without having the necessary core competencies. Independent of how strong the competencies and resources are, competitors would start retaliatory actions against a new rival, forcing it to withdraw [16].
- Business models on the diagonal line are positioned in a transitional zone. Low/high core competencies and resources and low/high market maturity could be attractive for a bank. Such combinations could lead to synergies or diversification effects that would encourage a bank to adopt new core competencies and resources or use the existing ones to operate in the new market.

## 4.2. Value analysis

This analysis is based on a scoring system calculating how attractive a certain business model is. Because of the diverse B2B e-commerce markets and the rare experience in these fields, experts have been interviewed ( $e_i$ ).

The value analysis should explicitly cover the market attractiveness as one of three economic dimensions ( $d_i$ ) which may affect a company's success. A second dimension should be the relative competitive situation of banks assuming they would enter the market served by the business model. The third dimension provides the analysis of synergies and diversification effects which would be caused by interdependencies of the existing and the new businesses.

The criteria ( $c_{mn}$ ) defining each of these dimensions are aspects which decide on the success or failure of the operation of a business or a product idea. "The selection of appropriate criteria is ... the beginning of the evaluation and determines extensively the expressiveness of scoring-models." [21, p. 53] The criteria has to fulfill the following three requirements [21, 40]:

- The criteria should be independent of each other.
- The criteria should have a qualitative rather than a quantitative nature [21].
- The number of criteria should cover the complexity of the underlying problem [21].

The specific importance of each criterion and dimension will be considered in the total score by weighing the criterion and dimensional scores ( $cw_{nm_x}/dw_{t_x}$ ) per business model ( $bm_x$ ) [21]. The weights have also been defined together with the experts during the interviews. Table 2 shows the results of this step.

*Table 2. Evaluation criteria and dimension weights of the value analysis*

| Evaluation criteria ( $c_{mn}$ ) and evaluation dimensions ( $d_i$ )   | Weights<br>(criteria: $w_{mn}$ /<br>dimensions: $w_{dt}$ ) |
|--|--|
| <b>Market Attractiveness</b>   | <b>0,36</b>  |
| Attractiveness of the expected market volume in Germany within the next three years [18]                               | 0,24   |
| Market entry barriers (e.g., strong customer loyalty, rivalry) [43]  | 0,21   |
| Timing of market entry [3, 5]  | 0,19   |
| Volatility of changes to market conditions (technological changes, legal changes, shifts in customer demands) [14, 17] | 0,19   |
| Investment level [16]  | 0,17   |
| <b>Competitive Situation of Banks</b>  | <b>0,27</b>  |
| Expected relative ability to manage the business success factors per business model [43]                               | 0,26   |
| Relative know-how in banks (existence or fast development of important core competencies) [16]                         | 0,26   |

|   |             |
|---|-------------|
| Relative image advantage of banks [14, 35]  | 0,16        |
| Durability of bank-specific competitive advantages [14, 19]   | 0,16        |
| Relative financial strength of banks [14]   | 0,16        |
| <b>Diversification and Synergy Attractiveness [14, 18]</b>  | <b>0,37</b> |
| Potential value of already existing bank resources (e.g., IT, administration resources) [14, 18, 35]                          | 0,25        |
| Expected cash-flow [14]   | 0,23        |
| Potential value for bank clients because of the integration of the business model into the existing product/service portfolio | 0,20        |
| Potential value of new information about markets and/or customers for the existing business [31]                              | 0,20        |
| Similarity between the organization of a business model and the organization of a bank [18]                                   | 0,12        |

Further conditions such as the specific business success factors, know-how relevant for the operation of each business and the potential competitors of banks per market were defined for the experts' common understanding of the system.

In order for the experts to interpret the questionnaire in the same way, the criteria needs to be specified [21, 40]. First, each of the five levels of every criterion – ranging from very low, low, average, high to very high – needs to be defined. For example, a “very low” grade for the market volume in the market attractiveness dimension means the market has very little sales potential which does not promise enough profit for any bank to enter. A “very high” grade refers to a very high sales and profit potential for several banks. The second step is to scale the five levels of the criteria by using grades (from 1 [very low] to 5 [very high]) [40]. However, the criterion “timing of market entry 3<sup>rd</sup> quarter 2001” has to be treated differently:

- Too late (1): already established competition.
- Too early (3): first mover advantage but the burning money effect.
- Right timing (5): exponential increase of market growth, being able to establish a market leader position.

Another exception is the use of alternative grades for the criteria market entry barriers, volatility of changes to market conditions and investment intensity. For example, high market entry barriers stand for a low attractiveness (graded by 2) considering a possible market entry by a bank.

To reckon the total scores, the first step is to calculate the value grade per criterion and business model. All the grades assigned by the experts for each criterion have been summed up and divided by the total number of experts ( $e_{iL} \{l \in N (1 \leq l \leq 8)\}$ ):

$$(1) \quad CS_{mnx} = \sum_{eb=1}^L CS_{mnx} \div L$$

The mean values of each criterion ( $cs_{mnx}$ ) have now been multiplied by the criteria weights ( $w_{mn}$ ). The values have then been summed up for each of the three dimensions and weighed again by the dimension weight ( $w_{dt}$ ):

$$(2) \quad dw_{tx} = \sum_{n=1}^N c_{mn} \times cs_{mnx} \times w_{dt}$$

Finally, we needed to sum up the three dimensional scores ( $ds_{tx}$ ) to receive the total score for each business model ( $ts_x$ ):

$$(3) \quad ts_x = \sum_{t=1}^T ds_{tx}$$

With the completion of the value analysis, both evaluation levels can now be used to assess the attractiveness of each business model for a bank.

## 5. Application of the evaluation system

### 5.1. First level evaluation of B2B e-commerce business models

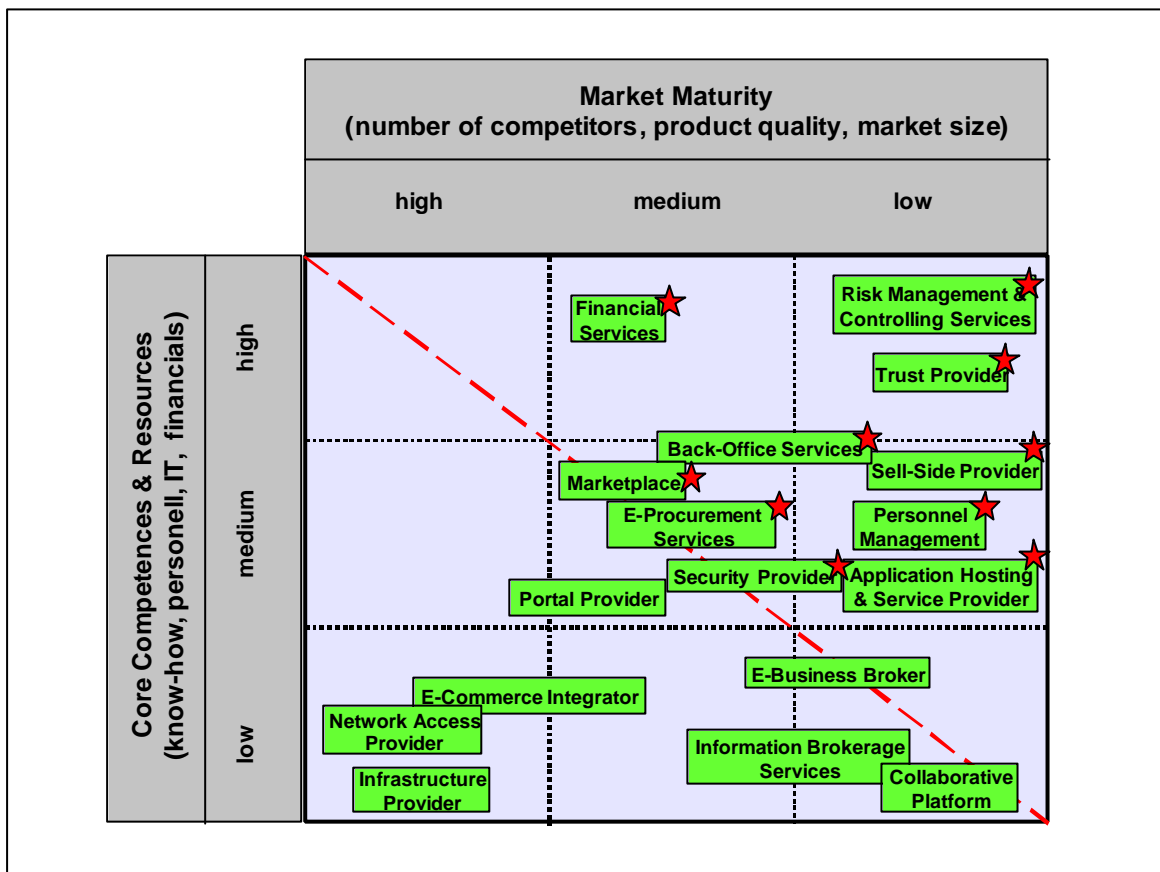
After positioning the business models in the portfolio matrix the results have been checked by the experts during the interviews. The stars mark the selected models (Fig. 2).

The majority of B2B e-commerce markets show a low or medium maturity. This is due to limited market sizes or early product life-cycle phases. The number of competitors vary strongly depending on the respective business model. Core competencies and resources available per business model split into three sections. The most occupied section is of the medium core competencies and resources due to recent investments in know-how, in personnel capacity, and into bank related start-ups.

All business models positioned on the top right side of the transitional line are selected for the next evaluation level because they carry a low to medium market maturity and developed core competencies and resources in banks. Business models on the left side of the transitional line should not be considered any further. Those business models that touch the transitional line demand a closer assessment. Both the collaborative platform and e-business broker which have a low market maturity and low core competencies and resources on the banks' side seem to be interesting but they carry a high investment risk due to their very little market development. A closer look at the further market development is necessary



Figure 2. Positioning of business models at first level evaluation



but this is not the purpose of the next evaluation level. Therefore, they will not be considered at this time.

## 5.2. Second level evaluation of B2B e-commerce business models

Using an empirical survey to evaluate the business models would not have been recommendable due to the complexity and rarely profound know-how combination (i.e., banking and B2B e-commerce) in all of the covered B2B e-commerce markets. That is why the second level evaluation was done by eight leading B2B e-commerce managers of Germany's largest banks, bank-related B2B e-commerce start-ups, and managers of international consultancies. The requirements for the interview partners included a strong background in the financial services industry and in B2B e-commerce. The interviewees were also required to be decision makers at the top management level of their business area (chief executives or chief organizational officers). The last criterion was to achieve a good mixture of representatives from the banks, start ups and consultancies directing the B2B e-commerce developments of banks today.

The interview itself was divided into two parts. The first section introduced the goals of the evaluation and the B2B e-commerce system as well as the business models explained in this paper. The first section was concluded with the explanation of the evaluation system. The second part of the interview was the evaluation of the ten business models by using the value analysis.

Table 3 shows the results of the evaluation separating the dimensional scores from the total scores of each business model. The average score of each dimension is also shown as an indicator for further differentiation between the business models.

*Table 3. Scores of business models at second level evaluation*

|         | Business models and dimension scores       |   |   | Business models and total score<br>( $\sigma=3,34$ ) |
|---------|--|---|---|--|
|         | Market Attractiveness<br>( $\sigma=1,15$ ) | Competitive Situation of Banks<br>( $\sigma=0,98$ ) | Diversification and Synergy Attractiv.<br>( $\sigma=1,19$ ) |  |
| Ranking | Financial Services<br>(1,31)               | Financial Services<br>(1,22)                        | Financial Services<br>(1,39)                                | Financial Services<br>(3,91)                         |
|         | Back Office Services<br>(1,27)             | Risk Mgt. & Controlling Services<br>(1,18)          | Risk Mgt. & Controlling Services<br>(1,39)                  | Risk Mgt. & Controlling Services<br>(3,75)           |
|         | Trust Services<br>(1,27)                   | Trust Services<br>(1,14)                            | Back Office Services<br>(1,35)                              | Back Office Services<br>(3,67)                       |
|         | Personnel Management<br>(1,20)             | Back Office Service<br>(1,05)                       | Personnel Management<br>(1,19)                              | Trust Services<br>(3,56)                             |
|         | Security Provider<br>(1,20)                | Security Provider<br>(0,99)                         | E-Procurement Services<br>(1,14)                            | Personnel Management<br>(3,34)                       |
|         | Risk Mgt. & Controlling Services<br>(1,19) | Personnel Management<br>(0,95)                      | Trust Services<br>(1,15)                                    | Security Provider<br>(3,33)                          |
|         | Sell-Side Provider<br>(1,16)               | Sell-Side Provider<br>(0,91)                        | Security Provider<br>(1,14)                                 | Sell-Side Provider<br>(3,10)                         |
|         | E-Procurement Services<br>(1,10)           | E-Procurement Services<br>(0,81)                    | E-Marketplace<br>(1,07)                                     | E-Procurement Services<br>(3,05)                     |
|         | E-Marketplace<br>(1,07)                    | E-Marketplace<br>(0,80)                             | Sell-Side Provider<br>(1,03)                                | E-Marketplace<br>(2,94)                              |
|         | Appl. Hosting & Service Provider<br>(1,05) | Appl. Hosting & Service Provider<br>(0,70)          | Application Hosting & Service Provider<br>(1,01)            | Appl. Hosting & Service Provider<br>(2,76)           |

## 6. Discussion of the results

The discussion focuses on two aspects. First, we look at the evaluation models and the results from a methodological point of view. This will take into account the advantages and disadvantages of the evaluation models and the way the evaluation was carried out. Second, we will examine the results of the study from a managerial point of view emphasizing the strategic implications for a bank.

The portfolio matrix defined for our examination supports only a two-dimensional analysis of a problem and therefore it does not provide profound insights nor defines a strategic direction. Furthermore, there is no empirical proof for the reliability of results of portfolio matrixes in general [17]. But, for the task of differentiating relevant from irrelevant business models, there is no need for an exact definition and deep interpretation of the economic conditions of the business models. The portfolio matrix uses available information and keeps effort and costs low.

The first level evaluation was based on general assumptions about core competencies and resources of banks. In order to increase the practical relevance of the results, the assumptions should refer to a particular bank and its specific situation.

A criticism of the value analysis may concern its methodological correctness [40]. For instance, one critical methodological aspect is the correlation between the evaluation criteria. However, this does not justify abandoning the use of the value analysis as an instrument for qualitative analysis. It only underlines that there is a need for other instruments in addition to the used two evaluation methods in order to assess strategic business options.

Due to the broad scale of different opinions of the experts, the results gain importance in comparison to an examination done by a single bank when using a mean value method. The study needs to show a significant majority of expert opinions agreeing on certain models. This is necessary to rank the business model significantly above average. Such a consensus can be assumed if there is a difference of about one value unit between the scores – considering the filter effect. The filter effect is caused by the first level evaluation and resulted in the most relevant models and therefore in their scores being close to each other rather than widely varied. That is why the intervals between the business models scores are not always significant. Due to the construction of the system (criteria, ranges of scores, average score, etc), scores lower than 3,0 do not carry a satisfying level of attractiveness. If further clarification about the attractiveness of business models is demanded, a deeper analysis can be made by re-evaluating the scores.

One could criticize that the total amount of effort necessary to develop the evaluation model would not be justified by its economic application and the quality of its results. Looking at a single use, equal results could have been achieved without having such a systematic approach. However, it was the explicit goal of this study to develop an evaluation system which can continuously serve as an instrument for banks in the process of strategic positioning in a fast-changing environment such as B2B e-commerce.

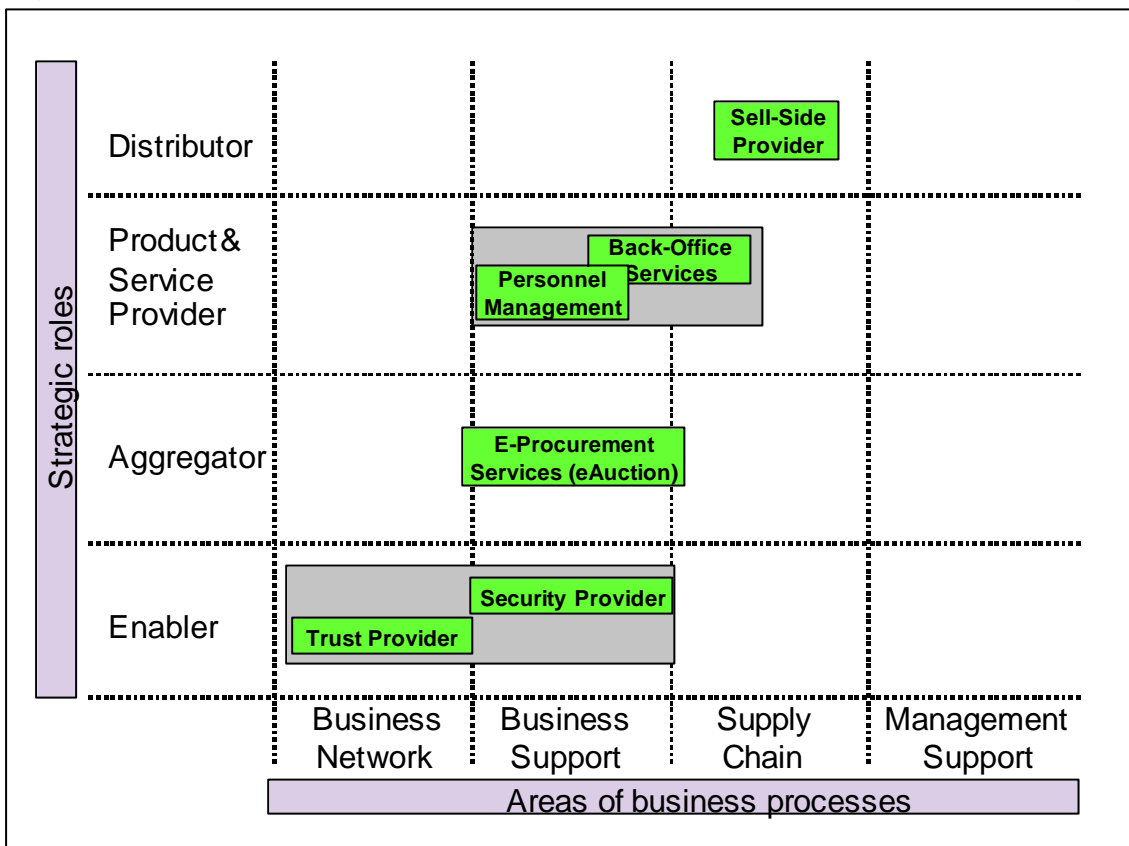
The discussion of practical aspects and strategic implications leads back to the two assumptions laid out at the beginning of the evaluation system design. The results confirm both assumptions. This becomes clear by looking at the ranking of the business models covering all sorts of business fields which have been equally attractive to banks so far. Financial services (rank: 1) and controlling services (2) belong to the core competencies of banks and can clearly outperform the other eight business models. Nevertheless, it is especially encouraging to further stress the competitive advantages of non-core competencies and already existing resources, such as the back office services (3), trust services (4), security services (5), as the next best-ranked new business opportunities for banks in B2B e-commerce.

According to a study by Picot and Neuburger, banks can benefit from the emergence of strategic networks and a further virtualization supported by information and communication technology. This development will push many small and mid-sized companies to outsource their financial management and other non-core corporate processes to service providers like banks [31]. More technically driven business models like e-procurement services, e-marketplaces [2], and application hosting & service providers are left behind because of the lack of core competencies and resources from a strategic point of view of banks [12]. From the perspective of the resource-based view, those results are not a surprise. However, especially the last three mentioned business models have been objects to significant investments of German banks during the last two years.

Finally, the evaluation results can be further clarified. Using the e-commerce classification grid, a better understanding about the portfolio-related interdependencies between the business models can be achieved (Fig. 3).

The grid points out the common characteristics of B2B e-commerce business models by looking at their strategic focus (i.e., strategic role) and at the customer resp. business processes they support. One can now assume that if business models belong to the same cluster, they will face comparable challenges and solve similar customer problems. By using each other's competencies, experiences, and even corporate contacts to the customers, the clustered businesses will be able to further competitive advantages.

Figure 3. Cluster of business models in the B2B e-commerce classification grid



Such a systematic approach helps to analyze business portfolios effectively in the course of the decision process because they put single business models into the context of the whole portfolio of new and already existing businesses. By doing so, it becomes easier to develop an understanding of positive and negative effects that are related to the chosen strategic parameters (here: strategic roles and areas of business processes) of your business portfolio.

## 7. Conclusion

Technological innovations push ahead the development of the information society. This in turn transforms the economy. It creates opportunities in particular for banks – the traditional information processors – as well as risks, such as the erosion of traditional markets. The development of B2B e-commerce is a strong sign of the crucial impact that this process has on traditional business structures and the way companies do their business. This is exemplified by the changes in the procurement processes of companies via electronic marketplaces or by several ASP-based service providers which offer certain corporate processes as an alternative to in-house solutions.

Instruments and practices which support the process of strategy development have to be reconsidered during times of significant shifts of business patterns. These instruments and practices must take into account theories of strategic networks and customer process orientation. Concepts like market maturity or core competencies have to be an integrative part of strategic planning.

The analysis of B2B e-commerce in the German banking sector showed that some favored business models like e-marketplaces could not perform well. However, German banks invested substantially in e-marketplaces. Such decisions underline the necessity of a wider perspective which does not only include the latest information technology available. Business models combining proven core competencies with new information technology could outperform purely technology-driven business models. Those results show that it may be favorable for a bank to constantly review old and new strategic business opportunities in a systematic way using a resource-based perspective.

The need for a new approach to assess innovative business opportunities and existing business portfolios in banks will increase – the further the economic transformation affects the banking business structures – itself. It is expected that a continuing deconstruction of banking processes (e.g., sales, product development, transaction services) will take place worldwide. The resulting concentration on selected banking processes will lead to strategic banking networks which will create value by combining the individual core competencies and specific resources held by the banking network partners. In order to apply the strategic tools and results presented in this paper to such modularized banking networks further research will be necessary.

## References

- [1] K. Bellmann and A. Hippe, *Management von Unternehmensnetzwerken*, Wiesbaden, Gabler, 1996.
- [2] B. Bond, D. Hope-Ross, L. Knight, C. Lenz, D. Miklovic, B. Reilly, E. Andren, and C. Ross, *E-Marketplaces: Is the Bloom Off the Rose?*, Gartner Group (ed.), Stamford/MA, 2000.
- [3] C. Boerner, *Strategisches Bankmanagement*, Munich, Oldenbourg, 2000.
- [4] B. Cameron, J. Meringer, and J. Murray, *The eBusiness Organization*, Forrester Research (ed.), Cambridge/MA, 2000.
- [5] J. Cramer, "E-Commerce: Wie viel man doch falsch machen kann!", in: *Bank und Markt*, Vol. 29, No. 6, 2000, pp. 14-19.
- [6] M. Davidow and M. Marlone, *Das virtuelle Unternehmen*, Frankfurt/M., Campus, 1993.
- [7] C. De Almeida Cunha, *Ein Modell zur Unterstuetzung der Bewertung und Auswahl von Strategiealternativen*, Aachen, 1989.
- [8] A. Dreyer, *Nutzwertanalyse als Entscheidungsmodell bei mehrfacher Zielsetzung*, Hamburg, 1975.
- [9] P. Evans and T.S. Wurster, *Blown to Bits*, Boston/MA, Harvard Business School Press, 2000.
- [10] P. Gloor, *Making the e-Business Transformation*, Berlin, Springer, 2000.
- [11] G. Hamel, "The Concept of Core Competence", in: G. Hamel and A. Heene (eds.), *Competence-based Competition*, Chichester, 1994, pp. 11-33.
- [12] G. Hamel and C. Prahalad, *Wettlauf um die Zukunft*, Vienna, Ueberreuter, 1995.
- [13] B. Heinrich and S. Leist, *Bankenarchitekturen im Informationszeitalter*, University of St. Gallen, 2000, <http://bai.iwi.unisg.ch/publ.htm> [access: Nov 14, 2000].
- [14] H.H. Hinterhuber, *Strategische Unternehmensfuehrung*, Vol. 1, 6th ed., Berlin, de Gruyter, 1996.
- [15] W. Hoffmeister, *Investitionsrechnung und Nutzwertanalyse*, Berlin, Kohlhammer, 2000.

- [16] C. Homburg, *Quantitative Betriebswirtschaftslehre*, 2nd ed., Wiesbaden, Gabler, 1998.
- [17] C. Homburg, "Strategieformulierung mit Hilfe von SPACE", in: *Zeitschrift fuer Planung*, Vol. 1, No. 1, 1990, pp. 51-67.
- [18] S. Jacobs, *Strategische Erfolgsfaktoren der Diversifikation*, Wiesbaden, Gabler, 1992.
- [19] H. Koch, *Integrierte Unternehmensplanung*, Wiesbaden, Gabler, 1982.
- [20] H. Kreikebaum, *Strategische Unternehmensplanung*, 6th ed., Stuttgart, Kohlhammer, 1997.
- [21] E. Kreilkamp, *Entwicklung eines praxisorientierten Scoringmodells nach dem Decision-Calculus-Ansatz zur Bewertung von Neuproduktideen*, working paper No. 3/76, Institut fuer Markt- und Verbrauchsforschung, Berlin, 1976.
- [22] W. Krueger and C. Homp, *Kernkompetenzmanagement*, Wiesbaden, Gabler, 1997.
- [23] K. Laakmann, *Value Added Services als Profilierungsinstrument im Wettbewerb*, Frankfurt/M., Lang, 1995.
- [24] P. Lay, "Insights into B2B Net Markets", in: *Under the Buzz*, Vol. 1, No. 5, 2000, pp. 2-6.
- [25] F. Mattes, *Electronic Business to Business*, Stuttgart, Schaeffer-Poeschel, 1999.
- [26] J. Meutgens and D. Moebus, "Neue Strategiepfade fuer das Firmenkundengeschaeft", in: *eBanker Magazin*, No.5, 2000, pp. 48-52.
- [27] J. Moormann, *Strategische Planung mit DSS-Generatoren*, Munich: VVF, 1989.
- [28] B. Newcomb, D. Weisman, B. Doyle, M. Macklin, and K. Kopikis, *Bill Presentment's Late Delivery*, Forrester Research (ed.), Cambridge/MA, 2000.
- [29] H. Oesterle, "Das Geschaeftsmodell im Informationszeitalter", in: H. Oesterle and R. Winter (eds.), *Business-Engineering*, Berlin, Springer, 2000, pp. 21-42.
- [30] H. Oesterle, E. Fleisch, and R. Alt, *Business Networking*, Berlin, Springer, 2000.



- [31] A. Picot and R. Neuburger, *Banken und das Firmenkundengeschäft im Internet-Zeitalter*, Cologne, Bank-Verlag, 2000.
- [32] A. Picot and R. Neuburger, "Virtuelle Organisationsformen im Dienstleistungssektor", in: M. Bruhn and H. Meffert (eds.), *Handbuch Dienstleistungsmanagement*, Wiesbaden, Gabler, 1998, pp. 513-533.
- [33] M.E. Porter, *Wettbewerbsstrategie*, 10th ed., Frankfurt/M., Campus, 1999.
- [34] M.E. Porter, *Wettbewerbsvorteile*, 5th ed., Frankfurt/M., Campus, 1999.
- [35] C. Puempin, *Strategische Erfolgspositionen*, Stuttgart, Haupt, 1992.
- [36] J. Rayport and J. Svoilka, "Exploiting the virtual value chain", in: *Harvard Business Review*, Vol. 63, No. 6, 1995, pp. 75-87.
- [37] A. Schraeder, *Management virtueller Unternehmungen*, Frankfurt/M., Campus, 1996.
- [38] C. Spivey Overby, P. Sonderegger, H. Manning, J. Meringer, A. Hardisty, and S. Roshan, *E-Commerce Integrators Exposed*, Forrester Research (ed.), Cambridge/MA, 2000.
- [39] J. Sterman, *Business Dynamics*, Boston, Irwin McGraw-Hill, 2000.
- [40] H. Strebel, "Scoring-Methoden als Entscheidungshilfen bei der Wahl von Forschungs- und Entwicklungsprojekten", in: M. Layer and H. Strebel (eds.), *Rechnungswesen und Betriebswirtschaftspolitik*, Berlin, E. Schmidt, 1969, pp. 251-278.
- [41] J. Sydow, *Strategische Netzwerke: Evolution und Organisation*, Wiesbaden, Gabler, 1992.
- [42] P. Timmers, "Business Models for Electronic Markets", in: *EM – Electronic Markets*, Vol. 8, No. 2, 1998, pp. 3-8.
- [43] M. Welge, and A. Al-Laham, *Strategisches Management*, 2nd ed., Wiesbaden, Gabler, 1999.
- [44] K. Westhead, C. Mortenson, J. Moore, and A. Williams Rice, *New Economy: Forget the Web, Make Way for the Grid*, Deutsche Bank AG (ed.), London, 2000.
- [45] K. Wilde, *Bewertung von Produkt-Markt-Strategien*, Habil., University of Munich, Berlin, Duncker and Humblot, 1989.

[46] U. Winand and K. Nathusius, *Unternehmensnetzwerke und virtuelle Organisationen*, Stuttgart, Schaeffer-Poeschel, 1998.

[47] R. Wise and D. Morrison, "Beyond the Exchange: The Future of B2B", in: *Harvard Business Review*, Vol. 78, No. 6, 2000, pp. 86-96.

[48] C. Zangemeister, *Nutzwertanalyse in der Systemtechnik*, Munich, Wittemann, 1976.

## Appendix

### Appendix A. Description of B2B e-commerce business model # 9

| <b>E-Procurement Services [25, 42]</b> |  |
|--|--|
| <b>Business Model # 9</b>              |  |
| <b>External Perspective</b>            |  |
| Target Customers                       | Medium sized enterprises   |
| Core Products and Services             | <ul style="list-style-type: none"> <li>- Application service providing (ASP)</li> <li>- Centrally hosted catalogue solutions</li> <li>- Execution and settlement of Internet auctions for clients</li> <li>- Selection of participants</li> <li>- Analysis of auction results</li> </ul> |
| Customer Process Orientation           | Business Support (Procurement)   |
| Sales                                  | Internet-based services  |
| Source of Earnings                     | <ul style="list-style-type: none"> <li>- Commissions for execution of auctions</li> <li>- Hosting fees</li> <li>- Other earnings from services like auction results analysis etc.</li> </ul>   |
| Geographical Focus                     | European or world-wide   |
| <b>Internal Perspective</b>            |  |
| Areas of Competencies                  | <ul style="list-style-type: none"> <li>- Industry know-how</li> <li>- Advisory competencies</li> </ul>   |
| Business Success Factors               | <ul style="list-style-type: none"> <li>- High service orientation and low settlement costs</li> <li>- Reliable Internet and auction technology</li> </ul>  |
| Generic Strategies                     | Differentiation by comprehensive and extensive added value services and/or specialization on specific industry sectors   |
| Strategic Role                         | Aggregator   |
| Co-operations                          | Other service providers for a full service approach (e.g., information broker)   |
| Organizational Structure               | Centralized (supplemented by sales and support teams)  |
| Exemplary Companies                    | <ul style="list-style-type: none"> <li>- Works.com</li> <li>- Portum AG</li> </ul>   |

Appendix B. Determination of the total scores of the B2B e-commerce business models

| Evaluation criteria ( $c_{mn}$ ) and dimensions ( $d_t$ )          | Evaluation criteria weights ( $w_{mn}$ ) and dimension weights ( $w_{dt}$ ) | Scores ( $cs_{mn}$ ) per business model ( $bm_x$ ) |        |        |        |        |        |        |        |        |           |
|--|---|--|--------|--------|--------|--------|--------|--------|--------|--------|-----------|
|  |   | $bm_1$   | $bm_2$ | $bm_3$ | $bm_4$ | $bm_5$ | $bm_6$ | $bm_7$ | $bm_8$ | $bm_9$ | $bm_{10}$ |
| $d_1$  | 0,36  |  |        |        |        |        |        |        |        |        |           |
| $c_{a1}$   | 0,24  | 3,2  | 3,1    | 4,0    | 3,9    | 4,1    | 3,3    | 3,9    | 3,9    | 3,7    | 3,8       |
| $c_{a2}$   | 0,21  | 3,6  | 2,9    | 3,6    | 3,4    | 4,8    | 3,0    | 2,9    | 2,9    | 3,0    | 3,9       |
| $c_{a3}$   | 0,19  | 3,0  | 3,9    | 4,5    | 4,0    | 2,8    | 3,7    | 3,4    | 3,3    | 4,7    | 4,5       |
| $c_{a4}$   | 0,19  | 3,4  | 3,6    | 2,8    | 2,5    | 3,3    | 2,3    | 2,1    | 2,3    | 2,3    | 2,3       |
| $c_{a5}$   | 0,17  | 2,9  | 3,3    | 2,5    | 2,4    | 2,8    | 2,1    | 2,8    | 2,1    | 2,9    | 2,9       |
| <b>Sum (<math>c_{an}</math>)</b>                                   | <b>1,00</b>   |  |        |        |        |        |        |        |        |        |           |
| <b>Dimensional score (<math>ds_{1x}=d_1*c_{mn}*cs_{nm}</math>)</b> |   | 1,16   | 1,20   | 1,27   | 1,19   | 1,31   | 1,05   | 1,10   | 1,07   | 1,20   | 1,27      |
| $d_2$  | 0,27  |  |        |        |        |        |        |        |        |        |           |
| $c_{b1}$   | 0,26  | 3,3  | 3,3    | 3,9    | 4,6    | 4,3    | 2,6    | 2,9    | 2,5    | 3,1    | 3,9       |
| $c_{b2}$   | 0,26  | 2,9  | 3,4    | 3,8    | 4,4    | 4,7    | 2,4    | 2,4    | 2,4    | 3,9    | 4,2       |
| $c_{b3}$   | 0,16  | 3,9  | 4,3    | 4,1    | 4,5    | 4,6    | 3,4    | 4,0    | 4,1    | 4,1    | 4,4       |
| $c_{b4}$   | 0,16  | 2,9  | 3,5    | 3,5    | 3,6    | 4,3    | 1,9    | 2,9    | 2,9    | 3,1    | 4,0       |
| $c_{b5}$   | 0,16  | 4,2  | 3,3    | 4,2    | 4,5    | 4,6    | 2,7    | 3,3    | 3,5    | 4,4    | 4,8       |
| <b>Sum (<math>c_{bn}</math>)</b>                                   | <b>1,00</b>   |  |        |        |        |        |        |        |        |        |           |
| <b>Dimensional score (<math>ds_{2x}=d_2*c_{mn}*cs_{nm}</math>)</b> |   | 0,91   | 0,95   | 1,05   | 1,18   | 1,22   | 0,70   | 0,81   | 0,80   | 0,99   | 1,14      |
| $d_3$  | 0,37  |  |        |        |        |        |        |        |        |        |           |
| $c_{c1}$   | 0,25  | 2,7  | 3,8    | 3,9    | 3,9    | 4,0    | 3,1    | 2,5    | 1,9    | 3,9    | 2,9       |
| $c_{c2}$   | 0,23  | 2,6  | 2,9    | 3,1    | 3,1    | 3,1    | 2,7    | 3,0    | 3,1    | 2,6    | 2,6       |
| $c_{c3}$   | 0,20  | 3,1  | 3,3    | 3,9    | 3,9    | 4,1    | 2,6    | 3,6    | 3,6    | 2,7    | 4,1       |
| $c_{c4}$   | 0,20  | 3,4  | 2,9    | 3,8    | 4,1    | 3,8    | 2,6    | 3,7    | 3,9    | 2,6    | 3,0       |
| $c_{c5}$   | 0,12  | 1,7  | 2,9    | 3,5    | 3,9    | 3,8    | 2,4    | 2,5    | 1,7    | 3,7    | 3,1       |
| <b>Sum (<math>c_{cn}</math>)</b>                                   | <b>1,00</b>   |  |        |        |        |        |        |        |        |        |           |
| <b>Dimensional score (<math>ds_{3x}=d_3*c_{mn}*cs_{nm}</math>)</b> |   | 1,03   | 1,19   | 1,35   | 1,39   | 1,39   | 1,01   | 1,14   | 1,07   | 1,14   | 1,15      |
| <b>Sum (<math>d_n</math>)</b>                                      | <b>1,00</b>   |  |        |        |        |        |        |        |        |        |           |
| <b>Total score (<math>ts_x</math>)</b>                             |   | 3,10   | 3,34   | 3,67   | 3,75   | 3,91   | 2,76   | 3,05   | 2,94   | 3,33   | 3,56      |

## Working Papers of Hochschule fuer Bankwirtschaft

### *Published papers:*

| <b>No.</b> | <b>Author/Title</b>  | <b>Year</b> |
|------------|--|-------------|
| 1          | Moormann, Juergen<br>Lean Reporting und Fuehrungsinformationssysteme<br>bei deutschen Finanzdienstleistern             | 1995        |
| 2          | Cremers, Heinz; Schwarz, Willi<br>Interpolation of Discount Factors  | 1996        |
| 3          | Jahresbericht 1996   | 1997        |
| 4          | Ecker, Thomas; Moormann, Juergen<br>Die Bank als Betreiberin einer elektronischen Shopping-Mall                        | 1997        |
| 5          | Jahresbericht 1997   | 1998        |
| 6          | Heidorn, Thomas; Schmidt, Wolfgang<br>LIBOR in Arrears   | 1998        |
| 7          | Moormann, Juergen<br>Stand und Perspektiven der Informationsverarbeitung in Banken                                     | 1998        |
| 8          | Heidorn, Thomas; Hund, Juergen<br>Die Umstellung auf die Stueckaktie fuer deutsche Aktiengesellschaften                | 1998        |
| 9          | Loechel, Horst<br>Die Geldpolitik im Waehrungsraum des Euro  | 1998        |
| 10         | Loechel, Horst<br>The EMU and the Theory of Optimum Currency Areas   | 1998        |
| 11         | Moormann, Juergen<br>Terminologie und Glossar der Bankinformatik   | 1999        |
| 12         | Heidorn, Thomas<br>Kreditrisiko (CreditMetrics)  | 1999        |
| 13         | Heidorn, Thomas<br>Kreditderivate  | 1999        |
| 14         | Jochum, Eduard<br>Hoshin Kanri / Management by Policy (MbP)  | 1999        |
| 15         | Deister, Daniel; Ehrlicher, Sven; Heidorn, Thomas<br>CatBonds  | 1999        |
| 16         | Chevalier, Pierre; Heidorn, Thomas; Ruetze, Merle<br>Gruendung einer deutschen Stromboerse fuer Elektrizitaetsderivate | 1999        |

|    |   |             |
|----|---|-------------|
| 17 | <b>Cremers, Heinz</b><br><b>Value at Risk-Konzepte fuer Marktrisiken</b>  | <b>1999</b> |
| 18 | <b>Cremers, Heinz</b><br><b>Optionspreisbestimmung</b>  | <b>1999</b> |
| 19 | <b>Cremers, Heinz; Robé Sophie, Thiele Dirk</b><br><b>Beta als Risikomass – Eine Untersuchung am europaeischen Aktienmarkt</b>                                      | <b>2000</b> |
| 20 | <b>Wolf, Birgit</b><br><b>Die Eigenmittelkonzeption des § 10 KWG</b>  | <b>2000</b> |
| 21 | <b>Heidorn, Thomas</b><br><b>Entscheidungsorientierte Mindestmargenkalkulation</b>  | <b>2000</b> |
| 22 | <b>Boeger, Andreas; Heidorn, Thomas; Philipp Graf Waldstein</b><br><b>Hybrides Kernkapital fuer Kreditinstitute</b>   | <b>2000</b> |
| 23 | <b>Heidorn, Thomas</b><br><b>Neue Moeglichkeiten durch die Namensaktie</b>  | <b>2000</b> |
| 24 | <b>Moormann, Juergen; Frank, Axel</b><br><b>Grenzen des Outsourcing: Eine Exploration am Beispiel von Direktbanken</b>  | <b>2000</b> |
| 25 | <b>Loechel, Horst</b><br><b>Die oekonomischen Dimensionen der ‚New Economy‘</b>   | <b>2000</b> |
| 26 | <b>Cremers, Heinz</b><br><b>Konvergenz der binomialen Optionspreismodelle gegen das Modell von Black/Scholes/Merton</b>   | <b>2000</b> |
| 27 | <b>Heidorn, Thomas / Klein, Hans-Dieter / Siebrecht, Frank</b><br><b>Economic Value Added zur Prognose der Performance europaeischer Aktien</b>                     | <b>2000</b> |
| 28 | <b>Horst Loechel / Guenter Georg Eberle</b><br><b>Die Auswirkungen des Uebergangs zum Kapitaldeckungsverfahren in der Rentenversicherung auf die Kapitalmaerkte</b> | <b>2001</b> |
| 29 | <b>Rita Biswas / Horst Loechel</b><br><b>Recent Trends in U.S. and German Banking: Convergence or Divergence?</b>   | <b>2001</b> |
| 30 | <b>Thomas Heidorn / Oliver Jaster / Ulrich Willeitner</b><br><b>Event Risk Covenants</b>  | <b>2001</b> |
| 31 | <b>Peter Roßbach</b><br><b>Behavioral Finance - Eine Alternative zur vorherrschenden Kapitalmarkttheorie?</b>   | <b>2001</b> |

- 32 Juergen Strohhecker / Zbynek Sokolovsky 2001  
Fit für den Euro Simulationsbasierte Euro-Massnahmenplanung für  
Dresdner-Bank-Geschaefsstellen
- 33 Frank Stehling / Juergen Moormann 2001  
Strategic Positioning of E-Commerce Business Models in the Portfolio  
of Corporate Banking

Price of printed version: DM 50,-- plus DM 5,-- for shipping

Download at: <http://www.hfb.de/forschung/veroeffnen.html>

**Mail address/contact:**

Bettina Tischel, Hochschule fuer Bankwirtschaft,

Sonnemannstraße 9-11, 60314 Frankfurt/M., Germany

Phone: ++49/69/154008-716, Fax: ++49/69/154008-728

E-Mail: [tischel@hfb.de](mailto:tischel@hfb.de)

**More information on Hochschule fuer Bankwirtschaft  
can be found at [www.hfb.de](http://www.hfb.de)**