

TYPES OF BUSINESS-TO-BUSINESS E-MARKETPLACES: THE ROLE OF A THEORY-BASED, DOMAIN-SPECIFIC MODEL

Sabine Matook
UQ Business School
The University of Queensland
Brisbane, Australia
s.matook@business.uq.edu.au

Iris Vessey
UQ Business School
The University of Queensland
Brisbane, Australia
i.vessey@business.uq.edu.au

ABSTRACT

In this study, we seek to further our knowledge of e-marketplaces by exploring empirically the existence of different types of business-to-business e-marketplaces. We used the reference model for electronic markets [Schmid & Lindemann 1998] as the theoretical foundation for a domain-specific model that we used to develop a set of coherent types of e-marketplaces, based on data from 24 German e-marketplaces. Analysis using multi-dimensional scaling identified three types of e-marketplaces that differed on whether they were horizontal or vertical in nature, the services they provide, and whether they erect market barriers. Interestingly, these factors are those that managers can control most readily and that they can therefore vary to produce an e-marketplace tailored to their business. We present a theoretical analysis of our e-marketplace types based in the literature on managerial control. Our theoretical analysis, the three types of e-marketplace we determined, and the domain-specific e-marketplace model we derived to conduct our investigation, provide a foundation for creating a cumulative tradition in e-marketplace research.

Keywords: business-to-business e-marketplaces, types of e-marketplaces, domain-specific e-marketplace model,

1. Introduction

Business-to-business electronic marketplaces (henceforth EMPs) are virtual technology-enabled trading spaces that facilitate the exchange of information, goods, services, and payments among multiple buyers and sellers across companies [Bakos 1998; Zwass 2003]. Their well-defined buyer-seller relationships differentiate them from other types of brokerage networks such as auctions [Lam & Harrison-Walker 2003].

EMPs are an integral part of conducting business online [White et al. 2007; Soh et al. 2006; Gengatharen & Standing 2005; Markus & Christiaanse 2003; Kambil & van Heck 2002; Koch 2002]. In recent years, there has been considerable growth in transactions conducted via EMPs in Europe [Bitkom 2006] and in the U.S. [Grigoryan 2006]. Further, online business-to-business transaction volume in China in 2002 was €7.228 billion, expanding to almost €199.679 billion in 2007 [eMarket Services 2008].

Although EMPs have now been in operation for several years, prior research has been slow to develop an appropriate foundation for future research [Zwass 2003]. Emphasis has been placed on understanding the effects of factors that influence the adoption and success of EMPs, and therefore ultimately guide future EMP developments. This type of research has produced a variety of classifications of business models, strategies, and success factors [see, for example, Hopkins and Kehoe, 2007; Gosain & Palmer 2004; Fairchild et al. 2004; Soh & Markus 2002]. Prior research has also focused on specific perspectives of EMPs, such as the services offered, the nature of the customers, and technical communication standards.

What is missing from prior research is a theoretical model of EMPs that structures and unifies the field. One of the major problems is that researchers view all EMPs as being similar and therefore do not distinguish among different types of EMPs. Studies of EMPs that do not explicitly recognize the fact that they are addressing essentially different objects fosters confusion in the field and hinders the development of well-defined and durable

knowledge. For research to progress, it is therefore important to identify types of EMPs with well-defined characteristics that differ in the way in which they conduct business.

We take a first, exploratory step toward addressing our objective of providing structure to the field of EMPs by developing a theoretically-based domain-specific EMP model, which we then examine empirically to identify three well-differentiated types of EMPs. We use the reference model for electronic markets [Schmid & Lindemann 1998] as the theoretical foundation for our domain-specific model. In our exploratory empirical study, we collected data from what are now known as hortals and vortals (horizontal and vertical industry orientation, respectively; European Commission Study, 2006), from which we identified our three types of EMPs using multidimensional scaling.

We also report the findings of a preliminary investigation into the effectiveness of the types of EMPs we identified. Specifically, we examined the relationship between EMP types and their success at the present time (evaluated as survival), four years after our initial data collection. Our analysis revealed meaningful relationships between our EMP types and their survival, thereby providing preliminary support for the three types of EMPs we identified.

The research we report is relevant not only to furthering the academic study of EMPs, but also to practitioners. The types of EMPs we identify can help to guide EMP decision makers in designing their on-line businesses by highlighting factors that distinguish the types of EMPs they might implement.

The paper is structured as follows. In the following section, we examine existing literature on EMPs to determine the research that is now needed to further enhance our understanding of the phenomenon. We then present the reference model for electronic markets as the theoretical foundation of our research. We tailor this model to the specific case of EMPs by developing a domain-specific EMP model that serves as the research model for our empirical investigation of types of EMPs. Next, we present our research methodology, followed by our data analyses, which resulted in the identification of a number of well-defined EMP types. Finally, we present the contributions, limitations, implications, and conclusions of our research.

2. Background to e-Marketplace Research

We first analyze prior literature on EMPs and then present the issues inherent in that research, as well as our proposed solution approach: to identify well-defined types of EMPs.

2.1. Prior Research

Prior research has largely focused on developing two types of EMP models: classification and success models. The models proposed to date have varied widely within these two major categories, as has the range of variables proposed as relevant. They have not, therefore, sought to develop coherent descriptions of EMPs [Lenz et al. 2002].

EMP classification models provide information that is particularly useful at an early stage of EMP development [Stockdale & Standing 2002] and, indeed, such models are found in the early EMP literature. These models simplify the study, analysis, and application of EMP concepts and strongly support both research and practice [Pateli & Giaglis 2004]. They focus most often on variables that describe business foundations (for example, traded products [Kaplan & Sawhney 2000; Wise & Morrison 2000], ownership structure and bias [Bakos & Nault 1997; Kaplan & Sawhney 2000]) and level of service offerings [Barratt and Rosdahl 2002].

EMP success models are designed to address the performance of an EMP once it has been established [O'Reilly & Finnegan 2005]. They therefore serve as an evolutionary step in moving from simple observations or descriptions presented in the classification models to more complex relationships reflecting how EMPs are likely to realize success. Such models may use a simple description of success factors [see, for example, Brunn et al. 2002; Fairchild et al. 2004; Lennstrand et al. 2001; Gengatharen & Standing 2005], or they may be based on theories that explain EMP success. Examples of theory-based success models include those of Soh & Markus [2002] who used Porter's [1996] theory of strategic positioning, and O'Reilly & Finnegan [2005] who used Kaplan & Norton's [1996] balanced scorecard approach.

2.2. Issues with Prior Research

There are a number of reasons why there is now a need to take the next step in understanding the structure and functioning of EMPs. First, the EMP models presented to date focus on just some of the aspects of importance to EMPs; for example, although they are highly dependent on Internet technologies, some models focus on strategic business issues but do not consider the underlying technology [Lennstrand 2001; Wise & Morrison 2000]. There have been a number of calls in the literature for an integrated approach that draws on multiple aspects of EMPs; see, for example, Amit & Zott [2001] and Gengatharen & Standing [2005]. As a starting point, such research would take a comprehensive view of EMPs that includes relevant factors influencing their structure and functioning rather than focusing selectively on a sub-set of the whole.

Second, because EMP success models are based on prior classification models, one would expect formal consideration of the relevance of variables identified in classification models to success models. This is not the

case, however. While some variables play a role in a number of EMP models and others appear in just one, most often little or no justification is given for their inclusion or exclusion. These observations suggest that future research should take a considered position when including and/or excluding variables for further examination.

Third, studies of EMP success use various definitions of success [see, for example, Brunn et al. 2002; Fairchild et al. 2004]. As a result, these studies present competing explanations of success and how to measure it. For example, some researchers use simple sales and profitability figures, while others use only technology-related success measures such as “number of hits on a webpage”, and/or the “number of page views per visitor session” [Clasen & Mueller 2006]. The lack of consistent measures, in general, therefore precludes comparison of the performance of the different EMP models.

Fourth, while some EMPs models are supported by empirical findings, often in the form of case studies [see, for example, Brunn et al. 2002; O’Reilly & Finnegan 2005; Fairchild et al. 2004], most EMP models lack empirical support [Lenz et al. 2002].

Finally, an implicit assumption underlying research to date has been that all EMPs share similar characteristics. As the different EMP models reveal, however, EMPs may vary widely in their objectives, their strategic partnering, the products they target, and the ways in which they function. Hence, it is likely that different researchers have produced different EMP models that emphasize different factors because they have examined a specific sub-set of the possible EMPs.

The five issues raised above suggest that, instead of developing such models further, we should focus on consolidating existing knowledge, for example, by seeking to identify different types of EMPs. Once that is achieved, we can then conduct focused studies based on each of the resulting types to create a richer picture of the phenomenon of EMPs.

3. Domain-Specific Model for Determining Types of e-Marketplaces

We use the reference model for electronic markets (RM-EM) [Schmid & Lindemann 1998] as the basis for conducting our research into types of EMPs.¹ We justify, first, the use of a reference model, in general, and, second, the RM-EM tailored to EMPs as the theoretical foundation for EMPs. We then use this reference model as the basis for developing a domain-specific model for determining types of EMPs.

3.1. Research on Reference Models in Electronic Commerce

Use of reference models (RMs) in IS is well-established, especially in German IS literature [Fettke & Loos 2003]. A reference model (RM) is a universal, generic model that can be used as a blueprint in the development of a field [Rosemann & Shanks, 2001; Becker et al. 2003]. RMs therefore represent classes of domains [Becker 2001], each of which supports the creation of domain-specific application models [Misic & Zhao 1999]. Using an RM to develop application-specific models is beneficial because the guidance it provides should result in developing an effective model in a shorter period of time.

Two types of RMs have been developed for e-commerce: 1) technically-focused RMs, which, at a high level, are based on a layered structure in which factors from different layers collaborate to provide the required functionality, openness, and flexibility [see, for example, Misic & Zhao, 2000; Fettke et al., 2005]; and 2) business-related RMs [see, for example, Schmid & Lindemann 1998]. Schmid and Lindemann’s “reference model for electronic markets” is the only one of which we are aware that addresses the domain of electronic markets. Hence we use this model as the theoretical foundation for investigating types of EMPs.

3.2. Reference Model for the Domain of e-Marketplaces

We first present Schmid & Lindemann’s [1998] reference model for electronic markets (RM-EM). We then show how it can be tailored to the domain of EMPs and evaluate its utility in this domain by examining its applicability to prior EMP research.

3.2.1. Reference Model for Electronic Markets

The RM-EM is presented in Figure 1. It was developed to support conceptually the analysis and redesign of emerging new “media,” including electronic markets [Schubert 1999]. It is based on prior research on e-business RMs, in particular, the Open Distributed Processing Reference Model [1998], the Open-EDI Reference Model [1997], and trading procedures for Open-EDI [Lee and Bons 1996]. The Open-EDI RM conceptualizes different aspects of electronic markets as “views.” Hence, views represent an important characteristic of the RM-EM.

¹ The model was developed at the Competence Centre for Electronic Markets at the Institute for Information Management, University of St. Gallen, Switzerland. Note that an e-marketplace is a special case of an electronic market.

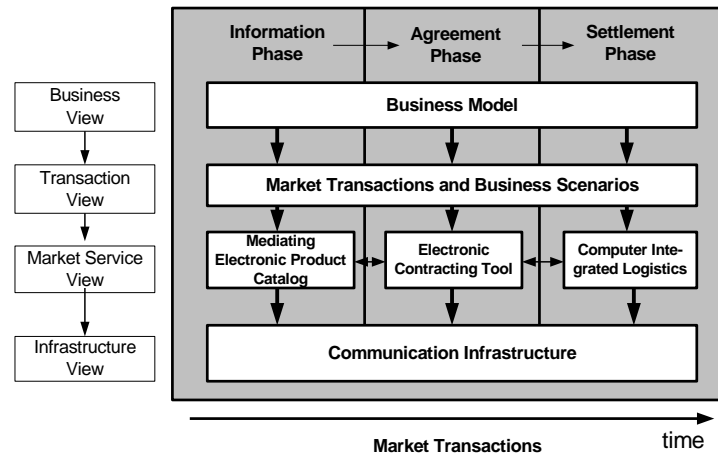


Figure 1. Reference Model for Electronic Markets [Schmid & Lindemann 1998]

The RM-EM has received significant recognition as the conceptual architecture for EMs. A number of studies have used it to address the analysis and the design of EM-related issues. For example, it has been used to analyze the business model of the Amazon.com website [Klose & Lechner 1999], to evaluate online communities [Stanoevska-Slabeva & Schmid 2000], and to investigate IT support for the procurement process within the Korean public sector [Kim et al. 1997].

3.2.2. Tailoring the Reference Model to the e-Marketplace Domain

As we have seen, the RM-EM presents the perspectives regarded as essential to EMPs as views. The four views result in a balanced treatment of different aspects of an EM, a characteristic indicative of a high quality RM [Micis & Zaho 2000]. The fact that this reference model integrates multiple aspects of EMs addresses one of the major limitations of the EM models examined in prior research, that of the lack of an integrated perspective. Below we present the four views of the RM-EM in the context of the domain of EMPs [Schmid & Lindemann 1998; Schubert 1999; Stanoevska-Slabeva & Schmid 2000].

Business View. The business view captures the essence of an EMP by defining its intended purpose. It also defines the roles and responsibilities of the EMP participants, for example, via organizational rules. Internally-focused rules coordinate the activities of the EMP participants, while externally-focused rules coordinate the activities of the EMP with its business environment. The factors in this view constitute the EMP business model.

Transaction view. The transaction view facilitates information and communication technology (ICT)-supported transactions by focusing on harmonizing the business model (in the business view) with buyers and suppliers in the environment to enable e-commerce activities. Marketplace transactions can be executed when EMP participants align their processes and trading policies with those of the EMP.

Market service view. The market service view specifies the communication and coordination services available to the EMP participants; for example, electronic payment or logistic services and electronic product catalogs and associated search engines [Schubert 1999, Stanoevska-Slabeva & Schmid 2000]. Such services support the matching of participants' buy and sell offers, as governed by the business view. Marketing services also include the provision of electronic catalogues, contracting tools, and logistics services, as well as electronic advertising.

Infrastructure view. The infrastructure view represents the telecommunication infrastructure. It enables the conduct of EMP transactions and the implementation of market services; that is, it ensures continuous support for information processing and communication processes for all EMP stakeholders. EMP participants interact with the EMP over the Internet using one of a number of e-commerce standards and applications [Esswein & Zumpe 2002; Shim et al. 2000; Fensel et al. 2002].

3.2.3. Validating Use of the Reference Model for Electronic Markets for e-Marketplace Research

To check whether the RM-EM is appropriate to serve as the foundation for our investigation of types of EMPs, we examined the extent to which the characteristics of the EMPs analyzed in prior research are reflected in its four views. The papers we selected for analysis were those published in recognized journals that took a comprehensive view of EMPs and that resulted in various classifications of EMPs and of EMP success. Table 1 shows how studies that examined or developed classification of EMPs and of EMP success address the characteristics of EMPs as represented in the views of the RM-EM.

Table 1. Mapping of Prior Research to Views in the Reference Model

Publications	Business View	Transaction View	Market Service View	Infrastructure View
Brunn et al. [2002]	✓	✓		✓
Bueyuekoezkan [2004]	✓	✓	✓	✓
Dai & Kauffman [2002]	✓		✓	✓
Daniel et al. [2004]	✓		✓	
Fairchild et al. [2004]	✓	✓		✓
Gengatharen & Standing [2005]	✓		✓	✓
Kalyanam & McIntrye [2002]	✓	✓	✓	✓
Kaplan & Sawhney [2000]	✓	✓		
Lee and Li [2006]	✓	✓		✓
Lennstrand [2001]	✓			
Mahajan & Venkatesh [2000]	✓		✓	
O'Reilly & Finnegan [2005]	✓	✓	✓	✓
Petersen et al. [2007]	✓	✓	✓	
Soh & Markus [2002]	✓	✓	✓	
Stockdale & Standing [2002]	✓		✓	✓
Tumolo [2001]	✓			✓
Wise & Morrison [2000]	✓			
Frequency of Occurrence	17	9	10	10

Use of the four views ensures a balanced perspective on EMPs. Although each of the four views is represented across all of the studies, the mapping process reveals that many studies are limited in their view of EMPs. There is, perhaps not surprisingly, greater support for the business view, which establishes the objectives of the EMP and must therefore be in place at initiation, than for the transaction, market service, and infrastructure views.

3.3. Domain-Specific Model for e-Marketplaces

We now develop a domain-specific model for EMPs to serve as the foundation for our empirical examination of types of EMPs. We do so by first determining a set of factors that is central to the functioning and viability of EMPs and then mapping those factors to the views in the RM-EM.

3.3.1 .Determining Factors Central to e-Marketplaces

Based on the variables identified as relevant in prior research, we identified factors for our domain-specific EMP model using the following criteria. Factors should be:

1. specific to EMPs;
2. perceived as important in multiple studies;
3. influenced or controlled by the EMP owner;
4. unambiguous and therefore not confounded with other factors.

Our analysis revealed seven factors in the EMP literature that met the above criteria. We also included two additional factors, market barriers and marketing strategies that are particularly relevant to EMPs. These additional factors derive largely from the marketing and industrial economics literature, although they are also acknowledged in the literature on EMPs. Grover & Teng [2001], for example, discuss the value of the services offered by EMPs in their attempts to capture new customers, while Petersen et al. [2007], Barratt and Rosdahl [2002], and Raisch [2001] emphasize the importance of services as factors that differentiate types of EMPs. Further, Gengatharen & Standing [2005] note that a good marketing strategy is a moderator for EMP growth.

To assess the practical relevance of the factors we identified, we conducted a number of informal interviews with European EMP experts from both academia and industry. Specifically, we conducted interviews with academics at conferences and workshops and with industry experts at meetings held at a university-based competence centre. We also conducted telephone interviews with two EMP executives and three EMP software vendors.

Table 2 presents variables identified both in prior EMP research and in the marketing and industrial economics literature, grouped according to the factors that are used to represent them in this study; that is, the factors are viewed as subsuming the related variables. The factors are defined Table 3.

Table 2. E-Marketplace Factors Examined in the Current Research

Factors	Prior Research Variables	Relevant Studies
Ownership Structure	Ownership Bias Ownership structure Governance Neutrality Type of marketplace	Bakos [1991], Soh & Markus [2002], Gengatharen & Standing [2005] Kaplan & Sawhney [2000] Lennstrand [2001] Brunn et al. [2002], O Reilly & Finnegan [2005], Fairchild et al. [2004] White et al. [2007]
Sources of Revenue	Income Income Stream Revenue Model Source of Revenue	Tumolo [2001] Stockdale & Standing [2002] Bueyuekoezkan [2004], Lennstrand [2001], Gengatharen & Standing [2005]
Type of Products	Product Complexity and Structure Traded Products Product Product description and asset specificity Product – Market Focus	Wise & Morrison [2000] Kaplan & Sawhney [2000], Petersen et al. [2007], Daniel et al. [2004] Fairchild et al. [2004] Dai & Kaufmann [2002] Soh & Markus [2002]
Type of Participants	Extent of fragmentation of customers Buyer vs. Seller Focus Participant – Market Function Buyer and Supplier	Wise & Morrison [2000] Brunn et al. [2002] Dai & Kaufmann [2002] Gengatharen & Standing [2005] Daniel et al. [2004]
Industry Orientation	Trading strategies Industrial characteristics Horizontal vs Vertical Focus	Kaplan & Sawhney [2000] Bueyuekoezkan [2004] Brunn et al. [2002], Petersen et al. [2007] Soh & Markus [2002]
Market Barriers	Market Entry Barriers Market Exit Barriers	Fairchild et al. [2004] Porter [2001]
Value-Added Services	Nature of value-added services Fulfilling participants' needs Value-added and demand Market accessibility level Market Functionality Core service offerings	Barratt and Rosdahl 2002, Gengatharen & Standing [2005], Petersen et al. [2007] Stockdale & Standing [2002] O Reilly & Finnegan [2005] Bueyuekoezkan [2004] Dai & Kaufmann [2002], Soh & Markus [2002] Holzmueller & Schluechter [2002]
Marketing Strategies	e-Marketing Mix e-Marketing Modelling	Kalyanam & McIntrye [2002] Mahajan & Venkatesh [2000]
e-Commerce Information and Communication Technology Platform	Seamless integration Technology Adoption Technology competence level Technology Quality and Security of Information Technology Infrastructure	Tumolo [2001] Dai & Kauffman [2002] Bueyuekoezkan [2004] Brunn et al. [2002], O Reilly & Finnegan [2005] Fairchild et al. [2004] Stockdale & Standing [2002]

Table 3. Descriptions of Factors in the Domain-Specific e-Marketplace Model

Ownership structure is a significant factor in the business view, which “determines the level of EMP functionality, profitability, and viability” [Bakos & Nault 1997]. EMPs may be owned by one or more buyers, sellers, independent intermediaries, or some combination of these entities [Ranganathan 2003]. EMPs that are owned by either sellers or buyers have an inherent bias towards their own participation group [Mahadevan 2003].

They can therefore gain benefits over other EMP participants. Hence the ownership structure has a significant impact on EMP goals and its proposed strategies [Mahadevan 2003]. EMP owners are also responsible for the way in which the marketplace operates [Buxmann & Gebauer 1998].

Sources of revenue are the different types of revenue that a business may seek. Because the revenue stream addresses the long-term sustainability of the business and, as such, must align with EMP goals [Mahadevan 2000], sources of revenue form the financial foundation of the business. EMPs may, for example, generate revenue on the basis of one-time use vs. regular membership fees, or transaction fees vs. a percentage of the value of a transaction [Timmers 1998; Lechner & Schmid 2001]. In addition to the fees for market transactions, advertising via the EMP results in financial benefits for the intermediaries; for example, online advertising in the form of banners and pop-up windows can be a large source of revenue [Mahadevan 2000].

Types of products, in the form of the goods and services traded, are central to the conduct of business. The main function of an EMP, assuming the existence of goods or services that can be exchanged over the EMP [Williamson 1983], is to match buyers and sellers [Bakos 1991]. The products that sellers offer via an EMP can be classified as A-, B-, and C-products using the managerial control approach of ABC-analysis, which classifies products by their complexity and their contribution to profits [Malone et al. 1987, Flores & Whybark 1986].

A-Products are expensive highly complex, strategically-important products that are purchased infrequently;

B-Products are intermediate in complexity and price (that is, they are neither expensive and complex, nor cheap) and are purchased moderately frequently;

C-Products are inexpensive, less complex products that are not strategically important and that are purchased frequently; they are often goods for maintenance, repair, and operation (MRO).

Types of participants are the buyers and sellers that demand and offer goods and services and are therefore essential participants in an EMP. Types of participants are often characterized in terms of business-to-consumer (B2C) and business-to-business (B2B) [Yadav & Varadarajan 2005; Phan 2003].

Industry focus refers to whether the EMP trades in vertical or horizontal industries. Horizontal EMPs are broad, offering transactions across industries, while vertical EMPs are specialized in that they focus on transactions in a particular industry [European Commission Study, 2006]. Because the industry focus addresses the relationship of a transaction to the type of processing that takes place within the EMP, it maps to the transaction view. Vertical EMPs require specialized industry knowledge, a good reputation, and trust between buyers and sellers [Raisch 2001]. They have the potential to become the trading platform for a whole industry, such as the automotive industry, or a branch of an industry, such as the sugar industry, which forms part of the food and drink industry.

Market Mechanisms such as barriers to entry and exit seek to ensure that an EMP has a critical mass of participants, thereby ensuring that the EMP is actively used [Daniel et al. 2004]. Knowledge of the EMP participants' is essential to achieving a "critical mass of participants" [Dai & Kauffman 2004]. Barriers to entry, which regulate the cost of entering a particular market [Katz & Shapiro 1985], include customer switching costs, product differentiation, and capital requirements (such as software), and EMP standards [Fairchild et al. 2004; Porter 2001]. Exit barriers are factors that mitigate against participants leaving a marketplace, such as value-added services, technology linkages, and financial dependencies (entry fees, bonus programs, credits) [Savvides 2006]. Because different entry and exit barriers may be used to constrain processing at various stages of a transaction, the market mechanisms in place regulate the transactions that are conducted, thereby influencing the number of participants who trade on the platform.

Value-added services (VAS) are those services offered by EMPs that supplement the foundational exchange services of the typical EMP [Barratt & Rosdahl 2002]. By providing a variety of additional offerings, including electronic catalogues and contracting tools, authenticating buyers and sellers, streamlining procurement workflow, risk management, contractual services, and conflict resolution [Dou and Chou 2001], such services generate additional value for EMP participants [Schmid & Lindemann 1998; Molla & Licker 2001]. EMPs also offer a selection of financial and logistics services. VAS can therefore help to improve buyers' satisfaction, generate trust, establish competitive advantage, and build loyalty [Choudhury et al. 1998].

Marketing strategies, which take place via internet technology, provide services for informing, educating, and convincing buyers as well as sellers to use the EMP [Bakos & Brynjolfsson 2000; Senn 2000]. They therefore map to the market service view. Such marketing strategies include: 1) introducing buyers to products and new product developments; and 2) informing suppliers about a company's needs; and 3) developing future strategies. By bypassing traditional channels, EMPs open up new marketing opportunities via customized contacts and variable-pricing models [Senn 2000; Mahajan & Venkatesh 2000]. Further again, internet marketing can revolutionize the marketing mix: as many as 25 new sub-elements of the traditional marketing mix have been identified, including promotion instruments such as sponsored links, online ads, and e-coupons [Kalyanam & McIntyre 2002].

E-Commerce Information and Communication Technology Platform is necessary to ensure continuous support for information processing and communication processes for all EMP stakeholders. The main challenge for e-commerce ICT is to fulfill the requirements defined in the other three views, which are characterized by a high level of connectivity and richness in the information transferred. The EMP infrastructure can be supported by technology solutions [Raisinghani & Hanebeck 2002], for example, standards, which establish a common vocabulary for describing products, facilitating product comparison, and providing visibility into the supply chain [Gosain et al. 2003], as well as making on-line business processes possible [Albrecht et al. 2005]. An analysis of e-commerce standards (for example, RosettaNet and ebXML), emphasizes the challenges participants face in communicating with an EMP when it does not support a variety of different standards [Esswein & Zumpe 2002; Shim et al. 2000; Fensel et al. 2002]. E-Commerce standards therefore support the conduct of transactions and enable the communication between the EMP and buyers and sellers, facilitating the exchange of information on price, quantity, availability, and quality information.

3.3.2. Mapping e-Marketplace Factors to Views

We now address the way in which our nine factors map to the four views to form the domain-specific EMP model. Because our factors apply across all phases of the views (information, agreement, and settlement) in the RM-EM (see Figure 1), we do not differentiate the views further.

1. Factors in the **business view** describe the way in which the EMP seeks to do business. They therefore represent major determining characteristics of the business aspects of an EMP. We mapped ownership structure, source of revenue, type of products, and type of participants to the business view of EMPs.
2. Factors in the **transaction view** operationalize the business functions identified as essential to supporting the business view. They therefore capture the environment in which the EMP transactions take place, and also describe the barriers that hinder or support the transactions. We mapped industry orientation and market barriers to the transaction view in our domain-specific model.
3. Factors in the **market service view** address the ways in which the EMP seeks to encourage participants to do business via the EMP. We therefore mapped both value added services and marketing strategies to the market service view of EMPs.
4. Factors in the **infrastructure view** provide IT support for all the higher-level views in order to facilitate the smooth operation of the EMP.

Our analyses resulted in the creation of the domain-specific EMP model, which highlights the factors identified as important to EMPs (see Figure 3).

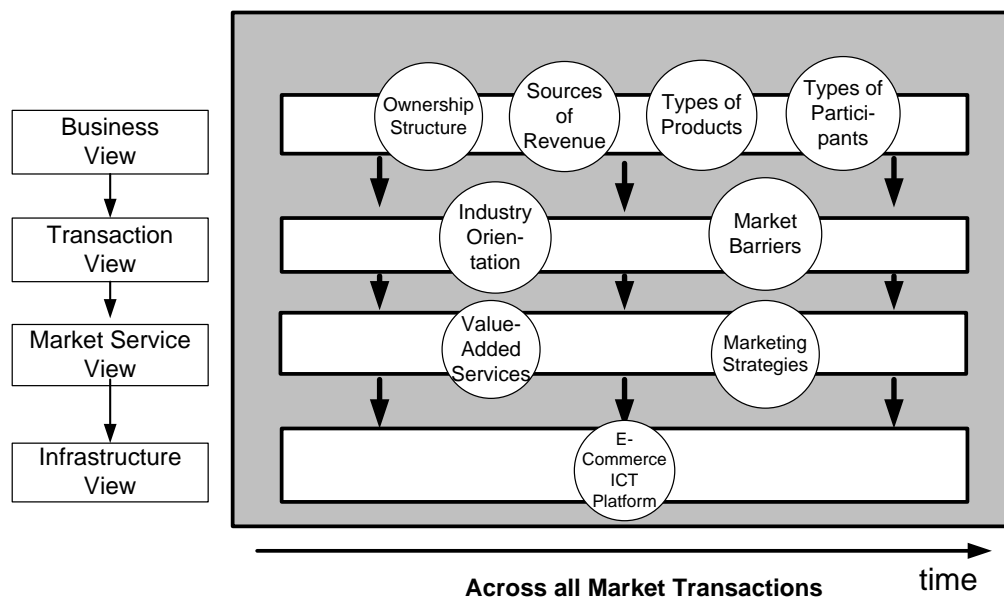


Figure 3. Domain-Specific Model of e-Marketplaces

4. Research Methodology

In this section, we present details of our survey instrument, the sample of EMPs we investigated, and the data used in our study.

4.1. The Questionnaire

We chose survey methods as an appropriate approach to collect data for developing types of EMPs based on our domain-specific EMP model. Collecting data using a survey is appropriate when a reasonably large number of respondents is required. We therefore developed a questionnaire, which we first tested in a pilot study prior to conducting the main study.

The questionnaire is presented in the Appendix. Because we focus on business-to-business EMPs, the factor *types of participants* is invariant in this research: that is, we examined only business-to-business EMPs. We therefore examined eight factors in our study. We collected data on each of the eight factors as a series of choices from which the respondent selected the option that best reflected the characteristics of their EMP. The factor choices stem from the factor definitions. Table 4 presents the factors and the associated measures.

Table 4. Factor Measures

Views	Factors	[i]	[ii]	[iii]	[iv]
Business View	Ownership structure	A seller	A buyer	An independent intermediary	---
	Sources of revenue	Free to participants	One source of revenue	More than one source of revenue	---
	Types of products	A-products	B-products	C-products	Any combination of the 3 choices
Transaction View	Industry orientation	Horizontal orientation	Vertical orientation	---	---
	Market barriers	Presence of market barriers	Absence of market barriers	---	---
Market Service View	Value-added services	Both logistic and finance services	Either logistic or finance services	Neither logistic nor finance services	---
	Marketing strategies	Zero marketing channel	One marketing channel	More than one marketing channel	---
Infrastructure View	e-commerce ICT platform	Zero standards	One standard	More than one standard	---

The questionnaire was piloted in hard-copy format in November-December 2002. It was distributed to nine EMP software vendors who were asked to evaluate the questionnaire items, focusing, in particular, on relevant aspects of EMPs that may have been omitted. We chose to survey EMP software vendors because we expected them to be aware of both the needs of the EMP operators and the EMP participants who used their software. Changes were made to the questionnaire to address their concerns. Further, the pilot study identified the need for a glossary of relevant terms to define, for example, terms such as horizontal EMPs and product categories. The questionnaire was presented online using WEB Objects and was accessible via internet browsers.

4.2. The Sample

We collected data on German EMPs because at the time of the study Germany had the largest concentration of EMP headquarters in Europe [Lenz et al. 2002]. The EMPs surveyed were selected based on the following criteria: 1) the EMPs supported both multiple buyers and multiple sellers, which ensured that we could distinguish EMPs from wholly-owned sell or buy side providers; and 2) the EMPs provided transaction capabilities, which enabled us to distinguish EMPs from other internet sites such as portals or search engines.

We accessed a number of sources to obtain the information needed to identify a comprehensive set of EMPs for participation in our study: 1) the Berlecon Research e-Market Directory (www.berlecon.de/research/); 2) databases of Internet Providers (www.b2b-web-germany.de and www.b2b-link.de); and 3) the Marketplace Guide of the German Association of Materials Management, Purchasing and Logistics (www.b2b-marktplaetze.de/). The selection process took place from July to October 2002.

Altogether, we identified a total of 85 EMPs. The sample included EMPs operating in a variety of different industry sectors including building and construction, chemicals, food, health care products and tools, electrical, automotive, insurance, energy, and raw materials, as well as a number of multi-industry EMPs.

4.3. The Data

Data in the main study were gathered over a 6-month period from January to June 2003. We targeted the CIO of the EMP as the appropriate person to respond to the wide variety of issues addressed in the questionnaire. In an attempt to maximize the response rate, we first contacted either the CIO or, failing that, the marketing manager, by telephone from January to March 2003, using contact information derived from the internet. We then followed up with an email message to those who agreed to participate, providing them with details of how to access the online questionnaire. During April and May 2003, we made two further telephone calls to encourage participants to finalize their responses to the questionnaire.

Although we obtained responses from 35 EMPs (41.2 percent), only 24 of those responses were complete, resulting in an effective response rate of 28.2 percent. Our response rate compares favorably with other online surveys. For example, Kaplowitz, Hadlock, and Levine [2004] obtained a response rate of 20.8 percent with email request alone, rising to 29.8 percent when the email request was preceded by surface mail solicitation, while Sheehan and Hoy [1999] obtained a response rate of 24 percent when the email request was preceded by email solicitation. Further note that our data set, based on 24 EMPs, was sufficient to utilize statistical techniques effectively [Baruch 1999].

5. Results

Both multi-dimensional scaling (MDS) and cluster analysis can be used to identify groups of EMPs whose members share similar characteristics. Given that we viewed these approaches as equally relevant, we chose to use multi-dimensional scaling over cluster analysis techniques based on our existing expertise. We first present details of the data analysis that led to the identification of the types of EMPs in our dataset, followed by the results of the analysis.

5.1. Data Analysis

MDS is an exploratory technique that can be used to investigate relationships among entities when the differentiators are not known. MDS data can be analyzed using metric or non-metric scaling techniques. Metric scaling requires the use of metric data, while non-metric scaling assumes that the data values are measured on an ordinal scale and therefore assesses the rank positions of the similarities [Grimm & Yarnold 1995]. Because our EMP data consisted of eight factors each measured on an ordinal scale, we used non-metric scaling. The similarity between pairs of items was therefore assessed by whether the two values were the same or different. The analysis was performed using ALSCAL in SPSS 12.0.1 (SPSS, Chicago, IL) and the distance matrix was generated using the bloc algorithm.

In MDS, the objects of interest are positioned in n-dimensional space with the locations expressing graphically the distances between the objects. Distances are calculated in terms of the similarities of the objects based on the data used to develop the MDS solution. The objects are distributed along a number of dimensions within the solution space; and the solution varies with the number of dimensions. The decision regarding the number of relevant dimensions is therefore important for the interpretation of the solution. Two related measures can be used to evaluate the fit of the data to different MDS models: 1) Kruskal's stress formula 1, the "s-stress," which is optimal when close to zero; and 2) R², which is optimal when close to 1.

Perusal of Table 5, which presents the goodness-of-fit measures for solutions with from 2 to 4 dimensions, shows that the solution improves as the number of dimensions increases. Hence, the researcher must make a trade-off between the number of dimensions and the fit of the solution [Hair et al. 2006]. Because of the difficulties of making sense out of more than three dimensions, research typically investigates either two or three dimensions. Therefore, in the interests of interpretability, we selected a 3-dimensional solution for our analysis of EMPs. The s-stress value for the three-dimensional solution is regarded as fair [Kruskal & Wish 1978]. The decision to use the three-dimensional solution is supported by the fact that we succeeded in identifying three well-defined types of EMPs.

Table 5. Comparison of Goodness-of-Fit for the n-Dimensional Solutions

Dimensions	S-Stress	R ²
2	.257	.642
3	.157	.787
4	.095	.899

5.2. Emergent Types of e-Marketplaces

Because MDS is a visual mapping technique that identifies similarities to facilitate comparison of the objects examined, there is a certain amount of flexibility and consequent subjectivity inherent in interpreting the findings and naming the groupings. Interpretation of the MDS solution therefore requires the researcher’s knowledge and expertise in the area under investigation.

Groupings of similar EMPs are determined by noting those EMPs that are so closely related that they retain their relative positions on multiple rotations of the space around each of the dimensions (axes). Because MDS positions the EMPs in a 3-dimensional conceptual space based on their similarities, we use the characteristics from which the similarities are derived as the basis for identifying the groupings.

Figure 4 illustrates the three-dimensional MDS solution space with three groupings of EMPs circled, while Table 6 presents the data underlying our three types of EMPs and the labels that best describe each of the three types.

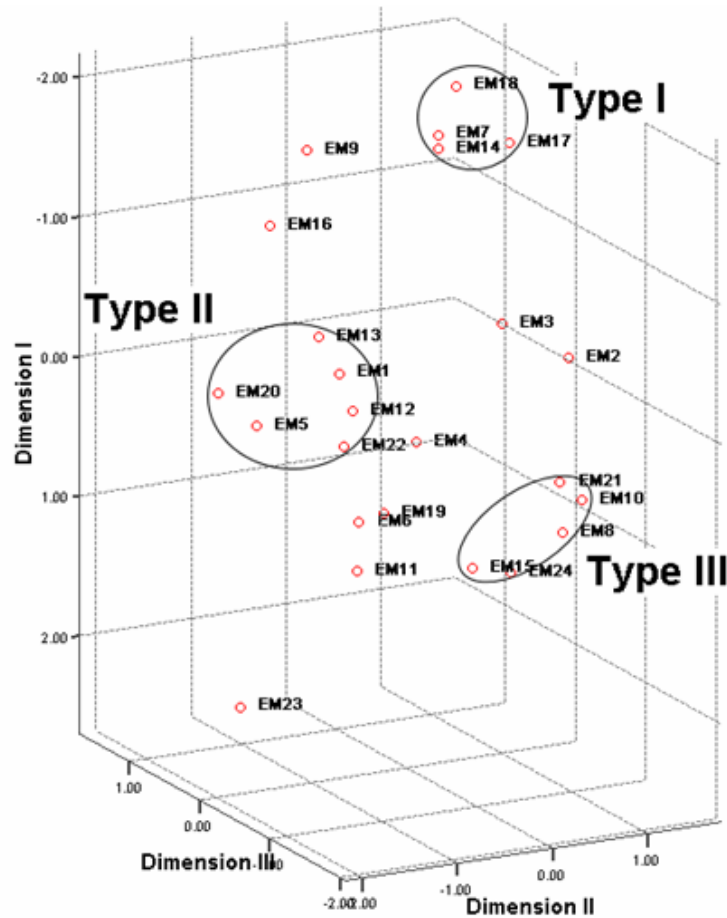


Figure 4. Three-Dimensional MDS Solution

Type I EMPs are independent, horizontal marketplace operators who offer all types of products based on an adequate e-Commerce ICT platform. They rely on a single source of revenue, provide a large number of services,

use barriers to protect their business, and engage in a reasonable amount of marketing. Like Type I EMPs, Type II EMPs are independent, horizontal operators who offer a variety of products, employ barriers for business protection, and use an adequate e-Commerce ICT platform. They differ from Type Is in that they rely on one or more revenue sources, engage in more marketing activities, and are likely to offer fewer services. In contrast to both Types I and II, Type III EMPs are independent, vertical marketplace operators who again offer a variety of products based on an adequate ICT platform. They also use a single source of revenue. However, they offer few services, engage in fewer marketing activities, and do not use market barriers.

We now examine in more detail the groupings that emerged based on the characteristics in the domain-specific EMP model, in more detail. It is interesting to note that a number of factors change little across the three types of EMPs. They are: 1) the ownership structure; 2) the number of sources of revenue; 3) the types of products; and 4) the e-commerce ICT platform. None of these factors therefore helped to differentiate among the types of EMPs identified. First, all of the EMPs, with the exception of a single supplier-owned EMP in Type II, are independently owned. Second, almost all EMPs have a single source of revenue, with just a few having two or more sources. Further, a few EMPs allow trading free-of-charge. Third, contrary to prior research, there are only minor distinctions among the types of products offered by different types of EMPs, with EMPs in each of the types trading in specialized as well as commodity products. Type I EMPs, alone, are consistent in that each trades in all of the A, B, and C product-types. Fourth, the number of e-commerce ICT standards, a surrogate for the sophistication of the e-commerce platform, varied little with the type of EMP.

Table 6. Characteristics of three Types of e-Marketplaces in the 3-Dimensional MDS Solution

EMP #	Ownership Structure	# Sources of Revenue	Types of Products	Industry Orientation	Market Barriers	VAS	Marketing Strategies	e-Commerce ICT Platform
Type I: Broad, Service-Oriented EMPs								
7	Independent	1	A, B, C	Horiz.	Yes	Fin. or Log.	Medium	2
14	Independent	1	A, B, C	Horiz.	Yes	Fin. or Log.	Medium	-
17	Independent	1	A, B, C	Horiz.	-	Fin. or Log.	High	1
18	Independent	1	A, B, C	Horiz.	Yes	Fin. and Log.	Medium	-
Type II: Broad, Minimal-Service EMPs								
1	Independent	1	C	Horiz.	Yes	Fin. or Log.	Medium	-
5	Independent	> = 2	C	Horiz.	Yes	-	High	1
12	Independent	1	C	Horiz.	Yes	-	Medium	1
13	Independent	> = 2	A, C	Horiz.	Yes	Fin. or Log.	High	2
20	Supplier	-	A, B	Horiz.	Yes	-	Medium	1
22	Independent	1	B	Horiz.	Yes	-	Medium	-
Type III: Focused, Minimal-Intervention EMPs								
8	Independent	1	B	Vertical	-	Fin. or Log.	Low	-
10	Independent	1	A, B	Vertical	-	-	Low	2
15	Independent	1	C	Vertical	-	-	High	-
21	Independent	1	C	Vertical	-	Fin. or Log.	Low	-
24	Independent	1	A	Vertical	-	-	Low	1

The types of EMP are therefore differentiated based on: 1) industry orientation; 2) market barriers; 3) value-added services; and 4) marketing strategies. Industry orientation is a major differentiator. Types I and II operate across a wide variety of industries and are therefore horizontal in nature, while Type III operates within a given industry and is therefore vertical in nature. We use the terms “broad,” reflecting a horizontal industry orientation, and “focused,” reflecting a vertical industry orientation, as the initial differentiator of the types of EMPs we identified. The two broad types of EMPs are differentiated based on the value-added services they provide. Type I, which offers substantial finance and logistics services, consists of *broad, service-oriented e-marketplaces*. Type II, on the other hand, which offers much more limited services or no services at all, consists of *broad, minimal-service e-marketplaces*. Both of these types of EMPs erect market barriers and both engage in substantial marketing strategies to attract and/or retain participants. Interestingly, Type III consists of focused marketplaces that operate within a given industry without any other type of intervention. Hence, we refer to such EMPs as *focused, minimal-intervention e-marketplaces*.

Table 7 summarizes the characteristics of our three types of EMPs, while Figure 5 shows the views that differentiate our types of EMPs in the context of the domain-specific EMP model. They highlight, in particular, the fact that the business and infrastructure views play no role in differentiating our types of EMPs and that the factors that differentiate the EMP types form part of the transaction and market service views, alone.

With respect to the fact that none of the four factors in the business view served as differentiators of our EMP types, it appears likely that in the earlier stages of development EMPs may have simply implemented their traditional business models in the online environment [Timmers 1998]. If this is the case, then it may be irrelevant whether the business is conducted online or not. With respect to the fact that our types of EMPs do not differ based on the e-commerce ICT platform, it seems likely that EMPs view the provision of an e-commerce infrastructure as an essential, though not defining characteristic of their business. This view is supported by the notion that technology itself neither creates a competitive advantage [Carr 2003] nor establishes a unique selling position [Holzmueller & Schluechter 2002]. Hence, EMPs may simply need to be assured that the technology is sufficient to conduct the required operations and they may therefore be content with a simple technology platform that might be regarded as a commodity.

Table 7. Summary of Types of Business-to-Business e-Marketplaces

Transaction View		Market Service View	
Industry Orientation	Market Barriers	VAS	Marketing Strategies
Type I: Broad, Service-oriented e-Marketplaces			
Horizontal	☑	☑	☑
Type II: Broad, Minimal-service e-Marketplaces			
Horizontal	☑	—	☑
Type III: Focused, Minimal-intervention e-Marketplaces			
Vertical	—	—	—

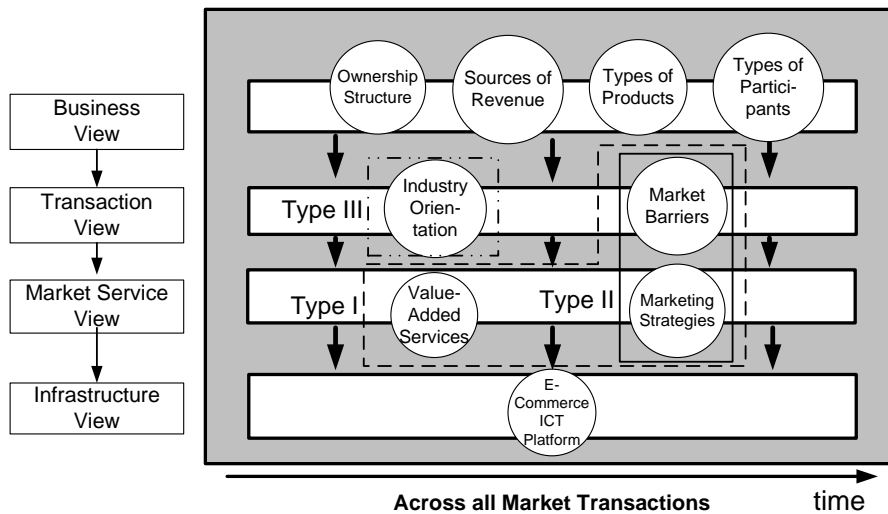


Figure 5. Types of e-Marketplaces in the Context of the Domain-Specific EMP Model

6. Discussion

Our decision to develop a well-defined set of EMPs was motivated by the need to structure future research on EMPs. We first used Schmid and Lindemann's reference model for electronic markets (1998) to create a domain-specific EMP model. We then used multi-dimensional scaling to identify types of EMPs based on a dataset of 24 EMPs. Here we consider further theoretical and practical aspects of our types of EMPs, as well as the limitations of our study. We then present the contributions of our research, followed by the implications for research and practice.

6.1. Some Further Considerations for e-Marketplace Types

The discussion of our findings centers on examining potential theoretical support for our types of EMPs, presenting a first, preliminary evaluation of those types by examining whether there is a relationship between EMP types and survival of our EMPs four years after the initial data collection, and presenting the limitations of our research.

6.1.1. Theoretical Underpinnings

Theories of managerial control [Ouchi 1979, 1980] may explain the role that market barriers play in the types of EMPs identified. On the one hand, the lack of market barriers in the focused, vertical EMPs exemplified by Type III typifies the use of informal clan control. A clan is a group of individuals who are dependent on one another and who share a set of common goals [Ouchi 1980]. Because the EMPs in our Type III do business in the same industry, they have a relatively close, direct relationship with the EMP, a relationship that we can liken to that in a clan: members of the clan must conform to the set of common values, beliefs, and philosophy that form the underpinnings of the clan, which thereby exert indirect or informal control over the behavior of e-marketplace participants.

Contrast the situation in the focused, vertical EMPs of Type III with the open stance of our broad, horizontal e-marketplaces, exemplified by Types I and II, which have little or no personal contact with their participants. Such EMPs appear to feel the need to institute formal methods of control and the barriers we observed may be explained by analogy to the formal control mechanism of behavioral control. Behavioral control is implemented when appropriate behaviors are known or when actual behavior is observable to the controller [Eisenhardt 1985; Kirsch 1997]. In this instance, the EMP seeks to enforce appropriate behavior by applying entry and exit barriers in such a way that a participant has little choice but to conform or pay high switching costs.

6.1.2. Preliminary Evaluation

As an initial check on the validity of the types of EMPs we identified, we examined whether some types of EMPs were more successful over time than others. We investigated success, as survival, four years after the initial data collection. Note that, of the EMPs we refer to as “failed,” we could determine the fate of eight of the nine unequivocally. Table 8 presents the findings.

Table 8. Longer-Term Survival of Types of e-Marketplaces

EMP Type	EMP#	Current Status	Survival –Failure
Type I: Broad, Service-Oriented EMPs			Tendency to survive
	7	No longer operational; now a procurement consulting firm	
	14	Operational EMP	
	17	Operational EMP	
	18	Operational EMP	
Type II: Broad, Minimal-Service EMPs			Tendency to fail
	1	No longer operational; auction platform	
	5	Operational EM; merged to grow	
	12	No longer operational; now an e-Commerce consulting firm	
	13	No longer operational; no active link	
	20	No longer operational; information portal, only	
	22	No longer operational; web site accessible but not maintained	
Type III: Focused, Minimal-Intervention EMPs			Mixed findings
	8	Operational EMP	
	10	Operational EMP	
	21	Operational EMP	
	24	No longer operational; information portal, only	
	15	No longer operational; closure announcement on web page	

Perusal of Table 7 reveals substantial differences in the success of the EMPs in our three EMP Types. Type I EMPs largely survived the four years following our initial investigation (three survived, one failed). In contrast, Type II EMPs largely failed (one survived, four failed). The fact that the horizontal EMPs that survive (Type I) sought to exert a number of influences over their participants, while those that did not survive (Type II) did not, is perhaps, not surprising, given that our observations are consistent with theory on the fact that broad EMPs engage in behavioral control. The findings for Type III EMPs are mixed, with two surviving and two failing. Further research is needed to examine why certain Type III EMPs can be successful using clan control, while the others cannot.

Hence, our characterization of EMP types has meaning not just at the time of our examination but also in the longer-term. This analysis therefore provides substantial support for both our analysis and for our theoretical characterization of types of EMPs.

6.1.3. Limitations

Our research has a number of limitations, which can be addressed in future research. First, the dataset we used for the development of EMP types was small, consisting of 24 EMPs. This group of EMPs was, however, sufficient for us to determine three well-defined types of EMPs, thereby demonstrating the usefulness of our domain-specific EMP model. Further, the fact that our types of EMPs led to a meaningful analysis of their longer-term survival is further support for the utility of our research objective: to determine well-defined types of EMPs. Second, the EMPs we investigated consisted of the population of German EMPs at a time when Germany hosted the largest concentration of EMP headquarters of any European country. We have no reason to believe, however, that studying this group of EMPs biased the findings of our study.

6.2. Contributions to e-Marketplace Research

Both our domain-specific EMP model and the types of EMPs we derived contribute to knowledge in the field of EMPs. The domain-specific EMP model, which we developed as the basis for deriving our types of EMPs, unifies the disparate knowledge related to factors influencing EMPs. In particular, the structure of the framework, which includes four distinct views of EMPs, offers a foundation for the field that may be used in future research. For example, the business view may be used as the basis for research into strategic management, while the infrastructure view may be used as the basis for research into the application and integration of software standards.

The identification of a number of well-defined types of EMPs facilitates the conduct of studies focused on each of the resulting types. Research that distinguishes among different types of EMPs is likely to afford more definitive findings than research that addresses the characteristics of a number of undifferentiated EMPs. Specifically, it will facilitate the development of theories that relate to a given type, thereby playing a major role in developing a cumulative tradition in EMP research.

Further, in identifying Ouchi's theories of managerial control as an appropriate foundation for our types of EMPs, our research also makes a direct theoretical contribution to EMP research.

6.3. Implications for Research and Practice

From the viewpoint of future research, our types of EMPs need first to be substantiated using a larger dataset. Such a study would confirm or refute the existence of our original types of EMPs, as well as potentially identifying additional ones. While our analysis of EMP success based on the types of EMPs we identified provides substantive evidence that certain of our EMP types may well endure over time, different types of EMPs may well emerge in later datasets either because they represent a set of more mature EMPs, or because the field has evolved. Second, given the fast-changing business environment from which EMPs emerged, it would be interesting to investigate the stability of our domain-specific EMP model over time. It is possible that the set of relevant variables and associated factors will change over time. For example, in addition to traditional factors, future research might also investigate the effect of the emergence of service orientation in EMPs. Third, further research needs to be conducted to determine the basis for the mixed findings for the success of Type III EMPs. For example, from a theoretical viewpoint, it would be important to establish whether the EMPs we identified conform to the definition of a vertical EMP.

From the viewpoint of practice, our domain-specific EMP model provides managers not only with a way of conceptualizing the complexity inherent in EMPs, but also with the most important characteristics of each of the different yet integrated aspects of EMPs. Interestingly, the differentiating factors are ones that a manager may adjust quite readily. Specifically, EMPs need to focus on market transactions and services to develop long-term relationships with customers willing to trade on their exchanges.

The types of EMPs we identified represent three distinct design options for practice. There are two implications for practice. First, a major practical contribution of this research relates to the relationships among the factors that EMPs choose to implement. For example, with respect to horizontal EMPs, market barriers are usually employed, while value-added services are important to their success, as evidenced by our analysis of EMP survival over time. As we have seen, however, our findings leave open the possibility that vertical EMPs may be more likely to succeed if they implement either value-added services or marketing strategies. By making these kinds of links, decision makers may use our EMP types as a starting point for the strategic positioning of their EMPs.

Second, the types of EMPs we identified provide managers with a useful platform for comparing their existing or projected EMPs. In planning an EMP, it is also important to remember that, although they did not differentiate the types of EMPs we identified, decisions must also be made on a range of factors in the business and infrastructure views. Driedonks et al. [2005] and Giaglis et al. [2002] offer guidance on the design of the business and infrastructure views.

7. Conclusions

The effective management of business-to-business e-marketplaces is a widespread challenge in today's organizations. Many different factors characterize EMPs and the organizational benefit and functionality EMPs can provide, so many, in fact, that research has been hindered by a lack of clarity. We developed a domain-specific EMP model for (business-to-business) EMPs from which we developed a number of types of EMPs so that future research can be clearer about the nature and type of the EMPs under investigation.

The types of EMPs we identified are: Type I - Broad, service-oriented EMPs; Type II - Broad, minimal-service EMPs; and Type III - Focused, minimal-intervention EMPs. Types I and II EMPs, which are horizontal in nature, seek to accommodate a range of participants. They do so by exercising behavioral control; that is, by controlling participant behavior via their entry and exit strategies. The successful, horizontal EMP (Type I) also offers a number of services as incentives to retain participants. Type III EMPs, which enjoy mixed success, are vertical EMPs, which operate under clan control, thereby relying on their relatively close, direct relationship with their participants rather than instituting barriers or offering additional services.

From a research perspective, this study is the first attempt of which we are aware to seek to identify distinct types of EMPs. Our study therefore contributes to a cumulative tradition in the field of e-marketplaces. We offer our outcomes as a first step in helping to better understand this still evolving phenomenon of EMPs that will have major impact for years to come. From a practical perspective, managers can use our types of EMPs to highlight the choices they have in developing an EMP, and the factors that influence the functioning of their projected type of EMP.

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APPENDIX: Survey Instrument

Would you classify your ownership structure as: *[select one]*

Buyer Seller Independent intermediary

Which sources of revenue do you use at your marketplace? *(check those that apply)*

Price per transaction

Percentage per transaction

Membership fee

Advertising

Technology licenses

Sale of participants' marketplace information

Offering value-added services

Others

Which products are traded on your marketplace? *(check those that apply)*

A-products B-products C-products

How do you classify your marketplace? *[select one]*

Horizontal marketplace Vertical marketplace

Does on your marketplace market entry barriers and market exit barriers exist?

YES NO

Does your marketplace offer value-added services for logistics?

YES NO

Does your marketplace offer value-added services for finance?

YES NO

Which marketing strategies do you use to promote your marketplace? *(check those that apply)*

Advertising in print media (scholarly literature, commercial magazines)

Advertising on Websites (e.g. marketplace participants)

Public Relationship events with experts (exhibitions and fairs)

Others

How many e-Commerce communication standards does your e-marketplace support?