



WHY DID ELECTRONIC B2B MARKETPLACES FAIL?



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■ This paper deals with the various electronic marketplaces that were established in the late 1990s to facilitate business-to-business trading. Despite great expectations, most of them failed and ended their operations soon. Currently the same phenomenon seems to take place in the mobile industry, i.e. new business highly similar concepts are emerging and apparently some of them will fail in the future.

The purpose is to map out potential theories that can explain the failure of neutral business-to-business electronic marketplaces.

1.1 Background of the study

In the late 1990s, numerous business-to-business (hereafter B2B) marketplaces were established, and many experts anticipated great success for them. For instance, Gartner Group foresaw their transaction volume to be 8.5 trillion USD by 2005 (Ng 2005, 218), and Strategy Analytics predicted the global B2B transactions would be \$ 2.02 trillion in 2006 (Raisinghani & Hanebeck 2002, 86). Venture capital companies pumped hundreds of millions of USD in these marketplaces only in 1999.

These marketplaces were anticipated to change the way business was conducted in their fields by disintermediation, transparency of information, increased efficiency and increased sales (Cousins & Robey 2005, 212.)

The first attempts were made by start-ups that tended not to have much expertise in business, but were quite Internet savvy (Stockdale & Standing 2002, 227). Quite soon, however, major companies with their own ventures and spin-offs entered the competition.

After the Internet bubble busted, many researchers noted that B2B exchanges had failed to achieve a critical mass of participants to join in and use the marketplace (Koch 2001). Consequently, many of these ventures had ended their operations, changed their focus or downsized dramatically by the end of 2003 (Cousins & Robey 2005.)

Plenty of research exists about the effects of B2B electronic markets. Razi, Tarn & Siddiqui (2004) explore the failure and success of the so-called “DotComs”, but their main focus is on studying B2C services. Ganesh, Madanmohan, Seshadri & Seshadri (2004) focus on adaptive strategies of B2B electronic marketplaces in a situation in which a company must justify its strategy in order to survive. Schilling’s (2002) examines the role of technology and its success in situations in which network externalities exist. Some of her findings can also be applied in this study.

So far I have not come across multidisciplinary studies that would have their focus on the success and failure factors of B2B electronic markets. A review of previous research shows how the need for an electronic marketplace varies from one industry to another. My working hypothesis is that the overall structure together with a range of factors in an industry determines the type of a suitable marketplace.

This research is limited to marketplaces that predominantly trade with commodities or products that resemble them. Prices for products like coffee, cocoa, crude oil, food oils, orange juice are quoted daily in numerous exchanges. These exchanges do not always facilitate the actual trading of their products, but rather unspecified quantities with certain product characteristics. Also the main focus will be put on marketplaces that operate world-wide, not only in domestic (e.g. US) or regional (e.g. EU) marketplaces. These global markets reflect best the needs and requirements of electronic marketplaces. (e.g. Eid, Trueman & Ahmed, 2002.)

Such marketplaces have succeeded because:

- They were well funded.
- Their value proposition was good.
- The technology was basically in place.
- There was a strong acceptance by different industry players.

(G. Hunt personal correspondence 6.4.2009.)

These exchanges have reduced costs for both buyers and sellers by streamlining the transaction process and by eliminating steps and intermediaries (Lightfoot & Harris 2003, 79).

Since many venture capital companies poured hundreds of millions of dollars into these B2B exchanges in late 1990s and early 2000s (e.g. Rovenpor 2004), this capital has secured the operations for several years, despite the tremendous “burning rate” in these companies.

These electronic marketplaces introduced multiple features and charged substantially smaller commissions than the traditional brokers. The starting commission, typically, was about 1% but with larger volumes it could

go down to 0.25% of the purchase. The features that these marketplaces included among others:

- Public exchange
- On-time industry information
- Handling of logistics and sample logistics
- Cargo insurance brokerage
- Financing of the trades
- Automatic documentation for customs etc.
- Anonymous neutral trading exchange
- Private exchange possibility

1.2 Research question

The aim of my paper is to carry out a theoretical review of the possible failure factors of electronic B2B marketplaces. The main question is:

- a. Which theories can best explain the failure of neutral electronic marketplaces?

The auxiliary questions are:

- b. What were the potential success factors for these electronic marketplaces?
- c. What were the failure factors of these electronic marketplaces?

It should be assumed that no single factor led to the failure of B2B electronic marketplaces, but a combination of a range of factors. (see Razi et al. 2004.) The idea here is to try to identify these factors and theories and thus formulate a synthesis to better understand the causes and reasons in the failure of B2B electronic marketplaces.

1.3 Limiting the scope of this study

This study is only limited to business-to-business electronic commerce and to B2B electronic marketplaces in particular. In the literature review, I will draw examples from other industries mirroring and reflecting their developments with B2B exchanges. This study will not discuss technological issues, such as whether the exchanges could actually perform the functions they were supposed to.

An additional concept, the capabilities and performance of a marketplace operator staff, will not be dealt in this study. They refer to competences, such as sales and marketing skills of the staff, management and leadership skills of the management and so forth. At this stage it is nearly impossible to evaluate such skills, particularly since a long time has passed since these marketplaces seized their operations. In addition, the performance of the staff will not be handled. It points to issues such as whether the salespeople had sufficient amount of contact with their customers etc. It is assumed that the skills and efforts were on adequate levels.

1.4 Marketplace defined

The terms B2B electronic marketplace and B2B exchange are used interchangeably here. The main focus is on exchange-type of marketplaces that were mainly designed for spot sourcing of manufacturing inputs. (see Kaplan & Sawhney 2000.) Moreover, the main focus is on vertical, rather than horizontal marketplaces, despite the fact that these exchanges may have operated various functions, such as private marketplaces. The previous literature typically uses a range of labels for nearly similar marketplace concepts, which tends to confuse the discussion.

In all, the concept of a B2B electronic marketplace / exchange points to a neutrally owned marketplace that can have multiple functions and is operating vertically within an industry, mainly trading manufacturing inputs, which can be considered commodities or commodity-like goods. Such an exchange is public in that sense that any, usually pre-qualified, buyer or seller can do trading there. One possible feature can be a private exchange function, in which a selected supplier/buyer can do trading with its own customer base.

If one or more players own majority of the shares in the exchange, it can not be considered as a neutral exchange or marketplace and should thus be called a consortia marketplace.

2

Electronic B2B marketplace success factors

■ This chapter provides a review of appropriate management and electronic commerce literature. Potential factors that should have enabled the success of these exchanges are presented first and later on various potential failure factors are discussed.

2.1 General success factors of electronic marketplaces in the light of prior studies

Horsti (2006, 26) defines success as being something that has a favorable outcome. Success, according to him, is always contextual and there is no absolute success. Tumolo (2001, 59–60) lists three critical success factors for exchanges: *mass, seamless integration and income*. Sufficient mass of buyers and suppliers increases liquidity, it is however difficult to determine what is sufficient mass for a single market. Kaplan & Sawhney (2000, 102) highlight the first mover advantages, because of the network effect and the logic of an exchange or an e-hub. They also list a range of settings where an exchange should work best. They are:

- Products should be commodities or near-commodities and trading could be done without seeing the actual product.
- Trading volumes should be massive relative to transaction costs.
- Sophisticated buyers and sellers in order to deal with dynamic pricing.
- There should be spot trading for evening up different e.g. seasonal levels of supply and demand.
- Logistics can be outsourced.
- Volatility of demand and prices (2000, 102).

Razi et al. (2004) add strategic causes as potential success factors. One of them is the ability to operate in niche markets where there are few competitors.

A promotional strategy can either be a success factor or a potential cause for failure. If the promotion is done properly, one must promote the domain name, the website itself and also the products and services traded in the service. (Razi et al. 2004, 240.) Even though Razi et al. discuss B2C, the same principles can be applied to B2B.

Eid et al. (2002) discuss critical success factors in B2B international Internet marketing, focusing mainly on the marketplace participants' role, and not in the marketplace operator's side. They present five critical success factor categories: marketing strategy, website design, global dimension and internal and external factors.

Marketing strategy related-factors include such items as top management support and commitment, setting strategic goals for Internet marketing, integrating the Internet with a marketing strategy, collaborating with different partners and deciding about the potential audiences (Eid et al. 2002, 112–115). To this list, Razi et al. (2004, 240) add product and service differentiation as potential success factors. As differentiation can be considered a typical marketing effort it ought to be included in the marketing strategy related factors.

Among the website related-factors there are items such as website design and its effective marketing (Eid et al. 2002, 115–116). Raisinghani & Hanebeck (2002, 94) support this viewpoint by stressing the richness of content as a key strategic success factor.

The factors related to the global perspective include the understanding of foreign marketing environments, sufficient resources for working globally, multilingual websites, culture considerations and international delivery availability (Eid et al. 2002, 116–118).

The fourth category, the internal factors consist of the technological infrastructure, the internal culture, the role of the sales force and training programs for the staff (Eid et al. 2002, 118–119).

The external factors consist of trust, security, successful relationships, and affordable Internet access and customer acceptance (Eid et al. 2002, 119–120).

Ordanini (2006), studying the business models of B2B exchanges, raises three main elements for a successful B2B business model:

1. Content, meaning that large firms are the main target customers
2. Governance, where established firms are stakeholders
3. Structure, in which dynamic matching mechanisms, auctions in particular, take place.

Fairchild, Ribbers & Noteboom (2004) explore the success factor model for electronic markets. They divide these success factors into two categories, namely context-related success factors and process-related success factors.

1. Context related factors are:
2. Motives of stakeholders
3. Critical mass
4. Complexity of product description
5. Asset specificity
6. Frequency of purchase
7. Value of products
8. Market variability
9. Regulations

Process related factors include:

1. Learning costs
2. Functionality and support
3. Trust
4. Partnerships
5. Quality of information
6. Security of information
7. Neutrality
8. Geographic location
9. Entry barriers

2.2 Success factors from electronic commerce hypothesis

When discussing success factors of electronic marketplaces, most electronic commerce literature refers to Malone, Yates & Benjamin (1987) or Bakos (1991). This is particularly true with studies published prior to 2001. Both the articles are relatively optimistic by nature and foresee great potentials for electronic marketplaces. These studies have been used to identify a range of potential success factors for electronic marketplaces discussed next.

2.2.1 The functionality of an exchange

An exchange should have proper functionalities so that it performs the activities that both buyers and sellers desire, and creates value for its users. Raisinghani & Hanebeck (2002, 91) point out that to succeed B2Bs must focus on transaction capabilities in industries that have a large number of buyers and sellers and in which mainly commodities are traded. They also suggest that a marketplace operator must have industry/domain expertise, backend integration, follow-up services and a strong two-sided value proposition (2002, 92). Moreover, the writers emphasize the ability to execute transactions, which refers to both the critical mass and technological capabilities of the marketplace. Ordanini (2006, 92) emphasizes the so-called dynamic tools, meaning that auctions ought to be able to make substantial savings in transaction costs because a significant part of the transaction costs occur after the transaction has been completed.

A sufficient number of buyers and sellers should increase the liquidity of a marketplace. However, the sole number itself is not enough, since they must engage in the trading as well. The trading must also be constant in order to sustain stability in the transaction fees for a particular marketplace (Tumolo 2001, 59–60.) This point is also supported by Fairchild et al. (2004, 75) who claim that the number of participants is not crucial, but the usage of the marketplace and volume and number of transactions count. Dai & Kauffman (2002, 68) add that companies tend to choose those electronic markets that provide both operating and production supplies. Such electronic markets “are destined” to be large and important players of the Internet in the future (ibid.)

However, Fairchild et al.’s (2004, 75) finding is that “value added functionality” does not significantly contribute to building a critical mass. They base their conclusion on case studies of four different B2B marketplaces (Fairchild et al. 2004, 77).

Han & Han (2001) divide customer value into two main components, content value and context value. The content value refers to the benefits offered to the customer through the contents they purchase. The term content may mean products, services or information offered at the site, and its value is considered as the functionality of the service. According to Han & Han (2001, 29), content value can be enhanced more easily with information and services rather than with the actual product itself. The context value, on the other hand, points to the benefits other than the generic offering that the service offers to its customers. It is offered in the transaction process and typically appeals to the emotional responses

of customers, whereas the content value appeals to the logical reasoning. (Han & Han 2001, 29.)

In commodity markets the importance of the context value increases, especially when no significant difference exists between the content values of different services (Han & Han 2001, 29). Eid et al. (2002, 120–121), supporting Han & Han, add that customer acceptance is vital and can be increased and enhanced with prompt replies to customer requests, with functionality in general and ease of use.

2.2.2 Integration with different systems

B2B marketplaces should be integrated with companies' financial systems, with financial institutions and with inventory management and forecasting systems (Tumolo 2001, 59–60). Kathawala, Abdou & von Franck (2002, 466–467) discuss the so-called “sticky solutions” that keep customers using the exchange. They may mean various value added services, including financing activities, insurance, escrow, logistics and market information. Lightfoot and Harris (2003, 81), supporting this idea, state that logistics firms should be tied in with B2B exchanges in order to provide the ultimate solution.

Dai & Kauffman (2002, 48) focus on integrating exchanges with other exchanges and IT systems. They point out how the compatibility of different networks will boost adoption of an individual network, and add that new technologies must be compatible with core technologies in the industry in order to succeed (Dai & Kauffman 2002, 47–48). This compatibility can be achieved with two mechanisms: standardization and adaptation. *Standardization* means that all technologies use same specifications so that components of various implementations would be interchangeable. (Dai & Kauffman 2002, 48). *Adaption* occurs when adapting systems are attached to the components of an existing system (Dai & Kauffman 2002, 48). Ordanini (2006) points out how large firms should be the primary customers of exchanges because of their capabilities in utilizing different IT systems and possibilities in integrating exchanges to their internal IT infrastructures. He adds that software platforms should have standardization features to guarantee efficiency gains, business process integration to address users' internal efficiency problems and negotiation tools that allow sellers and buyers to participate in the transaction before, during and after the actual transaction (Ordanini 2006, 93).

2.2.3 Products traded in the exchange

One basic assumption here has been that the products are commodities with commonly accepted, standardized product specifications (Malone et al. 1987, 486). In addition, the traded product brands are not transferred to the next level of the value chain. Malone et al. (1987, 487) add that when product descriptions are complex, hierarchical mechanisms suit better for trading. Bakos (1991, 298) point out that when products are identical across all sellers, buyers typically choose the seller with the lowest total cost, i.e. including the price to the seller, search and transportation costs and other costs involved in the transaction. For example, a consumer buying a car does not typically know and most likely does not want to know who supplied the steel to the manufacturer. According to Kaplan & Sawhney (2000, 102), a successful exchange trades commodities or near-commodities and trading could be done without seeing the actual product. Dai & Kauffman (2002, 55) add that when commodities are traded in large volumes the marketplace needs to have private negotiation mechanisms since supplier reliability and qualification are major concerns for buyers.

2.3 Success factors from theories of innovation diffusion

Plenty of research has been carried out on how innovations diffuse in a social system or in a society. The previous research has established five categories of adopters. The diffusion of an innovation may be illustrated with an s-shaped curve in which the first ones to adopt an innovation are called innovators. They form approximately 2.5 % of the population. The next adopters are called the early adopters (about 13.5 %). The early majority consists of around 34 % of the population and the late majority similarly of approximately 34 %. The last 16 % of the population are called laggards. (Solomon, Marshall and Stuart 2008, 260–261.)

The so-called first mover advantages have been amply discussed in the previous literature. When the first exchanges were established, a common belief was that the winner would take it all and whoever manages to enter the market first would be the winner. (Razi et al. 2004.)

2.3.1 Diffusion of innovations

Rogers (2003, 12) defines diffusion “as the process in which an innovation is communicated through certain channels over time among the members of a social system.” It is a process that consists of four elements: an innovation, communication, time and a social system.

The key element is naturally the innovation itself, which may be a new idea, a way of doing things or a product. It doesn't matter too much whether the innovation is absolutely a new one. The actual newness of an innovation is highly objective category, and depends on each individual user. Even though the product may be such that has been in the market for a while, each user has to try it first before knowing whether it is, from his/her point of view, an innovation (Rogers, 2003)

The second aspect in the diffusion process that Rogers (2003, 18) mentions is the communication and the channels involved. According to Rogers, communication is creating and sharing information aiming at mutual understanding about an issue that is in hand. It is essential in a diffusion process that one individual communicates to one or several new people about a new innovation. Communication channels are the means through which this information is been communicated. They may be divided into mass media and interpersonal channels.

The third element in the diffusion process is time, which is, in particular, linked with the innovation-decision process. Innovations do not diffuse instantly, but require a substantial time to be adopted, and therefore time is a key element in the process (Rogers, 2003).

According to Rogers (2003, 23) the fourth element in the diffusion process is a social system. It consists of interrelated units that try to reach a common goal. These units can be individuals, informal groups, organizations and/or subsystems. Diffusion takes place in a social system and affects the social system in multiple ways.

As mentioned above, diffusion takes time. According to Rogers (2003, 168–169), individuals and organizations adopt a new product in the innovation-decision process, in which an individual goes through following stages:

1. Knowledge: An individual learns about a new innovation and understands how it functions.
2. Persuasion: The individual forms a favorable or unfavorable attitude towards the innovation.
3. Decision: The individual engages in activities that lead either to adoption or rejection of the innovation.

4. Implementation: The individual puts the new innovation or idea into use.
5. Confirmation: The individual seeks reinforcement to the decision that he/she has already made. The individual might reverse his/her decision if conflicting messages about the innovation occur.

Important factors in diffusion are naturally the perceived attributes of an innovation in relation to competing products. According to Rogers (2003, 222–223), the rate of adaption is determined by five attributes. They are:

- Relative advantage
- Compatibility
- Complexity
- Trialability
- Observability

The term relative advantage means how an innovation is perceived better than the product that it is substituting. Very often it is expressed as economic profitability (e.g. cost savings), but the advantage may also be something else, social prestige for instance. The quality of an innovation determines which perceived advantages potential adopters are seeking. (Rogers 2003, 229; Hwang & Oh 2009, 11)

The notion compatibility is determined in relation to one's existing values, past experiences or the possible needs for potential adopters. In a study among Canadian firms Hadaya (2006, 180), notes that a company's past experience in e-commerce is positively reflected to the increased likelihood of future use of electronic marketplaces. This is especially true among SMEs, more so than with large corporations (Hadaya 2006, 182). The more the product suits the current situation and environment, the less it is surrounded by uncertainty and is more likely to be adopted in the social system. If an innovation is not compatible with current values and beliefs, it is likely that potential users will not adopt the product. (Rogers 2003, 240–241)

The complexity of an innovation also contributes to the degree and speed of adoption of an innovation. It points to how easy or difficult it is for potential users to understand the functionality of an innovation and the situations it can be made use of. As a broad generalization, the complexity of an innovation is inversely related to its rate of adaption. Complexity is also a subjective notion in a social system. (Rogers 2003, 257) Hadaya's (2006) results show how high degree of complexity influenced

negatively the future use of electronic marketplaces among Canadian firms. According to Hadaya (2006, 180), this same phenomenon is supported by numerous previous studies, which also show how this inverse tendency of complexity tends to be stronger among SMEs than among large firms. This is because large corporations have more resources in technical support than SMEs (Hadaya 2006, 182).

The term trialability means how easily an innovation can be experimented on a limited basis. If it is possible to try how the innovation functions prior to actual usage, the faster the rate of adoption usually is. It is common that early adopters value trialability to be more important than later adopters. (Rogers 2003, 258)

The notion of observability is the fifth attribute that influences the diffusion of innovations. If potential adopters have the opportunity to observe how an innovation functions without actually using it, it tends to increase the rate of the adoption. A potential adopter can observe it without having the risk of actually testing it. Later on, he/she can transfer to testing and adopting the innovation, especially if testing can be done in a small scale. However, it is important to note that some ideas are naturally more easily observed and described to potential users than other. (Rogers 2003, 258)

2.3.2 Critical mass

The concept of achieving a critical mass is regularly highlighted as an important failure factor of global B2B marketplaces. (e.g. Day, Fein & Roppersberger 2002) According to Rogers (2003, 343), a “critical mass occurs at the point at which enough individuals in a system have adopted an innovation so that the innovation’s further rate of adoption becomes self-sustaining”. Rogers (2003, 344) suggest the critical threshold level to be at approximately 20% of potential users, adding however that a smaller number of highly influential individuals may form a stronger critical mass than equally sized group that has no such influence (2003, 353–354). Hadaya (2006) concludes that consultants and other experts have significant influence to the adoption of electronic marketplaces. He notes that they act as opinion leaders and change agents, speeding the adoption of electronic marketplaces.

Rogers also discusses individual threshold levels, meaning the number of other individuals who must be engaged in an activity after which any individual would join in the activity. This threshold is reached when a sufficient number of individuals in one’s communication network have

adopted and are satisfied with the innovation. What, however, is a sufficient number is a subjective figure. (Rogers 2003, 355–356)

Prior to achieving a critical mass, an interactive solution (like B2B exchanges) has little advantage or may even be considerably disadvantaged among early adopters. (Rogers 2003, 352) There may for instance be certain costs and extra efforts that the early adopters have to bear (Rogers 2003, 357).

B2B exchanges are by their nature interactive communication technologies. An exchange needs buyers and sellers carrying out transactions through communication between the parties. In B2B exchanges, new adopters add value to all participants. Rogers (2003, 344) calls it “reciprocal interdependence”.

Compatibility standards are commonly thought to influence the rate of adoption of innovations in telecommunication. (Rogers 2003, 351) Even though B2B exchanges used common Internet protocols, their integration to companies’ internal systems required standards. But none of numerous B2B exchanges were able to create a common standard, and thus the rate of adoption became slower.

2.3.3 Diffusion of innovations in organizations

In an organizational setting the diffusion process is more complicated than among individuals. Organizations must initially adopt an innovation, but after the adoption reaches the implementation phase, the issue may become more complicated. (Rogers 2003, 402.) Large firms are often slower in adopting innovations overall, but Hadaya (2006) shows that due to their more extensive technological support and use of consultants, they may be adopting electronic marketplaces faster than SMEs.

2.3.4 The first mover advantage

The first mover advantages point to how pioneers can claim the business territory first and dominate the new arena. (e.g. Razi et al. 2004). Rovenpor (2004, 60) claims that most successful Internet companies, like Yahoo, Amazon.com and eBay, greatly benefited from being the first in their market areas. However, Srinivasan, Lilien & Rangaswamy’s (2004) conclusion is contradictory. They show that when network externalities exist, the chances for a pioneer survival decrease. The success of eBay is strongly dependent on the size of the network (number of potential buyers and sellers) so it is unclear whether pioneering indeed contributes

to potential survival. Schilling (2002) agrees with Srinivasan et al., stating that being too early in the markets can actually lower the likelihood of success of a technological solution. Plenty of controversy exists in management literature, and numerous studies seem to support the notion of the first mover advantage (see Schilling 2002, 390–391.)

Tuppura (2007), in her dissertation, explores the concepts of market entry order and the competitive advantage of a firm. Her study handles high-tech companies in general, but some of her findings can also be applied in the context of B2B exchanges. Hwang & Oh (2009, 6–8) discuss the first mover advantages in B2C Internet services in particular. They point out how the first mover advantage seems to be valid especially when network externalities are relatively high or high. When network externalities are small or moderate, the first mover advantage seems to exist. Hwang & Oh (2009, 10) add that in immature markets, the quality of the service affects the market share of the first mover. In order to gain the first mover advantage, a pioneer must have sufficient content and features that enable strong network externalities that help in obtaining a dominant market position compared to potential competitors. They add that certain cumulative contents bring stronger network externalities and prevent competitors from getting a larger market share. Day et al (2003, 147) conclude their study by writing that “the eventual winners will be those that prevail in the competitive battle by exploring their first-mover advantages and adapting to a slower-growth market that puts a premium on operational excellence instead of entrepreneurial drive”.

Tuppura (2007, 43) summarizes the market entry order advantages as follows:

- First mover advantage
 - absolute cost advantage
 - product differentiation advantage
 - possibility to preempt resources
 - economies of scale
 - learning or experience curve
 - switching costs
 - network externalities
 - consumer cognitive processes
- First mover disadvantages
 - the higher cost of innovation compared to imitation
 - uncertainty related to new markets
 - cost of creating the market for the industry
 - incumbent inertia
- Follower advantages

- can choose to enter viable markets where the market and technology uncertainty have already ceased
- may gain from gateways for entry because of technology discontinuities
- can avoid and learn from the mistakes the earlier entrants have made
- can free-ride on earlier entrants' investments

According to Hwang & Oh (2009, 10), a follower can gain considerable advantages over a pioneer if they properly differentiate their services and attract customers who have different tastes than those who have already used the pioneer's services. They add that superior service quality may create follower advantages (cf. similar conclusion in Tuppura 2007). If network externalities are low, only a slight improvement of the quality can lead to follower advantages (Hwang & Oh 2009, 10).

2.4 Factors from network theories

The terms network effect and network externalities are often mentioned as potential success factors for electronic B2B marketplaces, but are often used interchangeably (e.g. Srinivasan et al, 2004).

The network effect

B2B exchanges are commonly faced with the chicken or the egg riddle: to have enough buyers, an exchange must have sufficient number of suppliers (sellers), and to have enough sellers, one must have a stable buyer base (Kaplan & Sawhney 2000, 102). Yoo, Choudhary & Mukhopadhyay (2002, 44) discuss the network effect and state that a network makes a difference in a marketplace in that the value of a marketplace to a buyer depends on the number of suppliers and vice versa. Han & Han (2001, 37) share this idea when discussing the usefulness of content which refers to refers to an increasing number of customers that enhances customer value for all participants. Yoo et al. (2002, 44–45) highlight the benefits of a large number of participants, reflected in the increase of choices and the possibility of lower prices and better transaction conditions. For suppliers (sellers) a large buyer base increases the likelihood of sales (Yoo et al. 2002, 45). In all, the value of a marketplace for each player depends on the participation of other parties. Buyers obtain lower operating and search costs and suppliers more reach for their products, increasing opportunities to sell (Dai & Kauffman 2002, 47). When general value increases, a

positive network effect takes place (Yoo et al. 2002, 45). Fairchild et al. (2004, 67) define network externalities to mean a link between the user perception of usefulness of a product/service and the number of users of the same product/service. Rogers' definition of network externalities, similar to Fairchild et al's, means that the more valuable certain goods and services becomes, more the number of users becomes (Rogers 2003, 350). Dai & Kauffman (2002, 47) define network externalities as the installed base effect of buyer and supplier participants, which together enable the market to achieve proper presence and size for market liquidity and transactability.

The lack of network externalities slows the rate of adoption of interactive innovations (Rogers 2003, 350), but the network externalities exist in B2B exchanges. So it should be assumed that B2B exchanges would be adopted with an adequate pace.

The network effect can be increased by participants' actions in an electronic marketplace. According to Hadaya (2006, 182), large firms with bargaining power can encourage key suppliers to participate in and use electronic marketplaces. SMEs, who do not have this power, do not have as strong influence.

However, Yoo et al. (2002, 51) provide an example of construction industry in which the use of Internet technologies is widely spread and the entry barriers are low. The number of suppliers is beneficial for others since more suppliers attract more buyers and thus the network effect is positive (also Dai & Kauffman 2002, 47).

The conflicting effects of network externalities will be further discussed in 3.2.

2.5 Factors from institutional theory

The institutional theory may be primarily considered as a potential failure factor for B2B exchanges, but some of its aspects can also be the causes for potential successes.

The ownership of an exchange

Kaplan & Sawhney (2000, 103) note that neutral e-hubs are most likely to succeed in markets that are fragmented on both buyer and seller sides (also Kathawala et al. 2002, 456). Kathawala et al. (2002, 466) highlight the ownership and operation structures as factors in achieving a critical mass of transactions. Gudmundsson & Walczuk (1999, 104) claim that a marketplace should be started by an independent operator and success

can be reached when large buyers attract large sellers into the system. Dai & Kauffman (2002, 44) see independent market makers having a crucial role as they try to increase the perceived value of an exchange by adding different functions and services. Stockdale and Standing (2002, 227) point out how a buyer, fearing that crucial information goes to wrong hands, might choose an independent trading hub over a consortia-owned marketplace. On the other hand, they also claim how some customers might avoid such neutral marketplaces because of the possible lack of expertise and financial back up. According to Fairchild et al. (2004, 76), neutrality, defined as the absence of shared ownership, clearly contributes to the failure of electronic markets investigated in their study. Ordanini (2006, 93) suggests that for a B2B exchange to be successful, it should be owned by well-established companies in the business area it is operating. He adds that financial shareholders, i.e. venture capitalists, only play a significant role at the early stages of its development. Similarly, Koch (2002) points out that unless powerful members of an industry form a marketplace, they will not join in to trade (also Hadaya 2006). Large firms feel less threatened to cooperate with their competitors when using the same electronic platform and utilizing a common pool of customers or suppliers (Hadaya 2006, 182). Gallagher (2002) discusses alternative trading systems in fixed income e-commerce in which commodities are included and notes the importance of major player participation, including the ownership.

Like many other factors, the concept of ownership is controversial in previous studies. Some authors defend the neutrality of independent marketplaces, while others claim that the only viable alternative is shared ownership in form of a consortium.

2.6 Factors from relationship theories

Relationships between companies may also play a role in the success/failure of an exchange. Like the institutional theory, the relationship theories may also help understand potential failure factors (discussed further in 3.4). One potential success factor consists of trust and security. Even though these two concepts may be understood as technical features, their theoretical background should also be considered to belong to relationship theories. These concepts will be below as both potential success and failure factors.

Trust and security

Doney, Barry & Abratt (2007, 1099) define trust in buyer/supplier relations as “the perceived credibility and benevolence of a target of trust”. Social actions that build trust include nurturing interpersonal relationships, information sharing between trading partners and being concerned and understanding buyers’ needs (ibid). According to Eid et al. (2002, 119–120), trust consists of three parts: trust in (1) the Internet and specific web site, (2) in the displayed information and (3) in fulfillment of the delivery. Fairchild et al. (2004, 76) show how “high quality of product- and trading partner information” increases trust in the marketplace and contributes to its success. Doney et al. (2007, 1109) conclude that trust plays an important part in developing loyalty and expanded business opportunities, and buyers do not necessarily develop loyalty based on superior offerings (ibid). The feeling of trust has a key role in social interaction helps creating loyalty (Doney et al. 2007, 1109–1110). Eid et al. (2002, 120) discuss security issues, such as transaction security and Internet security in general. They take a more technical perspective talking about different technological solutions that increase the security of an Internet site. Fairchild et al. (2004, 76), focusing on technological solutions and privacy statements of electronic marketplaces, conclude that proper security measures greatly contribute to their. (ibid)

To be able to define the types of trust required in a marketplace, one must first define the functionality of this marketplace. If we talk about markets as an economic model with classical contracting, then the main focus falls on the marketplace itself and its legal frameworks (Bryant & Colledge 2002, 36). A spot-purchase, for instance, belongs to this category, in which trust is mainly based on buyer’s ability to pay for the purchase and the seller to deliver the goods (Bryant & Colledge 2002, 37). However, often the aim is for hierarchies with more interdependence and legal agreements tend to be less important than commercial relationships (Bryant & Colledge 2002, 36).

2.7 Other factors in the success of B2B exchanges

2.7.1 Transaction costs

Possible savings on the transaction costs were one important reason in the rise of B2B exchanges (Koch, 2002; Lightfoot & Harris, 2003; Gosain & Palmer, 2004.). They include coordination costs, such as information collection and negotiation costs (Malone et al. 1987).

2.7.2 Industry practices

The first B2B exchanges were created to facilitate spot trading. In spot-purchases buyer's search costs become important, and the relationship between buyers and suppliers is limited. Dwyer, Schurr & Oh (1987, 15) posit that spot contracts are common when both buyers' and sellers' motivational investment in relationship is low. Each contract is formed without a specific intention to carry out further contracts. Previous theories saw buyers actively searching for the lowest prices and relationships were limited and seller-directed (e.g. Dwyer et al. 1987).

3

Electronic B2B marketplace failure factors

■ Even though numerous factors should have enabled the success of electronic marketplaces, various issues hindered it and may have contributed to their failure. When the B2B marketplaces were booming, some scholars warned about the high risks involved and predicted their failure. (Razi et al. 2004, 229)

3.1 General failure factors

Razi et al. (2004) explore the failures DotComs and their causes. Mainly focusing on B2C services, many of the issues can also be applied to B2B marketplaces. According to them (2004, 229–238), the causes may be grouped in two categories, namely controllable and uncontrollable ones.

The controllable causes consist of strategic and operational ones. The strategic causes include the lack of business experience; poor business models, free spending patterns, lack of competitive edge and having IT code writers as business planners. The operational causes consist of insufficient financial resources, managerial incompetence and misuse of funds, poor customer support, inefficient promotion and slow deliveries. The technical causes were related to the insufficient technological infrastructure and web design. Most of these controllable issues are similar to Rovenpor's (2004) internal factors (see Figure 1 below). Razi et al. (2004, 236) however refer to the general over-expectations as one uncontrollable factor. On the one hand, these over-expectations may also be considered internal factors since many business executives had extremely high hopes for success. On the other hand, some of the over-expectations came from potential customers and should thus be regarded as external factors.

The uncontrollable causes were behavioral and technical in nature. The behavioral causes consist of over-expectations of potential success, weak reliability, weak customer loyalty and mushrooming growth rates.

The technical causes were related to Internet security and missed transactions. (Razi et al. 2004, 228–237). Rovenpor (2004) considers most of these uncontrollable causes to external factors in success or failure (see Figure 1 below).

Lightfoot & Harris (2003, 82) list three primary issues leading to the failure of B2B exchanges:

1. Price not being of primary consideration for big business
2. Internet security precautions
3. Anti-trust concerns

Dai & Kauffman (2002, 55) argue that supplier reliability and qualifications were a bigger concern than achieving the lowest price. Gosain & Palmer (2004, 319) suggest that the business model of the exchanges overall was unnatural, which led to their failure.

Ganesh et al. (2004), somewhat simplistically, write that B2B electronic marketplaces failed across the world because of the insufficient of supplier and buyer participation. They provide multiple reasons for the failure, listed below.

1. Supplier enablement and participation
2. Path dependency
3. Asset specificity
4. Partnerships and relationships
5. Privacy issues
6. Technology adoption
7. Price competition and commoditization

Johnson & Johnson (2005, 488) point out how privacy and security issues may have caused concerns with suppliers. They also mention that suppliers tend to have concerns about the long-term business viability of the exchanges (2005, 488). Razi et al. (2004) write how the fear of hackers may have hindered potential growth of Internet shopping in B2B marketplaces, and add that many transactions were missed due to potential connection drops, busy signals or other technical glitches. (Razi et al. 2004, 237–238).

Even though the majority of the B2B exchanges were based on web technologies and thus did not require any initial technology investments, some researchers have suggested that switching costs were involved (Yoo et al. 2002). Johnson & Johnson (2005, 488) point out that suppliers had concerns about the exchanges because of the constantly changing software

and hardware requirements and other unknown costs. However, when there is insecurity about the prevailing technologies, the adoption of such applications might be slow (Dai & Kauffman 2002, 47–48). This adoption may be slow even when the expected benefits are high, but the utilization of the existing technologies remains low (Dai & Kauffman 2002, 48).

Rovenpor (2004) uses two factor groups, internal and external, to predict a company’s failure or success, displayed in Figure 1 below.

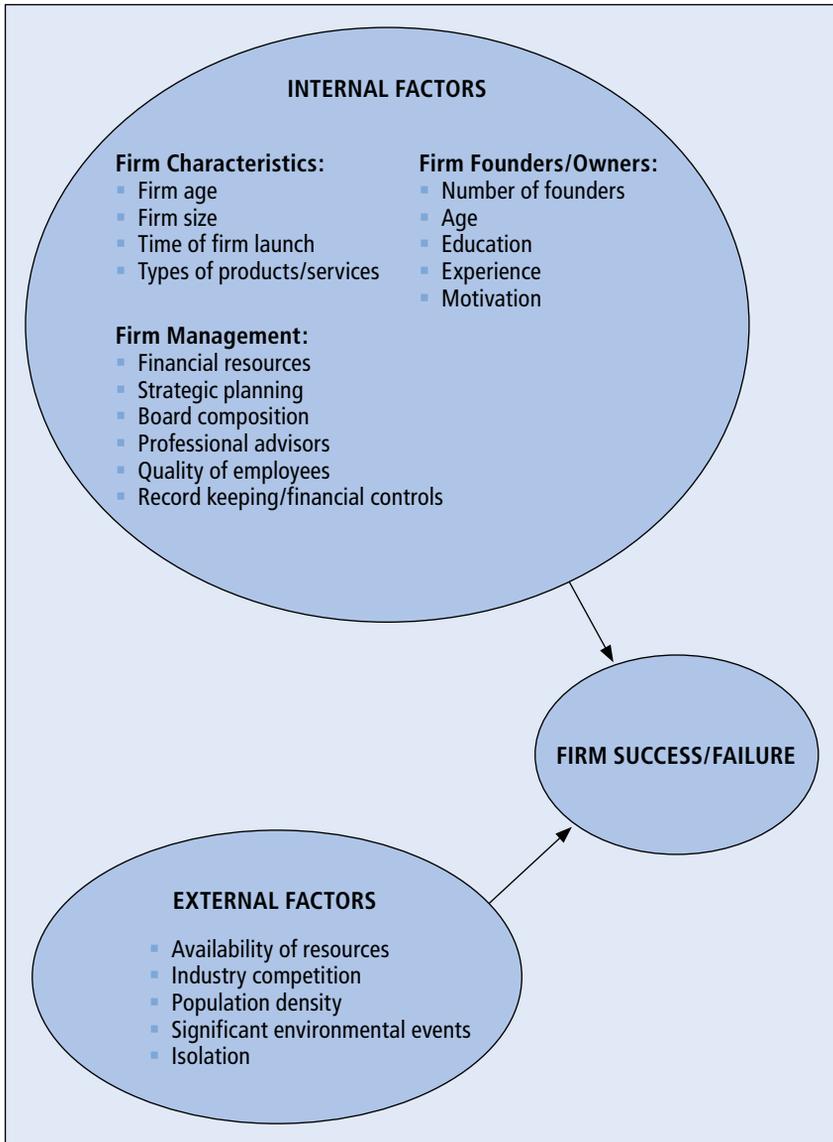


Figure 1. Factors contributing to firm success/failure (Rovenpor 2004, 58).

3.1.1 Internal factors

A company's age of existence may sometimes be directly linked with the threat of "liability of newness". It may be brought about because of the limited experience base, limited resources and sporadic support from external constituencies. New, emerging firms may also experience challenges in recruiting professionals and quality staff and managers. (Rovenpor 2004, 55; Partanen 2008.)

Company size, in particular when it is small, has also been viewed as a potential risk for failure. Larger companies, with more capital, tend to have better chances of survival. Honjo (2000, 567) notes how small businesses do not necessarily have sufficient capital resources for creating economics of scale and often suffer from higher production costs (Honjo 2000; Rovenpor 2004). Successful Internet companies, like Amazon.com, eBay and Yahoo had been in operation for years when the general downsizing in 1999 started (Rovenpor 2004, 60).

The moment of launching a company also seems to be a factor in the survival or failure. Those firms that have been set up just prior or during a bubble have a higher risk for failure than the others (Honjo 2000). However, Rovenpor (2004) suggests how firms founded during a recession face a greater risk for failure than businesses that were started when the economy has been growing. This result is partly contradictory with Honjo's results.

One internal failure factor consists of the types of products a company offers or the width of product portfolio. If the products/services offered are either too new or too old, the risk of failure increases, but if the products/services are at a growth stage, the likelihood of survival is higher (Rovenpor 2004, 57). Razi et al. (2004, 230–231), discussing the business model and lack of competitive edge as potential failure factor, point out how many DotComs had similar product offerings and could not differentiate themselves from their competitors. Srinivasan, Lilien & Rangaswamy (2008) suggest that with a wide patent portfolio, the risk of failure increases since the focus on each individual patent may decrease. However, some researchers have suggested that the number of trademarks may increase the survival rate of high tech firms (Srinivasan et al. 2008.)

Numerous studies argue that management has a substantial role in the potential success or failure of a firm. The likelihood of a failure increases when the management does not have sufficient experience (Rovenpor 2004, 57). For instance, many DotCom executives lacked business experience and did not have the crucial competences in marketing, financing and logistics, but were mainly code writers (Razi et al. 2004, 228–237).

Managers' age, general experience and education have been also seen as potential causes for a failure. However, Rovenpor (2004, 73) points out that many failed e-commerce companies had well-educated and middle-aged CEOs. In addition, having sufficient financial resources is often considered a management issue. It is self evident that the amount of capital in use affects the likelihood of survival or failure. Firms without sufficient start-up capital and with inadequate financial control systems have a higher risk of failure (Rovenpor 2004, 57). A business failure is a combination of how the financial strengths in start-up businesses are used and how profitable the business actually is Honjo (2000, 567).

A company management is always responsible for the creation or maintenance of a proper business plan. The lack of such a plan increases the risk for a potential failure (Rovenpor 2004; Razi et al. 2004, 230.) However, Rovenpor claims that many failed e-commerce companies had proper business plans, required for start-ups to gain venture capital funding, but in many instances the values of the companies were mainly determined by the quality of their business plans.

A successful company needs a competent board of directors that mainly consists of people outside of the company. The board size also plays a role in the success of a firm. Rovenpor (2004) discovers that failing e-commerce firms had small boards with insufficient number of external members. When the board is small, not monitoring the management properly and not helping it with the members' experience, the management might be overburdened with activities that should be handled by the board itself (Rovenpor 2004, 73.)

The overall qualities of the entrepreneurs contribute to the potential success of a company. A group of entrepreneurs, each with college education and possessing sufficient experience, is better than just one person without these qualifications. Rovenpor (2004, 61) notes that founders of the failed DotComs were typically young (34 years on average) when compared with "the old economy" type of firms in which the average age was 46.

One factor not mentioned by Rovenpor (2004) but is discussed by Razi et al. (2004, 231) is the free spending of funds. There are numerous examples of DotComs, both B2C and B2B in which the management spent enormous amounts of money because they lacked experience or were deliberately misusing company funds. It is obvious that if a company spends more money than it can afford, it will eventually fail to bankruptcy or is taken over by others in restructuring.

3.1.2 External factors

Various external (and uncontrollable) factors play a role in a company's potential success or failure. These external factors include the availability of resources, industry competition, population density and significant events in the business environment (Rovenpor 2004, 57). The research on the institutional theory has added the concept of general acceptance to this list. Occasionally, new ways of doing things conflict with the set of rules that have been unofficially set by the industry players. (see e.g. Scott 2008)

The amount of venture capital funding decreased substantially in the early 2000s. According to Rovenpor (2004, 62), the venture capital companies raised \$41.9 billion less in 2001 than a year earlier. It naturally decreased venture capital funding for B2B exchanges.

In addition, the competition was hard in some areas of B2B exchanges, and intense competition may lead to industry shakeouts in which newcomers typically fail. The established players try to maintain their positions with fierce competition, and occasionally rely on the most extreme means of competition (Rovenpor 2004, 62). Razi et al. (2004, 237) label such a situation “mushroom growth”, meaning that the market is flooded with similar type of services, intensifying competition. It tends to lead to the exit of the weakest competitors. In some fields, such as in the global juice business, there were only 2–3 companies trying to capture the entire market (G. Hunt personal correspondence 6.4.2009).

The concepts of population density and the entry rate refer to the number of competitors entering the market in one geographic area or business field (Honjo 2000, Rovenpor 2004.) Honjo (2000, 572) has shown how, in an industry characterized by high entry rates, a new firm is very likely to fail.

The notion significant environmental event refers to shrinking venture capital funding in extreme market-related situations, such as the disappearance of the so-called Internet bubble in 2000 (Rovenpor 2004). However, other type of events, like the 9/11 terrorist attacks in 2001 seriously affected the interest of potential users of an exchange (B. Winseman personal correspondence 7.4.2009.)

3.2 Negative network externalities and adoption of network technologies

According to Dai & Kauffman (2002, 45–46), the adoption and growth of networks may cause negative network externalities for suppliers since buyers tend to keep their supplier network small enough to be able to manage it. The writers point out that a negative network effect occurs as the value of a network decreases for suppliers when the number of suppliers increases. This is because more suppliers might bring about oversupply, leading to lowering prices and decreasing profits (Yoo et al. 2002, 45, 47). Dai & Kauffman (2002, 45), supporting this viewpoint, add that buyers receive most of the benefits when the number of suppliers increases. Hwang & Oh (2009, 2) discuss the importance of uncertainty and expectations of a new service and how these two factors may lead to the adoption of a service when network externalities exist. Even though they deal with B2C services, the same concepts should be applicable to B2B services.

According to Rogers (2003, 350–351), network externalities slow the rate of adoption of an interactive innovation before a critical mass has been reached, however, after attaining the mass, these network externalities tend to increase the rate of adoption. Srinivasan et al. (2004, 52), nevertheless concludes that network externalities significantly decrease the likelihood of survival of pioneers. The reason is that marginal customer's utility over time and excess inertia of customers adopting new products, both shortening pioneer survival, seem to outweigh the advantages associated with achieved critical mass, which prolongs pioneer survival.

Even though many authors on electronic commerce consider network externalities as a potential success factor, they seemed to have at least partly contradictory effects. Apparently, the negative network externalities outweighed the positive ones, which contributed to the failure of these exchanges.

3.3 Institutional Theory

“Institutions are comprised of regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life” Scott (2008, 48). Even though cartels are forbidden, considerable cooperation between different players within an industry takes place in associations and when individuals meet in conferences and seminars. Buyers and sellers naturally meet in normal

business negotiations in which discussions deal circle around the industry and its practices. For a company to succeed, it must operate according to the rules set by others inside the industry. According to Scott (2008), social legitimacy is central to the institutional theory. Organizations depend not only on raw materials, capital, labor, knowledge and equipment, but also on survival strategies in which they need the general acceptance of the others (Scott 2008). If a company is not considered as legitimate, it may be driven out of business (Cousins & Robey 2005, 214). If a company's business model and strategy are considered as legitimate, they conform to the pragmatic expectations of the potential trading partners. The B2B exchanges tried to change the way business was conducted, in a way violating the unwritten rules set by the existing industries, which apparently was one of the main failure factors. Initially, the exchanges were promoting the idea of disintermediation and cutting off the commissions earned by the middlemen and therefore tried to break the status quo. (see e.g. Cousins & Robey 2005.) An organization does not need to be efficient to be legitimate and vice versa. (e.g. Cousins & Robey 2005, Scott 2008.) Organizations might need to conform with the existing institutional models to gain acceptance and to improve their economic efficiency. B2B marketplaces, for instance, were operating in a high velocity environment whereas their customers were not moving as fast and their responses to changes were slower. (Ganesh et al. 2004, 54.) It clearly conflicts with the norms of the appropriate industries.

Koch (2002) discovers how the institutional theory affects the decision making involved in whether to participate into a consortia marketplace. She suggests that pressure from the other industry participants might force a company to join in a consortia exchange, rather than participating in a neutral exchange.

The opposite participation motives for buyers and suppliers

Many buyers and suppliers had completely opposite motives for participating in the B2B marketplaces. The buyers were looking for lower prices and the sellers for new sales. Ganesh et al. (2004, 54) add that suppliers did not want to join multiple marketplaces due to the initial investments and software needs. They add that price savings were beneficial for buyers but not for suppliers.

Rask & Kragh (2004) explore the motives for e-marketplace participation among buyers and suppliers, suggesting that the motivation is closely linked with the perceived outcomes of participation and also with the possible consequences of not joining in. They explore the drivers of participation and the nature of decision making in this process. Fairchild

et al. (2004, 75) discuss the “convergence in the motives of stakeholders”, and show how sellers are concerned with the pressures in prices, which is also a fundamental motive for buyers. (Tumolo 2001, 60.)

Two types of drivers exist, namely internal and external, and decisions are made either as a planned in advance or reacting to an emerging opportunity. There are four types of motivations: efficiency, positioning, exploration and legitimacy (Rask & Kragh 2004, 272), shown in Figure 2.

		DRIVERS	
		Internal	External
NATURE OF DECISIONS	Planned	Efficiency <ul style="list-style-type: none"> The decision to participate in e-marketplaces is driven by an internally generated wish to obtain company specific advantages and is made as a consequence of the careful evaluation of expected outcome. 	Positioning <ul style="list-style-type: none"> Industry specific competitive conditions are the driving forces behind the decision to participate in e marketplaces. Decisions are planned and taken with the purpose of improving the competitive position of the company.
	Emerging	Exploration <ul style="list-style-type: none"> Initial e-marketplace participation takes place on a trial basis and the decision to continue or discontinue participation is a direct result of actual experiences. Decisions are internally motivated. 	Legitimacy <ul style="list-style-type: none"> E-marketplace participation is motivated primarily by external drivers rooted in a company's relationships with other companies and happens as a consequence of ongoing political negotiations rather than careful planning.

Figure 2. The motives for e-marketplace participation (Rask & Kragh 2004, 272).

Efficiency

Lowering prices motivates buyers to join an electronic marketplace because the increased price transparency which leads to competition among suppliers. On the other hand, suppliers may benefit from this increased integration in the form of reduced transaction and integration costs. The transaction costs are lowered when suppliers do not need to contact, communicate and negotiate with buyers in ways that involve traveling or communication costs (Rask & Kragh 2004, 272.)

Positioning

Buyers electronic markets gain a larger pool of suppliers than in non-electronic ones, which may lead to lower prices, wider assortments and better quality (Rask & Kragh 2004, 272). E-marketplaces may shift bargaining power from suppliers to buyers. For suppliers, electronic marketplaces may mean improved competitive positioning through wider market reach,

which in turn may lead to increased sales and lower sales costs. Suppliers may be able to reduce excess inventories (Rask & Kragh 2004, 273). One challenge for suppliers is that they are too dependent on single buyers, and electronic marketplaces can reduce this dependency, in particular if the buyer base is wide enough (see Rask & Kragh 2004, 273).

Legitimacy

Occasionally, fewer risks are involved when one participates in an electronic marketplace than when not doing so. It is typically not good to be considered as a technologically handicapped company, and not participating may be viewed as old-fashioned and companies tend to want to be perceived technologically sophisticated. Often buyers also draw suppliers into e-marketplaces, since suppliers feel that they have to be involved (Rask & Kragh 2004, 273). Rask and Kragh (2004, 273) note that the marketing activities promoting electronic marketplaces lead to increases in the potential supplier/buyer reach for both parties.

Exploration

In order to evolve, companies must occasionally test new things. For suppliers this means testing new sales methods and processes offered in e-marketplaces, and buyers can test new searching methods/reach, and procurement practices. (Rask & Kragh 2004, 273). Figure 3 illustrates the motives:

		DRIVERS	
		Internal	External
NATURE OF DECISIONS	Planned	Efficiency <ul style="list-style-type: none"> ▪ Price reduction ▪ Process time reduction ▪ Cost reduction 	Positioning <ul style="list-style-type: none"> ▪ Increased buyer/supplier reach ▪ Avoidance of dependency ▪ Increased bargaining power
	Emerging	Exploration <ul style="list-style-type: none"> ▪ Test of new markets ▪ Test of new processes ▪ Explorative learning 	Legitimacy <ul style="list-style-type: none"> ▪ Following existing buyers/suppliers ▪ Technological sophistication ▪ Marketing activities of e-marketplaces ▪ Mimicking the behavior of competitors

Figure 3. Indicators related to the four types of motives (Rask & Kragh 2004, 273).

The partly conflicting motives of buyers and sellers created one major factor for the failure of the neutral B2B exchanges. Even though there were common motives, the conflicting ones seemed to be more significant than the common ones.

3.4 Relationships between suppliers and buyers

Most commodity trade is done between parties that know each other beforehand. It is difficult to estimate how much of trade is done on spot-basis, but it tends to vary between 5 and 50 % of the total volume from one industry to another. Spot-transactions sometimes resemble the so called discrete transactions, in which money comes from the one side and easily-measurable commodity from the other (Dwyer et al. 1987, 12). However, this is still quite rare since parties rarely stay completely anonymous. Dwyer et al. (1987, 12), propose that a discrete transaction takes place when parties discuss and bargain over terms of a deal, but a relationship only forms itself through bilateral communication over wants, issues, inputs and priorities. When the parties know each other, at least some form of a relationship between an individual buyer and seller exists.

Relationships are created and maintained for economic purposes, and companies aim at creating long lasting dynamic ones (Ritter & Gemünden 2003, 692.) Dai & Kauffman (2002, 46) suggest that firms tend to develop long-term, value-adding partnerships with a small group of suppliers. Gosain & Palmer (2004, 319) conclude that e-marketplaces failed because they tried to commoditize the unique relationship between buyers and sellers.

The depth of a relationship depends on several issues, but it is logical to assume that the deeper the relationship, the harder it is for an electronic marketplace to cut in between the parties. Some of the basic concepts of relationships are introduced in the following.

The concept of relationship marketing received more attention in the late 70s and early 80s, when David Ford (1980) published the famous article about the development of buyer-seller relationships. Ford claims that the nature of a relationship is determined by multiple factors. He claims that product and process technologies have significant meanings together with the existing market structures i.e. the availability of alternative buyers and sellers. (Ford 1980, 340.) If companies feel that they can gain cost benefits or increased sales by close relationships, they choose these relationships over the others (Ford 1980, 340).

According to Ford (1980, 341–349), the relationships develop in five stages:

1. The pre-relationship stage
2. The early stage
3. The development stage
4. The long-term stage
5. The final stage

In the pre-relationship stage, the partners evaluate each other, with no commitment involved. In the early stage, the negotiations of sample deliveries are started, but the uncertainty remains high and commitment low. In the development stage, when parties sign contracts and actual deliveries start, the level of uncertainty has been reduced and commitment increased. In the long-term stage, the parties have completed several major transactions and have already gained high experience of each other. The uncertainty has been diminished and the commitment is high. In the final stage, the parties are having established institutionalized relationships. (Ford 1980, 342.)

Dwyer et al. (1987), building on Macneil (1978), discuss various types of transactions, namely discrete transactions and relational exchanges. They discuss the nature of relationship between a buyer and a seller and compare it with marriage. The discussion is based on the theories of power and bargaining. Relationships, according to Dwyer et al. (1987), evolve through five general phases:

1. Awareness
2. Exploration, which can be divided into five sub phases
3. Expansion
4. Commitment
5. Dissolution

In the awareness phase, both parties develop unilateral considerations. In exploration, dyadic interaction occurs and interdependence deepens. In expansion phase, more mutual satisfaction develops and partners look for additional gratifications from each other, rather than from alternative partners. In the commitment phase, the partners have established shared value systems and conflict resolution mechanisms and have adapted to the ways of operating with significant mutual inputs. The final phase, dissolution, is usually initiated unilaterally through the expression of dissatisfaction. (Dwyer et al. 1987.)

This view, in general, seems to be seller-oriented and seller actions resulting to buyer reactions are highlighted. Even though the names are different, the real actual distinctions between the two models of developing relationships are minimal.

Displacing participants and disrupting the existing market relationships with new technology, may slow the adoption of new marketplaces and play a role in the success of exchanges (Weinberg 2001, according to Johnson & Johnson 2005).

According to Dwyer et al. (1987, 20–21), the termination of a fragile association is simple in the early phases, i.e. the awareness and exploration phases. On the other hand, relationships are maintained increasingly in the expansion phase, and it is less likely for parties to dissolve relationships in this phase (Dwyer et al. 1987, 18).

Relationships between companies are meaningful factors in the failure of a marketplace. Many of the companies involved did not want to jeopardize their existing relationships to opportunistic behavior. As more and more business is conducted in hierarchical transactions, relying on the increasing interdependence of the companies, an open market may pose a serious risk to these relationships. Even though some exchanges added the possibility of private trading functions to their services, they did not achieve sufficient liquidity and these private exchanges in marketplaces became obsolete.

3.5 Critical mass and strategy of the exchanges

Several B2B exchanges put their marketing efforts in attracting small and medium sized companies to be members in the marketplace. Ordanini (2006) rejects this approach, and points out that only large firms are meaningful for a marketplace. Their single deals are large enough to utilize the need to reduce aggregate costs (Ordanini 2006, 92). In order to achieve a critical mass, an exchange should have sufficient customer acceptance. According to Rovenpor (2004, 62-63), consumers primarily want products that provide functionality, and after this need is fulfilled, consumers seek reliability. Later on, competition will be based on convenience and prices. This principle is also applicable with companies. Hwang & Oh (2009, 11) show that when consumer preferences are heterogeneous, a service/company may be able to obtain a critical mass through the influence of such customers who prefer a new service over the pioneering one. However, many B2B exchanges started price competition with traditional businesses and forgot to fulfill the basic needs of the customers, including functionality.

The concept of a critical mass should be considered as self-evident success/failure factor for B2B marketplaces. A critical mass is needed to achieve sufficient liquidity in the marketplace. However, the sole number of participants is not as crucial as the number of *active* participants. The

exchanges need sufficient amount of transactions in order to provide a properly functioning trading environment.

In B2C site promotion was often inefficient, when companies poured money in advertising but forgot market research. This led to poor media choices without real results (Razi et al. 2004, 235).

4

A synthesis

■ The failure of B2B electronic marketplaces was a combination of multiple factors. No single factor led to the failure, but some factors seem to have had a stronger impact. Figure 4 below illustrates some of the potential success and failure factors for B2B exchanges. Some previous studies provide somewhat conflicting results when same factors may be seen both as success and failure factors.

In the theoretical background section, both the institutional and the relationship theories came up as failure factors more than once. Many studies that have used the above-mentioned theories have clearly suggested these factors to be the solid causes for failures.

Those studies that mostly rely on electronic commerce hypothesis are usually positive by nature and the potential failure factors are to be general in nature and they have not been analyzed thoroughly. The transaction cost theories seem to have an important role in the potential success of the B2B exchanges.

The role of network externalities seems to have been surprising. The earlier literature suggests network effect or network externalities as a potential success factor, but later studies have shown the controversial role of this phenomenon.

4.1 Synthesis model

Multiple factors may lead to the success or failure of an electronic B2B marketplace, as shown in Figure 1 above. The impact of these factors varies however, and such cases exist in which there were many success factors but even stronger failure factors led to the failure of the electronic marketplace. Some factors should have enabled success, but these same factors also contributed to the failure of the exchanges. Figure 4 below illustrates the various factors that made the success of electronic marketplaces possible and also shows those factors that prevented the exchanges

from succeeding. Some of these factors, such as trust and security and ownership of the exchanges, had contradictory effects.

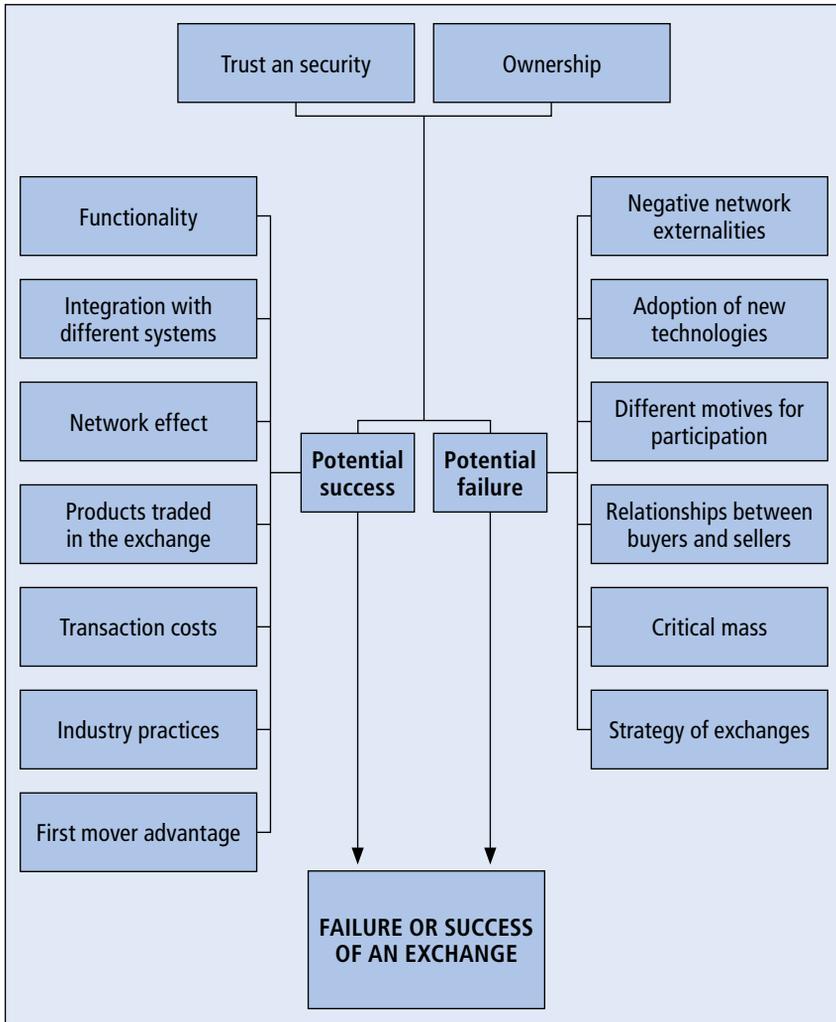


Figure 4. Factors effecting failure or success of an electronic marketplace.

The previous studies have established multiple theories that try to explain the potential success of neutral B2B marketplaces. The possible causes leading both to success or a failure of are displayed in Figure 5 below. Some of them, such as diffusion of innovations and business strategy theories, show conflicting outcomes. The institutional theory, for instance, has in some studies been seen to contribute to success, but it primarily tends to contribute to failure. The success-enabling factors of the institutional theory mainly relate consortia marketplaces, but since the focus here is

on neutral marketplaces, this theory is displayed as a failure-resulting factor in Figure 5.

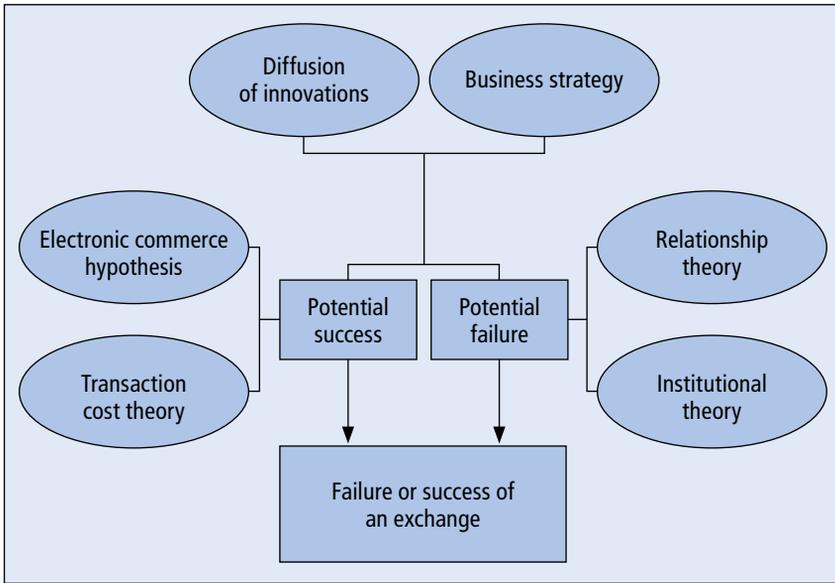


Figure 5. Theories effecting success or failure of an exchange.

4.2 Critique

Most of the articles in electronic commerce literature have dealt with B2C e-commerce and their applicability to B2B e-commerce may be questioned. There are, however, some studies that cover both B2B and B2C and the same concepts seem to be valid in both.

In addition, the impact of the various factors has not been studied extensively. Similarly, the main purpose of this study has been to identify those factors and theories that played a role in the failure of these marketplaces, and the impact of these factors was not included in this study.

5

Concluding remarks

■ Despite the high expectations, the electronic commodity B2B marketplaces failed in the early 2000s. Several reasons contributed to their failure, but a comprehensive study of these possible failure factors has not yet been done. This study has explored studies that aim at understanding the causes behind the failure of these exchanges. On the one hand, it has shown that there were numerous reasons why the marketplaces should have succeeded. On the other hand, it has shown that there were multiple causes leading to the failure of these marketplaces. This study has illustrated theories that help explaining failures and also theories that predict success.

The previous research results discussed here have been partly contradictory since some authors argue one factor to be a success factor whereas others show how it is a failure factor. To have a more comprehensive understanding of the role of these factors, concepts such as network externalities need to be explored further.

The theories that predicted extensive success for these exchanges are electronic commerce hypothesis and transaction cost theories. Further research is needed to analyze these theories more comprehensively and measure their impact against those theories that seem to be able to explain the failure of the exchanges.

The theories that seem to be able to explain the failure of electronic B2B marketplaces consist of the institutional theory and the theories of relationships between companies. This study has clearly shown their importance, but their impact needs to be studied further. This study has only briefly discussed the institutional and relationship theories and a deeper analysis of them is essential.

Lastly, more empirical research is needed to supplement the theoretical discussions.

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