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# HOW ELECTRONIC NETWORK ORGANISATIONS ENABLE MASS CUSTOMISATION IN FINANCIAL MARKETS

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## ABSTRACT

*The financial services industry has used Internet technologies to create many standardised services for consumers. Recent Internet initiatives offer more customised financial products and services. Traditional market players have responded by evolving standard products to become more client specific. These forms of mass customisation of financial services are based on an increasing role and importance of electronic business networks. This paper explores examples of business networks offering financial services and analyses the criteria for process performance and success.*

## 1. INTRODUCTION

The numbers and volumes of transactions in the financial industry have grown tremendously in the past years. For instance, the total transaction volume of financial securities was in 1998 already well over US\$ 25,000 billion per year in the US alone [Bernstein, 1998]. Globalization of the industry and increased competition have lead to differentiation in services offered in B2B and B2C relationships [Toppen et al, 1998]. The total number of collective investment schemes (CIS) offered to consumers world-wide is now over 120,000 and the total investments in CIS in Europe has grown from US\$ 500 million in 1990 to US\$ 4,500 billion (!) in 2000 [FundPartners, 2001].

Wise and Morrison [2000] state that the emerging new financial business landscape will consist of global 'mega-exchanges' with very low or even negative (!) transaction fees and 'surrounding symbiotic companies' adding value as 'specialist originators', 'e-speculators', 'solution providers', or sell-aside asset exchanges'. Traditional market players have responded by evolving standard products to become more client specific. These forms of mass customisation of financial services are based on an increasing role and importance of electronic business networks.

Gulati and Garino [2000] argue that organisations should search for the right mix of bricks and clicks activities, in stead of separating Internet activities from traditional business. In stead of focusing on an either-or-choice, executives should be asking 'what degree of integration makes sense for our company?' Advantages of separation are a greater focus, more flexibility, and access to venture funding. Advantages of integration are established brand, shared information, purchasing advantage, and distribution efficiency. It might turn out that 'clicks' (fully Internet-based organisations) in the financial industry can provide only highly standardized services and 'bricks and clicks' a mix of customized and standardized services.

The objective of this paper is to identify enabling conditions and success factors for electronic business networks in the financial industry to offer customised financial services. To find enabling conditions and success factors, trends and cases are analysed focusing on the following questions:

1. How are stakeholders involved in the networks, and what are their roles in customisation?
2. What are the network characteristics for different network strategies (low cost, full service, or a mix)? Will low cost providers vanish and high quality/ full service providers flourish?
3. To what extent can flexible and dynamic networks be realised? What are the requirements for the network infrastructure in a mass-customized financial services environment?

The case study method was used because it captures reality in more detail, and allows the analysis of a considerably greater number of variables than other methods [Darke et al, 1998]. Case analysis is based on the model by Toppen et al [1998], identifying 2 types of electronic business networks (transaction oriented and process oriented) and 8 factors that influence the performance of electronic business networks. The paper first reviews theory on mass customisation in the financial industry (2.1, 2.2), then reviews the model by Toppen et al (2.3, 2.4), and analyses two (B2C) cases (3).

## **2. THEORY**

### **2.1 Mass Customisation**

ICT developments and the emergence of network organisations have lead to product offerings being increasingly tailored to specific client needs in various industries. The Dell website offers clients a guided choice between 16 million different pc's [www.dell.com] and Ford offers clients a choice between 260 car models in 47 different colors [www.ford.com]. Manufacturing and distribution of the pc's and cars starts only after the products have been sold, thus reducing inventory costs.

Mass customisation (MC) is not only driven by IT and the emergence of network organisations, but also by changes in customer's demand over the last decade. Clients have become more and more independent, professional, and ever more demanding when it concerns their social wellbeing [Wise and Morisson, 2000]. MC can be defined broadly as 'the ability to provide individually designed products and services to every customer through high processability, flexibility and integration. MC systems may thus reach customers as in the mass market economy but treat them individually as in the pre-industrial economies [Davis, 1989]. A narrower, more practical definition is: 'MC is a system that uses IT, flexible processes, and organisational structures to deliver a wide range of products and services that meet specific needs of individual customers (often defined by a series of options), at a cost near that of mass-customised items [Da Silveira et al, 2001].

Lampel and Mintzberg [1996] distinguish five degrees or levels of customisation from pure customisation (including customised design of the product or service), tailored customisation (customised fabrication), customised standardisation (customised assembly), segmented standardisation (customised package and distribution), to pure standardisation. MC is traditionally related to 'operational customisation' (e.g., by Lampel and Mintzberg), i.e. related to the stages in the supply chain from design to packaging and distribution of the product or service. IT has also enabled another approach to customisation: 'marketing customisation', which is transforming the practice of marketing from being seller-centric to being buyer centric, also called 'personalisation' [Wind, 2001].

The combination of personalisation and MC is called customerisation. Companies such as priceline.com and dealtime.com have customised the price determination process, letting customers specify their own prices, and then searching providers willing to sell at those prices. Companies like Dell have established custom web sites (premier pages) for business customers, whose employees can order computer configurations pre-approved by their companies [Wind, 2001]. MC, personalisation, and customerisation play an important role, especially for digital products such as music, books, and financial services [Channon, 1998; Wind 2001].

### **2.2 Mass customisation in the Financial Industry**

Nowadays consumers can choose to allocate savings in four ways: (a) savings accounts and deposits, (b) self selected securities, (c) private banking, (d) collective investment schemes. The difference for consumers between money market investments (a) and investing in securities (directly or indirectly

through b, c, d) is that the latter give a higher expected return and more variation in return (risk) [FundPartners, 2001]. The ‘four ways a to d’ can be regarded as four financial service groups. Financial services are provided typically by banks, insurance companies, and pension funds, using various types of intermediaries, Internet, fund supermarkets, and others. Examples of one stop shops for financial services are yodlee.com and reflect.com [Wind, 2001].

Clients in financial markets have become more demanding when it concerns their financial wellbeing and financial planning [Holtman et al, 2001]. Increased transparency offered by Internet and strong competition among financial service providers have led to generic financial products being offered almost for free in the US [www.foliofn.com, www.Sharebuilder.com]. According to experts in the field [Roland Berger, 2001] this development was catalysed by the emergence of inter- and info-mediaries that offer clients integrated personal financial planning services. Clients no longer perceive the benefit of generic financial products (in the standardised economy) and hesitate paying for such products. The perceived benefit is transforming towards full-service in a customized economy.

Wise and Morison [2000] describe the current (near future) structure of the financial industry consisting of upstream ‘mega exchanges’, downstream ‘consumers of financial services’, and four business categories (B2B models) in between:

- Specialist originators (buyer advocate): standardize and automate the buyer decision making process for relatively complex customised services and sends the transactions to the exchanges for execution.
- E-speculators: participate in exchanges, gain real time information to take direct or derivative market positions for relatively standardised products transferred easily for large groups of buyers.
- Solution provider: has a well-known brand name and solid reputation and operates separately from open exchanges by embedding the product sale in a suite of unique, valuable services.
- Sell-side asset exchange (on line broker): gains efficiency by swapping and reselling orders among a closed set of suppliers.

Table 1 shows examples of new Internet based financial services organisations, grouped according to the business categories distinguished by Wise and Morison [2000].

**Table 1. Examples of new financial service providers**

Business categories	Examples in Netherlands	Examples in US
Mega exchange	Euronext	NYSE, Nasdaq
Specialist originator	Independer.nl	Schwab, Independent Financial Planners, Brokers
E-speculator	Knight Securities	Knight Securities
Solution provider	ROBECO; ABN AMRO; ING	Fidelity, Merrill Lynch, Franklin
Sell-side asset exchange	ING direct; DLJ; Alex	E*Trade, DLJ, Ameritrade, foliofn, sharebuilder

The use of Internet by US mutual fund investors has almost doubled from 35% in 1997 to over 65% in 1999 and the percentage of online transactions has increased even more from 8% in 1996 to 48% in 1999 [American CII, 2000]. We are now experiencing a second wave of more conservative advice-needing clients to find their way to using the internet, following the first wave of early adopters that were primarily interested in trading stock for the lowest price. In their search for good advice, these more conservative clients rely on financial service providers with a strong brand name. This also drives financial organisations to not only offer cheap on-line transactions, but to integrate this with an integrated financial full-service concept (Schwab, E\*Trade, DLJ Direct, Ameritrade, FolioFN).

Discount brokers such as E\*Trade, DLJ Direct and Ameritrade had to lower their commissions per trade (securities transaction) over the past few years. Commissions were US\$ 20 per trade in 1997 and US\$ 11 – 15 per trade in 2000. At the same time discount brokers needed to raise marketing spendings to build their brands [Salomon, Smith, Barney, 2000] to attract the second wave of more conservative clients looking for solid brandnames and good advice. The total marketing spendings of E\*Trade, DLJ Direct, Ameritrade, Schwab, and TWE were \$ 64 billion in 1995 and \$ 746 billion in 1999.

In the US, FolioFN introduced a service allowing clients to execute an unlimited number of transactions for a fixed periodic fee [FolioFN.com]. Discount brokers offering standardised transaction

execution services for a very low price will either need to scale their operations to remain profitable or they need to transform their business towards offering client specific offerings combining on-line trading with additional advisory services. Recent acquisitions of DLJ by Credit Suisse and Paine Webber by UBS indicate the search for scale and resources to remain competitive in the years ahead.

Compared to the US, the Dutch situation is developing in similar directions but runs behind. The similar backlog is reported for the German on-line brokerage market [Holtman et al, 2001]. In the Netherlands the percentage of retail investors using the Internet has increased to 47% by the end of 2000; a little less than the 65% in the US, but Internet use is increasing very rapidly [Sector Analysis, 2001]. The number of retail investors using the Internet in Netherlands for transaction execution amounts to only 11%, but this is expected to increase to over 70% by 2004 [Forrester Research, 2001].

Threatened by the increasing market power of inter- and infomediaries, Dutch (European) financial organisations respond by expanding the mutual funds offered to their clients by offering products of other providers next to their own proprietary funds. With these 'open mutual fund architectures', also called *fund supermarkets*, Dutch (European) financial institutions try to avoid losing their clients. Non proprietary mutual fund sales in Europe only concern 4% of all mutual funds sales, but this percentage has doubled over the last two years and is expected to continue to grow strongly over the years ahead [Sector Analysis, 2001]. Table 2 gives an overview of current examples of financial supermarkets

**Table 2. Examples of current financial supermarkets**

Supermarket	Country	Owners/ actors involved	Business type	Product type
Folio.fn	USA		On-line discount	Customised
Alex	NL	Labouchere, Dexia	On-line discount	Standardised
Schwab	USA	See 3.1	On-line discount	Customised
Robeco Direct	NL	See 3.2	Solution Provider	Customised
Well-o-well	NL	ING, ING direct	Solution Provider	Customised
Money Planet	NL	ABN AMRO; KPN	Specialist originator	Customised
Independer.nl	NL	Capgemini; Moneyview, other	Specialist originator	Customised

Summarizing, the financial industry has changed in different ways: new products and services, new distribution channels, new customer types, and new business networks.

### 2.3. Electronic Business Networks

Malone, Yates, and Benjamin [1987] formulated the 'move to the middle hypothesis' to explain the emergence of new organisational forms between classical hierarchies and markets. Classical hierarchies and markets are two structures to control the flow of goods and services between organisations and consumers. Classical markets are an expensive mechanism for organisations, because of the high costs for searching, executing, and evaluating market transactions. Therefore organisations tended to incorporate markets into the organisational hierarchy, leading to growth until the organisation costs and agency costs exceed transaction costs [Williamson, 1993]. ICT has an interesting dual effect on classical hierarchies and markets: ICT reduces organisation costs because of automated control mechanisms, and ICT reduces markets costs. This leads to electronic business networks of smaller 'electronic hierarchies' being engaged to each other in 'electronic markets'.

Electronic business networks can be addressed as 'virtual organisations' if the network (partly) consists of virtually organised processes or parts [Moshowitz, 1997]. Virtual means in this context, that (groups of) people from different organisational units cooperate from different geographical locations in 'virtually organised tasks'. Advanced IT, especially networking, has made this possible. In this paper virtual organisations are regarded network organisations. In this paper the term 'network organisation' also covers 'virtual organisation' and 'electronic business network'.

An electronic business network can be regarded as a value constellation [Norman and Ramirez, 1994] grounded in the assumptions and the models of industrial economy. In this view, every company occupies a position in a value network. Upstream suppliers provide input to a company, which then adds value to these inputs, before passing them downstream to the next actor in the chain, the

customer. Global competition, changing markets, and new technologies are opening qualitatively new ways of creating value. Value can still be created by individual organisations, but also opportunities emerge for value-added partnerships [Johnston and Lawrence, 1988]. A value-added partnership is a set of independent companies (or business units in one organisation) that work closely together to manage the flow of goods and services along the entire value chain. Usually, partnerships first develop between organisations that perform adjacent steps in the chain. From industrial marketing research [Ritter, 1999] it is known that interorganisational relationships contribute significantly to company performance, and that companies need to invest in network competences to gain competitive advantage.

An electronic business network is *defined* in this paper as follows: ‘A set of organisational structures are regarded to be an electronic business network if (1) the network consists of at least three nodes, (2) each node can decide independently regarding long term relationships with other nodes, (3) the relationships between the nodes exist for some time and for more than one transaction. We note that an electronic business network organization can exist both *inside a company* (as a network of departments or business units) or *between companies*. Also a network can exist as all kinds of cross sections in a value network. For example, one can distinguish logistic networks, financial networks, and knowledge networks.

#### 2.4. Factors influencing the success of electronic network organisations

Figure 1 shows the framework tested by Toppen et al. [1998] identifying four exogenous and four endogenous factors that influence the success of a business network. The exogenous factors are beyond the scope of influence of an individual organization in a network but affect the endogenous factors, that are within the scope of influence of an individual organization. The eight factors are:

- Stakeholders: the organisations involved in the network (or business units in an internal network) each have their own goals and specific added value. In Europe new stakeholders in financial service networks are for instance rating organisations like Morningstar Europe (already an important intermediary in the US) and FundPartners ([www.fundpartners.nl](http://www.fundpartners.nl)).
- Competition: this can vary per stakeholder and network, e.g., competition on price, full service, one-stop shop, added value. B2C financial services are offered for the lowest price as well as customised full-service concepts.
- IT: Internet and other IT developments create varying opportunities and IT infrastructures per stakeholder in the network
- Information: on products, portfolio’s, clients, etc. Variety of the quality and distribution of information in the network influences the performance.
- Business network design and proces design: the trend towards customized financial services brings organizations to focus and e.g., to outsource commodity service components (unbundling the value chain). This leads to new emerging dynamic networks and Internet enabled supply chains and new roles in the network. In particular we are interested in the differences between the electronic network requirements for discount brokers (offering standardised products) and full service providers.
- Perceived risks: Risk perception refers to intra-organizational operational process risks and intra-organizational transaction and stakeholder/ systemic risks. High perceived risks leads to more controls, thus influencing process design [Clemons and Row, 1992].
- Trust: trust can be derived from personal relationships, or from companies having a well-recognised brandname and solid reputation, or from regulating or supervising institutions (Central Banks, SEC). The amount of trust influences process design [Sanner 1997].

Clemons and Row [1992] distinguish Transaction Oriented Electronic Networks (TOEN) and Process Oriented Electronic Networks (POEN). Examples of TOEN are the financial mega exchanges where high volume transactions are processed. Examples of POEN are the busines networks around the mega exchanges that provide various financial services (table 1). The primary characteristic of a TOEN is that buyers and suppliers do not need to know each other (because of intermediaries). Important elements are price and quantity of the transaction. POENs are characterized by direct and close

relationships between organisations and more elements are needed for coordination between the organisations

Mass Customisation (MC) influences the eight factors and so affects the performance of the intra- and interorganisational processes. MC is also a performance measure of a business network and can lead to changes in process performance criteria. The level of scope (intra- up to inter-organisational) for measuring process performance relates to the degree of business transformation as described by Venkatraman [1994] and Toppen et al [1998]. The success of a business network is measured in terms of the requirements laid down by the stakeholders and their satisfaction. Typically, TOEN and POEN have different performance criteria. Performance criteria for TOENs are liquidity, transparency, accessibility, low transaction costs, accurate price discovery, and adequate information about product, recent transactions, and current prices. Performance criteria for POENs are: throughput time, reliability, quality, efficiency, costs, risks, controllability, flexibility, logistic performance [Toppen et al, 1998]. Aggregate indicators of success of a network can be various growth rates (financial, business, e.a.), customer and stakeholder satisfaction, technological stability, and other.

Two cases in the financial industry (Robeco Direct, Schwab) are analysed in section 3 using the framework (figure 1) focusing on how electronic business networks enable mass customisation.

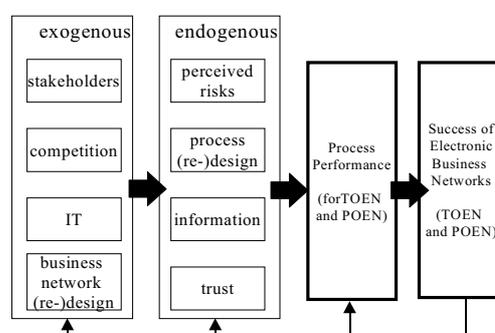


Figure 1. Factors influencing the success of Electronic Business Networks (Toppen et al., 1998)

### 3. TWO CASES

#### 3.1 Robeco Direct

Robeco Direct is the direct marketing organisation of the Robeco Group, market leader in the Dutch mutual fund market (36% marketshare in 2000). Robeco Direct serves over 500,000 retail clients in the Netherlands and about 35,000 in France. Before 1999 Robeco Direct, not having local branches clients could visit, served clients by telephone and direct mail only. In 1999 Robeco Direct introduced a website enabling online mutual fund and individual securities trading and on line portfolio access. In transforming business to on-line offering via Internet, Robeco Direct could benefit from the strong Robeco brandname, direct marketing expertise, database centred infrastructure, and low cost organisation (not having an extensive branch network). Clients choose Robeco Direct for quality of the products and integrated advisory services. Robeco Direct is positioned not as a discount broker, but as a personal financial planning focused integrated solution provider [Nyfer, 2001].

Robeco Direct customises by combining products with professional financial research and advisory services of IRIS (Institute for Research and Information Services, www.iris.nl, co-owned by Rabobank and Robeco) and a specific client profile database. Precondition for success is the infrastructure providing a seamless transaction execution and reporting to clients. Scaling operations is necessary to justify the required infrastructural investments. Scaling is realised by increasing the number of clients in the Netherlands and France and by offering services to clients in other European countries, adapted to different national tax regimes and customer preferences.

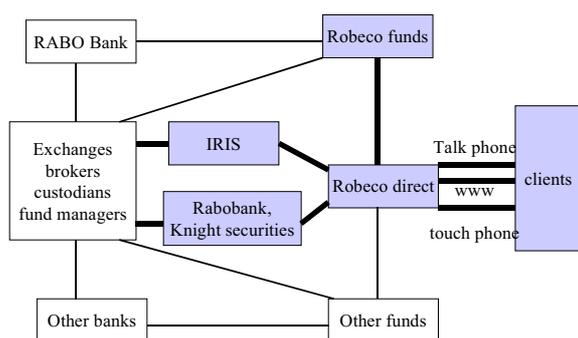


Figure 2. Robeco Direct business network

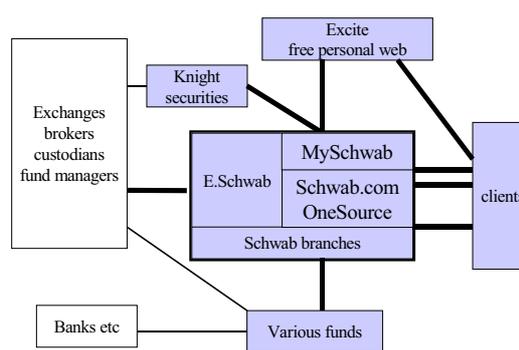


Figure 3. Schwab business network

**Stakeholders.** The primary stakeholders in the Robeco Direct network (figure 2) are retail clients, mutual fund provider Robeco, providers of other mutual funds, provider of investment advisory services IRIS, provider of transaction execution systems Knight securities/ Rabobank, the exchanges and the regulators, the STE (the Dutch SEC) and the Dutch Central Bank. The interdependency of the stakeholders is limited to Robeco Direct coordinating the services of the other stakeholders to provide B2C services.

**Competition.** Robeco Direct is the direct marketing B2C financial service provider of the Robeco Group. In 1999 Robeco Direct changed focus from ‘on-line product-oriented mutual fund provider’ to ‘client-oriented on-line customised financial service provider’ combining the proprietary Robeco mutual funds and funds of third parties into integrated financial services. Robeco Direct aims to be provider of customized financial services, distinguishing from online discount providers that offer transaction execution services only. Because Robeco Direct does not have any 'bricks' (no branch clients can visit) it has to differentiate from banks such as ING, ABN AMRO that have a combination of bricks and clicks and new infomediaries such as Independer. Robeco Direct differentiates by focusing on specific client groups (independent investors) and not on dependent advice needing clients who tend to go to banking organisations. Robeco Direct benefits from the increasing number of clients that know what they want and only seek confirmation when it concerns their financial planning.

**IT and Information.** Robeco Direct distinguishes between transaction execution services and financial advisory services. Transactions rely heavily on information systems and the links to exchanges for non-proprietary mutual funds and individual securities. Because scale is required to offer low price transaction services, Robeco Direct considers outsourcing this activity to a dedicated provider (e.g., Knight Securities). Added value is created by Robeco Direct by using client information in the database in combination with tailored financial advisory services. To do this Robeco Direct coordinates the network of companies providing the required building blocks. Robeco Direct offers services to clients via the Internet and phone. A big challenge is to offer services in a tailor made format so the client can make a choice. This often means offering a customised pre-selected number of all available mutual funds to clients. The advisory service tries to limit the choices based on the specific client profiles and demands.

**Market Network Redesign.** The transaction oriented electronic network can largely be outsourced as it requires scale to operate cost-effectively. The process oriented electronic network supporting the advisory services requires up-to-date information to provide the best advice to clients. Accessibility and adequate and up-to-date information on products, advice, prices and recent transactions are important characteristics of Robeco Direct's services to clients. Clients should be able to access their accounts any time and anywhere by contacting Robeco Direct via Internet. Robeco Direct performs immediate on-line transactions with its partners.

**Trust.** Robeco Direct has a well-known brandname and benefits from strong reputation in providing mutual funds and high quality advisory services to retail clients. Clients trust Robeco Direct offering

secure and safe trading and services through telephone and Internet. Regulation by STE and the Dutch National Bank supports the institution based trust in Robeco Direct. Additional trust is created by offering clients to contact Robeco Direct by phone in case the Internet based system is down.

**Process performance.** To reduce costs Robeco Direct differentiates services by allowing clients to consult an advisor directly to act alone via Internet or touch-tone phone service. This increases the effectiveness of the client servicing by Robeco Direct and increases its profitability at the same time. Client satisfaction is achieved by having a large number of clients using Internet services. In 2001 over 30% of Robeco Direct retail clients use Internet services and over 70% of all transactions are executed through the Internet site.

### **3.2 Schwab**

Schwab corporation started in 1974 as one of US's first discount brokers. Schwab provides a range of financial services to individual investors, independent investment managers, retirement plans, and institutions. Schwab serves over 7.7 million customer accounts through a network of 368 branches, offices, telephone service centers, automated phone services, and Internet. Besides share trading, Schwab offers mutual fund services covering around 1400 funds. A special selection of 800 funds belong to Schwab OneSource service, launched in 1992 to offer extensive research and performance comparisons of mutual funds [Zuidema,2000]. Schwab One Source Online was launched on Internet in 1999, offering on line information and trading facilities.

Schwab.com is the centerpiece of Schwab's investment in electronic and technology innovation. Supporting more than 80,000 simultaneous log-ons, it features state of the art on-line brokerage services and is leader in the on-line brokerage with more than \$ 418 billion in on-line customer assets as of March, 2000. Online trades account for more than 70% of Schwab's total trading volume.

The success of the online trade confronted Schwab in 1998 with the dilemma of a hybrid company: how can on-line and off-line trade coexist? On-line success makes personnel and customers in the off line business nervous. A growing part of off-line 'full-service' customers switched to schwab.com: 60 percent of the customers have been brought in via the branch offices or by direct phone contact. Customers also complained about different rates. On-line customers pay \$ 30 per transaction, off-line customers \$ 65. In 1999 Schwab decided to charge \$ 30 for every transaction.

**Stakeholders.** The primary stakeholders in Schwab (figure 3) are the retail clients, other mutual fund and individual security brokers, the exchanges and the Securities and Exchange commission (SEC) regulating the financial securities sector. Later Excite came into play offering free personal web services. The interdependency of stakeholders is limited to Schwab being dependent on approval of the SEC and clients depending on the quality of Schwab.

**Competition.** Originally Schwab was a discount broker, competing mainly on price with full-service brokers like Merrill Lynch. New companies like E\*Trade, Ameritrade, and Datek, offer deep-discount Internet trading, competing Schwab on price. Schwab distinguishes from these deep-discounters by offering additional services (www.myschwab.com) since 1999, in collaboration with Excite. Schwab customers and prospects can create customized investment information like Watch List of Stocks and receive current national and other content for free. Although Schwab never pursued a differentiation strategy but rather a cost leader strategy, it is now able to offer customized services at a relatively low price. By doing this Schwab differentiates from deep discounters and from quality brokers.

**IT.** IT has always been an integral part of Schwab's strategy. Where in the 70s many organizations decided to outsource IT, Schwab decided to keep IT in the company to remain ahead with applications of new IT developments. In 1985 customers could order on line through a proprietary network; in 1989 Schwab was the first to offer telephone services 24 hours a day; in 1995 Schwab launched a broad Internet strategy (after E\*trade and Lombard Securities had offered web-based trading) and in 1996 the first 50 customers traded in stocks via Internet. After one month Schwab.com hit more than 10,000 customers. A continuous policy of upgrading the technology is used –based on person based relations with hardware suppliers- to meet growing Internet trade. Between 1996 and 1998 the web-

servers increased from 3 to 50, Cisco-7500 routers from 2 to 8, LAN shifted to '100 Mb'. An interesting crisis was October 1997 (Dow Jones drops below 500) and the site runs on 130% of its capacity, and Schwab adds additional 'external bandwidth' immediately by using the business network. Another innovation in 1998 shortens the login process for clients considerably [Zuidema, 2000].

**Market Network Redesign..** Market network integration across the value chain has taken place because retail investors can access the stock markets virtually directly via Schwab. Also, an increasing amount of securities transactions are being executed without using the traditional exchange. Trades are matched in the network without going through an exchange. Schwab mutual fund transactions are carried simply by swapping shares among the customers without involving the mutual fund companies. Transaction costs are eliminated and Schwab retains control over client transactions and the information that results from it. The Schwab case study is an example of a bilateral TOEN with hierarchical coordination. Bilateral because clients have a long established relationship with Schwab starting when they open an account. TOEN because price and quantity are the most important characteristics of trading securities and mutual funds.

**Trust..** Schwab has a strong reputation of being a market leader and this provides quality assurance to clients. Retail clients trust Schwab offering safe and secure trading. According to analysts the basis of Schwab's success is that it operates both on and off line. Pure on-line companies like E\*trade and Ameritrade totally depend on technology. Schwab's customers always have the option to call a local branch. The hybrid model appears to work well, possibly also in other industries.

**Process Performance.** To assess process performance we may look at indirect measures. Schwab has been known as one of the most comprehensive and easy to use brokerage sites and has been recognized as a forerunner (PCWorld 1999 World Class Award for Best Web Brokerage Site; Money's 1999 Best on-line Brokerage for Mainstream Investors; Gomez Advisors' Quarterly Internet Scorecard 1999 award for Customer Confidence and On-Site Resources. The dedication to the web has paid off in multiple ways. From innovative new services and tools to the ability to serve more customers and improve productivity. Schwab is a leader in the online brokerage industry with more than \$ 418 billion online customer assets as of March, 2000. On line trades account for more than 70% of Schwab's total trading volume with Schwab.com averaging 40 million hits a day.

#### 4. Discussion and Conclusion

We analysed electronic business networks that offer customised financial products and services, and examined how eight factors influence the success of transaction oriented and process oriented networks. We found that current B2C financial services networks focus on specific client groups by creating business networks and distribution channels with distinct roles and functions distributed among the stakeholders in the network. The business network tends to be stable over the years, and only seldomly new partners are included (Schwab with Excite in 1999, Alex with Morningstar and Finance Television). The business and technological performance of the network have increased tremendously over the years (business performance is e.g., turnover, shareholder value, profits, numbers of customers, and degree of customisation).

Low cost strategy appears to fit the (B2B) back office processes. For the front office B2C processes and customer services a full service strategy can be found (Robeco, Schwab) or a limited services and low cost strategy (Alex). In the Schwab and the Robeco Direct case the back office transaction processes appear to be examples of TOEN, with a clear focus on low-costs. The front office processes supporting the client interactions are examples of POEN, with a clear focus on accessibility and differentiation of investment advisory services.

Flexible and dynamic *network designs* are needed to enable mass customisation in financial B2C markets, because the network must respond to a variety of customers (from loyal investors, to active traders, portfolio investors, to young investors). Flexible and dynamic also to deliver a variety of financial services (competitive portfolio of financial products, research information, financial news,

advisory information, cross border trading, adequate information on recent transactions, price discovery), and a variety of support services (portfolio management, good software, multi channel).

The *network infrastructures* consist of a very high capacity technical infrastructure and web applications for on-line services and support of clients (Schwab and Robeco Direct), human operated telephone (Schwab and Robeco Direct), and 'brick' physical branches (only Schwab). Schwab and Robeco Direct are examples of companies that already served large client bases before introducing Internet based services. This may be an important factor for the success of these companies, because they could achieve critical mass without attracting new clients. *Trust* is an important factor for success of a network: if something goes wrong, the client must be able to call someone immediately, but this requirement is less strict if the business network is affiliated with a quality brand (bank) name.

In the cases analysed, customisation appears to be 'customised standardisation' because many B2C networks offer an increasing number of financial products (collective investment schemes and funds) out of which customers can select after using the (standardised) information on these funds. Full service providers offer tailored customisation in the form of customised portfolio's and portfolio management. Customerisation and personalisation are not (yet) found, but websites like yodlee.com, reflect.com, and (human) intermediaries might fill these gaps in the future.

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