

'An ontology for e-business models'

Alexander Osterwalder & Yves Pigneur

University of Lausanne

Introduction

The terms "business models" and "new business models" probably belong to the most misinterpreted terms in e-business. Nevertheless, innovative business models are constantly emerging in electronic commerce and can become a major stake in the e-business game (Bloch et al. 1996; Maître and Aladjidi 1999; Robinson et al. 2000). It is even possible to patent them in some countries. Understanding new business models and helping to design them are important research issues, not so well covered until now.

Business models have become more complex with the emergence of new and affordable information and communication technologies (ICTs). Companies increasingly act in networks and offer complex value proposition through a multitude of distribution channels. For managers it is ever harder to keep track of how their companies really work and how and where exactly the money is made. Of course every manager and entrepreneur does have an intuitive understanding of how his business works and how value is created. In other words he does have an intuitive understanding of the company's business model, but even though this business model influences all important decisions, in many cases she or he is rarely able to communicate it in a clear and simple way (Linder and Cantrell 2000). And how can one decide on a particular business issue or change it, if it is not clearly understood by the parties involved?

In this chapter we will try to tackle the business model issue and construct and outline the sketch of an ontology (rigorous framework) for e-business models based on an extensive literature review. We aim at showing how the fusion of the ideas in business model literature and the ideas of enterprise ontologies creates an appropriate basis for the development of a range of new management tools in the e-business domain. By merging the conceptually rich business model approach with the more rigorous ontological approach and by applying them to e-business, we achieve an appropriate foundation for tools that would allow the understanding, sharing and communication, change, measuring and simulation of e-business models.

In the next section we give an overview of related work. As shown by Linder (Linder and Cantrell 2000), most people speak about business models when they really only mean parts of a business model. We think that the existing business model literature essentially attacks one, two or rarely all of the following three elements, which make up a business model: revenue and product aspects, business actor and network aspects and finally, marketing specific aspects.

We propose an e-business model ontology that highlights the relevant e-business issues and elements that firms have to think of, in order to operate successfully in the Internet era. An ontology is nothing else than a rigorously defined framework that provides a shared and common understanding of a domain that can be communicated between people and heterogeneous and widely spread application systems (Fensel 2001).

We suggest adopting a framework which emphasizes on the following issues that a business model has to address:

- [Product innovation] What business the company is in, the product innovation and the value proposition offered to the market?
 - [Customer relationship] Who the company's target customers are, how it delivers them the products and services, and how it builds a strong relationships with them?
 - [Infrastructure management] How the company efficiently performs infrastructure or logistics issues, with whom, and as what kind of virtual enterprise?
- and finally,

- [Financials] What is the revenue model (transaction, subscription/membership, advertising, commission, licensing), the cost model (cost of goods sold, operating expenses for R&D, sales and marketing, general and administrative) and the business model's sustainability?

Definitions and Taxonomies

The term "business model" is a buzzword with no commonly accepted meaning. In this chapter we shall try to change this, define the concept and show that business models represent a way of improving doing business under uncertainty. As explained by Petrovic et al. (Petrovic et al. 2001), a business model describes the logic of a "business system" for creating value, that lies behind the actual processes. In this paper we use the following working definition for business models, which will serve as a starting point for the more rigorous and detailed e-business model ontology: A business model is nothing else than a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams.

There exists a growing literature on (e-) business models by academics and consultants. Some speak of "Internet business models" and others of "business models for the web", but they all mean certain aspects of the business logic of a firm that have a strong IT-component. The early authors have mainly written about the classification of models in different categories (Timmers 1998; Tapscott et al. 2000; Rappa 2001). By contrast, the latest literature has started decomposing business models into their "atomic" elements (Hamel 2000; Afuah and Tucci 2001; Petrovic et al. 2001; Rayport and Jaworski 2001; Weill and Vitale 2001). This section gives an overview of the existing literature considering different aspects of business models, which are revenue- and product-specific, business actor- and network-specific and marketing-specific. This review is necessary in order to provide a sound ontology of the e-business model domain and to understand what a business model should be composed of.

Revenue/product aspects. Rappa (Rappa 2001) and Tapscott et al. (Tapscott et al. 2000) provide a taxonomy of e-business models rather than an explanation of what elements such a model contains. Both authors concentrate on revenue- or product-specific aspects.

Business actor and network aspects. Timmers (Timmers 1998) provides a taxonomy in which he classifies e-business models according to their degree of innovation and their functional integration. Gordijn and Akkermans (Gordijn et al. 2001) provide a richer and more rigorous business model framework, which is based on a generic value-oriented ontology specifying what's in an e-business model. This framework even allows the graphical representation and understanding of value flows between the several actors of a model. Afuah et al. (Afuah and Tucci 2001) and quite similarly Amit et al. (Amit and Zott 2001) outline a value- and actor-centric framework that provides a list of business model components.

Marketing specific aspects. Hamel (Hamel 2000) identifies four main business model components that are related to each other and are decomposed into different sub-elements. The main contribution of this methodology, as well as the one of Rayport et al. (Rayport and Jaworski 2001) is a view of the overall picture of a firm. Petrovic et al. (Petrovic et al. 2001) divide a business model into sub-models, which describe the logic of a business system for creating value that lies behind the actual processes. Weill et al. (Weill and Vitale 2001) also suggest a subdivision in to so called atomic e-business models, which are analyzed according to a number of basic components.

e-Business Model Ontology

As outlined above, business models are constructed around products, customers, infrastructures and financial issues. We understand these business models as the conceptual link between strategy, business organization and information systems (see Figure 1). Because there is often quite a substantial understanding gap between these "worlds", the concept of business models could serve as a federator.. Strategy people position the company, define and formulate objectives and goals, whereas business process and information system designers have to understand and implement this information. In order to guarantee a smooth strategy execution, firms require a very clear

communication of concepts and understandings between the implicated parties. This is where rigorously defined business models come into play. By using an ontological approach to e-business modeling, one can create a shared and common understanding of the domain and facilitate communication between people and heterogeneous and widely spread application systems (Fensel 2001). As illustrated in Figure 1, we perceive business models as the conceptual implementation (blueprint) of a business strategy that allows to align strategy, business organization and information systems and represents the foundation for the implementation of business processes and information systems. The role of the manager is to adapt a company's business model to external forces, such as competition, legal, social or technological change and changes in customer demand.

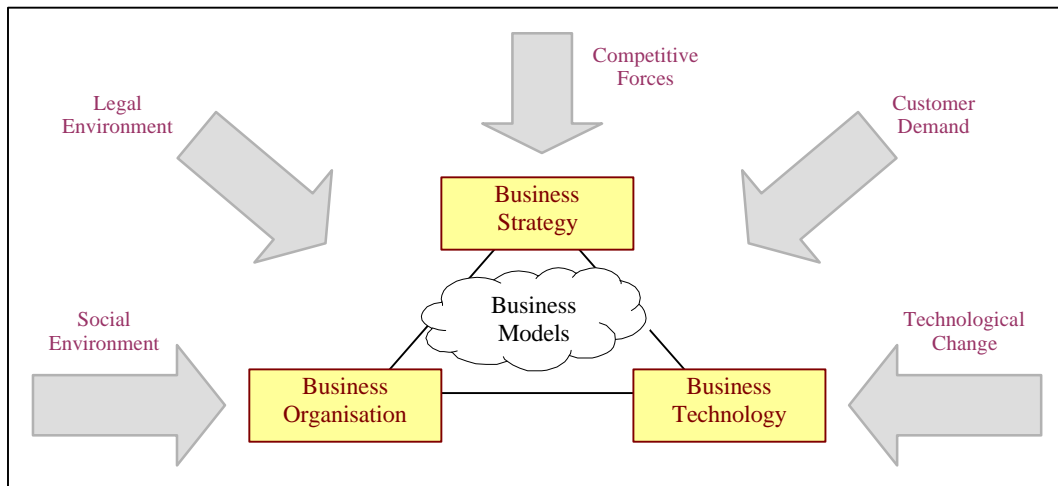


Figure 1: Environment, Business Models, Strategy, Process and Information Systems

We think the understanding and use of conceptual e-business models is essential in an increasingly dynamic and uncertain business environment for the following reasons:

1. The process of modeling social systems or an ontology – such as an e-business model – helps identifying and understanding the relevant elements in a specific domain and the relationships between them (Morecroft 1994; Ushold and King 1995).
2. The use of formalized e-business models helps managers easily communicate and share their understanding of an e-business among other stakeholders (Fensel 2001).
3. Mapping and using e-business models as a foundation for discussion facilitates change. Business model designers can easily modify certain elements of an existing e-business model (Petrovic et al. 2001).
4. A formalized e-business model can help identifying the relevant measures to follow in an e-business, similarly to the Balanced Scorecard Approach (Kaplan and Norton 1992).
5. e-Business models can help managers simulate e-businesses and learn about them. This is a way of doing risk free experiments, without endangering an organization (Sterman 2000).

The e-business model ontology outlined in this chapter is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. Our ontology has in some ways been inspired by the different enterprise ontology projects described in academic literature (Toronto Virtual Enterprise, Enterprise Ontology, Core Enterprise Ontology)(Bertolazzi et al. 2001). These ontologies mainly concentrate on processes and organizational representation. The work of the Edinburgh Group (Ushold and King 1995), for example, is aimed at proposing an enterprise ontology, i.e. a set of carefully defined concepts that are widely used for describing enterprises in general and that can serve as a stable basis for specifying software requirements. The focus of our work is on the logic and concepts of value creation, at a higher level of abstraction, which is the business model.

At the first level (see Figure 2), our ontology is broken down into four simple pillars, which are the "what", the "who", the "how" (Markides 1999) and the "how much" of a firm. In other words, these pillars allow to express what a company offers, who it targets with this, how this can be realised and how much can be earned by doing it.

These pillars can be translated into four main business model blocks that are then further decomposed: Firstly, the **PRODUCT INNOVATION** block, which describes the value proposition of a firm. Secondly, the **CUSTOMER RELATIONSHIP** block, which describes how a firm gets in touch with its customers and what kind of relationships it wants to establish with them. Thirdly, the **INFRASTRUCTURE MANAGEMENT** block that describes what activities, resources and partners are necessary to provide the first two blocks. And finally, the **FINANCIAL ASPECTS** block, which describes the revenue flows and the pricing mechanisms of a firm, or, in other words, how a company makes money through the other three blocks.

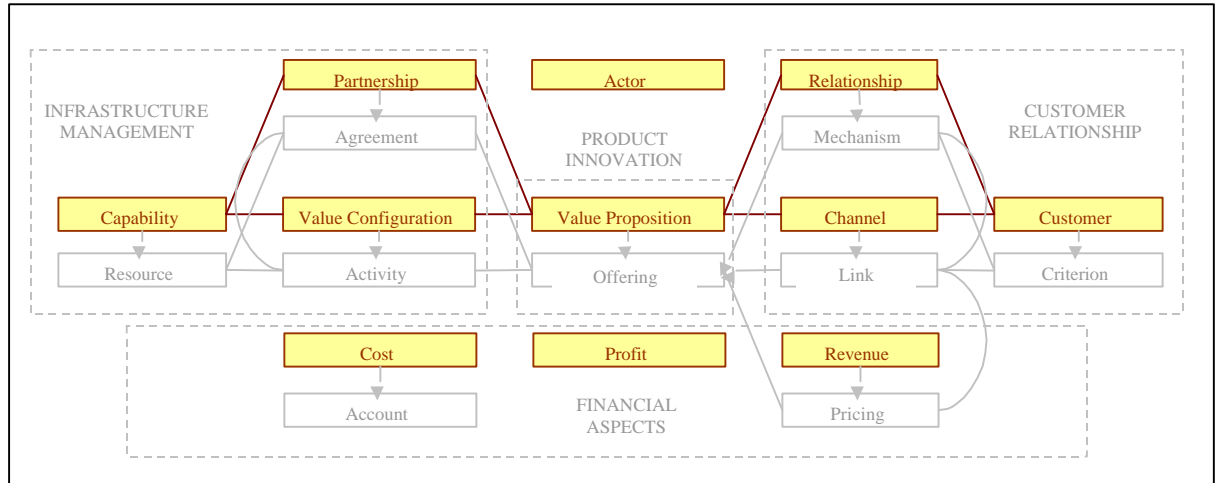


Figure 2: Business Model Ontology

Product Innovation and Value Proposition

ICT has had a major impact on product innovation. This comes mainly from the separation of information from its physical carrier and its ease of distribution. Look at this following simple illustration. A book is composed of content and paper. By separating content and carrier the book can be diffused through a variety of electronic or bricks-and-mortar channels. Imagine you were in a local book store and you were looking for something they do not have in stock. If the store had so-called print-on-demand facilities they could download the content and print out the book in a matter of minutes. A similar concept is very common in some music stores. Customers can chose song titles out of a large data base and get them burnt on a CD immediately. In fact, many people already download or buy music over the Internet directly to their homes. In more economic terms these examples mean that one is not limited to the economics of things anymore, but enters the "new economics of information" (Evans and Wurster 1997). This simply signifies that a company can easily reach a large number of customers and provide them with very rich information in form of multimedia data, personalized information or customized products. One company that realized this very quickly was Federal Express. In 1994 when they launched their Website, they were the first to offer online package status tracking that allowed each and every customers to follow their package on its delivery. While this has not profoundly changed the shipping industry, other sectors, such as the music and film industry risk to be completely transformed because their products can be entirely digitized. An example of the trembling fundamentals of the music industry was the notorious fight of the major record companies against the file-trading platform called Napster (Rupp and Esthier 2003). But the majors' traditional business models are increasingly challenged (Durlacher 2001). In general, companies that are not able to constantly innovate risk to fall into the commoditization trap because successful products are rapidly copied by an ever more global competition. Recent research shows that superior market performers are essentially companies that are able to innovate and constantly transform their value proposition (Kim and Mauborgne 1997; Chen and Kai-ling Ho 2002).

Product innovation covers all aspects of what a firm offers its customers. This comprises not only the company's bundles of products and services but the manner in which it differentiates itself from its competitors. We conceptualize this with a formal approach to value propositions (see

Table 1 and Figure 3), which consists of the VALUE PROPOSITION component and its elementary OFFERING(s).

VALUE PROPOSITION
<i>A VALUE PROPOSITION is an overall view of a firm's bundle of products and services that together represent a value for a specific CUSTOMER SEGMENT</i>
- it represents value for TARGET CUSTOMER(s) - it is based on CAPABILITY(ies)
It is composed of a set of one-or-more OFFERING(s)
<i>An elementary OFFERING describes a part of a firm's bundle of products and services.</i>
- it has a DESCRIPTION - it has a REASONING {USE, RISK REDUCTION, EFFORT REDUCTION} - it has a LIFE CYCLE {CREATION, APPROPRIAION, CONSUMPTION, RENEWAL, TRANSFER} - it has a VALUE LEVEL {ME-TOO, INNOVATIVE INNOVATION, EXCELLENCE, INNOVATION} - it has a PRICE LEVEL {FREE, ECONOMY, MARKET, HIGH-END}

Table 1: Value Proposition

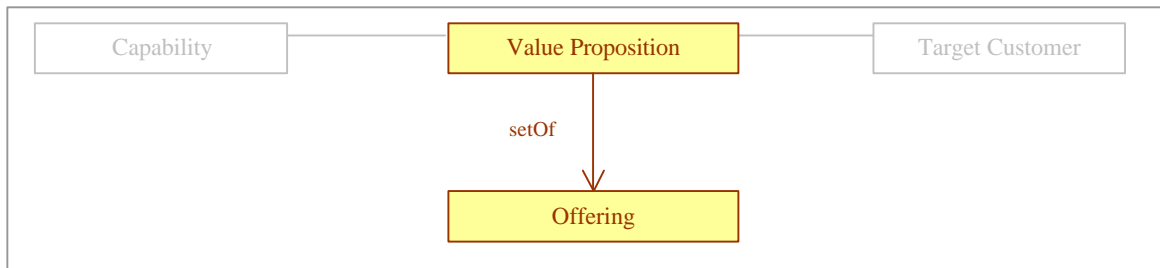


Figure 3: Value Proposition

A VALUE PROPOSITION can be understood as the statements of benefits that are delivered by the firm to its external constituencies (Bagchi and Tulske 2000). We describe it as the definition of how items of value, such as products and services as well as complementary value-added services, are packaged and offered to fulfill customer needs (Kambil et al. 1997). The VALUE PROPOSITION is an overall view of a firm's bundle of products and services that together represent a value for a specific CUSTOMER SEGMENT. It describes the way a firm differentiates itself from its competitors and is the reason why customers buy from a certain firm and not from another.

While the VALUE PROPOSITION element gives an aggregated view of the value a company offers its customers, its elementary OFFERING(s), describe the different aspects of a VALUE PROPOSITION. By outlining these different components a firm can better observe how it situates itself compared to its competitors. This will allow a company to innovate, to differentiate and to achieve a competitive position. An OFFERING describes a part of a firm's bundle of products and services. It illustrates a specific product, service, or even product or service feature and outlines its assumed value to the customer. An OFFERING is characterized by the properties DESCRIPTION, REASONING, LIFE CYCLE, VALUE LEVEL and PRICE LEVEL.

The attribute REASONING captures the reasoning on why the firm thinks its VALUE PROPOSITION could be valuable to the customer. Normally value is created either through use (e.g. driving a car), reduction of the customer's risk (e.g. car insurance) or by making his life easier through reduction of his efforts (e.g. home delivery of groceries).

Besides reasoning on its sense a value proposition should also be studied over its entire LIFE CYCLE (Anderson and Narus 1998). Therefore we create an attribute, which has the goal of capturing at which one of the five stages of the value life cycle (based on (Ives 1999)) an elementary OFFERING creates value. This can be at the moment of the value creation (e.g. customization), its appropriation (e.g. Amazon's one-click shopping), its consumption (e.g. listening to music), its renewal (e.g. software updates) or its transfer (e.g. disposal of old computers, selling of used books).

Furthermore, we suggest quantifying the value and price of an OFFERING. Measuring the VALUE LEVEL of a company's offer allows a firm to compare itself to its competitors. To do this we have created a qualitative value scale that relates to the value offered by competitors rather than using a quantitative scale that ranges from low to high. Our measure goes from me-too value (e.g. commodities), over innovative imitation (e.g. pocket pc) and excellence (e.g. Swiss watches) to innovation (e.g. Viagra in the 90's).

This attribute PRICE LEVEL compares the value proposition price to the competition's one. The scale goes from free (e.g. online newspapers) over economy (e.g. Southwest, EasyJet, RyanAir) and market (e.g. stocks) to high-end (e.g. Rolex).

By capturing the two elementary characteristics of an offering, the VALUE LEVEL and the LEVEL (Anderson and Narus 1998), a company can draw a so-called value map (Kambil et al. 1997). This helps defining its relative position in an industry along the price-value axis. Such a map also contains the value frontier, which defines the maximum value (performance of a value proposition) currently feasible for any given cost (minimum price of a value proposition). Market leaders will either extend and rethink their position in the value map to differentiate themselves from their competitors or radically innovate to shift the value frontier.

Mini case: easyMoney.com

easyMoney.com is a credit card company founded by Haji-Ioannou who has also created easyJet, easyCar, easyInternetCafé, easyValue.com and easyCinema.com. Its value proposition consists of customized credit cards at attractive prices. Through transparent pricing, clear product offerings, the use of ICT and avoiding cross-subsidies between products and customers the credit card client only pays for what he gets.

Customers design their own credit card on easyMoney.com's Website according to their personal needs. With the so-called Card Builder they can select their own individual combination of interest rate, cashback rewards, annual fee and servicing options. Credit card costs depend directly from these choices and the customer only pays for what he gets. Through customization he can reduce his financial risk of paying for options he doesn't need nor use. Applications are made electronically via easyMoney.com's Website. This reduces the customer's effort and lets him apply conveniently from his home or workplace PC. The easyMoney.com credit card is accepted at over 19.1 million locations worldwide displaying the MasterCard logo. By configuring his own credit card the customer benefits from attractive prices and he only pays for what he gets. The customer has the possibility to change the combination of the features of his card up to 3 times a year without charge. This helps him to avoid the risk of not being able to adopt credit card options to his actual needs.

Table 2 gives an overview of the VALUE PROPOSITION of easyMoney.com and its elementary OFFERINGS.

	Card Builder	Personalized credit card	Online account management
Description	With the so-called Card Builder customers can select their own individual combination of interest rate, cashback rewards, annual fee and servicing options. They build their own personalized credit card	The easyMoney.com credit card is accepted at over 19.1 million locations worldwide displaying the MasterCard logo and is financially attractive.	Customers can handle their account online and receive their statements electronically. At every moment they have an up to date overview of their account history.
Reasoning	A customized credit card reduces the financial risk of paying for options the customer doesn't need nor use.	By configuring his own credit card the customer benefits from attractive prices because he pays for what he gets.	Clients can conveniently manage their accounts from their PC and profit from lower handling costs.
Value life cycle	Value creation	Value Consumption	Value Consumption
Value level	Innovation	Innovation	Innovation/me-too
Price level	free	economy	free

Table 2: The core VALUE PROPOSITION of easyMoney.com

Customer Relationship

This business model block refers to the way a firm goes to market, how it actually reaches its customers and how it interacts with them. ICT has traditionally had a very strong influence on the ways companies organize their customer relationships. The use of databases for managing customer related information, the introduction of scanners in supermarkets, the offering of toll-free numbers connected to call centers or the use of new distribution and communication channels are just some of the numerous applications that have transformed customer relationship.

Especially the dissemination of the Internet has further increased the range of possibilities of interacting with customers. Generally, it can be said that the falling cost and improving performance of ICT has contributed to the facilitation of customer-related information gathering and customer- and product-related information diffusion. Data warehousing, data mining and business intelligence are just some of the technologies that have allowed managers to gain insight on their customers buying behavior and improve customer relationship. Exploiting customer information can allow managers to discover new and profitable business opportunities and to ameliorate customer satisfaction. ICT also helps companies to provide their customers and prospects with ever richer information (Evans and Wurster 1997) and offer them innovative ways of interaction and thus contribute to the firms value proposition.

Finally, in order to serve customers better or to reach new markets companies introduce new distribution and communication channels, such as the Internet or mobile phones, but also new relationship mechanisms, such as personalization and trust.

The CUSTOMER RELATIONSHIP block covers all customer related aspects. This comprises the choice of a firm's TARGET CUSTOMERS, the CHANNELS through which it gets in touch with them and the kind of RELATIONSHIPS the company wants to establish with its customers. The CUSTOMER RELATIONSHIP describes how and to whom it delivers its VALUE PROPOSITION, which is the firm's bundle of products and services..

Target Customers

Selecting a company's target customers is all about segmentation. Effective segmentation enables a company to allocate investment resources to target customers that will be most attracted by its value proposition. The most general distinction of target customers exists between business and/or individual customers, commonly referred to as business-to-business (B2B) and business-to-consumer (B2C). The TARGET CUSTOMER definition will also help a firm define through which channels it effectively wants to reach its clients (see Table 3 and Figure 4).

TARGET CUSTOMER
<i>A TARGET CUSTOMER segment defines the type of customers a company wants to address.</i>
- it receives a VALUE PROPOSITION(s)
It is composed of a set of one-or-more CRITERION(s)
<i>An elementary CRITERION defines the characteristics of a TARGET CUSTOMER group.</i>

Table 3: Target Customer

Segmentation has a long history and goes back to the 1950s (Winter 1984). But even nowadays, in the one-to-one marketing era, where customers can potentially be addressed one by one, market segmentation keeps its value. In fact, ICT helps companies make the strategic choice to target their market at any level between “mass” and “one-to-one by balancing revenue against cost (Wedel 2001). Especially post-hoc market segmentation techniques like data mining, multidimensional segmentation and data clustering with artificial neural networks can lead to more efficient marketing and enhance profitability (Neal and Wurst 2001). With the expansion of reach through ICT, such as the Internet, companies increasingly target not only groups that are geographically localisable, but also widely dispersed online communities with common characteristics. Hagel and Armstrong (Hagel III and Armstrong 1997) divide these into communities of transaction, interest, fantasy and relationship.

In order to refine a customer segmentation companies decompose a TARGET CUSTOMER segment into a set of characteristics, which we call CRITERION. These could be of geographical or socio-demographic nature (Kotler 1999).

Distribution Channels

Generally speaking, distribution channels are the connection between a firm's VALUE PROPOSITIONs and its TARGET CUSTOMERs (see Table 4 and Figure 4).

DISTRIBUTION CHANNEL
<i>A CHANNEL describes how a company gets in touch with its customers. Its purpose is to make the right quantities of the right products or services available at the right place, at the right time to the right people (Pitt et al. 1999) - subject of course, to the constraints of cost, investment, and flexibility (Anderson et al. 1997).</i>
- it delivers a VALUE PROPOSITION(s)
- it delivers to a TARGET CUSTOMER(s)
It is composed of a set of one-or-more LINK(s)
<i>A channel LINK describes a part of a firm's CHANNEL and illustrates specific marketing roles. The channel LINK(s) of the different CHANNELs may sometimes be interrelated, in order to exploit cross-channel synergies. In addition to the traditional role of simply delivering value, modern channels and their channel LINKs increasingly have a potential for value creation and thus contribute to a firm's VALUE PROPOSITION (Wyner 1995).</i>
- it has attributes inherited from VALUE PROPOSITION OFFERING
- it is delivered by an ACTOR(s)

Table 4: Distribution Channel

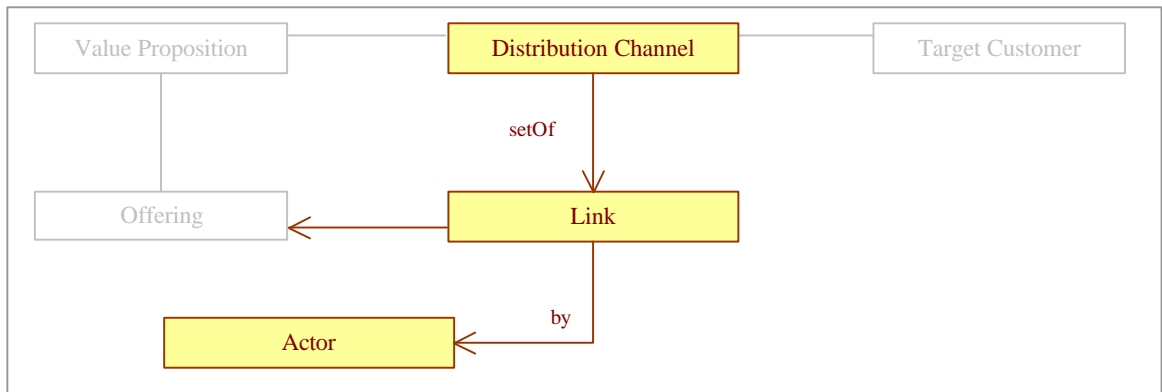


Figure 4: Distribution Channel

A CHANNEL allows a company to deliver value to its customers, either directly, for example through a sales force or over a Website, or indirectly through intermediaries, such as resellers, brokers or cybermediaries. The topic of channels has become exciting in recent years with the proliferation of new successful channels and the promise of a stream of more new ones resulting from advances in ICT (Wyner 1995). But this magnitude of change demands a strategic perspective that views channel decisions as choices from a continually changing array of alternatives for achieving market converge and competitive advantage (Anderson et al. 1997). ICT-based channels, and particularly the Internet, have a great potential to complement rather than to cannibalize a business's existing channels (Porter 2001; Steinfield et al. 2002). However, selling through several channels simultaneously eventually causes channel conflict when they compete to reach the same set of customers (Bucklin et al. 1997). Therefore, understanding channels through a conceptual approach becomes ever more important.

While the CHANNEL element gives an aggregated view of how a company reaches its customers it can be further decomposed into its channel LINK(s). We do this because channels are not the basic building blocks of a marketing systems; the channel tasks or roles, which we call LINKs are (Moriarty and Moran 1990). Since a channel LINK can be considered as a part of the VALUE PROPOSITION or as an OFFERING, it has the same kind of properties: REASONING, VALUE LEVEL & PRICE LEVEL with the same meaning.

The channel concept covers the customer's entire CUSTOMER BUYING CYCLE (based on (Ives and Learmonth 1984; Ives 1999; Muther 2002)). This reflects all possible contact points between a supplier and a customer (Muther 2002). The customer buying cycle is divided into four phases, namely the customer's awareness, his evaluation of the company's VALUE PROPOSTION, the moment of purchase and after sales.

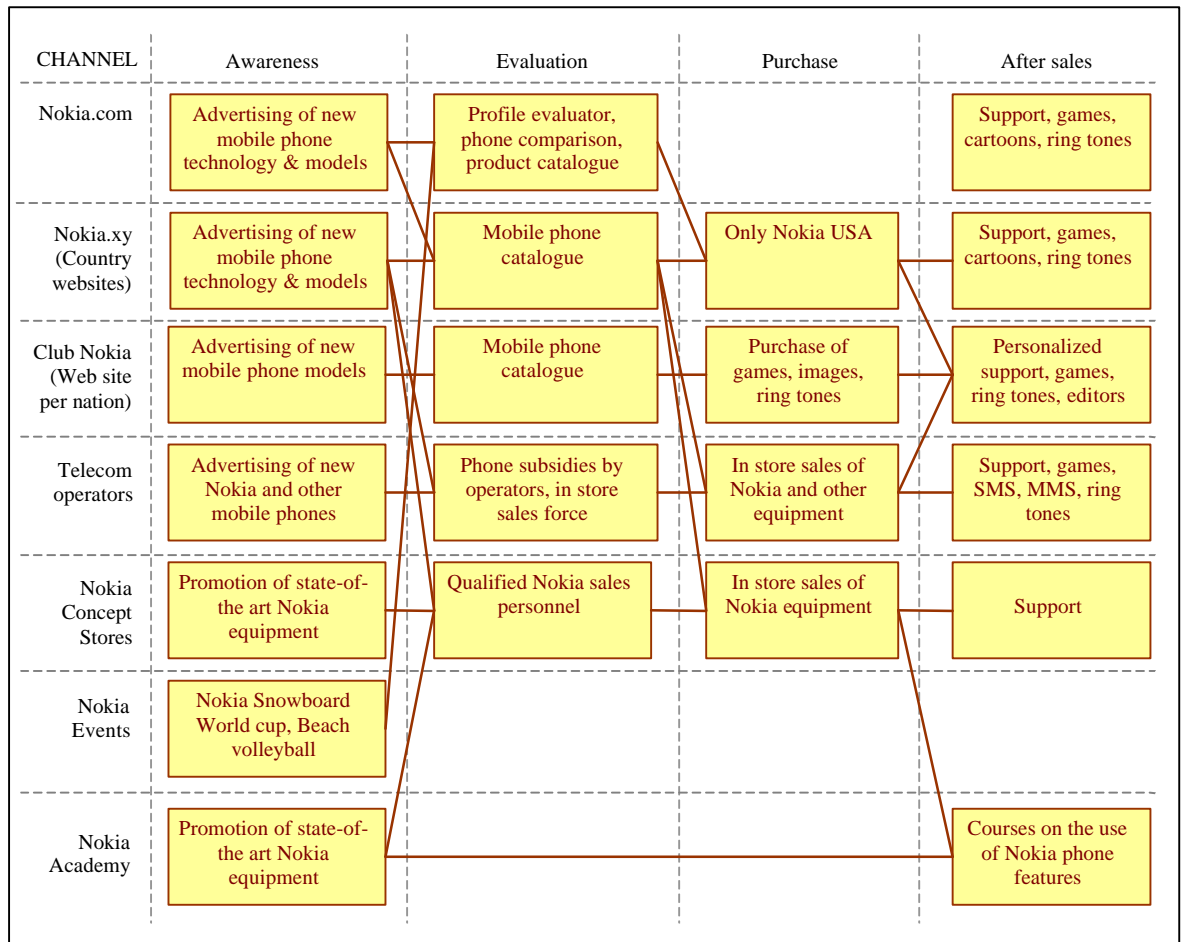


Figure 5: Channel Matrix at Nokia Mobile Phone

In Figure 5 we propose a tool for channel design and management that is based on the Customer Buying Cycle (Ives and Learmonth 1984; Ives 1999; Muther 2002) and the so-called Hybrid Grid (Moriarty and Moran 1990; Dolan 2000).

This tool consists of a matrix with the different phases of the customer buying cycle on the one axis and a company's range of CHANNELS on the other axis. We illustrate this in Figure 5 with a simplified example of the mobile phone manufacturer Nokia, who has a wide range of virtual, physical, owned and partner CHANNELS. The boxes in Figure 5 which you find at the intersection of the CHANNELS and the four phases of the customer buying cycle represent the aggregated channel LINKs of the company. These channel LINKs are connected to each other inside and/or across different CHANNELS. Nokia's most important sales channels are the national mobile phone network operators, which sell the bulk of its phones, and, the various electronics or other retailers. But the other channels, such as Nokia.com, Club Nokia or Nokia Academy (a place to learn about Nokia phone features) also have a very important role to play. Club Nokia, for instance, re-establishes a direct communication link between Nokia and the final customer, which has traditionally been the operators' sphere of influence. This link has an enormous value in loyalizing customers, selling them additional products and collecting information on their behaviour.

Customer Equity

Besides the customer interaction points (i.e. channels), companies must also analyze the nature of the interactions, because they affect the strength of the relationship a company builds with its customers. But as interactions come at a given cost, firms must carefully define what kind of relationship they want to establish with what kind of customer. Profits from CUSTOMER RELATIONSHIPS (see Table 5 and Figure 6) are the lifeblood of all businesses. These profits can be achieved through the acquisition of new customers, the enhancement of profitability of existing

customers and the extension of the duration of existing customer relationships (Grant and Schlesinger 1995). Companies must analyze customer data in order to evaluate the type of customer they want to seduce and acquire, is profitable and worth spending retention efforts and is likely to be subject to add-on selling (Blattberg et al. 2001). The trend to move from simple transactions to more complex customer relations makes sense, since an arsenal of new ICT tools has made this possible at reasonable costs.

CUSTOMER RELATIONSHIP
<i>The CUSTOMER RELATIONSHIP component describes the relationship a company establishes with a target CUSTOMER SEGMENT for contributing to the customer equity of the company by improving acquisition, retention, and add-on selling.</i>
<ul style="list-style-type: none"> - it concerns a VALUE PROPOSITION(s) - it is established with TARGET CUSTOMER(s) - it contributes to CUSTOMER EQUITY {ACQUISITION, RETENTION, ADD-ON SELLING}
Set of one-or-more MECHANISM(s)
<i>A relationship MECHANISM describes the function it accomplishes between the company and its customers. It may also be a channel LINK or a part of the VALUE PROPOSITION</i>
<ul style="list-style-type: none"> - it has a FUNCTION {PERSONALIZATION, TRUST, BRAND} - it inherits from the channel LINK component

Table 5: Customer Equity and Relationship

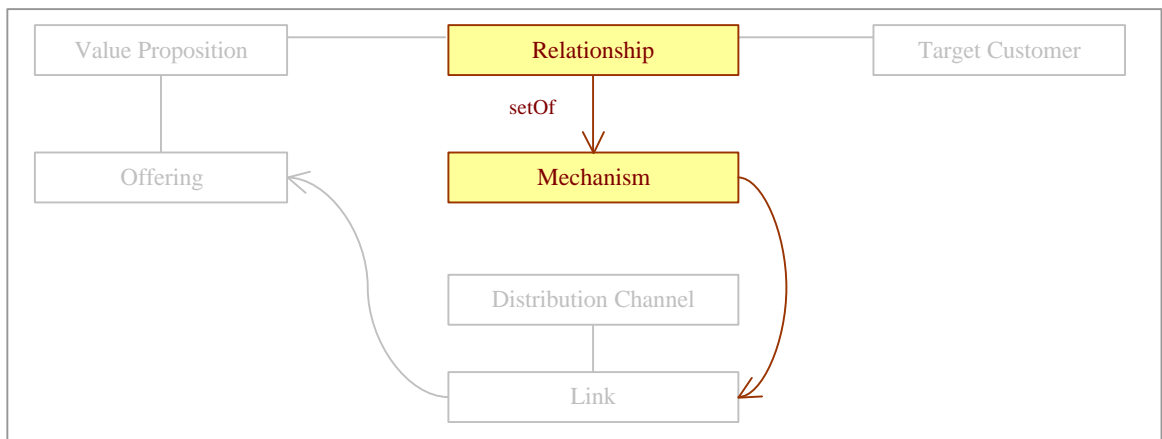


Figure 6: Customer Equity and Relationship

Maximizing CUSTOMER EQUITY must be one of the main goals of a company. In other words a firm must understand how it can get most out of its customers by optimizing its strategy in acquiring and retaining customers and selling them additional value propositions.

ACQUISITION. It's very straightforward to say that companies must acquire customers to do business. Even firms with high retention rates lose customers and thus must continuously acquire new customers to stay in business. Because customer acquisition is a very expensive affair and because the relationship developed during the acquisition phase strongly influences retention and add-on selling it must be carefully managed and evaluated. Hewlett Packard, for instance, sells very cheap inkjet printers and makes money from ink cartridges. Many mobile phone operators subsidize new and expensive mobile phone models to make them affordable to customers and cash in on the new services they can sell them (e.g. data and multimedia services).

RETENTION. The goal of customer retention is to leverage customer acquisition investments. Because customer acquisition is normally more expensive than retention it makes sense to find ways and mechanisms to extend the duration of the relationship between firm and customer. Of course the focus must be set mainly on the most profitable customers. Blattberg, Gertz et al. (Blattberg et al. 2001) mention the following drivers that affect customer retention: customer

expectation versus delivered quality, the value of the good or service, product uniqueness and suitability, loyalty mechanisms, ease of purchase, customer service and ease of exit. In our model we consider only the mechanisms that can be directly assigned to retaining customers, such as loyalty programs, customer defection programs or installing switching cost. For example, a customer changing airlines will lose his loyalty "miles", while a customer leaving Amazon.com will have to re-enter his personal data, re-create his wish lists, and re-create a profile for personalized book recommendations based on purchase history.

ADD-ON SELLING. Add-on selling is the activity associated with selling any additional products and services to current customers (Blattberg et al. 2001). These products can, but do not necessarily have to be related to each other. getAbstracts.com, a start-up that sells abstracts of business books online also allows its customers to purchase these books directly over their website. Telecommunication companies and recently also mobile phone operators try to increase their revenues by selling their existing customers additional data services.

A set of **MECHANISMS** characterizes the nature of the relationship. Each **MECHANISM** has a **FUNCTION** in the relationship building with a company's customers. It can personalize a relationship, contribute to customer trust, or contribute to brand building.

PERSONALIZATION. Historically, vendors had a personal relationship with their customers (e.g. the Mom and Pop grocery store where the shopkeeper knows every client personally and is familiar with his needs and habits). But the size of today's companies, their lower employee-to-customer ratios and the high turnover among employees has made personal one-to-one human relationships between customer and supplier rare. ICT now allows companies to re-introduce a more personalized relationship with their customers at a reasonable cost. Customer profiles with historical buying behaviour, tastes and needs and their contact history with the firm are stored in large databases. Afterwards, this data can be used to simulate a kind of Mom and Pop store relationship.

An important field of personalized mechanisms is one-to-one marketing. This is nothing else than tailoring marketing activities to specific customers, their needs, behavior and their particular transaction history. Imagine the impact on customer loyalty of an airline customer that by accident has taken two delayed flights the same week. Wouldn't he be pleased if his airline were able to detect this incidence and address him personally with an excuse letter or maybe even a goodie? Another field of one-to-one marketing are so-called personalized product recommending systems, which are based on attributes, item-to-item correlation or user-to-user correlation (Schafer et al. 2000). The first technique is based on a set of rules that makes recommendations derived from a customer's profile of attributes. The second technique identifies items frequently found in association with items in which a customer has expressed interest. The third technique, also known as collaborative filtering and to date the most powerful method (Sarwar et al. 2000), recommends products to a customer based on the correlation between that customer and other customers who have a similar purchase behavior.

TRUST. "Trust of a party A in a party B for a service X is the measurable belief of A in that B will behave dependably for a specified period within a specified context" (Dimitrakos 2001). This shows that the notion of expectation is central to the concept of trust (Jones 2002). In a business environment that has become increasingly global, transactions more and more virtual and where the implicated parties do not necessarily know each other anymore before conducting business, new trust mechanisms have gained importance. ICT offers a large range of innovative or improved mechanisms to build trust in e-business environments (Friedman et al. 2000) by improving the expected output of a transaction.

Especially the role of reputation in contributing to trust has received a boost through ICT. The large body of literature on this subject shows how reputation is based on independent user communities (Hagel III and Armstrong 1997; McWilliam 2000), dedicated reputation systems or third parties. Labelling services, such as TRUSTe's Privacy Seal (McKnight et al. 2000), certification services as provided by VeriSign, or authorization and verification services are just some of the trust mechanisms offered by third parties. Further, rating companies also receive much attention by customers. SmartMoney.com, the online branch of the well-known investor's

magazine provides annual ratings of online and offline brokers and a fancy little tool called "broker meter" that will show you how fast your broker's site is compared to other brokers.

More traditional trust instruments, but often enhanced through ICT enhanced, are mediation services in case of disputes or insurance guaranties to prevent financial loss. Technology and its perception can also play a role in establishing trust. Credit card transactions on the Internet, for example, are often perceived as particularly insecure, even though it might be more dangerous to hand over your credit card to a malicious waitress in a restaurant.

BRAND. Brands constitute a pivotal resource for generating and sustaining competitive advantage (Aaker 1989). They help creating a distinction among entities that may satisfy similar customer needs (Berthon et al. 1999) and they help the communications programs to not inadvertently send conflicting or confusing messages to customers (Joachimsthaler and Aaker 1997). Nokia, the Finnish mobile phone manufacturer, established an incredibly strong brand in the mobile phone market by creating an image of a young and dynamic innovator. It achieved this through sponsoring such events as the Nokia Snowboard World Cup tour and a number of top-ranked beach volleyball professionals. Further, Nokia also uses ICT for branding purposes. Owners of a Nokia phone can join the Club Nokia online by entering the serial number of their phone and then benefit from games, cartoons, movies, images and ring tones. This branding strategy proved to be very successful resulting in a No.6 ranking in Interbrand's year 2002 list of the world's top 100 brands (Bensinger 2003).

Mini case: Customer relationships at Orange Switzerland

Orange is one of the three mobile telecommunication operators in Switzerland and is a 100% subsidiary of France Télécom. With about 1'600 employees, 78 points of sale and its Network that covers 98% of the Swiss population it makes a turnover of CHF475 million and an EBIDTA of CHF33 million. Besides building and maintaining its networks, managing customer contracts belongs to Orange's main business tasks. In the following lines we outline a part of the company's relationship strategy in acquisition, retention and add-on selling by using the framework described in this chapter. The columns represent the RELATIONSHIP elements and the relationship MECHANISM elements of Orange and the lines represent the elements' attributes. It remains to be said that besides the elements outlined below, Orange maintains a number of sponsorships, such as OrangeCinema, OrangeOpera and HandyHero in order to contribute to brand building (see Figure 7).

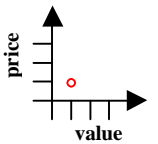
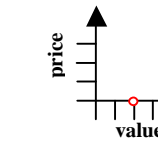
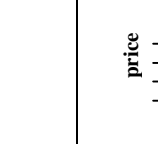
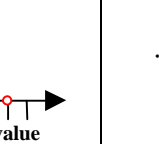
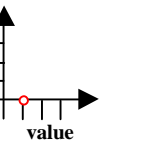
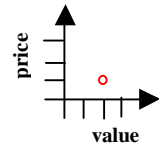
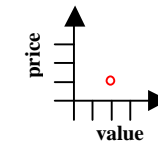
Goal	Acquisition			Retention	Add-on selling		
Relationship description	Orange tries to make new phone models affordable and tries to be present in the market as a young brand for communicating human emotions.			Orange rewards loyalty and communications of its customers with points, which can be used to buy a new mobile phone or pay bills.	Orange tries to make customers use data services, such as WAP, SMS and MMS as much as possible (especially teenagers).		
Name of the relationship mechanism	Phone subsidies	Orange World portal	Habbo Hotel	Loyalty points	Location based services	SMS Publisher	Orange Heartbreak
Relationship mechanism description	Orange pays a part of or the whole price of a new phone a customer wants to buy in exchange for a 12-month contract with Orange	A portal that provides a mixture of news, sports, entertainment and mobile phone features, such as games. Customer login for Orange phone account management	A virtual meeting place with public and private rooms where people can gather and chat, handle e-mail, instant messages and SMS'	-	Location based services for places of interest, route planning, traffic and cinema guides	A tool that allows customers to create their own SMS-channel to send information to channel-subscribers	SMS-based services that allow (teen) customers to flirt anonymously by using their mobile phone
Reasoning	Risk: Minimizes the risk to be stuck with an expensive phone that is soon outdated. Use: Customers can afford the newest mobile phones with the newest phone features (e.g. MMS)	Use: Provides customers and prospects with an information portal and mobile entertainment services. Allows customers to manage their phone account	Use: Provides potential (teen) customers with a place to hang out and manage their e-mail, instant messages and SMS'.	Risk: Minimizes the risk to be stuck with an expensive phone that is soon outdated. Use: Customers can afford the newest mobile phones with the newest phone features (e.g. MMS)	Efforts: minimizes the efforts for finding useful and location-based information	Use: Allows customers to send information to a list of people that are interested in the same topics (e.g. info for the members of a hobby soccer team)	Use: Allows teenagers to resolve the most pressing problems of their age - love issues - without losing their face.
Customer Buying Cycle	Evaluation	Awareness	Awareness	After Sales	After Sales	After Sales	After Sales
Value level/ price level							
Function	-	Brand	Brand	-	Personalization	Personalization	-
Channel	Orange shops Retailers	Internet	Internet	-	Mobile phone	Mobile phone Internet	-
By	Self	Self	Self	Self	Self (& with partners)	Self	Self
Target customer	All prospects	Customers and prospects	Teen customers and prospects	All current customers	Nomad customers	Active teen customers	Teen customers

Figure 7: CUSTOMER RELATIONSHIP of Orange

Infrastructure Management

The Infrastructure Management block is about the how a company creates value and maintains customer relationships. It describes what abilities are necessary to provide its VALUE PROPOSITION.

Infrastructure Management outlines the value network that generates economic value through complex dynamic exchanges between one or more enterprises, its customers, suppliers, strategic partners and the community (Allee 2000). In other words, this block specifies the business model's capabilities and resources, their owners and providers, as well as who executes which activity and how they relate to each other. As linkages are more and more electronic, the members of a network are flexible in coordinating schedules, sharing assets, utilizing each other's competencies and resources, and they develop, pursue and close business together (Andrews and Hahn 1998).

In order to understand this value network the Infrastructure Management block describes the value system configuration (Gordijn et al. 2001) that is necessary to deliver the value proposition. This comprises the activity configuration of the firm, in other words the activities to create and deliver value, and, the relationship between them, the in-house capabilities and resources and those acquired through the firm's partner network.

Capabilities and Resources

In order to provide its VALUE PROPOSITION a firm has to dispose of a set of CAPABILITY(ies). Wallin (Wallin 2000) describes capabilities as repeatable patterns of action in the use of assets to create, produce, and/or offer products and services to the market. These capabilities depend on the assets or resources of the firm (Bagchi and Tulskie 2000). And, increasingly, they are outsourced to partners, while using e-business technologies to maintain the tight integration that is necessary for a firm to function efficiently. In other words, ICT has made it easier and economically reasonable for companies to "unbundle" and outsource capabilities and resources that do not belong to their core competencies (Hagel III and Singer 2000).

The IT retailer Dell nicely illustrates the concept of core capabilities. The company essentially masters two domains, which are supply chain excellence and 360 degree mastery of the customer relationship over the Internet or through call centers. The former allows the company just-in-time delivery of required components, build-to-order production and thus low stocks and consequently competitive prices. The latter is crucial because Dell does not dispose of a dealer network and for cost reasons only makes use of direct channels to sell its product. If it does not excel in customer relationships it has no possibility to reach, gain or retain customers. An other impressive example of concentrating and core competencies is EasyJet.com, which focuses on the maintenance of a cheap fleet of airplanes with high air time and the ability to fill airplanes. Both allow EasyJet.com to provide its main offering of relatively low airfares.

CAPABILITY
<i>A CAPABILITY describes the ability to execute a repeatable pattern of actions. A firm has to dispose of a number of CAPABILITIES to be able to offer its VALUE PROPOSITION. CAPABILITIES are based on a set of resources from the firm or its PARTNER(s).</i>
- it allows to provide the VALUE PROPOSITION(s)
It is composed of a set of one or more RESOURCE(s)
<i>RESOURCES are inputs into the value-creation process. They are the source of the CAPABILITIES a firm needs in order to provide its VALUE PROPOSITION.</i>
- it has TYPE {TANGIBLE, INTANGIBLE, HUMAN}
- it is delivered by an ACTOR(s)

Table 6: Capabilities and Resource

In order to create value, a firm needs resources (Wernefelt 1984). Grant (Grant 1991) distinguishes tangible and intangible assets and people-based skills. Tangible resources include plants, equipment and cash

reserves. Intangible resources include patents, copyrights, reputation, brands and trade secrets. Human resources are the people a firm needs in order to create value with tangible and intangible resources.

Activities

As outlined above, the main purpose of a company is the creation of value that customers are willing to pay for. This value is the outcome of a configuration of inside and outside activities and processes. The VALUE CONFIGURATION shows all activities necessary and the links among them, in order to create value for the customer. To define the value creation process in a business model, we use the value chain framework (Porter 2001) and its extension, such as defined by Stabell and Fjeldstad (Stabell and Fjeldstad 1998). These two authors extend the idea of the value chain with the value shop and the value network. Former describes the value creation process of service providers (e.g. consultancies), whereas latter describes brokering and intermediary activities (e.g. banks and telecommunication companies). It is in this component of the e-business framework that we describe such activities as Supply Chain Management (SCM), Efficient Customer Response (ECR), or e-procurement.

VALUE CONFIGURATION
<i>The VALUE CONFIGURATION of a firm describes the arrangement of one or several ACTIVITY(ies) in order to provide a VALUE PROPOSITION.</i>
<ul style="list-style-type: none"> - it provides VALUE PROPOSITION(s) - it relies on CAPABILITY(ies) - it has a TYPE { VALUE CHAIN, SHOP, or NETWORK }
The VC is composed of a set of one or more ACTIVITY(ies)
<i>An ACTIVITY is an action a company performs to do business and achieve its goals.</i>
<ul style="list-style-type: none"> - It has a LEVEL - It has a NATURE - It requires { Fits, Flows to, or Shares } a RESOURCES - It is performed by ACTORS

Table 7: Value Configuration and Activities

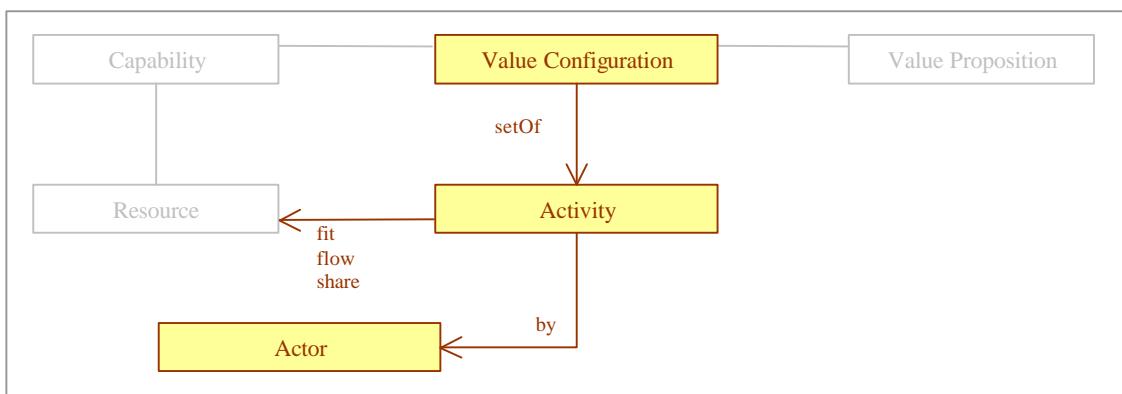


Figure 8: Value Configuration and Activities

We distinguish between three basic value configuration types, which are the value chain (Porter 2001), the value shop and the value network (Stabell and Fjeldstad 1998).

The VALUE CHAIN contains the different activities a firm performs to deliver low-cost or differentiated products. The activities of the value chain framework (Porter 2001) include inbound logistics, operations,

outbound logistics, marketing and sales, and service. The value creation logic of a value chain is the transformation of inputs into products. The main interactivity relationship logic is sequential (Stabell and Fjeldstad 1998).

The VALUE SHOP represents an extension to the value chain framework provided by (Porter 2001). Stabell and Fjeldstad on (Ives and Learmonth 1984; Ives 1999; Muther 2002) argue that service provisioning has a different value creation logic than manufacturing. Service providers tend to come up with new solutions, rather than fixing on one solution and reproducing it time and again such as in the value chain. In this value configuration a firm concentrates on discovering what the client wants, figures out a way to deliver value, determines whether the customer's needs were fulfilled and repeats the process in an iterative way if necessary. The proposed activities of the value shop contain problem finding and acquisition, problem solving, choice, execution and control and evaluation. The value creation logic of a value shop is resolving customer problems. The main interactivity relationship logic is cyclical, spiraling (Stabell and Fjeldstad 1998).

In the VALUE NETWORK value is created by linking clients or customers who are or wish to be interdependent. The firm itself is not the network, but it provides a networking service (Stabell and Fjeldstad 1998). Afuah and Tucci (Afuah and Tucci 2001) see the value network as a direct outgrowth of brokering. According to these authors this is the value configuration that exists when a firm is an intermediary, such as a broker or a market maker. Rather than focusing on logistics such as the importation and delivery of raw materials and how they are transformed into finished goods (i.e. the value chain), the intermediary must focus on network promotion and contract management, service provisioning and infrastructure operations. The value creation logic of a value network is linking customers. The main interactivity relationship logic is mediating (Stabell and Fjeldstad 1998).

Activities are at the heart of what a business does. They are actions a company performs in order to create and market value and generate profits. An ACTIVITY is executed by an ACTOR, which can be the firm or one of its partners. Activities relate to owned or partner RESOURCES and they are linked in a VALUE CONFIGURATION (see Table 7 and Figure 8).

The activity LEVEL distinguishes between the firm's primary and support activities (Porter 1985). Primary activities are those that are involved in the creation of the value proposition and its marketing and delivery. Support activities are the underlying fundament that allow the primary activities to take place. This includes activities such as firm infrastructure, human resource management, technology development and procurement (Porter 1985).

The activity NATURE depends on the CONFIGURATION TYPE attribute in the VALUE CONFIGURATION element. The three types of configurations have different kinds of activities:

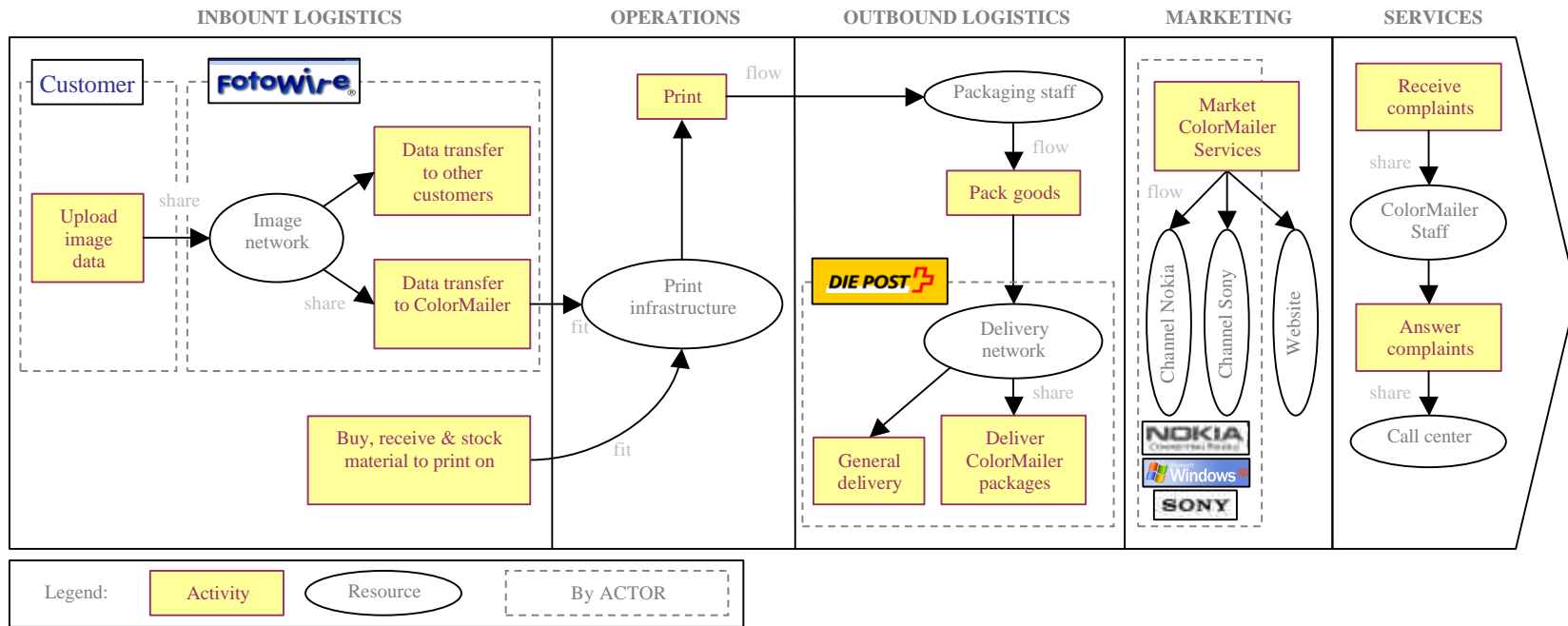
- Value chain: inbound logistics, operations, outbound logistics, marketing and sales, and services;
- Value shop: problem finding and acquisition, problem-solving, choice, execution, and control and evaluation;
- Value network: network promotion and contract management, service provisioning, and network infrastructure operation.

An ACTIVITY relates to one or several RESOURCES. Their linkages have a specific nature. We distinguish between fit, flow and share (based on (Malone et al. 1999)). An ACTIVITY fits a RESOURCE when more than one ACTIVITY is required by a RESOURCE. An ACTIVITY flows to a RESOURCE when the outcome of an ACTIVITY is required by a RESOURCE. An ACTIVITY shares a RESOURCE when more than one ACTIVITY uses the same RESOURCE.

Mini case: Value configuration at ColorPlaza

We illustrate the VALUE CONFIGURATION, ACTIVITIES, RESOURCES and PARTNERSHIPS through ColorPlaza, a Swiss company in the photography industry (see Figure 9). The columns in Figure 9 represent a specific ACTIVITY and the lines represent the activities' attributes and relationship to RESOURCE(s) and ACTOR(s).

ColorPlaza let's their customers upload their digital photos over the Internet and get them printed on photo paper, t-shirts and other gadgets, which are then delivered directly to their homes. In fact, ColorPlaza was so successful with this service that it is now sold under the name of big partners, such as Sony Europe, Nokia or Microsoft (through the Windows XP operating system). These tight co-operations are based on a close integration of the IS' of the different partners involved.



Upload of digital images & order	Transfer of digital images to the printing facilities	Buy, receive & store material to print on	Print digital images on photo paper or goods	Pack goods for delivery	Deliver packages	Answer complaints	Sell ColorMailer services	ACTIVITY Name
The digital images have to be uploaded from the customer's camera or PC	The digital images have to be transferred from the customer to the printing facilities	The primary material to print on has to be received and eventually stored	The digital images have to be printed on either photo paper or goods, such as t-shirts, cups etc.	The order has to be packaged for home delivery	The orders have to be delivered to the customer's home	Possible complaints have to be answered to the customer's satisfaction	ColorMailer's services have to be marketed to potential customers	ACTIVITY Description
Primary activity	Primary activity	Primary activity	Primary activity	Primary activity	Primary activity	Primary activity	Primary activity	Level
Inbound logistics	Inbound logistics	Inbound logistics	Operations	Outbound logistics	Outbound logistics	Services	marketing	Nature
Shares image network	Fits print infrastructure	Fits print infrastructure	Flows to packaging staff	Shares delivery network	Flows to customer	Shares call center	Flows to channels	Related to RESOURCE
Customer	FotoWire	ColorPlaza	ColorPlaza	ColorPlaza	Postal service	ColorMailer	ColorPlaza Sony Microsoft	By ACTOR
							Nokia Agfa	

Figure 9: ColorPlaza VALUE CONFIGURATION, ACTIVITIES, RESOURCES and PARTNERSHIPS

Partnerships

A company's partner network outlines, which elements of the activity configuration and which resources are distributed among the firm's partners. In e-business literature there are several terms arising for these new forms of strategic networks in the value creation process, some call them b-webs (Tapscott et al. 2000), or fluid and flexible organizations (Selz 1999), others call them value networks (Nalebuff and Brandenburger 1997). The appearance of such networks of firms in which market and hierarchical governance mechanisms coexist has significantly enhanced the range of possible organizational arrangements for value creation (Gulati and Singh 1998). In general, partnerships and alliances have become an essential component in the strategies implemented by most companies. Although they have been used by some firms for decades already, today's partnerships and alliances have changed in nature. The more traditional concepts of joint ventures (e.g. for penetration of new geographic markets) have made place to strategic alliances that aim at creating and enhancing the competitive positions of the firms involved, in a highly competitive environment (Dussauge and Garrette 1999).

PARTNERSHIP
<i>A PARTNERSHIP is a voluntarily initiated cooperative agreement formed between two or more independent companies in order to carry out a project or specific activity jointly by coordinating the necessary CAPABILITIES, RESOURCES and ACTIVITIES.</i>
- it supports the VALUE PROPOSITION(s) - it relies on CAPABILITY(ies)
It is composed of a set of one-or-more AGREEMENT (s)
<i>An AGREEMENT specifies the function and the terms and conditions of a partnership with an ACTOR</i>
- It has a REASONING - It has a DEGREE OF INTEGRATION - It has a DEGREE OF DEPENDENCY - It is made with ACTOR(s)

Table 8: Partnership

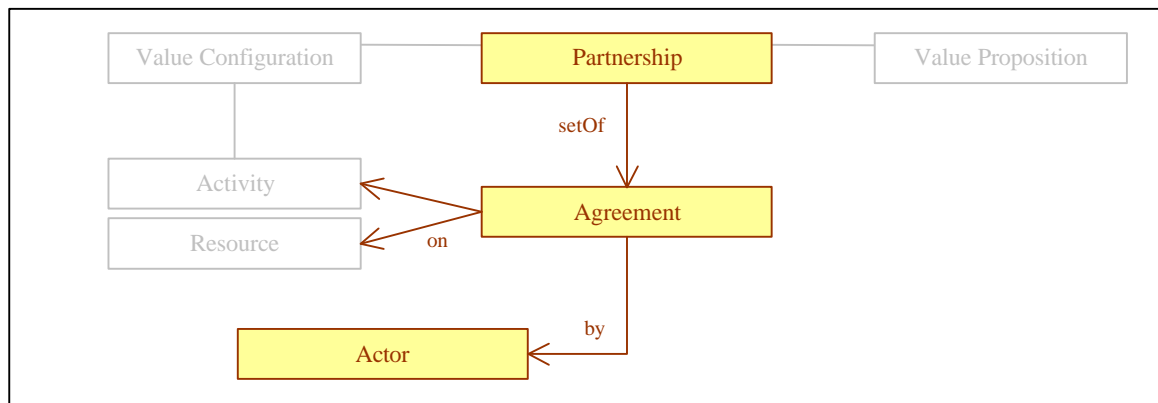


Figure 10: Partnership

One of the goals behind many partner agreements is the optimization of a company's operations. This can take the form of outsourcing (i.e. make or buy), but also shared infrastructure (Lu 2001). By entering these agreements a firm can profit of its partner's or supplier's economies of scale or of its specialized knowledge, which it could not achieve on its own. In the apparel industry, the big player's like Benetton, The Gap or Hennes & Mauritz rely heavily on partners for their supply and production network (Camuffo et al. 2001). However, they apply different models. Benetton builds on a strong upstream vertical integration through its 32 production centers for strategic and capital intensive activities (weaving, cutting, dyeing) and out sources production of clothes (sewing) to a network of

small and midsize enterprises that are directly controlled by the production centers. Benetton's competitors on the other hand rely on complete outsourcing. An example of shared infrastructure is the alliance between the Swedish car manufacturer Volvo and Renault of France in 1990. To stay competitive they initiated joint cooperation in R&D, design and procurement, as well as in manufacturing components for cars, trucks and buses (Mason 1993).

A second motivation for partnering in today's uncertain competitive environment is the goal of increasing anticipation and thus reducing the risk premium (Mariti and Smiley 1983). Companies can't afford launching costly experiments in the field anymore, because they have become too expensive and prefer engaging in temporary alliances with competitors (i.e. co-opetition) (Brandenburger and Nalebuff 1996). The cooperation by the wireless industry leaders in 1998 to create an open standard OS for data-enabled mobile phones illustrates this nicely. Jointly, Ericsson, Nokia, Panasonic, Motorola, Psion, Samsung Electronics and Siemens set up a collectively owned software licensing company called Symbian. By doing this they avoided risking a balkanized mobile telephony market with incompatible operating systems, decreased R&D costs and reduced uncertainty. The players had a strong incentive to cooperate on the OS in order to profit from increasing returns of network externalities and compete on other grounds.

A third motivation for partnering is the goal of leveraging a business model and a company's competencies through partnerships in order to acquire specific resources. A frequent form of resource acquisition is partnerships to conquer foreign markets. In 1992, Playboy, a famous magazine for men decided to set up a joint-venture with VIPress, a Polish press group, to launch its Polish edition (Dussauge and Garrette 1999). RiverOne, an online market for electronics parts sells knowledge to support buying decisions. Using the firm's on-line research center, electrical engineers can view product specification, learn how to use components, and compare alternatives across an aggregate catalog of some 7 million parts (Dai and Kauffman 2002). Instill Corporation, an electronic market for the food services industry not only helps restaurant chain operators improve procurement, but also standardize and integrate purchase data, which enables buyers to understand how their expenses were allocated across different purchase areas (Dai and Kauffman 2002).

Because PARTNERSHIPS are voluntarily initiated cooperative AGREEMENT(s) between two or more independent companies to carry out an activity jointly they are based on a commonly negotiated terms and conditions.

Companies engage in partnerships for specific reasons. The attribute REASONING describes the firm's motivation to conclude a partner agreement and outlines its analysis. We distinguish between three rough categories of motivation; these are optimization and economies of scale, reduction of risk and uncertainty and finally acquisition of resources.

The DEGREE OF INTEGRATION measures how closely two ACTORS are linked together. This can differ from one type of partnership and agreement to another. The loosest link between two ACTORS is through independent third-party marketplaces (e.g. stock markets) and the closest link are tightly integrated supply chains (e.g. traditional EDI). Of course the frontier is unclear and there are plenty of cases situated between these two extremes. MarketSite, Commerce One's online marketplace has customized catalogs for Schlumberger, an American oil exploration company with the prices and product offering the company prenegotiated with vendors (Ovans 2000). Private cataloging is favored in transactional purchasing, where the reason for joining on-line markets is to reduce operating costs (Dai and Kauffman 2002). An interesting example of a closely integrated relationship between two companies can be found in the retailing business. Because ICT has lowered coordination and transaction costs and facilitated the flows of information, many retailers have introduced a concept called Vendor Managed Inventory (VMI). This is a process where the supplier generates orders for his customer based on demand information sent electronically by the customer. This means that the buyer completely transfers supply management to his supplier, who controls the stock of the buyer and refurnishes automatically, when necessary. Benefits comprise lower inventory for supplier and customer, lower administrative costs and increased sales.

Assessing dependency in partnerships is of crucial importance for the future development of a business model. Of course the DEGREE OF DEPENDENCY is somewhat related to the degree of integration. A closely integrated relationship between two ACTORS is naturally much harder to cancel than a transactional relationship. As outlined above, VMI makes sense for economical reasons, but it also

means that a firm shifts responsibility, authority and hence knowledge about replenishment to its supplier and therefore enters a dependent relationship (Tanskanen et al. 2002). When the American no-frills Airline, Southwest, signed a ten-year engine maintenance contract with General Electric, paying GE on a rate per flight hour basis for practically all engine maintenance it entered an even bigger dependency. But through this agreement Southwest was able to reinforce its low-cost airline strategy by reducing its capital investments and cutting maintenance costs substantially (Corbett 2001).

Conclusion

There are several reasons why managers should be interested in and academic research should be conducted in the area of business models and e-business models. First of all, even though many people talk about them, business model concepts and a common understanding of what is meant by business models are still in their infancy. Executives, reporters and analysts who use the term do not have a clear idea of what it means. They use it to describe everything from how a company earns revenue to how it structures its organization (Linder and Cantrell 2000).

The second reason why the e-business model concept is interesting to be studied is that it can be an adequate methodology and foundation for managerial tools and IS Requirements Engineering to react to the increasingly dynamic business environment. As product life cycles become shorter, competition global and the use of ICT an imperative, managers have to find new ways to act and decide in this complex environment. Managers have to understand the new opportunities offered by ICT, integrate them into their existing business models and share them with other stakeholders. The e-business model ontology we propose in this paper and the tools that build on it are a first step to facilitating management under uncertainty.

The Business Model Ontology has the goal of providing a framework to better formulate, understand, analyze and share a company's business model. We believe that the concept of business models can serve as a federator between business strategy, business organization and information systems and improve the alignment between them.

Further research includes computerizing the Business Model Ontology to fully exploit the conceptual foundation outlined in this paper. For instance, one could imagine a visualization tool to display channel strategies and partner networks or analyze and compare value propositions, similar to the examples sketched above. Business models could also be used as a scenario-based forecasting approach (Van der Heijden 1996) that would be helpful before defining a strategy of adoption, deployment, and management of a business logic. Further, business models seem interesting for improving change management (Linder and Cantrell 2000). Finally, one could even imagine a business model simulator (Sterman 2000; Richards and Morrison 2001) where stakeholders would gain important insights on their actions and would learn about their business models by simulating and experimenting with them in a risk-free environment.

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