

## **2 ORIGIN, DEFINITION, PLACE AND ROLE OF BUSINESS MODELS IN THE FIRM**

We live in a competitive, rapidly changing and increasingly uncertain economic environment that makes business decisions complex and difficult. Companies are confronted with new information and communication technologies, shorter product life cycles, global markets and tougher competition. In this hostile business environment firms should be able to manage multiple distribution channels, complicated supply chains, expensive IT implementations, strategic partnerships and still stay flexible enough to react to market changes. Astonishingly, the concepts and software tools that help managers facilitate strategic business decisions in this difficult environment are still scarce. Where are the tools that help managers easily explain what their business is and how exactly they should execute it, except maybe for simple text editors or simple charting tools? Where are the really useful tools that allow them to assess, understand, measure, change, communicate or even simulate their business models? 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? Therefore it would be interesting to think of a set of tools that would allow business people to understand what their business model is and of what essential elements it is composed of, tools that would let them easily communicate this model to others and that would let them change and play around with it in order to learn about business opportunities.

In the following three subsections I first try to show that the business model concept has become popular because of a business environment shaped by ICT and globalization and characterized by an increasing complexity and uncertainty that leaves managers with difficult decisions to make. Then I explain what business models actually are and how they can be situated in the company. Finally, in the last subsection I outline what they can be used for.

### **2.1 TECHNOLOGY, E-BUSINESS, COMPLEXITY AND UNCERTAINTY**

I argue that the business model concept has become popular because today's managers are spoilt for choice when it comes to defining their value proposition, configuring their value network, choosing their partners, looking for ways to reach the customer and many other similar decisions. This has not always been the case and is essentially the outcome of the interaction between increasingly rapid technological change and globalization (Archibugi and Iammarino 2002). However, new technologies, globalization and the abundant reservoir of choices to configure a business makes managing an ever harder task (Zahra and O'Neill 1998). Today's business landscape is characterized by the intense use of ICT (e.g. for e-business), fierce global competition, rapid change and results in increasing complexity, high risk and greater uncertainty than ever before. Responding to these challenges described below I will later address how the business model concept can improve manageability of some of these issues in the sections 2.3 and 2.4.

#### **2.1.1 Technological Change, e-Business and New Business Models**

In the last decades science and technology have experienced an impressive advance. According to Hodgson (2003) this is inherent to capitalism. Competition pressures firms to pursue profits through two main means. Firstly, the conquest of new markets by geographical expansion and/or the introduction of new products, such as new technologies or skills. Secondly, by cutting costs through the adoption of new technologies and new skills (see Figure 5). Hodgson explains that "in this quest for innovation, the frontiers of science and technology are advanced, leading to new fields of knowledge and enquiry" (Hodgson 2003, p.471). Furthermore, he argues that because "services are generally more diverse than manufactured goods, diversity also increases with the increasing relative size of the service sector". And there is certainly no doubt that the contribution of the service sector to GDP and employment has become more and more important (OECD 2001).

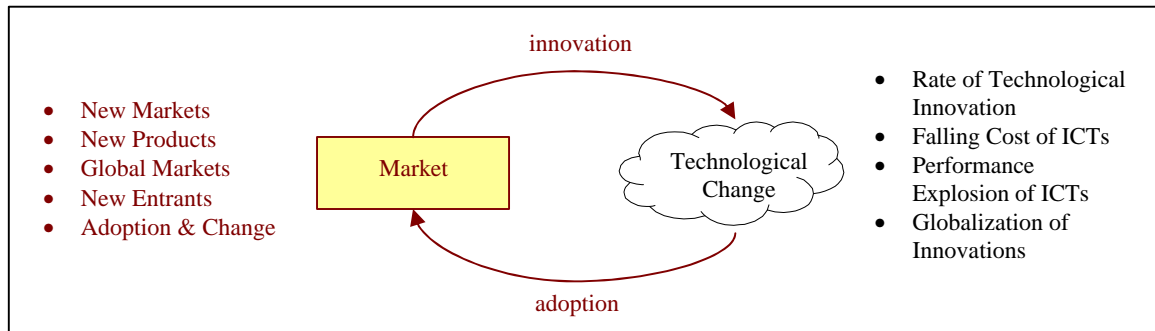


Figure 5: Competition and Technological Change

As a glance at the statistics shows, investment in ICT equipment and software has steadily grown over the last decades (OECD 2002). At the same time the cost of ICT hardware, software and services have fallen drastically, while their performance has exploded. Of course this has had an important impact on companies of every size, as they increasingly adopt and rely on ICT. Particularly the rise of the Internet in the 1990s and the adoption of e-business and e-commerce has drastically changed the way companies do business. As to definitions, e-commerce, or more properly electronic commerce, stands for the buying and selling of goods and services on the Internet, especially the World Wide Web. The more wider term e-business, or more properly electronic business, simply stands for the conduct of business on the Internet. In contrast to e-commerce this is not only buying and selling but also servicing customers and collaborating with business partners. E-business can be understood as a powerful extension of the more traditional EDI that predates today's Internet and stands for the exchange of business data using an understood data format.

As regards the effects of new ICTs, e-commerce and e-business, their impact has been the multiplication of possible business configurations and thus choices to make for managers. In contrast to the traditional organization of an industry where business models looked alike, the range of possible new business models in the ICT era have grown strongly. I argue that this increase in variety of business models is closely related to the adoption of ICTs in business.

ICT's impact has been fourfold. Firstly, affordable ICTs have reduced transaction and coordination costs as defined in transaction cost economics (Coase 1937; Williamson 1975). In other words, the costs of collaborating with partners (e.g. outsourcing) and integrating customers in the company's processes (e.g. customization, customer services) are not prohibitive anymore. This means that the traditionally isolated firm is shifting to new forms of network organizations. Based on a literature review Andriani (2001, p.261) explains that "this transition reflects the widely acknowledged phenomenon of disintegration of traditionally integrated structures of business into more complex networks of independent parts". The consequences for management are a much larger choice of possible business configurations. Secondly, ICT, e-commerce and e-business have made it possible to offer completely new products and services of which many have an important information component and which are frequently provided in collaboration by multiple companies (Evans and Wurster 1997). Thirdly, ICTs have made it possible to reach customers in new and innovative ways and through a multitude of channels. Also, the Internet has made it easier to conduct business on a global basis and theoretically reach and service customers at the remotest places of the planet. Finally, with the Internet and the Web a range of new pricing and revenue mechanisms have found the way into business practice (Verma and Varma 2003).

The list of ICT's impacts on business could probably be extended, but the main thing to be retained from the above is that these evolutions bring an important increase in choices and decisions that managers face in terms of business models. This explains the growing research in business models in general and business models with a strong ICT component (e.g. e-business).

### 2.1.2 Industry Clockspeed

Charles Fine (1998) has coined the term industry clockspeed. He shows that different industries and segments of them have their own pace of change in the life cycles of their products, production

processes, structural makeup and CEO tenure. These "clockspeeds" are essentially driven by technological change and competition. The consequence is that positions of competitive advantage last only for a certain time and leading companies sometimes lose this position because they do not or cannot adapt to change. Therefore, when change was slower, competitive advantage was longer-lasting. But in today's world of rapid change managers have to find new ways of keeping up with faster industry clockspeed.

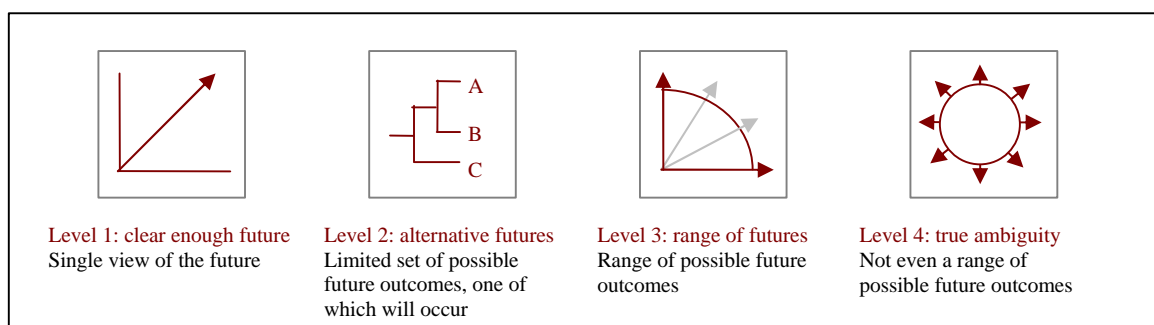
A research on the electronics industry has shown that clockspeed is a driver of organizational change (Mendelson and Pillai 1999). The authors of the research indicate how other industries are also experiencing increasing levels of business dynamics and they recommend learning from the electronics industry which leads the way. The question is of course what management tools to use in order to cope with this increasing clockspeed. Maybe the business model concept could help companies better adapt to change (see section 2.4.3). Though not focus of this dissertation, the question of rapid adaptation may be easier to answer on the basis of the contributions of this research.

### 2.1.3 Complexity

Another characteristic of today's business landscape is its complexity. According to Hodgson (2003) capitalism naturally leads to more complexity driven by powerful economic forces. Under this he understands a growing diversity of interactions between human beings and between people and their technology (Hodgson 2003). He also mentions "new and varied organizational forms devised to increase productivity and to manage an exponentially expanding number of products and processes" as drivers of complexity (Hodgson 2003, p.471). Indeed, the decomposition of the integrated company and the formation of business networks as described above has contributed to complexity because it is a mechanism that generates diversity (Andriani 2001). The business model concept may be one of the tools that helps tackling at least some aspects of complexity by highlighting important issues and pointing out the relationships between them (see section 2.4.1 and 2.4.4). Like every conceptualization and model the business model concept aims at representing reality in a structured, simplified and understandable way.

### 2.1.4 Uncertainty

It is widely accepted that one of the effects of the communication technology revolution of the 1990s, coupled with the forces of globalisation and liberalisation, has been the increase in environmental risk and uncertainty that organisations have to face (Andriani 2001). As Wytenburg states "the greater the degree of complexity in an environment, the more various, dynamic, and unpredictable are those situations" (2001, p.118). The problem with uncertainty is that it increases the environmental risk that a company faces because the future becomes unpredictable. Referring to this Courtney, Kirkland et al. (1997) speak of four levels of uncertainty that managers face (see Theory Box 1). At the first level there is a single view of the future, at the second level one of several futures will occur, at the third level there is a range of possible futures and at the fourth level true ambiguity rules in regard to future. Managing uncertainty is probably one of the most important challenges that managers face today. Providing a specification of the conceptualization of business models could eventually improve scenario approaches and one day lead to simulation. This would help managers to be better prepared for the future (see section 2.4.4).



Theory Box 1: Four Levels of Uncertainty (Courtney, Kirkland et al. 1997)

**2.2 WHAT ACTUALLY IS A BUSINESS MODEL**

In this section I outline my understanding of the expression and concept of business models. This understanding is based on a careful literature review (see section 3.1), but may not be shared in detail by all the authors in business model research.

As the term business model intuitively suggests it has something to do with business and it has something to do with models. A quick lookup in the online version of the Cambridge Learner's Dictionary (Cambridge 2003) returns no result for the full combined term but the following definitions for the two separate terms:

- *business*: the activity of buying and selling goods and services, or a particular company that does this, or work you do to earn money.
- *model*: a representation of something, either as a physical object which is usually smaller than the real object, or as a simple description of the object which might be used in calculations.

Related to the first definition it can be said that the term *business* in the expression business model relates to "the activity of buying and selling goods and services" and "earning money". Related to the second definition it can be said that the term model relates to "a representation of something as a simple description of the object which might be used in calculations". By combining the two we get a first simple understanding which is that a business model is a representation of how a company buys and sells goods and services and earns money.

In general the purpose of creating a model is to help understand, describe, or predict how things work in the real world by exploring a simplified representation of a particular entity or phenomenon. Thus, in the case of a business model the model (i.e. representation) shall help understand, describe and predict the "activity of buying and selling goods and services" and "earning money" of a particular company. But as the notion buying and selling seems too narrow, I try to extend it. So differently put, the business model is an abstract representation of the business logic of a company. And under business logic I understand an abstract comprehension of the way a company makes money, in other words, what it offers, to whom it offers this and how it can accomplish this.

At this point it must be mentioned that some confusions exist concerning business models. The conceptual business model approach outlined in this dissertation is very abstract and quite different from so-called "business modeling", which is process related and with which it is often confused. This confusion comes from research and industry where the term business model is sometimes used for business process models (Gordijn, Akkermans et al. 2000). However, in the domain of process models a multitude of tools and concepts already exist, such as UML activity diagrams or Petri nets. In contrast, little concepts and tools exist that help companies and their managers specify their more conceptual business model (i.e. their business logic) on a higher level of abstraction.

It must also be mentioned that there is an ongoing discussion on the difference between strategy and business models (Stähler 2002; Seddon and Lewis 2003). Currently, there are different points of view that differ widely. In this dissertation I will not address this discussion and simply look at a business model as the translation of a company's strategy into a blueprint of the company's logic of earning money. Putting strategy, business models and process models together one can say that they address similar problems (e.g. the one of earning money in a sustainable way) on different business layers (see Figure 6). In general, such a multi-layer approach is quite common in IS.

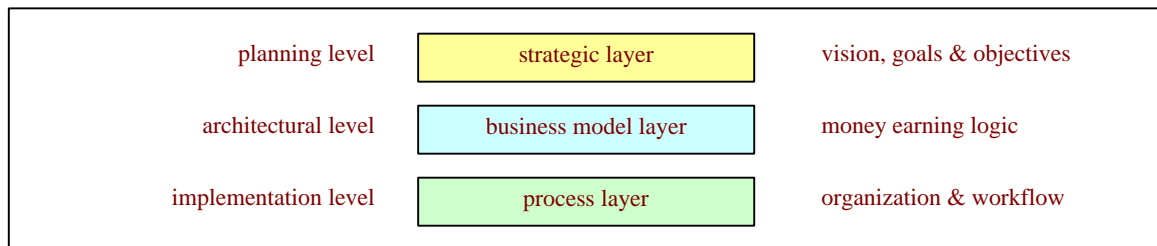


Figure 6: Business layers

For example Chandler (Chandler 1962; 1990) already thematized strategy and structure which would be typically located in the strategic layer. The business model layer would then translate these issues into the elements and relationships of the money earning logic of a company's business model.

Furthermore, there is a business model process going from design to implementation illustrated in Figure 7. The business model design translates a strategy into a business model blueprint. Then the business model has to be financed through internal or external funding (e.g. venture capital, cash flow, etc.). And finally it has to be implemented into an actual business enterprise.

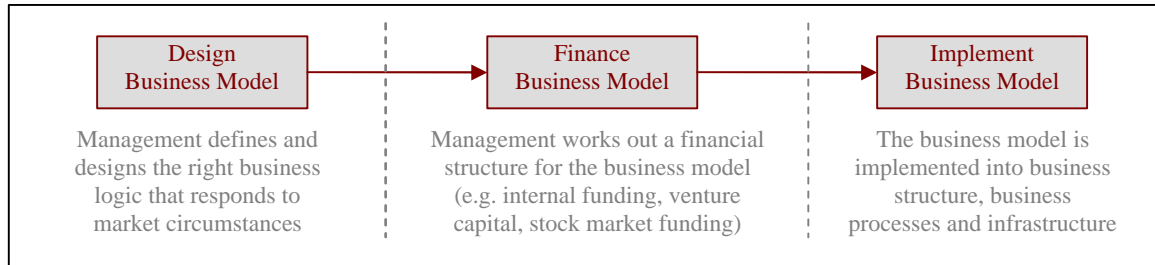


Figure 7: Business Model steps

A last common but important confusion related to the concept of business models is that many people speak about business models when they really only mean parts of a business model (Linder and Cantrell 2000). An online auction, for example, is not a business model, but a pricing mechanism, and, as such, part of a business model (admittedly sometimes a dominant part of the business model). Similarly, an online community is not a business model in itself, but part of the customer relationship. Or take revenue sharing. This is not a business model in itself either, but a way of exploiting partnerships to address the customer and distribute the resulting revenues. In my opinion a business model has to be understood as a much more holistic concept that embraces all such elements as pricing mechanisms, customer relationships, partnering and revenue sharing.

In a nutshell I describe a business model...:

- as an abstract conceptual model that represents the business and money earning logic of a company.
- as a business layer (acting as a sort of glue) between business strategy and processes.

But, the business model...:

- is not a guarantee for success as it has to be implemented and managed.
- is something else than the company's business process model (Gordijn, Akkermans et al. 2000).

After having defined what a business model is in this dissertation and what it isn't, it is of course of interest to define what belongs into a business model. This can be equated with the quest of defining a generic business model with all its elements and relationships. This will be subject of section 4 of this dissertation. Obviously, and as this domain of research is still quite young, there are differing opinions among business practitioners and academicians on what these elements and relationships are. For the moment, until providing more details in section 4, let me use the following working definition for business models:

*A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It is 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.*

A last thing that must be considered when talking about business models is their type. Similar to Linder and Cantrell (2000) I distinguish between three different types. First, there is the abstract business model concept, which is a generic model of elements, components and relationships. Second

there are the operating business models that are the implemented and existing business models of different companies. In other words, they represent an instance of the generic business model. Finally, there are the scenario business models that are only virtual, not existing as such in the real world. They can serve different ends like fostering innovation, simulating opportunities or acting as a guideline in change management. They represent a virtual instance of the generic business model.

## 2.3 THE BUSINESS MODEL'S PLACE IN THE COMPANY

In order to get a better understanding of the business model and its role, it is important to explain how it is situated in the company. As mentioned in the previous section the business model is a conceptualization of the money earning logic of a firm. As such it can function as a conceptual link, forming a triangle between strategy, business organization and ICT (see Figure 8). Because there is often quite a substantial understanding gap between these three “worlds”, the business model concept could serve as a federator or glue.

As illustrated in Figure 8, business strategy, business organization and ICT look at the firm from different angles and on different business layers. These categories also often regroup different groups of employees with different preoccupations and worldviews. Business people position the company in the market define the direction and formulate objectives and goals, whereas business process and ICT designers have to understand and implement these visions into something more concrete. In order to guarantee a smooth implementation of business visions and alignment between the different groups, firms require a very clear communication of concepts and understandings between the implicated parties. This is where conceptually defined business models come into play. By using an ontological approach to business modeling, one can create a shared and common understanding of what a company does to earn money and facilitate communication between people and heterogeneous and widely spread application systems (Fensel 2001).

The triangle and the business model are subject to continuous external forces (Figure 8). Among others these forces include competition, legal, social or technological change and changes in customer demand. It is the manager's role to design or adapt a company’s business model by responding to these external forces.

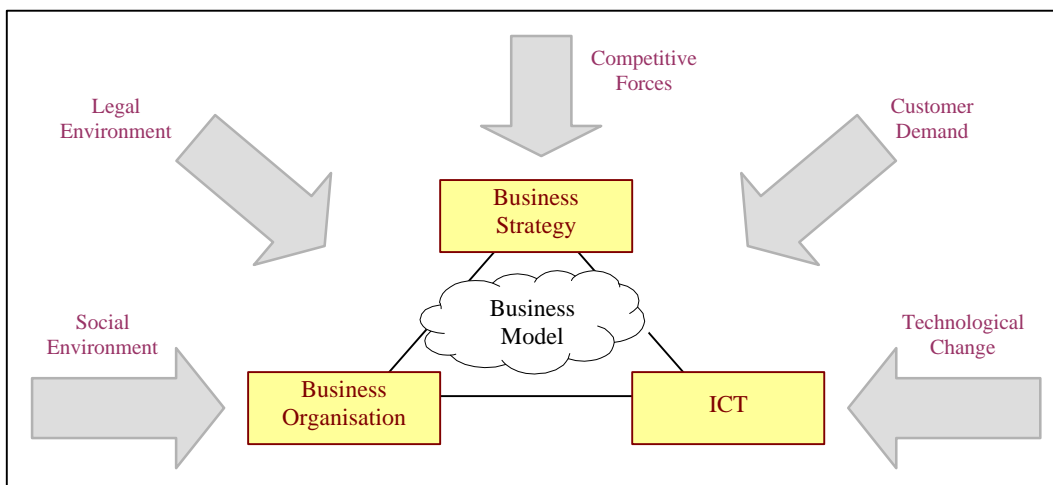


Figure 8: Environment, Business Models, Strategy, Process and Information Systems

### 2.3.1 Strategy and Business Models

The first element in the triangle described above is business strategy. Mintzberg and Lampel (1999) describe strategy as an elephant of which we can only grab hold of some part or other. This is a nice metaphor for the fact that business strategy is an enormous domain in which little consensus exists and a variety of schools reign. Different views include that strategy is about providing a company vision, designing an organization that achieves a fit between internal strengths and weaknesses and external threats and opportunities (Learned, Christensen et al. 1965), positioning the company in the market (Porter 1985), defining a set of goals and objectives (Drucker 1954; Kaplan and Norton 1992), the

steps to achieve them and the way to measure them (Kaplan and Norton 1992).

In this dissertation I argue that the business model and strategy talk about similar issues but on a different business layer. I understand the business model as the strategy's implementation into a conceptual blueprint of the company's money earning logic. In other words the vision of the company and its strategy are translated into value propositions, customer relations and value networks (see Figure 9).

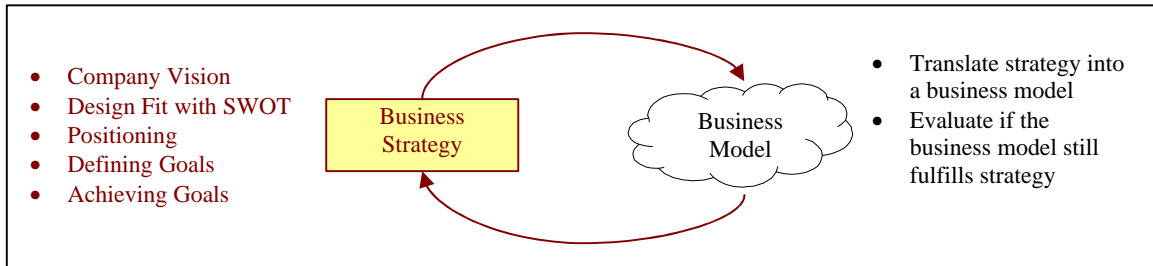


Figure 9: Business Strategy and Business Model

### 2.3.2 Business Organization and Business Models

The second element of the triangle surrounding business models is the organizational side. Similarly to strategy and business model layer the business organization layer talks about similar issues (e.g. structure) but addresses them from a different angle. The business organization is about the "material" form the conceptual business model takes in the world, such as departments, units and workflows (see Figure 10). This is not to be confused with the business model, which illustrates a company's money earning logic as a set of concepts. Yet, the business organization and business model are closely interrelated (see Illustration Box 1).

**Compaq vs. Dell**

The then dominating computer manufacturer Compaq (now HP) came under pressure by Dell in the 90s, when this competitor was extremely successful with its direct-to-customer approach that heavily relies on the Internet. Compaq was forced to rethink its strategy because it was constantly losing ground in the PC market. As an apparently logic consequence Compaq introduced its own direct Internet distribution channel on the Internet into its business model. However, the company forgot to align this new business model with its business organization. The outcome was a hostile reaction from its resellers, who said that Compaq was competing with them.

Illustration Box 1: Business Organization and Business Model at Compaq

Changes in the business model bring up organizational questions, which is illustrated by the fact that companies didn't really know how to structurally cope with their new online outlets in the 90s. When a large number of companies started selling over the Internet they used different organizational approaches regarding their new online channels. Some created entirely new departments, others put their existing IT department in charge and yet others created completely new companies in which they had a majority stake.

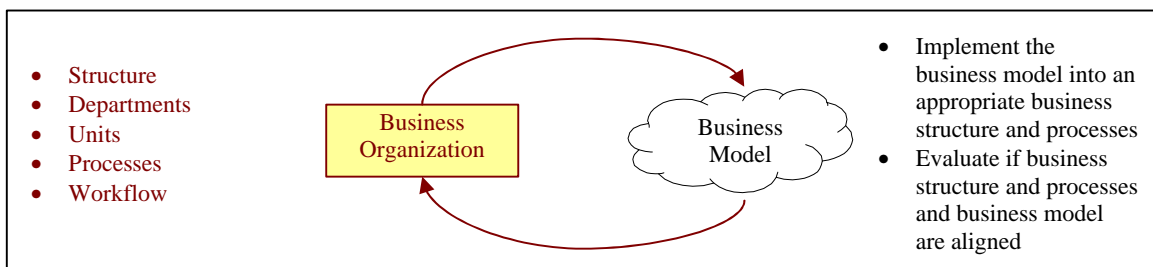


Figure 10: Business Organization and Business Model

Furthermore, a good understanding of the infrastructure side of a business model leads to an optimized business organization. By precisely defining infrastructural aspects of a business models, such as the supply chain and the various partnerships and links a company maintains it becomes much easier to address questions related to processes or, for example, business process outsourcing (BPO).

### 2.3.3 ICT and Business Models

The last element in the triangle is technology, or more precisely ICT. Under ICT I understand all the information and communication technology used in the company. This includes hardware, such as PCs, servers, PDAs and mobile phone as well as software and tools, such as Websites, customer relationship management applications, management information systems and so on. The link between ICT and business models is particularly strong, since ICT has been a strong enabler for a variety of innovative business models (cf. section 2.1).

#### Relying on ICT: Amazon.com and eBay

The most extreme examples of the relationship between ICT and business model are web-based companies like Amazon.com or eBay. They have business models that rely to a great deal on ICT and specifically the Internet. Besides the most evident dependencies on websites and servers they also improve their business model through a number of customer related applications, like personalized recommendations or rankings.

#### Illustration Box 2: Relying on ICT

Sometimes the link between ICT and business model is evident as in the case of online companies such as Amazon.com or eBay (see Illustration Box 2). However, the link between technology and business model does not have to be so obvious. When communication and coordination costs dramatically decreased because of shrinking ICT costs, this had an enormous indirect impact on business models. It became much easier for companies to work in networks and offer joint or complementary value propositions. Also, companies increasingly included informational aspects or even ICT enriched components into their products and services.

In general, technology people should ask themselves how ICT can contribute to improving a company's business model. And the other way around, business people should ask themselves what technological consequences a change in the business model could have (see Figure 11).

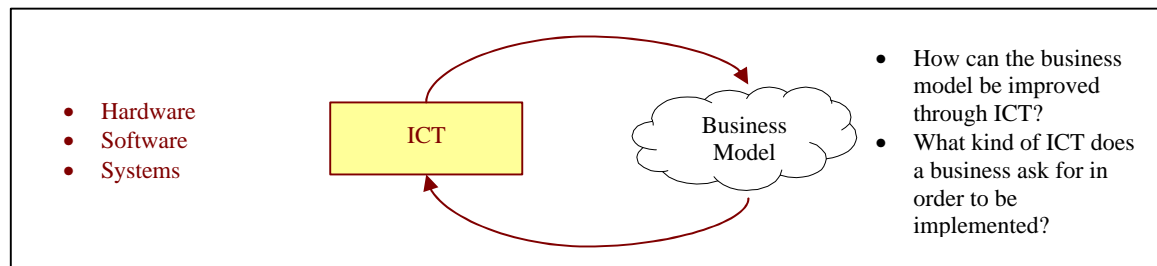


Figure 11: ICT and Business Model

### 2.3.4 Environment and Business Model

Besides relating to the elements in the triangle a company's business model is continuously subject to external pressures that oblige a company to constantly adapt their business model to a changing environment. In this section I list some of these pressures that directly or indirectly influence a business model. Namely, these are technological change, competitive forces, change in customer demand and change in the social or legal environment.

*Technological change.* As shown in section 2.1 on technology and change, technology (e.g. ICT) and its application in business is rapidly changing. And since technology is increasingly applied to every aspect of business, technological change pressures managers to reflect on how technology can be adopted to improve the business logic of the firm. With the rise of the Internet companies started

adopting new web-based channels. Some even tried to figure out how their products could be entirely digitized or at least "digitally enhanced". Also, falling communication and coordination costs due to cheaper technology have forced companies to become more efficient. They started to outsource all non-essential business and progressively rely on partnerships. I think it is no understatement to say that technological change is a major force of business model change. In some cases technological change may even challenge the mere existence of a particular business model.

*Competitive forces.* A second-major pressure on a company's business model comes from its competitors. I have already discussed the example of Compaq and Dell that competed for customers with two different business models in the PC-industry. For traditional industry players adapting to changes in the competitive environment is especially crucial when new dynamic competitors rapidly dispute their market position as an incumbent (cf. Christensen 1997; Christensen 2003).

*Customer demand.* Pressure to adapt a company's business model may also come from the customer demand side. Changes in consumption patterns, revenue increases and "fashion changes" are just some of the possibilities I want to mention. The shift from fixed-line to mobile telephony is a nice example of change in customer demand.

*Social environment.* Sometimes the social environment and social mood can influence the business model of a firm. This kind of pressure is particularly studied in stakeholder theory (Friedman and Miles 2002). For instance, if a company's business model is centered around low cost production in developing countries it might draw the attention of militant non-governmental organizations that could mobilize public opinion against the firm. This happened to Nike regarding the ethics of its operations in Vietnam (Kahle, Boush et al. 2000). Besides ethics, changes in the social environment will also have an indirect influence on customer demand. This is the case for technology adoption, where the use and social acceptance of a specific technology by a broad majority opens up completely new markets and customer demands (Moore 1999).

*Legal environment.* Often changes in the legal environment also make it necessary to adapt business models. The introduction of new privacy laws can make the use of some business models illegal, if a company has extensively relied on customer information without the customer's explicit accordance. Anti-spamming laws may (hopefully) wipe-out business models based on sending out large trunks of unsolicited mails. Regulating advertisement over mobile phones may limit the range of possible business models in m-commerce. New taxes may make a company's value proposition too costly and thus uninteresting for the customer. In general it can be said that the legal environment has a large influence on business models.

## **2.4 USE OF BUSINESS MODELS**

Business model research is a rather young research domain and still has to prove its relevance. But as addressed above, yet relatively little concepts and tools exist to help managers capture, understand, communicate, design, analyze and change the business logic of their firm. In my opinion and the opinion of many other researchers in this domain the business model concept can fill some of this gap and can eventually gain an important position in managing under uncertainty.

In the following sections I will outline some of the roles the business model concept (i.e. the use of a specification of a conceptualization of business models) can play in business management, and, particularly in regard to e-business issues. I have identified five categories of functions, which are understanding & sharing, analyzing, managing, prospects and patenting of business models. Furthermore, an ontological approach to business models is indispensable for building software based tools that help fulfill these five functions.

I describe these categories to give an outlook on what could be done with the help of the business model concept, particularly on the base of the business model ontology. The scope of this dissertation, however, is the design of a business model ontology. The possible roles of the business model concept will not be further specified beyond this outlook except for the propositions on further research in section 8.

### 2.4.1 Understand and Share

The first area in which business models can contribute is in understanding and sharing the business logic of a firm. Concretely, business models help to capture, visualize, understand, communicate and share the business logic.

*Capture.* As explained earlier, the business model of a company is a simplified representation of its business logic. However, as such business models exist only as abstract concepts or mental models in the head of people reasoning on them. Yet, experience shows that in many cases these people are not always capable of communicating this business model in a clear way (Linder and Cantrell 2000). Furthermore, because people have different mental models they will not automatically understand the same thing under a business model. Thus, a generic framework (i.e. an ontology) for describing business models becomes necessary. Such a framework can be understood as a common language between stakeholders to get the ideas out of their heads in order to formulate them in a way that everybody understands.

*Visualize.* Human's ability to successfully process complex information is quite limited. As can be shown theoretically and empirically, processing information through the visual system can substantially increase the degree to which complexity can be handled successfully (Rode 2000). Using an ontology to capture business models, means that with little additional effort they can be presented graphically (Gordijn and Akkermans 2003).

*Understand.* Nowadays business models are increasingly complex, particularly those with a strong ICT and e-business component. The relationship between the different elements of a business model and the decisive success factors are not always immediately observable. Therefore the process of modeling social systems and in this case business models help identifying and understanding the relevant elements in a specific domain and the relationships between them (Morecroft 1994; Ushold and King 1995). In addition, the visual representation of a business model can dramatically enhance understanding.

*Communicate and share.* I have already made a point that the business model concept helps capturing, understanding and visualizing the business logic of company. Being able to communicate and share this understanding with other stakeholders is simply a logical consequence of the foregoing. Formalizing business models and expressing them in a more tangible way clearly help managers to communicate and share their understanding of a business among other stakeholders (Fensel 2001).

### 2.4.2 Analyze

The second area in which the business model concept can contribute is in analyzing the business logic of a company. Concretely, they can improve measuring, observing and comparing the business logic of a company.

*Measure.* Having captured the business model in a first step it may become easier to identify the relevant measures to follow in order to improve management. Similar to the Balanced Scorecard Approach (Kaplan and Norton 1992) a business model shows which areas to monitor in a particular business. This is all the more relevant since in e-business the indicators to follow are still an issue of debate.

*Observe.* The business logic of a company constantly changes due to inside and outside pressures, as shown in section 2.3.4. Therefore a structured approach to business models is important in order to understand which particular issues have changed over time.

*Compare.* Similar to observing a company's business model over time, a structured approach allows companies to compare their business model to the ones of their competitors. This is based on the reasoning that things are only comparable if they are seized and understood in the same way. Also, comparing one's business model to the one of a company in a completely different industry may help gaining new insights and foster business model innovation. Related to e-business and to dynamic industries this can help incumbents understand how aggressive new competitors and startups work.

### 2.4.3 Manage

The third area of contribution of business models is in improving the management of the business logic of the firm. The business model concept helps ameliorating the design, planning, changing and implementation of business models. Additionally, with a business model approach companies can react faster to changes in the business environment. Finally, the business model concept improves the alignment of strategy, business organization and technology.

*Design.* Designing a coherent business model where all the elements are mutually reinforcing or at least optimized is not an easy task. Nowadays business models are quite complex and their success is often based on the interaction of a number of apparently minor elements. This is even more the case since e-business increases the range of imaginable business models. Having a business model ontology at hand that describes the essential building blocks and their relationships will make it easier for managers to design a sustainable business model.

*Plan, Change & Implement.* When a company decides to adopt a new business model or to change an existing one, capturing and visualizing this model will improve planning, change and implementation (see Figure 12). It is much easier to go from one point to another, when one can exactly understand, say and show what elements will change. In this regard, Linder and Cantrell (Linder and Cantrell 2000) speak of so-called change models that are the core logic for how a firm will change over time to remain profitable in a dynamic environment.

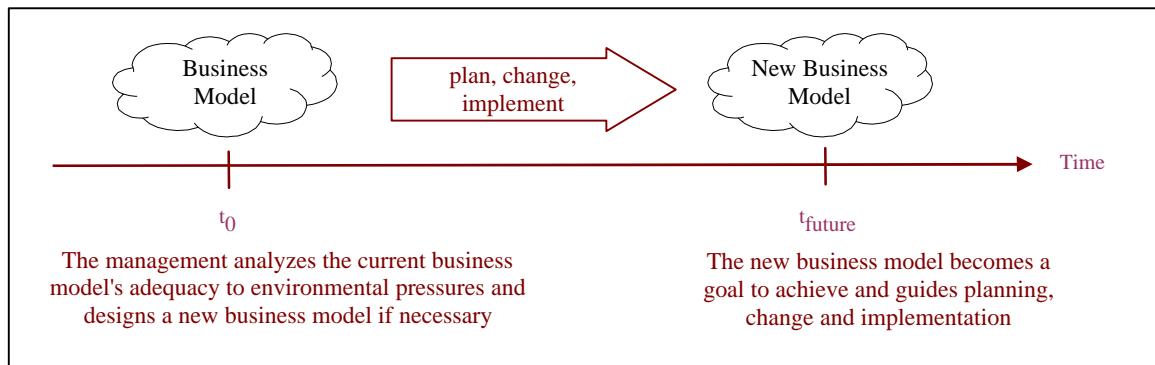


Figure 12: Planning, Changing and Implementing Business Models

*React.* Once a business model has been captured, mapped and understood by managers the foundations for improving speed and appropriateness of reaction to external pressures have been created. According to Petrovic and Kittl (2001), business model designers can easily modify certain elements of an existing business model. This is without doubt essential in an uncertain and rapidly changing competitive landscape.

*Align.* I have already argued earlier that the business model concept can serve as a federator between the triangle of business strategy, business organization and technology. In other words, the business model forms a sort of conceptual bridge that makes it easier to align these three. Chesbrough and Rosenbloom (2000), for example, see business models as a mediating construct between technology and economic value.

*Improve decision-making.* Having claimed that the business model concept enhances understanding and communicating the business logic of the firm I deduce that decision makers make more informed, and hence, better decisions. Besides from this, business models are a new unit of analysis (Stähler 2002) that can be observed and compared, help defining measures and should therefore also improve decisions.

### 2.4.4 Prospect

A fourth area of contribution of business models refers to the possible futures of a company. I believe that the business model concept can help foster innovation and increase readiness for the future through business model portfolios and simulation.

*Innovate.* Similar to the argument of improving change and increasing reaction capacities in the firm, I believe that a conceptual and modular business model approach can foster innovation. In fact, specifying a set of business model elements and building blocks, as well as their relationships to each other, is like giving a business model designer a box of Lego stones. He can play around with these stones and create completely new business models, limited only by his imagination and the pieces supplied. Amit and Zott (2001) explicitly perceive the business model as a locus of innovation.

*Business model portfolio.* Based on Allen's law of excess of diversity in evolutionary theory (Allen 2001) one may argue that it could be interesting for a company to maintain a portfolio of business models in order to be ready for the future. The idea behind Allen's law is that a sustainable and successful evolutionary strategy requires an amount of internal diversity superior to that of the environment. Allen suggests that agents need to have a stock of potential strategies to be set off in the face of unpredictability in environmental change (Andriani 2001). In the case of a company this would mean having a stock of business models in order to cope with change.

*Simulate and test.* Simulating and testing business models is obviously the dream of every manager. Though simulation will never be able to predict the future, it is a way of doing risk free experiments, without endangering an organization (Sterman 2000). By simulating and testing possible business models, managers will be better prepared for the future. Similarly, in the domain of e-business Richards and Morrison (2001) compare this kind of simulation tool to a sort of flight simulator that allows building better e-business strategies.

#### **2.4.5 Patenting**

Increasingly entrepreneurs and companies in e-business seek to patent e-business processes and even entire aspects of their business model. Therefore business modeling may potentially have an important role to play in this legal domain. For example, Priceline based much of its business strategy on a patent whose technology matches bids from buyers with interested sellers on the Net (Angwin 2000). Consequently, patenting of e-business methods has also started to create a number of legal battles. A famous one is the case between the online retailer Amazon.com and the online arm of the bookseller Barnes & Noble (B&N). Amazon.com, who received a patent for its "one-click" ordering system attacked B&N for patent infringement, supposedly caused by its "express lane" checkout system on the B&N website (Lesavich 2001). It remains to be seen in what direction patenting business models and business processes moves.

### **2.5 BUSINESS MODEL ONTOLOGY AND BUSINESS MODEL TOOLS**

A last but fundamental area of contribution of business models is in building the foundation for a set of new computer-assisted management tools. Management literature is famous for producing concepts and models. Yet, little of these concepts have been translated into software-based tools, although, in my opinion this could bring enormous value to management. For instance, some of the business model functions mentioned above principally make sense in a digitized version. Visualizing, designing and comparing business models can be done quickly, once software-based tools have been developed. More complex tasks, such as simulation are simply impossible without the help of computers.

But in order to be able to use computer assistance as outlined above, an ontology of the business model domain has to be provided. And this is exactly one of the aims of this dissertation (see section 1.2). Once the elements and relationships of the business model concept have been defined one can start building a set of software-based tools to simplify the life of managers.