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The business model concept: theoretical underpinnings and empirical illustrations

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Abstract
The business model concept is becoming increasingly popular within IS, management and strategy literature. It is used within many fields of research, including both traditional strategy theory and in the emergent body of literature on e-business. However, the concept is often used independently from theory, meaning model components and their interrelations are relatively obscure. Nonetheless, we believe that the business model concept is useful in explaining the relation between IS and strategy. This paper offers an outline for a conceptual business model, and proposes that it should include customers and competitors, the offering, activities and organisation, resources and factor market interactions. The causal inter-relations and the longitudinal processes by which business models evolve should also be included. The model criticises yet draws on traditional strategy theory and on the literature that addresses business models directly. The business model is illustrated by an ERP implementation in a European multi-national company.
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Introduction

'Business model' is a term often used to describe the key components of a given business. It is particularly popular among e-businesses and within research on e-businesses (Timmers, 1998; Afuah & Tucci, 2001; Amit & Zott, 2001; Applegate, 2001; Cheng *et al*., 2001; Rayport & Jaworski, 2001; Weill & Vitale, 2001). Business models are even subject to patent law, for example, Amazon.com has a patent for *one-click purchase* (Rappa, 2002). Within business research, the concept is used more sparsely, even if strategy research covers many if not all of the theoretical components that are included in the business model concept.

The empirical use of the concept has been criticised for being unclear, superficial and not theoretically grounded (Porter, 2001). However, we believe that it has promise, one reason being that it could integrate disparate strategic perspectives such as the resource-based view (RBV) and industrial organisation (I/O). There are few integrative strategy models that unite finer aspects of strategy, such as resource-bases, activities, structure, products and external factors. In fact, strategists still tend to argue about what it is that makes companies successful, whether it is firm-internal resources (Barney, 1991) or successful reconfiguration of the value chain (Porter, 1985), or a well-implemented generic strategy (Porter, 1980).

More importantly, a theoretically sound definition of the business model would also help the field of IS strategy research. Research into how IS improves strategies and provides competitive advantage has not

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recognised, sufficiently, RBV, and the importance of sustainability of advantage (Ciborra, 1994; Powell & Dent-Micallef, 1997; Sambamurthy, 2000). On a general level, it has been indicated that IS research tends not to be able to measure the bottom-line contribution of IS investments – the so-called IT productivity paradox (e.g., Strassman, 1985; Brynjolfsson, 1993; Shin, 2001). This, we believe, is partly related to the issues just mentioned, partly to the fact that IS does not always contribute to business performance. In order to contribute to performance, IS must be acquired cleverly, fit with other resources and implemented effectively, understood and used, and aligned and embedded with organisation in a unique way. Any improvements in value chain activities must be materialised by an offering that increases customer-perceived quality and/or reduces cost. All these factors and their causal inter-relations need to be understood for any specific business model.

The aim of the paper is to provide an input as to which components should be included in a business model, by which managers and researchers can understand the causal relation between IS and business. We use concepts from strategy theory, extend them with models and concepts from strategy-related IS research, present a conceptually generic business model, and illustrate it empirically.

Strategy theory

Strategy theory concerns the explanations of firm performance in a competitive environment (Porter, 1991). There are many strategy perspectives, but we shall focus here on three 'paradigmatic' perspectives: I/O, RBV, and the strategy process perspective. I/O and RBV are both interested in competitive advantage. However, their views on what competitive advantage is and on what it is based differ. While both RBV and I/O may be seen as content-based approaches (cf. variance theories in Markus & Robey, 1988) to strategic management, the process-based view on strategy focuses on the processes through which strategy contents are created and managed over time.

Porter (1980) brought in the I/O perspective (Bain, 1968), by claiming that *external industrial forces* affect the work of managers. Substitute products, customers and suppliers as well as potential and present competitors determine strategic choices. The two 'generic strategies' are *differentiation* and *low-cost*. Porter's work was further developed in 1985, with the *value-chain model*, which focuses on the activities and functions of the firm, the underlying factors that drive cost and differentiation advantages. Thorough control and grouping of activities enable firms to utilise cost and differentiation potentials through the reaping of scale advantages or the creation of innovative forums. The Porterian framework has been used extensively within IS research. McFarlan (1984) suggests that IS can be used to manipulate 'switching costs', and erect 'barriers to entry'. Porter & Millar (1985) argue that IS can be used to enhance value chain activities to gain competitive advantage through low cost or differentiation. Further, IS can be used for cost rationalisation (e.g., automation) and for niche positioning (Rackoff *et al.*, 1985). The models have been used in research into the role of IS in competitive pricing (Wiseman, 1985), and customer and partner relationship management (Johnston & Vitale, 1988; Ives & Mason, 1990).

Already in the mid-1970s, a focus on the *strategy process* (rather than strategy content such as market positions and strengths and weaknesses) initiated criticism of the *ex ante* and normative approach of the strategy field (Mintzberg, 1978, 1994; Quinn, 1978). Uncertainty about the future leads to incrementalism, shorter planning horizons, less revolutionary strategic actions, and tentative moves. The pattern of action visible *ex post* makes up the 'emergent strategy' (Mintzberg, 1978). The focus on strategy content such as competitive position (or any other independent content concept, e.g. structure, size, degree of diversification, etc.) and its relation with performance became less interesting compared to research on *how* firms actually created the favourable positions over time. The independent variables of content research become the dependent variables in process research. The independent variables in process research are found in management- and organisation-related fields, including the acceptance of bounded rationality and the attention to the role of norms and values in formulation and implementation (Chakravarthy & Doz, 1992). The focal point of the process perspective is the management of cognitive and cultural constraints on strategic development and firm evolution (Whittington, 2000). The process perspective has progressed, focusing the managerial function (Prahalad & Bettis, 1986; Ginsberg, 1994), and has also been combined with RBV (Amit & Schoemaker, 1993; Oliver, 1997). Process approaches are also applied in IS research (Robey & Boudreau, 1999) and viewed as 'valuable aids in understanding issues pertaining to designing and implementing information systems, assessing their impact, and anticipating and managing the process of change associated with them' (Kaplan, 1991, p. 593). One of the first was the Nolan stage model (Gibson & Nolan, 1974; Nolan, 1979); recent developments include the MIT90s framework (Scott-Morton, 1990) and the strategic alignment movement (Henderson & Venkatraman, 1992). Recently, approaches combining a process approach and RBV have been applied to explain the processes by which organisations develop and utilise IS (Ciborra, 1994; Andreu & Ciborra, 1996; Kalling, 1999).

Whereas I/O states that environmental pressure and the ability to respond to it are the prime determinants of firm success, RBV states that idiosyncratic and firm-specific sets of imperfectly mobile resources determine which firm will reach above-normal performance (Wernerfelt, 1984; Dierickx & Cool, 1989; Barney, 1991; Peteraf, 1993). RBV emphasises the characteristics of the underlying factors behind low-cost and differentiation

and the value chain, that is, the resources of the company. The RBV literature holds numerous descriptions of resource attributes that render competitive advantage. Barney's typology (1991) summarises the main ones: value, rareness, and imperfect imitability and substitutability. A firm's resources are *valuable* if they lower costs or raise the price of a product. Certain resources have a better fit with certain organisations, and hence expectations, and value, are different depending on who is considering resource investment (Barney, 1986; Dierickx & Cool, 1989). A key RBV attribute is resource *rareness*, but a valuable, rare resource also needs to be *costly to imitate or to substitute* to *sustain* the advantage of the resource. A resource that could be acquired at an imperfect market price will only remain a source of advantage as long as competitors fail to realise and materialise the potential. A resource and its outcome can be imitated either by building/acquiring the same resource or by creating the same intermediate or final outcome with a different resource. The costs associated with imitation are driven by *unique historical conditions, causal ambiguity*, and the *social complexity* of resources (Barney, 1991). Using RBV in IS settings is becoming increasingly popular (Clemons & Row, 1991; Mata *et al*., 1995; Powell & Dent-Micallef, 1997; Andreu & Ciborra, 1996; Bharadwaj, 2000; Duhan *et al*., 2001; Wade, 2001). In an empirical analysis of IS-enabled competitive advantage at firms acclaimed for their pioneering role in IS usage, Kettinger *et al*. (1994) found that 'the preexistence of unique structural characteristics is an important determinant of strategic IS outcomes' (p. 46). Frustrated over the inability of I/O to explain sustained advantages, researchers emphasised the difference between strategic *advantage* and *necessity*, and claimed that in order for IS to generate sustained competitive advantages, they need to be *embedded* with other unique resources. Interestingly, these researchers never saw IS as being able to generate advantage on its own, but only by facilitating other resources (cf. Powell & Dent-Micallef, 1997).

The strategy field is fragmented, meaning there is no such thing as *one* theory of strategy. Proponents of the three fields juxtapose with each other, which is possible since they focus on different aspects of strategy. RBV occupies a more prominent role in strategy today than I/O, but RBV too has limitations. Critics put focus on the lack of empirical studies, the relative lack of process-orientation, and shortcomings in explaining hypercompetitive industries (D'Aveni, 1994; Foss, 1997; Williamson, 1999; Eisenhardt & Martin, 2000). Important criticism concerns the object of analysis: what, exactly, is it that should be unique; the resource, its impact on activities, or the profit? Mosakowski and McKelvey (1997) and Chatterjee (1998) suggest that the relevant unit of measurement is the so-called *intermediate outcome*, for example, a product feature that increases quality or a swifter handling process, that is, something *between* the resource and the product offering and profitability. In addition, strategy process researchers criticise both RBV and I/O for neglecting the obstacles to strategic dynamics and management (Sanchez & Heene, 1997).

In *theory*, the strategy concept means whatever phenomenon we subjectively attach to it, such as the choice of industry, industry position, customers, geographical markets, product range, structure, culture, value chain, resource-bases, and so forth. We believe, however, that it is possible to integrate the relevant components into one model, and below we shall review some of the research that attempts to do so. As a starting point, however, the three perspectives do offer a set of valuable concepts: customers and competitors (industry), the offering (generic strategy), activities and organisation (the value chain), the resource-base (resources) and the source of resources and production inputs (factor markets and sourcing), as well as the process by which a business model evolves (in longitudinal processes affected by cognitive limitations and norms and values).

Business model literature

Business research

One comprehensive, yet neglected, text on business strategy is Porter (1991). Porter claims that the low-cost and differentiation advantages that firms enjoy on the product market ultimately stem from 'initial conditions' and 'managerial choices'. Decisions taken affect the so-called *drivers* (resources or properties such as scale and scope), which are acted upon in *activities*, which in turn enable *low cost* and/or *differentiation*. These enable specific strategic positions in markets/industries, allowing, potentially, for firm success. It is not referred to as a business model, but it incorporates many features that could be included in such a model. Porter is not specific about the contents of the components, but the model summarises his previous models and adds the *causal* relations between initial conditions and managerial choices and firm success. Inherent in this model is also the strategy process, as the managerial choices are seen as taking place in a *longitudinal dimension* and is thus a response to criticism from the process perspective field (Mintzberg, 1978). The model encompasses both RBV and I/O, and highlights the complementary nature of the two viewpoints – a complementarity based on causality. So Porter's integrative causality model is also a response to the criticism from RBV. Ironically, Porter's criticism of the business model concept (2001) could be resolved by using his 'causality chain' model (1991).

Others have described conceptually similar models, including Normann's work on the *business idea* (1977, 2001). Normann used the business idea concept, which distinguishes between three different components: (1) the external environment, its needs and what it is valuing; (2) the offering of the company; and (3) internal factors such as organisation structure, resources, knowledge and capabilities, systems, values. The concept is systemic in nature and the relation to the external

environment depends on the offering, which in turn is dependent upon firm-internal factors.

Much of the research within entrepreneurship is free from the RBV–I/O dichotomy and inherently longitudinal and process-orientated in nature. These approaches normally focus on the evolution of entire businesses and therefore often use concepts such as 'business models'. McGrath & MacMillan (2000) include 'the way an organisation organises its inputs, converts these into valuable outputs, and gets customers to pay for them' in the business model concept. Schumpeter (1934; 1950) stated that entrepreneurial innovation included the combining of previously disconnected 'production factors', and could result in new markets and industries, products, production processes, and source of supply, all being potential business model components. Eisenhardt & Sull (2001) suggest that the source of advantage is found in the position a company takes on the *product market*, in its *resource base* or in the *key processes* – all of which could be referred to as components of a business model. They claim that in the rapidly changing, ambiguous markets, the focus is more towards processes and, most importantly, the 'simple rules' that guide the key processes. The robustness that comes with a strategy based on resources and positions makes it difficult to act rapidly. Growth, rather than profit, is the ultimate objective of these fast-moving firms.

E-business research

As stated earlier, the business model concept is often used in e-business research. Cherian (2001) identified 33 types of e-business models, Applegate (2001) classified 22 e-business models, and Timmers (1998) listed 11 specific e-business models. E-business model research, empirical or conceptual, can be organised around two complimentary streams. The first stream aims to describe and define the components of an e-business model. The other stream aims to develop descriptions of specific e-business models.

Timmers (1998, p. 4) defines an e-business model as: 'An Architecture for the products, service and information flows, including a description of the various business activities and their roles'. Weill & Vitale (2001) present a similar definition: 'A description of the roles and relations among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants.' Amit & Zott (2001) presented three components of e-business models, including content (exchanged goods and information), structure (the links between transaction stakeholders), and governance of transactions (the control of the flows of goods, information and resources). Afuah & Tucci (2001) presented a list of components including customer value (distinctive offering or low cost), scope (customers and products/services), price, revenue sources, connected activities, implementation (required resources), capabilities (required skills), and sustainability. Their list is applicable to both e-business models and conventional business models, but addresses neither causality between components nor processes of change. Applegate's (2001) business model framework, based on an I/O logic, consists of three components: concept, capabilities, and value. The business concept defines a business market opportunity, products and services offered, competitive dynamics, strategy to obtain a dominant position, and strategic option for evolving the business. Capabilities are built and delivered through its people and partners, organisational structure, culture, operating model, marketing and sales model, management model, development model, and infrastructure model. The value of a business model is measured by its return to all stakeholders, return to the organisation, market share, brand and reputation, and financial performance. The difference between industrial age business models and e-business models is the different business rules and assumptions of how business is done (Applegate, 2001). A summary of components is included in Appendix A.

The other stream of research on e-business models aims to describe specific business models, which explain how businesses use the Internet to interact and how value is created for customers and other stakeholders (Applegate, 2001). Weill & Vitale (2001) define eight finite e-business models (direct customer, full-service provider, intermediary, whole of enterprise, shared infrastructure, virtual community, value net integrator, and content provider) based on a systematic and practical analysis of several case studies. They show how each model works in practice, including how it makes money and the core competencies and critical factors required. Timmers (1998) and Rappa (2002) state that there is no single comprehensive taxonomy for classifying e-business models, yet they list a range of different e-business models. Applegate (2001) presents five general categories of business models and 22 specific types of e-business models. This classification is based on generic market role (suppliers, producers, distributors, and customers), digital business (whether or not the business is dependent on the Internet), and platform (whether or not the business is a provider of the infrastructure upon which digital business is built and operated on) (see Appendix B).

Even if concepts differ in e-business research, the ideas are similar and could be referred to strategy theory. It provides useful descriptions of business models, but could benefit from a broader use of strategy theory, which would provide more content as well as a clearer coherence in terms of causality. Furthermore, they are based on e-business, not business.

A business model proposal

Based on the above review of the widely ramified literature, we would propose a generic business model that includes the following causally related components, starting at the product market level: (1) customers, (2) competitors (3) offering, (4) activities and organisation,

(5) resources, and (6) supply of factor and production inputs. These components are all cross-sectional and can be studied at a given point in time. To make this model complete, we also include a longitudinal process component (7), to cover the dynamics of the business model over time and the cognitive and cultural constraints that managers have to cope with. In Figure 1, we refer to it as the scope of management.

The model integrates firm-internal aspects that transform factors to resources, through activities, in a structure, to products and offerings, to market. The logic is that in order to be able to manage industrial forces and serve the product market, businesses need activities, resources and input from the factor market (capital and labour) and the supply of raw material. For instance, IKEA's low-cost strategy clearly gave them a unique position in relation to craft-orientated furniture competitors and customer segments such as young families. The low-cost strategy is based on effective value-chain configuration (design, sourcing, storing and retailing) based on scale and strategic locations. The value chain, in turn, is based on resources such as design skills, supplier relations, sourcing networks, and cultural factors like strong commitment and leadership visibly enforcing cost effectiveness.

The same resource-base and value chain can produce different products and hence have a scope of different offerings, but at some point during diversification, new activities are needed and potentially also new resources, thus forcing the development of business models. With this view (even a non-diversified), firm can have many different business models. However, the more profound the differences between products, the higher the probability that the businesses are organised independently of each other.

There are causal relations between the different components. In order to serve a particular customer segment and compete with the forces within that segment, the offering must have a favourable quality/price position. In order to achieve this, firms need to offer customer-perceived quality of physical product features and service, which in turn requires effective configuration and execution of value chain activities and organisational structure (efficient communication and division of labour and authority). This requires human, organisational, and physical resources that have to be acquired on factor markets and from suppliers of production inputs. Although not depicted graphically, external actors are potential partners or competitors in all aspects of the business: in the bundling of products, in activities and in the configuration of resources. Change can appear both in exogenous or endogenous processes. A poor offering (too high price/quality) may initiate change programmes that result in reformed activities and reconfigured resource base, but it can also work the other way; firms take stock of their resource base and may find new ways to combine resources, and new ways to dispose of activities as a result of resource modifications. This can result in new offerings and improved market positions. So change can take either direction, and the depth of change

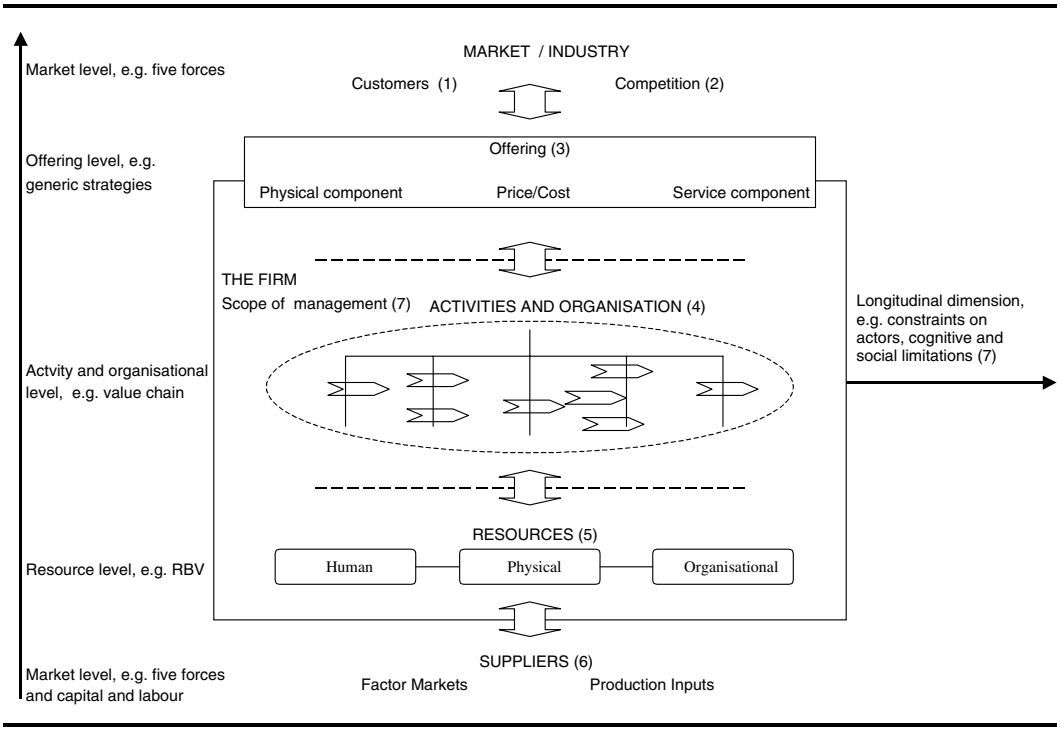

Figure 1 The components of a business model.

will vary. What is important though is the realisation that whatever the modification, it will affect other components of the model.

The business model has to be managed and developed over time. This is how the process perspective is included. The model can be studied in a cross-sectional dimension (the causal dimension, vertical in the outline of the model) but it also evolves over time (the longitudinal dimension, horizontal in the outline of the model) as managers and people on the inside and customers and competitors on the outside continue to evolve. These processes include the bridging of cognitive, cultural, political obstacles, and are issues that managers deal with on a regular basis, for all components of the model, and claims that we need all three in order to understand the factors of success and failure. Resources must be acquired, activated, and organised in a way that improves the cost and quality of the offering in relation to customer preferences and competitors.

An illustrative example

Below we shall illustrate the business model and its components by discussing the experiences of ABC Multinational Manufacturing (anonymised) when implementing an ERP application. ABC is a B2B operation and is one of the largest European suppliers within its industry, with a sales turnover of roughly 4 billion Euros per annum. Having grown dramatically during the 1990s, they have developed into a company with more than 200 plants, represented in almost all European countries. The structure of ABC is geographical, with each geographic region holding 10–30 production units, each of which is run as a profit centre and relatively self-sufficient.

In 1991, ABC decided to develop an ERP system. The prime reason was a desire to reduce costs in activities such as customer service, order entry, production planning and logistics, and to improve service in terms of customer response, and delivery performance and accuracy. ABC was also keen on replacing a broad range of legacy systems in place across units. ABC was aiming for both cost reductions and service differentiation.

Resource level

Together with consultants, and with the assistance of business experts across the organisation, ABC specified the functionality they wanted. It was summarised in three modules; sales, manufacturing, and logistics. No vendor could deliver exactly according to specifications, and ABC decided to cooperate with the one closest to the original specification to get the desired functionality. The contract was signed in mid-1994. Since top management had stated that 'the system should give competitive advantage', ABC initially tried, and failed, to restrict further sale of the system to competitors. The software was not implemented until 1997, when the sales module was piloted in two plants. The other two modules were implemented in 1998 and 2000, respectively. In terms of impact on the resource level, first of all, the system costs several tens of millions of Euros in licences, hardware, software, and consulting. The system also radically challenged existing knowledge required to conduct business tasks. The increased influence of customer service, the perceived lack of control followed by the fact that data are only entered once and have to be correct, and the increased visibility of data on performance, were aspects of the system that influenced the existing resource base.

Activity and organisation level

It turned out, perhaps not surprisingly, that using the system was not easy. Many plants struggled for long to get the system to work reliably. As intended, the value chain activities of customer service, order entry, production planning, and logistics planning got new tools to work with that were radically different from what they had. As a consequence, the system was not always used very effectively. Orders were entered incorrectly, and planners did not trust the automatic planning and had to spend more time than previously, doing it both on paper and on screen. Manually entered data were not always accurate, meaning a lot of control-related work had to be done. Semi-automating production planning also disrupted the manual routines that had been used successfully since the birth of ABC's industry. The level of systems usage differed between plants: the worst plants struggled to make operations reliable, and reported reduced operational performance with the new system. They needed to work harder, and in some cases more staff was hired. Other plants ensured that after the initial hardships, they brought operational performance (for instance, number of complaints, late deliveries, orders entered/full-time equivalents and capital costs for stock) to the level they had before the system was installed. To these units, the system did not significantly improve the value chain activities. The successful plants, however, managed to tackle the initial problems and implemented change programmes that helped them improve operational performance metrics, such as time spent per job, stock turnover, and complaints. They used the system to, if not optimally, at least to a level above previous performance levels, resulting in improved activities.

Offering level

Since so many plants failed to use the system in a way that improved activities, few plants did actually improve their offering in terms of quality or cost. Those plants that improved value chain activities and still failed to improve profits suffered from two problems; the improved activity either increased costs elsewhere in the value chain, or reduced the customer-perceived quality of the offering. For instance, one plant reduced man resources in customer service, because of automation of order entry processes, but this triggered extra work in finance, since invoices had to be checked regularly for any mishaps. Other units simply could not realise

improvements in operations: managers claimed that rather than making people redundant they trusted business would grow and thus require more staff; some managers claimed they simply were not able to demonstrate or communicate to customers that the quality of service had been improved and that price increases were justified. Those plants that improved individual activities and improved their performance, did actively search for opportunities to cut costs and increase sales volume or price, were effective in communicating to customers that they would get better service, and made sure ABC was being paid for stock keeping. They undertook organisational change programmes, including process re-engineering and structural change, made people redundant, and optimised logistics.

Market level

Those units that improved offerings managed to reach at least temporary competitive advantage, since the improvements actually took some time and effort from competitors to respond to. The system was unique and so were the cost efficiency and quality of the supply chain activities. Other actors, like ABC historically, had focused attention on production, not administration or service, meaning ABC had first mover advantages, albeit for a short time period. The initial strategic intent with the system was to differentiate supply chain management, and a few plants that used the system and improved the offering did succeed with the objective.

Management processes

Moving from a business model without ERP to one with ERP was difficult for ABC, at least for certain plants. Cognitively, it required learning a new system, how to improve work tasks, and how to convert those work task improvements into improved performance. For individuals, it required that the knowledge base be expanded: top managers had to couple their strategic insight with knowledge about detailed operations and technology. Operative experts had to learn about technology and to put things into a strategic perspective. The move also required the management of culture; making users and middle and local managers favour the new system was not easy, since it forced major rethinking of existing ways of doing business, ways that often were healthy and profitable. Managing the cultural side also required strong communications of the strategic purpose of the system; ABC management reasoned that rather than directly controlling usage and challenging the decentralised structure, they would make users and profit centre managers understand the strategic purpose of the system. This gave mixed results, with some plants requiring much stronger incentives than profit responsibility to actually use the system and ensure that financial performance was improved.

Discussion

The validity of the business model construct will be discussed in terms of its integration (logical coherence), relative explanatory power and relevance (Glaser, 1978).

Business model integration

The resource (the system), the activation of the resource (activities), and the quality and cost of the offering in the light of competition are central factors needed to be understood and managed in order for IS investments to generate profit. In certain instances, systems are simply installed, not used – the business model is only affected on the resource level. Even if they are used, they may not be used effectively. And, even if they are used effectively, they may affect other activities negatively. Even if they improve profit, they might not create competitive advantage, since competitors could imitate.

An IS application is a potential resource. Bringing it in means the resource base is altered, and that factor market sourcing skills are needed. Large pieces of capital are traded for the new resource. However, bringing the system in is a difficult task, it normally 'only' requires a financial commitment by decision makers. Anybody with a reasonable amount of cash or credibility among banks is able to buy an IS system.

What is more difficult, though, is to use the system. The business model construct acknowledges that IS resources may not always be used optimally. Reasons behind non-optimal use may be lack of knowledge and lack of incentives and aspiration. Measuring whether a system is used well or not can be done by measuring improvements in operational performance: time spent on work tasks (for instance, response time for a customer enquiry, production planning, or design), stock level reductions, accuracy of accounting, and customer complaints, all depending on the functionality of the system.

However, even if a system is used well, it is not certain that profits are improved in terms of cost and price of the offering. Operational improvements on the cost side may have negative effects on customer-perceived quality and *vice versa*. Improvements in one activity may affect another negatively. Furthermore, improvements may not result in improved profits if managers and users are unable to materialise on changes made. Failure to make staff redundant, failure to source in a way that realises stock reductions, and failure to prove to customers that the quality has been improved results in unaltered profitability. This connects with the market level; if the customer base does not favour the new offering – in view of competing offerings – sales will not improve. Again, knowledge, aspiration, and incentives are required. Being able to orchestrate improvements in individual activities in a way that hinders negative effects elsewhere is important, underlining the need for a strategic perspective. Metrics for improvements of the offering is ultimately improved profit.

Whether IS-based profit improvements render competitive advantage depend on the ability of competitors to

imitate the offering improvement by equivalent resources. An investment in an application that reduces costs might be imitated by a competitor using another system, the same system more efficiently, or by a non-IS resource.

Apart from the causal inter-relations, the business model also includes a longitudinal component. Moving from a business model without IS into one successful with IS is not simply a matter of buying a system, but about making sure that activities and the quality and cost of the offering are improved. If not, the only change brought about is the creation of an idle, costly resource. If firms are unsuccessful in identifying, developing and using IS to improve activities in a way that is visible in the profit statement, nothing significant will happen with the business model. This process involves the management of knowledge, norms and values, aspiration levels, and organisational incentives.

The business model in comparison

The business model is characterised by an integration of various theoretical perspectives, including both variance and process theories (Webster & Watson, 2002), and addresses the interdependency between the components of the business context of IS. There are other studies addressing the same issue both within IS and strategy research. IS research (Scott-Morton, 1990; Brynjolfsson, 1993; Mata *et al*., 1995) has been based on a deterministic view of IS, meaning IS is studied with a content approach, yet still fails to present causalities between IS and performance. Furthermore, changes over time of the business model components are neglected (Markus & Robey, 1988; Robey & Boudreau, 1999). Within strategy research, Porter's causality chain model (1991) offers a similar approach, but the model described here is clearer on resources and organisational processes. Normann's models (1977, 2001) are not detailed enough about causalities and the finer aspects of the business model. Entrepreneurship research is not clear about business model components and their causalities. Eisenhardt and Sull's (2001) strategy approaches are, if integrated, similar to the business model concept presented here. However, their proposal that certain components of the business model are more important during certain life cycle phases or within certain environments seems a little hard to digest. The debacle of Enron, one of the success cases referred to, proved that strategic management is much more than 'simple rules for key processes'. The e-business research provides formal descriptions of how to conduct business and make revenues over the Internet (Rappa, 2002), but it has several shortcomings, for example, it does not address competition, causality between the components, and longitudinal management processes. Furthermore, they lack a theoretical ground, a notable exception being Amit & Zott (2001). The specific e-business models can be viewed as empirical examples of business models based on Internet. Each of the specific e-business models is applicable to either the whole or parts of the model (Timmers, 1998; Applegate, 2001). However, none of these addresses how IS *in general* relates to their models.

Relevance

It is not difficult to see how IS other than ERP affects business models. A customer relationship management (CRM) application is a resource that mostly affects activities related to sales and marketing. If done effectively, costs for sales activities, such as market and customer analysis will be reduced, and the overall knowledge about customers will increase, meaning 'sharper' offerings in relation to customer preferences, which can increase customer-perceived quality. If implemented successfully, profits will rise, possibly to an extent that renders competitive advantage if competitors are idle. As another example, e-business applications mean radically changing logistics, customer service, marketing and the geographical scope of business, all being potential sources of competitive advantage.

One of the strengths of the model is its general application – any IS applied in a business could benefit from the model in explaining factors of success or failure. However, the general nature can also be seen as a weakness. The details of a given business model are so many that it is relatively pointless to list metrics and factors on the different levels in a *general* sense. Such operationalisation will have to be made in relation to specific IS applications and specific businesses (cf. Shin's conclusions on aligning the IS with business strategy). However, the core concept of any operationalisation of the business model is 'use', that is the correlation between use of IS and performance. The conceptual discussion here has obvious limitations, being based on theory and the ABC illustration, and we believe future research should have a strong empirical focus, potentially based on system types.

Conclusion

One can ascribe many roles to IS, but it does not have *one* role. We are interested in the economic role of IS, with a particular focus on business context. We claim that one of the roles of IS has become to improve businesses, and that the business model construct is a good tool to understand how this is done or not done. The business model concept is becoming increasingly popular, both within e-business and general business. However, the construct is not well defined, nor is there theory to support it (Porter, 2001). We believe these questions can be partly resolved by an integration of existing business strategy theory and emergent strategy-related research into IS and e-business.

With this paper, we propose a business model that gives structure to the broader business context of IS. IS is at best a potential resource, something with a potential value. Theoretically, the bottom line is that its economic value is determined by a firm's ability to trade and absorb IS resources, to align (and embed) them with other

resources, to diffuse them in activities and manage the activities in a way that creates an offering at uniquely low cost or which has unique qualities in relation to the industry they compete in. Any empirically defined business using IS can be viewed through the business model, but a contingency view must be applied: the value and the relations within the business model vary between different IS applications and between different businesses. As a generic model, we believe it captures relevant aspects to consider for any IS decision-maker or student of IS and business.

There are obvious windows for research in relation to the business model. Different IS systems could be studied in different settings to understand their impact on given business models. Conversely, the impact of different IS on specific business models would also be interesting to research. Detailed correlation studies of, for instance, IS application investments and effects on activity metrics or on financial performance could be done. Cross-sectional comparisons of different firms (business models) and the impact of a given business model are another potential area of research. The concept of 'use' has to be further investigated and operationalised beyond user satisfaction and traditional diffusion and adoption models. The business model concept is useful not just within the domain of e-business, but also in order to understand the impact of any IS. Hence, more business model research should be conducted on general IS. Case studies will be important, at least initially. However, quantitative studies could be conducted on certain variables. Furthermore, we believe the business model concept can be used for retrospective research, using it to reinterpret previously reported cases.

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Appendix: A Business model components

Authors	*Afuah & Tucci (2001)*	*Amit & Zott (2001)*	*Applegate (2001)*	*Timmers (1998)*	*Weill & Vitale (2001)*
Components	Customer value	Content	Concept	Business activities	Consumers
	Scope	Structure	Capabilities	Potential benefits	Customers
	Price	Governance	Value	Sources of revenues	Allies
	Revenue sources			Marketing strategy	Suppliers
	Connected activities implementation			Marketing mix	Flows of product, information and money
	Capabilities			Product-market strategy	
	Sustainability				
Comments	A comprehensive description of each component	Both theoretically and empirically rigid	Limited theoretical framework	Limited theoretical framework	Based on a systematic and practical analysis of several case studies
	Interdependency between the components is not described	Limited to e-business value creation	Empirical method not described	Based on a survey of European electronic commerce projects	
			A method for analysing the impact of IS in e-business context	Provide a framework for classifying e-commerce business models	
			General applicability		

Appendix: B e-Business models

Author	*Applegate (2001)*	*Rappa (2002)*	*Timmers (1998)*
Dimensions	Generic market role Digital business Platform	Unknown	Value chain de-construction Interaction patterns Value chain re-construction
Business models	*Focused distributor*[a] Retailer Marketplace Aggregator Infomediary Exchange *Portals*[a] Horizontal portals Vertical portals Affinity portals *Producers*[a] Manufacturers Service provider Educators Advisors Information and news Infrastructure distributors Infrastructure retailers Infrastructure marketplaces Infrastructure exchanges *Infrastructure portals*[a] Horizontal infrastructure portals Vertical infrastructure portals *Infrastructure producers*[a] Equipment/component manufacturing Software firms Custom software and integration Infrastructure provider	Brokerage Advertising Infomediary Merchant Manufacturing Affiliate Community Subscription Utility	e-shop e-procurement e-auction e-mall Third party marketplace Virtual communities Value chain service provider Value chain integrators Collaboration platforms Information brokerage
Comments	Applicable to all business	No scientific approach	Limited to e-business models Based on a systematic approach to identify architectures for business models

[a]Refers to Applegate's (2001) general categories.