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# Business Meta-models and the Saga of Business-IT Strategic Alignment

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# Business Meta-models and the Saga of Business-IT Strategic Alignment

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### ABSTRACT

This paper argues that applying the idea of a meta-model, derived from modeling in computer science, to the more informal notions of business models found in the management literature provides researchers with a useful lens through which to view the relationship between IT and business strategy. It provides a brief description of the concepts of a business model and a meta-model and presents four case studies using a particular meta-model for organizations that have achieved strategic innovations. Three of the cases, Amazon, Dell and eBay are well known and are based on secondary sources; the fourth case, a wedding list service called '1001 Listes', is less widely known and is based on both literature and primary research. The paper concludes with some observations on the role played by IT in business strategy and some suggestions about how the approach of using meta-models could be developed further.

### Keywords:

Business model; Meta-model; Strategic alignment; Strategic innovation

### INTRODUCTION

The idea that one should be able to align a business strategy with an IT strategy is alluring but elusive. In 1997 Claudio Ciborra painted a bleak picture of the repeated failure of attempts to "*create a bridge between these two key variables*" (Ciborra 1997, p 69) and concluded that a new approach was needed. Similarly, empirical studies have been vague and ambiguous concerning the demonstrable benefits of IT; the so-called productivity paradox (Brynjolfsson 1993; Brynjolfsson and Hitt 1998), where investment in IT is not matched by increases in productivity, remains. Finally, the bursting of the 'dot com bubble' in 2000 might well have been seen as the last nail in the coffin of the notion of Business-IT strategic alignment. However, the topic continues to live on as discussions in conference papers and journals clearly show.

This paper will not set out to right these wrongs. It will not provide the elusive link between IT and Business strategy; it will not reveal the one true metric for measuring IT related productivity, but what it will do is to throw light on the relationship between IT and business strategy using a typology for strategic innovation based on a concept that first gained ascendancy in the dot com era: the business model.

Our aim is firstly to examine the role that IT can make towards strategic innovation, and how strategic innovation shapes the use of IT. Secondly, from this, we will identify some general propositions about the relationship between IT and business strategy. Finally, we will offer some suggestions that we hope will provide other researchers with useful avenues for future research.

Given what we have said in the preceding paragraphs, the notion of a business model might seem a strange place to start as, for some, the very phrase 'business model' carries with it all of the connotations of the worst excesses of the dot com era. Quoting Michael Lewis, Joan Magretta (Magretta 2002, p 86) observes the term business model was used:

*"... to glorify all manner of half-baked plans. A company did not need a strategy or a special competence, or even any customers, all it needed was a web-based business model that promised wild profits in some distant, ill defined future" (Magretta 2002)*

However, although the concept first came into fashion in the late 1990s, we believe that it continues to have relevance. We will demonstrate this by applying one particular form of business model to three well known, and one less well known, case studies.

## THEORETICAL AND CONCEPTUAL FRAMEWORK

### Models and business models

A brief survey of the literature on business models reveals that it is both a relatively new idea and that there is little agreement about what is meant by the term. Chanal and Caron-Fasan (2007) trace the recent history of the term and link its connection to IT to Chesbrough's analysis of technological innovation at Xerox (Chesbrough and Rosenbloom 2002). Morris et al (2005) on the other hand, trace the term back to the mid 1990s, while, Magretta (2002) claims that the concept existed as long ago as the 1890s. However what is clear, is that the peak of the concept's popularity, at least in terms of published articles, coincided closely to the dot com bubble in late 2000 (Osterwalder, Pigneur and Tucci 2005). While it might be an intellectually rewarding exercise to trace the etymology of the term, what is of more interest to us here is the way in which Magretta's description of a business model as a 'narrative with numbers' has evolved.

The notion of modeling in Computer Science has an altogether different history, dating back to the first attempts to create regular structures that could be used in databases. The role of a model here is to act as an intermediary through which the designer's informal notion of what the software is supposed to do is propagated until the final version of the program's code is reached. In contrast to the vague and sometimes contradictory views of what a business model is in the Management literature, modeling in Computer Science literature is a relatively mature area with a set of well known and widely used tools and techniques. Given the number of close connections that already exist between modeling in the technical sense and modeling in the business sense (e.g. Business Process Reengineering) it is not surprising that techniques from the world of Computer Science have eventually found their way into the world of business modeling.

Although authors from different subject areas are working on the problem of 'unifying' the concept of a business model (Morris et al. 2005), in terms of those who apply concepts from Computer Science, Alexander Osterwalder (e.g. Osterwalder et al. 2005) and Jaap Gordijn (e.g. Andersson, Bergholz, Edirisuriya, Ilayperuma, Johannesson, Gordijn, Gregoire, Schmitt, Dubois, Abels, Hahn, Wangler, Walden and Weigand 2006) stand out. Osterwalder defines a business model in the following terms:

*"A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm." (Osterwalder et al. 2005, p 3)*

He goes on to say that, in order to create such a model, we must consider what value is provided to customers, how this is done and what the financial consequences are. In essence, this is no different to the way that some in the management field would describe a business model, e.g.

*"A business model can be defined as the description of the way a business can create value through the value it proposes to its customers, its value architecture (including its resources and internal and external value chain) and how it can capture the value to convert it into profit." (Lehmann-Ortega and Schoettl 2005)*

While the contrast between the two approaches is interesting, what is useful here is that what those such as Osterwalder do is to place such descriptions into a rather more ordered framework. Osterwalder, for example, provides us with a three level hierarchy of business models based on the notion of meta-models (i.e. the model that describes the models) and the level of abstraction.

#### Level 1

Overarching Business Model: describes an abstract overarching concept of a business model that can be applied to all real world businesses. Such models are composed from definitions of what a business model is and the meta-model that is used to conceptualize it.

Level 2

Taxonomies: these describe a number of different meta-models of business models, each one describing a set of businesses with some common characteristics. Such models are generic, but only within a limited range of businesses that share certain common characteristics.

Level 3

Instances: these present particular aspects of, or conceptualizations based upon, instances of a real world business model. Such models consist of either concrete examples or conceptual representations of real world business models.

Applying Osterwalder's hierarchy to this case allows us to describe the particular approach that we will use more accurately: the Lehmann-Ortega typology we describe below corresponds to a level two meta-model in Osterwalder's hierarchy.

**Strategic innovation and the Lehmann-Ortega typology**

As we noted above, a meta-model will only apply to a limited range of businesses that share certain common characteristics; this particular meta-model applies to businesses that have successfully implemented a strategic innovation. The notion of strategic innovation has its own literature (Charitou and Markides 2003; Govindarajan and Gupta 2001; Kim and Mauborgne 1999; Schlegelmilch, Diamantopoulos and Kreuz 2003; Tucker 2001). What we do here is to briefly sketch an outline of the key concepts. Although there is disagreement on points of detail, there is general agreement on certain key points:

1. strategic innovation is not about playing the existing game better, it is about changing the rules of the game;
2. strategic innovation involves a reconceptualization or reconfiguration of the existing business model;
3. strategic innovation has a radical or fundamental aspect to the changes that are sought about.

For the purposes of this paper, we define strategic innovation as the successful introduction of a radically new business model where 'success' is measured in terms of the company's ability to outperform its competitors significantly.

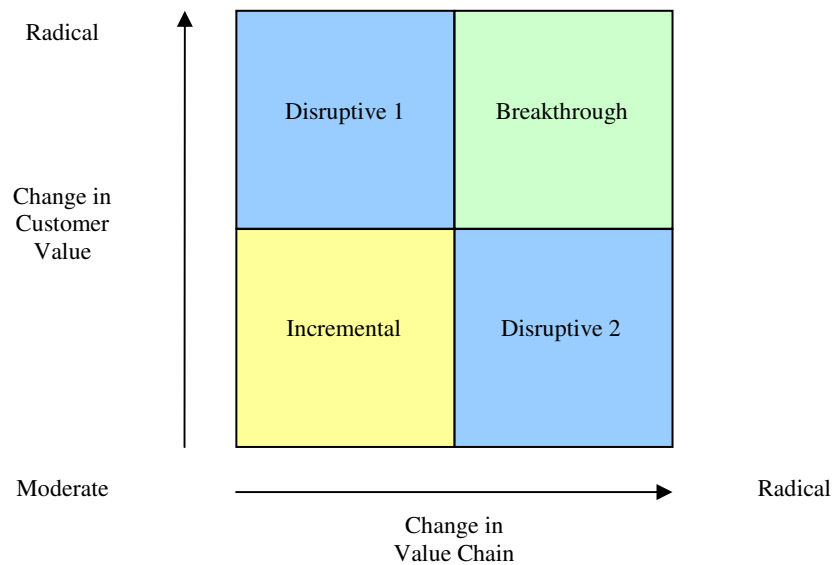


Figure 1 : The Lehmann-Ortega typology (adapted from Lehmann-Ortega 2006)

Pin, Métais and Dumoulin (2003) highlight two sources for such innovations: changes to the value proposition for the customer (which they label product-market) and changes in the value chain (which they label product-process). They argue that a company can make a successful strategic innovation through changing either the customer value axis or the value chain axis in such a way that they 'disrupt' the way the game is played and create a whole new set of rules for themselves. Lehmann-Ortega's typology adds a third category of strategic innovation, which she termed 'breakthrough', where a company was able to successfully combine the two disruptive strategies outlined by Pin, et al. This is summarized diagrammatically above where disruptive 1 is broadly equivalent to pin et al's product-market category and disruptive 2 is broadly equivalent to Pin et al's product-process

The next section of the paper will present our four case studies where we used this typology to look at how IT was used in four organizations that had successfully become strategic innovators.

## **EXPLORING THE ROLE OF INFORMATION SYSTEMS IN STRATEGIC INNOVATION: FOUR CASE STUDIES**

The four case studies we describe in the paper cover each of the three types of strategies described above and highlight the role played by IT in each. As a meta-model, we also believe that this typology should be capable of application to a range of businesses that have the common characteristic that they are pursuing a strategy of strategic innovation; consequently, the first three cases will deal with large-scale enterprises whereas the last uses the same approach but with a smaller organization.

### **Methodology**

The methodology used for this work was broadly that of a case study, which is well suited to exploratory investigations where the objective is not to validate a research proposition but to explore and develop propositions. The first three cases are well known and are based on secondary data; mainly through a review of journals covering the period 1996-2007. The data for the fourth case is, in part, secondary data (a journal review covering the period 1999-2007), but also primary data from semi-structured interviews with the founder of the business, the CIO, two shop managers and two customers. The addition of data from interviews, and the small size of the organization, allows us to take a much more nuanced view of the role played by IT in this case.

### **Disruptive strategy by innovations in customer value: the case of Amazon**

Inspired in part by the success of other on-line booksellers such as books.com, Jeffrey Bezos opened his own online bookstore in 1994 using a loan from his father-in-law. The initial goal was to have a catalogue of 500,000 books (Rivlin 2005); the key to his business model was to concentrate solely on attracting buyers; leaving the responsibility for the logistics of distribution to the publishers and wholesalers.

Since its creation, Amazon has based its strategy on improving customer value. Their success relies on fast penetration of markets thanks to very competitive prices, the ability to offer a huge range of products (Dell and Fredman 1999), and the fact that Amazon is relatively unhindered by the burden of logistics. Although the enterprise began as an on-line bookstore, from 1999 Amazon began to diversify and to offer a range of other goods that could be sold via the internet such as CDs, movies, digital cameras, software, computer hardware, etc.

Amazon's IT strategy relies almost entirely on its in house CRM technology and its digital platform, which is effectively a continuation of the CRM software. This has allowed a high degree of customization of its relationship with visitors to its sites. The IT systems underpinning this strategy have permitted Amazon to reach customer loyalty rates as high as 50% (Datamonitor 2004a).

Its strategy has concentrated mainly on developing technologies associated with its web site. According to Dhillon et al (2001), what provides value for internet customers, is easy navigation and a quick and simple ways to make a purchase. Thus, for example, Amazon users should be able to find what they want in a maximum of three clicks on the site. Similarly, the "one-click" ordering represents an important change in the value proposition for the customer.

The CRM solution that underpins Amazon's strategy makes a range of on-line services available which offer advice and suggestions to their customers so that they can feel they can get to know a product before they buy it. The main mechanism for Amazon's initial growth was the spread of its reputation by 'word of mouth' within what became known as "The Amazon Community". This idea of an "Amazon Community" continues today with the ability of customers to tag products, write reviews of them and rate the usefulness of the reviews.

This CRM system provides Amazon with a 'collaborative filtering' function that allows links to be made to other items bought by customers with a similar profile. Thus, the "New for you" feature allows a user to see a personalized list of possible new purchases based both on previous visits and on the profiles of other customers who made similar purchases.

The case of Amazon is probably the most well known example of a disruptive strategy based on customer value. It also clearly demonstrates, through the example of the digital platform, that the value proposition for the customer can be changed radically by the introduction of information technology.

The next example we consider follows a similar trajectory in the sense that only one component of the typology is changed, but this time we examine the contribution IT can make to the architecture of the value chain.

### **Disruptive strategy by innovations in the value chain: the case of Dell**

The exceptional performance of Dell Computers in recent years has been based on a strategy of disruption by changing the configuration of its value chain. Dell started life in 1994 as a company called PCs Limited; founded by Michel Dell and run from his campus bedroom (Dell et al. 1999). By the end of the century, Dell had become the top producer of PCs and servers in the world. By the end March 2001, it has achieved a 15% market share and had a yearly growth of 25.8% in 2003. A significant factor in that success is the direct sales model that had its origins in that first company.

Dell's direct sales model is founded on two elements: its direct relationship with the consumers and the ability to segment its consumers' needs. Its direct sales model allows Dell to save the margin that would normally go to the dealers: (between 5% and 10% of the sale price). This approach also allows Dell to get to know the needs of its consumers better and so to provide them with a better service. Its ability to be able to produce a PC to order allows it to limit stocks and to adjust its production very quickly to market demand. Dell claims its stocks are only equal to five days worth of turnover, whereas others in the market generally hold in the region of forty days worth of stocks.

Dell's business model is very simple in concept, but requires very complex information systems to make it work. Firstly, Dell uses IT to manage its relations with its customers. With the help of its call centers and its proprietary "Dell Product Services" (DPS) system, it collects orders from its customers directly and manages its after sales service. Thus, Dell is aware of all of the problems its customers face and can use this information to develop databases of FAQs and answers to current problems. These systems also allow it to predict demand accurately and to segment it in order to plan precisely what is required to meet the demands of production to order.

Dell's use of technology has allowed it to sustain and expand its business model; however, its IT strategy has changed and evolved considerably over time in order to accommodate changes in overall business strategy and changes in organizational structure. The most notable of these took place in the early 1990s, when an integrated architecture known as the Information to Run the Business (IRB) project was introduced in order to mitigate the effects of the decentralization and fragmentation of information that plagued Dell at that time. This system was based initially on SAP/R3, but after a decision to reorganize the company along regional lines in 1997, the system was abandoned and replaced with a proprietary enterprise architecture named G-2 (Datamonitor 2004b).

The case of Dell Computers offers a good example of a disruptive strategy based on the value chain of an enterprise. We can see that the use of IT by Dell has played a vital role in the implementation of its business model and that the enterprise as a whole uses IT to coordinate all of its key business processes. Thanks to its use of Enterprise Information Systems, Dell can reduce its stocks and inventories, improve its production cycle, decrease its delivery times and, through the sharing of real-time information, coordinate its activities with its suppliers and strategic partners.

### **Breakthrough Strategy: the case of eBay**

Pierre Omidyar, a French-born Iranian computer programmer, founded the progenitor of eBay, AuctionWeb, in 1995. By 1997, AuctionWeb had become eBay and Omidyar had received \$5 Million funding to develop the idea: the growth was exceptional. In 2003, eBay had 200 million registered members, by 2004 it was estimated that 25% of all American e-commerce (1.4 billion items) was accounted for by its transactions. By 2005, its web site was recording over 4 billion requests in a quarter (Gautier 2005). eBay now has localized web sites in over 30 countries, a market share estimated to be 88% and a turnover in excess of \$3 billion (Datamonitor 2004c).

eBay based its business model on the same general principles as long established auction houses such as Christie's (established in 1766) and Sotheby's (established in 1744) but made a radical departure by holding the auctions entirely on-line. eBay has created a business model based on the total dematerialization of the process of buying and selling at an

auction. It is therefore a radical departure from that of the historical market leaders as it has changed both the value proposal for the customer and the value chain in the auctions market.

The success of eBay is not however solely based on its use of the internet to build a platform for e-commerce, it is also based on a strategy of building an active community of engaged members. On one hand, we can see the 'traditional' use of IT in the e-commerce: for example, a search engine capable of dealing with changes in the huge catalogue of submitted items or a dynamic navigation system based on a taxonomy generated as the items are submitted. On the other hand, we can also see IT being used in less traditional ways: to aid the development of social interaction between the partners in a transaction.

The sense of community between the members of eBay is sustained by a sense of confidence: not only confidence between the users and the enterprise but also confidence between the buyers and the sellers. To create this climate of trust, eBay has established systems that allow buyers to judge the trustworthiness of sellers. For example, it developed an electronic information exchange named "The Feedback Forum" where users can post comments about their trading partners, view their partner's reputations or leave feedback on the quality of the transactions.

In order to reinforce confidence further, eBay has developed applications designed to make transactions more secure. For example, the PayPal system assures the security of the payments from sources such as credit cards or cheques drawn on a bank account; PayPal can be used as a means of payment for e-commerce, or simply as a means to transfer money between two users. Similarly, Express Checkout allows a buyer to reduce the amount of personal and financial information they transmit to a seller's site when making a purchase, as much of the information is verified and held centrally by eBay. Finally, through encouraging users to register for and pay through PayPal, eBay generates an additional revenue stream from its PayPal transactions: whether they are used to pay for purchases on eBay or simply as a way to transfer money.

eBay is now a truly international organization and although the fee structures, rules and regulations differ slightly between different countries, the business model of eBay continues to put trust at the centre of its strategy and uses its IT platform to achieve this. Here IT has been used to change the value proposition for the customer whilst simultaneously offering a new service that has radically changed the value chain.

The next case we consider is smaller in scale than eBay, but has used IT to produce a similar level of strategic breakthrough.

### **Breakthrough Strategy: the case of 1001 Listes**

1001 Listes is a French company that creates and manages wedding lists. Its success has been remarkable. From its beginnings in late 1999, it has grown to be the third largest player in the wedding list market in France behind Galeries Lafayette and Printemps.

Historically, the idea of the wedding list became fashionable in France towards the end of the 1960s. At the time, wedding lists were run by the big department stores and tended to be rather traditional in outlook. However, by the end of the 1990s, the demand for this service had dwindled as the needs of newlyweds changed. As Pauline d'Orgeval, the founder of 1001 Listes, explained:

*"the market research that I did in 1998 [revealed] the service at the time was very impersonal [and] newlyweds had the impression that the same list was offered to everybody (...) My goal was to humanize the gift, to concentrate on the relationship through personalizing the lists."*

In a similar manner to eBay, 1001 Listes' IT systems have allowed it to engage in three forms of transaction simultaneously: business-to-consumer, business-to-business and that of banking. They have created a business model that rests on the partial dematerialization of the process of managing a wedding list, and the means to implement this strategy is almost entirely based on the use of IT.

As the data for this case study was provided partly by a review of published information about the company, but also from interviews, we are able to provide a much more detailed view of this case. Consequently, we have been able to separate the contribution of the change in the value proposition from the change in the value chain, and also to comment more directly on the dynamic nature of the link between IT and strategy.

#### *The role of IT in creating a breakthrough strategy of 1001 Listes (value proposition)*

1001 Listes changed the value proposition for the bride and groom, their guests and, to some extent, their partners' shops. In terms of d'Orgeval's goal of personalization, the bride and groom are guided through the process of creating a list by a personal counselor who remains their interlocutor throughout the whole process. In terms of choice, 1001 Listes offers the

bride and groom a range of gifts. In effect, it acts as an intermediary between the couple, their guests and a network of over 500 shops, known as partners.

For the bride and groom, the technology allows them to deal with the more factual aspects of the marriage, e.g. the planning of invitations, maps, acknowledgments and the booking of hotel rooms (if booked with a partner organization). In addition, it also allows them to deal with the more public aspects of the marriage such as the display of photographs on-line or the creation of a public website. For the guests: they can pay for gifts from the wedding list on-line, via a call centre or directly in a shop; they can choose to present the gifts with a selection of images and can even choose to deliver the gifts themselves if they wish.

The final piece in the jigsaw is the addition of another simple technology: that of electronic payment by credit card. 1001 Listes provide a loyalty card that can be used to pay for goods. This allows both the bride and groom and their guests to accumulate credit points for purchases they make, through a call centre, in a partner's store or on-line.

#### *The role of IT in creating a breakthrough strategy of 1001 Listes (value chain)*

By only having an intermediary's role, the value chain of 1001 Listes is much more streamlined than that of the department stores, which, as well as organizing the list and the purchases, also have to deal with the buying, storage and delivery of the gifts. Thus by streamlining processes and making them more efficient, the value chain of the whole enterprise has been changed.

Every customer is given a 1001 Listes payment card that can be used on-line, directly in any of the partner's shops as well as in the call centers and some of the big stores (e.g. Darty or Habitat). For the partners, the IT systems ensure the effective management of the product categories and take care of most of the transactions involved in the partnership. It also alters the value chain associated with the customers and partners as the customers now manage most processes directly.

#### *The link between strategy and IT*

One of the potential competitors to 1001 Listes, àlafolie.com, adopted the same basic business model by taking an intermediary's role in the process of creating and managing wedding lists. Created in 1999, the same year as 1001 Listes, its founders decided to base the business entirely on the internet. They invested more than 20 Million Euros (7 times the total investment for 1001 Listes) but were unable to make a return (N'Kaoua 2001).

The generally accepted reason for this was that the acceptance of internet at that time was too low for àlafolie.com to succeed. In contrast to àlafolie.com, the closeness of 1001 Listes to their potential market made them much more aware of the necessity to help customers with the process, which was in part, the reason for the introduction of a personal counselor.

We can illustrate this view with the help of some observations made by the founder of 1001 Listes.

*"Clearly, after the first 2 years, one has a very different view of the problem, one begins to be known, people almost have a reflex to go to 1001 Listes as much as that for Printemps, Galeries Lafayette etc. This problem of trust seems to have been resolved, 80% of the gifts are made on the internet. There is not the apprehension anymore"*

It seems the relationships between strategy, new technologies and information systems and the business model are in a state of perpetual change. The director of information systems explains it thus:

*"When Pauline d'Orgeval created 1001 Listes, the first shows were very internet oriented. It frightened people. Afterwards, all references to internet were removed. In the shows in 1999-2000; there were no more computer screens (however) since 2005, they have come back in strength with changes in the notion of internet and in notions of independence regarding the management of the event"*

The 'democratization' of the internet in the intervening years, has allowed 1001 Listes to make further adjustments to their value chain through placing new internet technologies at the heart of their model.

## **DISCUSSION AND CONCLUSIONS**

At the start of this paper, we set out three objectives.

The first was to examine the role of IT in the development and implementation of business strategy; in particular, the contribution that IT could make towards strategic innovation, and how that strategic innovation shapes the use of IT. The second was to attempt to identify some general propositions about the relationship between IT and business strategy.



To reach these first two objectives, we used a particular business meta-model to examine four case studies: the Lehmann-Ortega typology. The final objective was to offer some suggestions about how this approach might be developed and applied to other forms of business model. This is dealt with in the final section and is necessarily more speculative; however, we hope that it will provide some useful avenues for future research.

### **Some observations on IT and strategic innovation using the meta-model**

Using this typology has allowed us to focus in particular on the role played by IT in achieving strategic innovation. The four companies in this study have all successfully implemented strategic innovations that have allowed them to break away from the rest of their competitors. The companies in our case studies show some interesting similarities and some, perhaps more interesting, differences.

One of the most obvious similarities is that all the companies are relatively new and were founded by one person who steered the businesses from humble beginnings to their current positions of eminence. It also appears that these companies have followed a similar trajectory of systems development.

It is interesting to note therefore, that the development of the systems in all these cases seem to have been evolutionary and/or incremental. The risks associated with making major changes in the IT infrastructure of a company are huge and this might indicate that, with the possible exception of Dell, for most companies, strategic innovation might be a 'one off'.

In terms of differences, both Dell and Amazon have followed strategies of disruption while eBay and 1001 Listes have managed to implement breakthrough strategies. The heavy reliance on specialized and sophisticated IT by Dell and Amazon, and the relatively less sophisticated systems used by eBay and 1001 Listes, might indicate that if a company can achieve a breakthrough, it is under less pressure to maintain its position purely through investments in technology and is able to use less complex systems.

Finally, the case studies for both Dell and 1001 Listes show, to a greater or lesser extent, that IT and strategy interact. Because of the way the data was gathered for the 1001 Listes case, we were able to see this interaction directly. In the case of Dell, the interaction could only be seen indirectly through secondary data collected as part of a literature review, but both show that strategic alignment is more than simply deciding a strategy and choosing the IT (or vice versa).

Thus, perhaps we can draw two conclusions from this regarding the role of IT in strategic innovation.

The first is that IT enabled strategic innovation is most easily achieved when starting with a clean slate; once that point has been passed, it becomes progressively harder to re-innovate.

The second is that IT enabled strategic innovation is not simply about IT or innovative strategies: the two are intimately and inextricably linked. This may also imply that, for most companies, strategic innovations will tend to be a 'one off' as managing this constantly shifting balance is no easy task.

There is some support for these ideas in the literature. In terms of the type of companies that can undertake such strategies, Christensen et al (2002) suggest that disruptive strategies tend to emanate from established enterprises, while breakthrough strategies tend to emanate from the new and upcoming enterprises. In terms of the difficulty of maintaining a position, many other authors have commented on the difficulties of keeping on top of change. Charitou and Markides (2003) in particular, highlight a number of barriers to strategic innovation for existing enterprises.

There is also an established body of literature that deals with the interrelationship between IT and strategy in general, for example Henderson and Venkatraman (1992). However, there has been less work published specifically on the difficulties of aligning business and IT strategy to achieve a strategic innovation.

### **Some observations on using a meta-model**

Finally, turning to the use of a meta-model as a way of approaching the problems we outlined in the introduction, we believe that this paper has shown that this approach holds some promise. The ideas expressed here are new and still in the process of development, but we believe that there are some clear indications of lines for future research.

For example, it would be interesting to see if using these more formal approaches to the classification of a business model will allow us to make some headway into the problems outlined at the start of this paper. This however raises one immediate problem: how to identify suitable candidates for such a model. In this case the Lehmann-Ortega typology was an obvious candidate as it corresponded to Osterwalder et al's (2005) description of a meta-model (i.e. a model about models) and there was data available (Lehmann-Ortega 2006; Lehmann-Ortega et al. 2005) for a range of different types of organizations. Starting from a blank sheet of paper however, would pose significant problems.

Lehmann-Ortega (2006) identified 48 different definitions of a business model; searching on the web reveals further variations, for example, Michael Rappa (2008) lists 9 classes and 41 sub classes of business model. If the approach of trying to use a meta-model, or even a higher-level overarching business model, is to be used, we clearly need some way to either classify existing models, perhaps using the approach of abductive reasoning, or some method of discovering such meta-models.

The only method we know of that takes this latter approach is that put forward by Chanal and Carron-Fasan (2007). However, although this borrows ideas, such as use cases, from more technically oriented approaches to modeling, the goal is simply to explore and clarify existing instances of a business model rather than generate a rigorous and systematic description of a meta-model from it.

As we indicated in the introduction, we do not believe that we have discovered the 'silver bullet' that will, once and for all, slay the problem of aligning business and IT strategies, nor do we believe that using more formalized version of business models will be a panacea for all of the problems of studying this phenomenon, but we do believe that we have shown that this approach is worthy of further investigation.

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