IT AND STRATEGIC BREAKTHROUGHS: HOW HIGH DOES HIGH-TECH NEED TO BE?

Chris Kimble

Associate Professor in Strategy and Technology Management, Euromed Marseille

École de Management, France.

Email: chris.kimble@euromed-management.com

Isabelle Bourdon

Maître de conférences en Sciences de Gestion, École Polytechnique Universitaire de

Montpellier - Université Montpellier II, Montpellier, France.

Email: isabelle.bourdon@polytech.univ-montp2.fr

Abstract

This paper explores the role of Information Systems in breakthrough strategies and offers an alternative perspective to that found in most of the literature on this topic, which tends to be dominated by large organizations that deploy novel and specialized Information Systems. It presents a longitudinal case study of a comparatively small French based company that has crafted a breakthrough strategy using relatively modest 'off the shelf' Information Technology. It indicates that, firstly, breakthrough strategies are based more upon innovations in business models than innovations in technology and secondly, that breakthrough strategies may actually reduce a company's reliance on high-tech solutions as a means of maintaining their competitive advantage. The nature of breakthrough strategies is discussed and the paper examines how well they fit into Henderson and Venkatraman's model of strategic alignment. The study highlights some areas of similarity, such as the iterative and interactive nature of strategic alignment; it also highlights some the difficulties of representing this particular strategy using this model.

Keywords: breakthrough strategy, business model, longitudinal case study, off the shelf technology, strategic alignment

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1   Introduction

The idea of breakthrough strategies, where an organization is able to make such a radical change in the way that business is conducted in a certain market sector that it effectively rewrites the rules of the game, has become increasingly popular in strategic management literature (Markides, 1999, 2000, 2006). The most often quoted examples of organizations that have successfully implemented breakthrough strategies, such as Dell or Amazon, involve significant technological innovations; but need this always be the case? In this paper, we ask exactly what role does Information Technology (IT) play in new breakthrough strategies and, in particular, can a relatively small company achieve a strategic breakthrough in a mature market using relatively standard technologies?

We firstly discuss the nature of breakthrough strategies and examine how they fit with the notion of Information Systems / business strategic alignment and highlight the particular challenges of using Henderson and Venkatraman's (1992; 1993) widely cited model of strategic alignment to explain this form of strategy. Following this, we present a detailed longitudinal case study of a French company that creates and manages wedding lists, which demonstrates that it is possible for an organization to achieve a strategic breakthrough using standard 'off the shelf' technologies.

Our analysis of the case study indicates firstly that breakthrough strategies are based more upon innovations in business models than innovations in technology and secondly, in contrast to the more established view, breakthrough strategies might actually reduce a company's reliance on advanced technologies as a means of maintaining a competitive advantage. Finally, we are able to show that the relationship between Information Systems (IS) and strategy is always in a state of flux, with the outcome at any particular point in time being shaped by a variety of factors. The paper concludes with some comments about the methodological limitations of this study and suggests avenues for future work in this area.

2   Breakthrough Strategies and Strategic Alignment

Firstly, we will examine the notion of breakthrough strategy, and highlight some of the particular features of this approach and the challenges they pose. Following this, we briefly examine some of the key issues associated with the topic of strategic alignment in general and Henderson and Venkatraman's (1992; 1993) model in particular. Our aim here is to provide an introduction for our case study rather than to provide an exhaustive review of the topics of breakthrough strategies and strategic alignment.

2.1   Breakthrough Strategies

The notion of a breakthrough strategy is straightforward: if a company is able to pioneer some form of innovation that is so radical that it 'disrupts' the way an existing market operates, it creates a completely new set of rules that only it understands and can follow. Such innovations must therefore involve a fundamental change in the
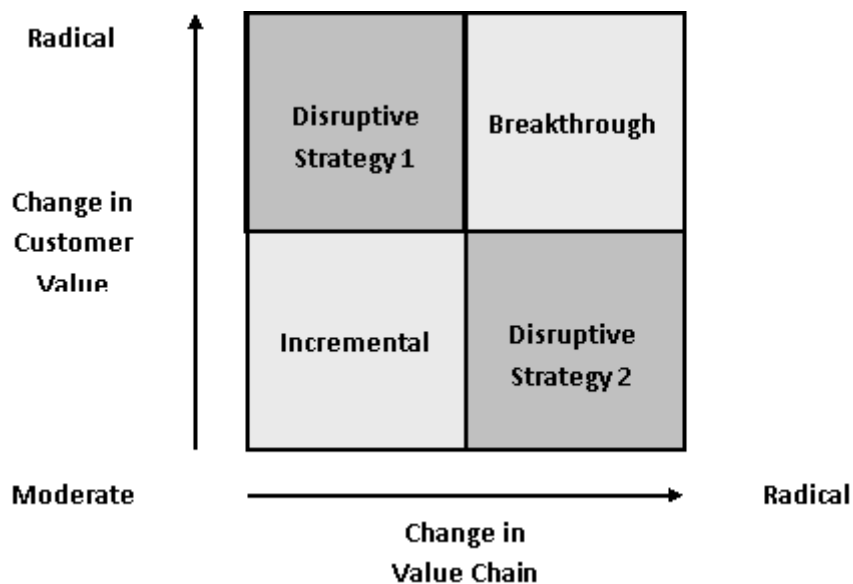
way that things are done: in short, a complete reconceptualization of the existing business model. Such strategies are said to be about changing the rules of the game rather than playing it better (Wang & Kimble, 2010). If a company can achieve this, it is able to 'break through' a competitive barrier, change the basis of competition and create a sustainable competitive advantage that other firms are unable to follow. Although it is not always the case, most breakthrough strategies tend to originate from new companies that are unencumbered by tradition and an established way of doing things; in practice, these are usually hi-tech companies or companies that have moved into a new and untapped market (Charitou & Markides, 2003; Christensen, Johnson, & Rigby, 2002).

While this idea of moving into the 'clear blue oceans' beyond competition (Kim & Mauborgne, 2005) has been popularized in recent years, the origins of the idea of a strategic breakthrough can be traced to Porter's work in the 1980s where he argued that if a firm could implement a major technological innovation successfully, then it could open such a gap between its performance and that of its competitors, that it could effectively redefine the way the market operates (Porter, 1985). Similarly, in the 1990s, Hamel and Prahalad argued that if organizations could 'break out of the box' of conventional thinking they would be able to gain a significant advantage over their competitors (Hamel & Prahalad, 1994). Much of the literature on Business Process Re-engineering also carries with it notions of strategic breakthroughs with, for example, authors such as Stein (1996) arguing that these could be achieved through a radical re-design of existing business processes.

The emphasis on the disruptive 'rule changing' nature of breakthrough strategies in the current literature is stressed, for example, by both Govindarajan and Trimble (2004) and Schlegelmilch, Diamantopoulos and Kreuz (2003). Like Hamel and Prahalad (1994), Friedel (2007) emphasizes the importance of questioning existing assumptions, challenging mental models and connecting seemingly unrelated ideas to create breakthroughs. Markides, who has written extensively on breakthrough strategies, places particular emphasis on the importance of innovations in the business model as a source of strategic breakthroughs

"the discovery of a fundamentally different business model in an existing business [that] enlarge[s] the existing economic pie, either by attracting new customers into the market or by encouraging existing customers to consume more." (Markides, 2006, p. 20)

Pin, Métais and Dumoulin (2003) highlight two sources for such disruptive innovations: a modification in the value proposition for the customer (labelled disruptive strategy 1 in Figure 1) and a modification to the value chain of an enterprise (labelled disruptive strategy 2 in Figure 1). A company can make a disruptive strategic innovation through changing either the customer value axis or the value chain axis, but a successful breakthrough strategy only comes when a company is able to change both the value proposition and value chain simultaneously.

Figure 1   Breakthrough Strategy, adapted from (adapted from Lehmann-Ortega 2006)

To summarize, the key features of breakthrough strategies are:

1   A breakthrough strategy is not about playing the existing game better but about changing the rules of the game.

2   A breakthrough strategy involves changes to both the value chain and the customer's value proposition.

3   A breakthrough strategy involves a radical or fundamental shift in the way that things are done.

4   A breakthrough strategy involves a complete reconceptualization or reconfiguration of an existing business model.

In this paper, we will simply define a breakthrough strategy as the successful introduction of a radical change in the way a business operates, such that it creates an entirely new way of doing business; success, in this context, is defined in terms of the company's ability to outperform its competitors (Wang et al., 2010).

The next section of the paper will discuss the problem of finding a strategic alignment between an organization's strategic goals and its IT infrastructure. It will also comment on the limitations of Henderson and Venkatraman's (1992; 1993) model for achieving this in the context of breakthrough strategies.

2.2   Strategic Alignment

Strategic alignment, in the sense of ensuring an appropriate fit between an organization's business and its IT strategy, has had a central place in the literature on IS since the late 1980's (Ciborra, 1997). However, the topic of strategic alignment is a difficult area to study because the term is taken to mean several different things and can be seen from a number of different viewpoints. For example, Avison et al (2004) observe that,

> *"In contrast to some other areas of IS research, there is debate in the literature about what alignment actually is, why it is needed, how firms may go about the task of becoming aligned, and how it should best be researched." (Avison et al., 2004, p. 224)*

Similarly, Hussin, King and Cragg (2002) note that some studies focus on the process of achieving alignment, others focus on how well firms are able to achieve alignment, while others focus on how to measure alignment. Papp (Luftman, Papp, & Brier, 1999; Papp, 1999) meanwhile, claims to have identified twelve different perspectives on strategic alignment in the literature. Although there is an ongoing debate about exactly what is meant by strategic alignment, few disagree about its importance.

Avison et al (2004) for example, state that achieving strategic alignment benefits a firm in three ways: by maximizing return on IT investment, by helping to achieve competitive advantage through IS, and by providing direction and providing it with the flexibility to react to new opportunities.

Although there may not be much agreement on what strategic alignment is or how to study it, there is one point of reference for almost all of the literature on the topic: Henderson and Venkatraman's (1992; 1993) model, which has been described as "*... perfect the most widely cited of all alignment models*" (Chan & Reich, 2007, p. 303)

Ciborra (1997) claims that strategic alignment was originally conceived as a concept to provide a means to link constantly changing external and internal domains. In Henderson and Venkatraman's model these domains are represented by business and IS strategy (the external domain), and by organizational and IT infrastructure (the internal domain). Henderson and Venkatraman argue that in addition to managing the links between internal and external domains, organizations need to manage the strategic fit between strategy and infrastructure, and the functional fit between the business and the technology. Thus, Henderson and Venkatraman's model consists of four interrelated quadrants, where a change in one quadrant requires an adjustment to the remaining three to ensure that both strategic and functional fit is maintained. Thus,

> "*... strategic alignment is not an event but a process of continuous adaptation and change*" (Henderson et al., 1993, p. 473)
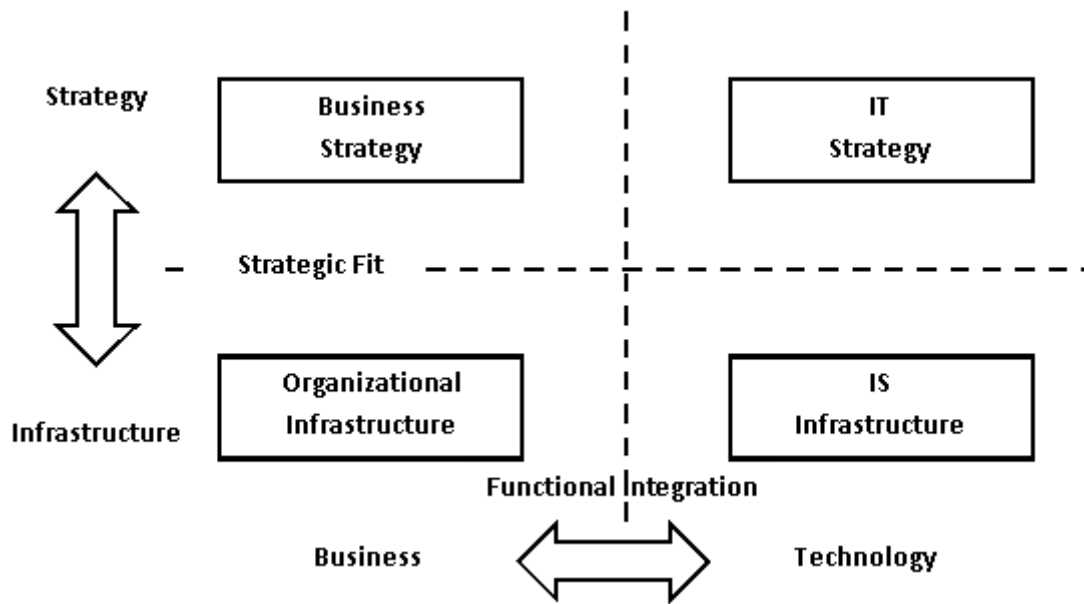
Figure 2   Henderson and Venkatraman's model of strategic alignment

Henderson and Venkatraman's model has been the subject of criticism over the years. For example it has been said that it lacks any theoretical basis (Smaczny, 2001), that it ignores the reality of how businesses function (Papp, 1999) and even that it presents an entirely illusory view of what is meant by alignment. Notwithstanding this, it remains one of the most widely cited examples of how strategic alignment might be achieved. Although it is not our intention to enter into a detailed critique, we also encountered some problems with this model when using it to describe breakthrough strategies.

Henderson and Venkatraman identify four dominant alignment perspectives: Strategy Execution, Technology Transformation, Competitive Potential and Service Level. While either of the disruptive strategies identified in Figure 1 could easily be accommodated in the model (e.g. as an instance of technology transformation or competitive potential), the basis of a strategic breakthrough is that change takes place simultaneously in two dimensions. If this is the case, both the external strategy dimension of the model (the customer value proposition) and the internal infrastructure dimension (the value chain) need to change at the same time. While it is not clear how this could be accommodated in the model, the distinction between the

outward facing strategic dimension and the inward facing infrastructure dimension remains analytically useful.

3   1001-Listes - Methodology and Contextual Information

3.1   Methodology

The methodology used in this work was broadly that of a case study. This is well suited to exploratory investigations where the objective is not to validate a research proposition but to explore and develop propositions (Yin, 1994). This methodology is particularly well adapted to the early stages of theory development (Eisenhardt, 1989). The data used in the case study was, in part, secondary data from a journal review covering the period 1999-2007, but also incorporated primary data from semi-structured interviews with the founder of the business, the CIO, shop managers and customers. As we shall see later, the addition of data from interviews, and the small physical size of the organization, allowed us to take a much more nuanced view of the role played by IT in this case (annexe 1).

3.2   Contextual Information

The case study is based on a relatively small French company that creates and manages wedding lists, called 1001-listes. The idea of the wedding list first became fashionable in France in the 1960s. At that time, wedding lists were run exclusively by the big department stores. However, by the end of the 1990s, the wedding lists market had become moribund and the demand for this service had dwindled as the habits and expectations 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 of humanize the gift, to concentrate on the affection through personalizing the lists."*

From its creation in late 1999, 1001-listes had grown to be the third largest player in the wedding list market in France by 2001, just behind Galeries Lafayette and Printemps, the two chains that had traditionally dominated the market for wedding

lists. The case of 1001-listes constitutes a breakthrough strategy because it introduced a radical change in both the customer value proposition (through offering a very large and highly personalized selection) and in the value chain (through its role as an intermediary rather than a distributor of products). As we shall see the combination of a new business model with relatively standard technology has allowed 1001-listes to succeed where others failed.

4   The Case Study

1001-listes created a business model that was based on the partial dematerialization of the process of managing a wedding list. The means that they used to implement this strategy was almost entirely based on the use of 'off the shelf' IT. Their IT systems allowed them to engage in three forms of transactions simultaneously: business-to-consumer, business-to-business and banking.

4.1   The role of IT in creating a strategic value proposition

The business model developed by 1001-listes is based largely on innovations associated with Customer Relationship Management technologies. The changes in the customer value proposition concern two types of customers: the bride and groom, who specify what the want, and the guests, who are in effect 'donors' who offer money to help fulfil those requirements. The technology that is used is not particularly novel or sophisticated (mainly Java and Sybel databases) but it gives the bride and groom the ability to create and manage most of the activities associated with their wedding list.

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 their marriage, such as the display of photographs on-line or the creation of a public blog or website.

Similarly, this set of relatively simple technologies offers new possibilities 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 them themselves if they wish.

The final piece in the jigsaw is the addition of another 'standard' 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 collect credit points for purchases they make and creates a link to 1001-listes and their partner organizations that continues after the wedding celebrations.

The changes to the value proposition, and the role played by IT, are summarized in Table 1 below.

Modification of the value proposition	Use of IT	Functionalities and effects
For the future bride and groom	Constitution of lists	Creation of an on-line wedding list, modification from examples of existing lists, galleries of shops, a search engine with more than 60000 items
		Products and selected services are described and documented
		Standard wedding lists can be built around ≈ 100 pre-defined themes
	Management of the wedding lists	Real-time alerts for reserved gifts and payments received
		Follow-up of the purchases (detail and amount) and of the account for the list
		Management of acknowledgments on-line
	Multi Boutique Loyalty Card	A loyalty card that allows the accumulation of points for every purchase made at partners' stores
	Management of the factual side of the marriage	Management of information about guests, sending invitations by e-mail to guests with a link that can be followed up automatically
		Management of the budget
		Management of acknowledgments
	Management of the public aspect of the marriage	The creation of a personal blog or web site for the marriage
	Newsletter	Regular information for the bride and groom on changes in the shops and showrooms
For the guests	Management of the gifts	Guests can consult wedding lists and view items on a web site

Modification of the value proposition	Use of IT	Functionalities and effects
		The guests can buy the gifts on-line, in shops, or via the call centres
		The guests can leave on-line messages for the bride and groom
		The guests receive a notification of the delivery of their gifts by e-mail

Table 1 **The role of IT in implementing the breakthrough strategy of 1001-listes (value proposition)**

4.2 The role of IT in creating a strategic value architecture

By deciding to take an intermediary's role, the value chain of 1001-listes became much more streamlined than that of the department stores which, as well as organizing the list and the purchases, also had to deal with the buying, storage and delivery of the gifts. Thus by streamlining processes and making them more efficient, the whole value architecture of the enterprise was changed. Again, IT played a part in this process.

For the partners, the systems ensured the effective management of product categories and contractual relationships. It also modified the value architecture associated with the customers and donors as the system allow the customers to manage processes directly rather than requiring the stores or 1001-listes to manage them.

The act of purchasing goods from a partner is also innovative, efficient and sustained by IT. Every customer is given a 1001-listes card that can be used on-line, directly in any of the partner's shops as well as in the call centres and some of the big stores (e.g. Darty or Habitat). In effect, the payment card becomes a common thread that links all of the players before, during and after the wedding.

Thus, the success of 1001-listes is not only based on its use of IT to construct a platform for e-commerce, but also on its business model which facilitates and smoothes the progress of the links between the bride and groom, donors, payees and the providers of financial services.

The changes to the value architecture and the role played by IT are summarized in Table 2 below.

Modification of the value architecture	Use of IT	Functionalities and effects
Management of the partnership relation	Classification Relationship Management	Creation of a database of contracts
		Management of the partner's account (margin, commissions, rate of discount, management of balances, etc)
		Automatic documentation of the products that have been selected
Constitution of the wedding list	The creation of lists enables:	Different types of lists
		The use of call centres
		A search engine with 60000 items
		The creation of a gallery of shops
		A system of classification
Management of the list		Automated management by the bride and groom
		Automatic updating of the lists
Collection of gifts	Managing the relationship with the donors	On-line visualization of the list with photos
		Delivery arranged on-line or via the call centre or directly from the shops
Purchase of gifts by the bride and groom	Payment card	Guaranteeing the transactions through an outside agency
		The bride and groom have a payment card that can be used for on-line purchases, in the partners' shops, or in the showrooms
		Management of credit authorization
Payment of the supplier		Management of invoices

Table 2   The role of IT in implementing the breakthrough strategy of 1001-listes (value architecture)

The case of 1001-listes clearly illustrates the role that relatively standard, low tech, solutions can play in creating a breakthrough strategy. In addition, as we indicated earlier, the interviews and the relatively small physical size of the business provided us with some further insights into the nature of the dynamics between IS and strategic innovation.

4.3   The role of strategy in the shaping of use and development of IT

In addition to showing how breakthrough strategies are dependent as much on the business model as innovative use of IT, the case of 1001-listes demonstrates something of the interactive nature of the relationship between IS and strategy. Henderson and Venkatraman (1992; 1993) among others have stressed this as an aspect of theory but, perhaps because of the way the data was gathered, in this case we were able to see this interaction directly. We can most easily illustrate this with the help of some observations concerning a significant change to the way the business operated that was made in response to the growing acceptance of web based e-commerce. 1001-listes original modem was that the bride and groom were guided through the process of creating their wedding list by a personal counsellor, who acted as their interlocutor throughout the whole process. In effect, 1001-listes was an intermediary between the couple, their guests and a network of over 500 shops. Over time, 1001-listes modifies this model to take account of changing circumstances. The IS director explained that:

> *"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"*

Similarly, Pauline d'Orgeval, the founder of 1001-listes, explains:

> *"... after the first couple of 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"*

The relationship between IS and strategy is not fixed but is in a state of perpetual change. The so-called 'democratization' of the internet allowed 1001-listes to modify their value architecture by placing internet technologies at the heart of their operation.

In this case, the link between IS and Strategy was not a simple linear link but a succession of co-alignments between IS and strategy.
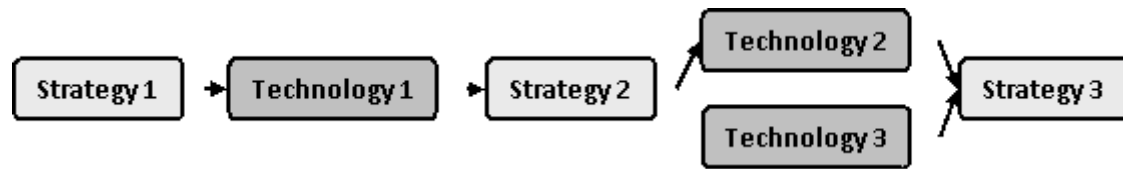
Figure 3   The dynamic interaction between Information Systems and Strategy.

5   Discussion and conclusions

Having described how 1001-listes created their strategic breakthrough using standard technology and having illustrated something of the dynamics of this process, we must briefly discuss some of the limitations of our work before drawing our final conclusions.

The prime focus of our research was on analyzing a specific example of a strategic breakthrough, not the process that preceded it. Consequently, our study does not examine the nature of innovation directly nor draw on recent literature on the topic such as that on questioning cognitive designs (Le Masson, Weil, & Hatchuel, 2006; Midler, 2004). Similarly, although interesting, we did not examine the phenomenon of the perceived ownership of the IT platform by the users of 1001-listes. It might also have been desirable to have examined the relationship between IS and other corporate resources more closely, especially regarding the role of IT in developing other organizational competencies. Finally, the company we studied was a start up company, albeit one that was moving into a mature market, which was unencumbered by a legacy business model or IS. Nonetheless, while acknowledging these shortcomings, we believe that this case study provides some useful insights into the role played by IT in strategic breakthroughs.

5.1 Some observations on IT and Breakthrough Strategies

Perhaps one of the most noteworthy aspects of this case is that the company was able to implement a strategic innovation that allowed it to break away from its competitors using standard 'off-the-shelf' technologies. While the role played by IT in creating and sustaining competitive advantage has long been recognized (Porter & Millar, 1985), technological innovation is more often associated with the development of new technologies than the innovative use of technologies that already exist. What does this tell us about the relationship between breakthrough strategies and IS?

Breakthrough strategies are not built on technology alone

The case study provides us with a clear indication that strategy cannot be built on technology alone. 1001-listes did not have the wedding list market to itself; there were also a number of other companies trying to develop the market for services related to wedding lists. For example, a company called àlafolie.com adopted the same basic business model of an intermediary as 1001-listes but failed. Àlafolie.com was created in the same year 1001-listes but decided to base its business on the internet. Even though it was reported to have invested 7 times more in the project than 1001-listes, it was unable to make a return (N'Kaoua, 2001). The reason put forward for this was that the acceptance of internet at that time was too low for àlafolie.com to succeed. In contrast, 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 counsellor. The heart of the success of 1001-listes was their business model rather than their use of technology which was available for any company to use.

Breakthrough strategies may decrease reliance on high technology

One of the biggest problems facing any systems designer is the problem of how to deal with changing requirements. Making changes in established systems is a minefield that most organizations try to avoid. The risks associated with making major changes in the IT infrastructure of a large company are significant and, for most, strategic innovations based on development of IT appear to be a 'one off'. It is interesting to note therefore, the development of the systems in this case seems to have been evolutionary and incremental with the IT infrastructure of the company undergoing a significant change with the move to the internet in 2005. Taken in

conjunction with our observations on the problems associated with making major changes to complex systems once they are in place, this may indicate that companies that can achieve a breakthrough strategy based on a new business model may also benefit from the fact that, thereafter, they are able to use less sophisticated, and hence more easily modifiable, systems.

The interaction between technology and strategy

Finally, we turn to the nature of the link between technology and strategy. As we have indicated, there is a general acceptance that the link between technology and strategy is an ongoing process. As a more general theme this observation has appeared repeatedly in the IS literature (Sabherwal, Hirschheim, & Goles, 2001). In empirical studies it has been named, a processual model of change by Dawson (1994), an interactionist model by Kimble and McLoughlin (1995) and an integrationist model by Boddy (2000). From a more theoretical viewpoint, it has been explained using constructs such as structuration theory (DeSanctis & Poole, 1994; Orlikowski, 1992). In this case, it was clear that the vision of the founder of 1001-listes also played a significant role. Charitou and Markides (2003) observed that radical strategic innovations usually occur in small start-up businesses. The fact that 1001-listes was founded by one person who was able to steer the business from its inception clearly played a role in both the choice of strategy and the choice of technology.

6   Conclusions

In conclusion, we believe that the case study of 1001-listes has been useful in examining various aspects of the links between IT and breakthrough strategy. It has provided insights into the way in which companies can use comparatively simple IT solutions to obtain a substantial competitive advantage and has shifted the focus from the technology itself to what the technology does (i.e. the business model). It has also confirmed some aspects of Henderson and Venkatraman's model (the processual nature of strategic alignment) and challenged it in other ways (the difficulty of representing simultaneous changes on two axes).

In this case, the company we studied used fairly standard 'off the shelf' technologies; it would be valuable to have further case studies in order to explore the problems

faced by other firms who wish to develop breakthrough strategy. Christensen (2002) suggests that strategic innovation based on the use of IT is more difficult for established firms while Markides (2006) argues that such innovations may conflict with existing organizational procedures. The company in our case study was able to move to web based systems without too much difficulty; many existing firms wishing to follow a similar path would face the additional costs of "re-aligning" their IS. Several reasons have been put forward for the difficulties existing businesses face in implementing strategic breakthroughs. Would the indication from our case study that breakthrough strategies can reduce the dependence on high-tech solutions hold in other cases, or do the real barriers to strategic innovation lie elsewhere? Further studies that focus on the changes made to existing IS to achieve strategic breakthroughs might help to answer this question.

7 Appendix 1: Data collected

7.1 Primary data

The interviews were conducted as both face to face and by telephone, and lasted between 45 minutes and 2 hours, according to the wishes of the respondents. The principal respondents and their job titles are given in Table 3 below.

Interviewee	Function
Pauline d'Orgeval	CEO of 1001-listes
Patrice Bonhomme	IS Director of 1001-listes
Estelle P.	Customer 1001-listes
Marie Christine D.	Customer 1001-listes
Jean V.	Manager of an art gallery and a partner of 1001-listes
Pierre Jean L.	Manager of an interior design store and partner of 1001-listes

Table 3   Interviewees and their roles

7.2 Secondary data

The literature review was based on the French European press, Factiva and on Internet: 78 items were examined including: Les Echos, La Tribune, Capital Finance, Le Figaro, La Vie Financière, Management, The Wall Street Journal, L'Entreprise, l'Expansion, Internet Professionnel and Le Journal du Net.

References

Avison, D., Jones, J., Powell, P., & Wilson, D. (2004). Using and validating the strategic alignment model. *The Journal of Strategic Information Systems, 13*(3), 223-246.

Boddy, D. (2000). Implementing interorganizational IT systems: lessons from a call centre project. *Journal of Information Technology, 15*, 29 - 37.

Chan, Y. E., & Reich, B. H. (2007). IT alignment: what have we learned? *Journal of Information Technology, 22*(4), 297-315.

Charitou, C. D., & Markides, C. C. (2003). Responses to Disruptive Strategic Innovation., *MIT Sloan Management Review* (Vol. 44, pp. 55 - 63): Sloan Management Review.

Christensen, C. M., Johnson, M. W., & Rigby, D. K. (2002). Foundations for Growth., *MIT Sloan Management Review* (Vol. 43, pp. 22): Sloan Management Review.

Ciborra, C. U. (1997). De profundis? Deconstructing the concept of strategic alignment. *Scandinavian Journal of Information Systems, 9*(1), 67 - 82.

Dawson, P. M. B. (1994). *Organizational Change: A Processual Approach*. London: Paul Chapman.

DeSanctis, G., & Poole, M. S. (1994). Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory. *Organization Science, 5*(2), 121-147.

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *Academy of Management Review* (Vol. 14, pp. 532): Academy of Management.

Friedel, R., & Liedtka, J. (2007). Possibility thinking: lessons from breakthrough engineering. *Journal of Business Strategy, 28*(4), 30 - 37.

Govindarajan, V., & Trimble, C. (2004). Strategic innovation and the science of learning. *Mit Sloan Management Review, 45*(2), 67-75.

Hamel, G., & Prahalad, C. K. (1994). *Competing for the Future*. Boston, Massachusetts: Harvard Business School Press.

Henderson, J. C., & Venkatraman, N. (1992). Strategic Alignment : A Model for Organizational Transformation through Information Technology In T. A. Kochan & M. Useem (Eds.), *Transforming Organizations*. Oxford: Oxford University Press.

Henderson, J. C., & Venkatraman, N. (1993). Strategic Alignment: Leveraging Information Technology for Transforming Organizations. *IBM Systems Journal, 31*(1), 472 - 484.

Hussin, H., King, M., & Cragg, P. (2002). IT alignment in small firms. *European Journal of Information Systems, 11*, 108-127.

Kim, W. C., & Mauborgne, R. (2005). *Blue Ocean Strategy: How to Create Uncontested Market Space and Make Competition Irrelevant* Harvard Business Press.

Lehmann-Ortega, L. (2006). *L'innovation stratégique: caractérisation, typologie et accessibilité aux entreprises existantes*, Paul Cézanne, Aix-en-Provence, 2006.

Kimble, C., & McLoughlin, K. (1995). Computer Based Information Systems and Managers Work. *New Technology, Work and Employment, 10*(1), 56 - 67.

Le Masson, P., Weil, B., & Hatchuel, A. (2006). *Les processus d'innovation, conception, innovante et croissance des entreprises*. Paris: Hermes Science Publications.

Luftman, J., Papp, R., & Brier, T. (1999). Enablers and inhibitors of business-IT alignment. *Communications of the AIS, 1*(3es).

Markides, C. C. (1999). Six Principles of Breakthrough Strategy. *Business Strategy Review, 10*(2), 1-10.

Markides, C. C. (2000). *All the Right Moves: A Guide to Crafting Breakthrough Strategy*. Boston, Massachusetts: Harvard Business School Press.

Markides, C. C. (2006). Disruptive Innovation: In Need of Better Theory*. *Journal of Product Innovation Management, 23*(1), 19-25.

Midler, C. (2004). *L'auto qui n'existait pas : management des projets et transformation de l'entreprise*. Paris: Dunod.

N'Kaoua, L. (2001, 26 Novembre 2001). Europ web, Atlas Venture et 3i se retirent d'Alafolie.com. *Les Echos,* 109.

Orlikowski, W. J. (1992). The Duality of Technology: Rethinking the Concept of Technology in Organizations. *Organization Science, 3*(3), 398-427.

Papp, R. (1999). Business-IT alignment: productivity paradox payoff? *Industrial Management & Data Systems, 99*(8), 367 - 373.

Pin, R., Métais, E., & Dumoulin, R. (2003). *Vers un dépassement de l'antinomie entre rupture et continuité : le cas Valéo.* Paper presented at the XIIème conférence de l'AIMS, Carthage.

Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*: The Free Press.

Porter, M. E., & Millar, V. A. (1985). How Information Gives You Competitive Advantage. *Harvard Business Review, 63*(4), 49 - 160.

Sabherwal, R., Hirschheim, R., & Goles, T. (2001). The Dynamics of Alignment: Insights from a Punctuated Equilibrium Model. *Organization Science*, 12(2), 179-197.

Schlegelmilch, B. B., Diamantopoulos, A., & Kreuz, P. (2003). Strategic innovation: the construct, its drivers and its strategic outcomes. *Journal of Strategic Marketing, 11*(2), 117 - 132.

Smaczny, T. (2001). Is an alignment between business and information technology the appropriate paradigm to manage IT in today's organisations? *Management Decision, 39*(10), 797 - 802.

Stein, M. M. (1996). Using adaptive engineering to implement breakthrough strategies. *National Productivity Review, 15*(4), 15-24.

Wang, H., & Kimble, C. (2010). Low-cost strategy through product architecture: lessons from China. *Journal of Business Strategy, 31*(3), 12 - 20.

Yin, R. K. (1994). *Case Study Research, Design and Methods* (2nd ed.). Newbury Park: Sage Publications.