Creativity is Not Enough:
ICT Enabled Strategic Innovation

European Journal of Innovation Management
2006, Number 9, Issue 2 pp129-148

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Abstract

Coming up with a radical business model that breaks the rules of the game in an industry is easy! The difficult part is to implement such radical strategies in the marketplace so as to deliver real value to customers in a cost-efficient and profitable way. We argue that Information and Communication Technology (ICT) is a key enabler to the successful implementation of radical new strategies. Specifically, we show that ICT enables firms to: (i) reach consumers that nobody else can serve profitably; (ii) offer radically new value propositions to consumers that other firms cannot deliver in a cost-efficient way; and (iii) put in place value chains that no other firm could do efficiently. ICT also allows strategic innovators to scale up their business models quickly and so protect themselves from competitive attacks.

Strategic innovation is the discovery of a fundamentally different strategy (or way of competing) in an existing industry (Hamel, 1996 and 2000; Kim and Mauborgne, 1997; Markides, 1997; Porter, 1985; Slywotzky, 1996). For example, the way Amazon competes in the book retailing business is arguably different from the way Barnes & Noble competes. Similarly, the way Charles Schwab, easyJet and Dell compete in their respective industries is substantially different from the way their competitors such as
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Merrill Lynch, British Airways and IBM compete. Making an assessment whether a new strategy is really different from an established one is, obviously, a very subjective exercise. Nevertheless, past research has demonstrated that it is possible to measure the extent to which two strategies are different and that strategic innovation is a common phenomenon, especially in mature industries (Markides and Charitou, 2004; Slywotzky, 1996).

Previous research has found that strategic innovation is a particularly effective strategy for small firms or new entrants in an industry (Geroski and Toker, 1993; Markides, 1997; Utterback, 1994). Because these firms have to compete against entrenched established competitors that enjoy first-mover advantages, they cannot simply attack head-on, hoping to “outcompete” their bigger rivals. They must employ “guerrilla tactics” to avoid head-to-head competition.

Not surprisingly, the more innovative the strategy that an attacker adopts, the higher the probability that the attack will succeed. For example, it has been demonstrated that successful strategic innovators were those firms that invaded existing markets either by introducing products or services that emphasized radically different value propositions to those emphasized by established competitors or by adopting radically different value chain configurations to those prevailing in the industry (Bower and Christensen, 1995; Porter, 1985).

We do not doubt that to be successful, strategic innovators must adopt an innovative and well-differentiated strategy. Without an innovative strategy, it is unlikely that they can be effective against bigger and stronger rivals. But this factor cannot be the sole reason for their success: for every company that strategically innovated and succeeded there are many others that innovated in a similar way but failed. Consider, for example, the case of Osborne Computers. Very much like the founders of Apple Computers, Adam Osborne founded the Osborne Computer Corp in 1981 to sell a portable personal computer. In doing so, he overturned the prevailing business model in the computer industry and went after a totally different customer from the established competitors. In his own words: "I

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1 To qualify as strategic innovation, the new strategy must be new not only to the company that introduces it but to the industry as a whole (Hamel, 2000).
2 In fact, it has been shown that without the benefit of a new technological innovation, it is extremely difficult for any firm to successfully attack the established industry leaders or to successfully enter a new market where established players exist. For example, it has been estimated that the probability that the No. 1 ranked firm in a particular industry will survive as No. 1 is about 96%—an almost certainty. For the second ranked firm, the probability of survival is 91% and for the third ranked firm it is 80% (Davies, Geroski, Lund and Vlassopoulos, 1991; Geroski and Toker, 1993).
saw a truck-size hole in the industry, and I plugged it” This brought the company enormous success—sales grew to $100 million within 18 months. But only two years later, in 1983, the company went bankrupt.

The case of Webvan is a more recent and prominent example. When it opened for business in June 1999 in the San Francisco Bay area, its founder and CEO Louis H. Borders proclaimed that: “Webvan fundamentally transforms and simplifies the way customers shop for their groceries.” Armed with $122 million in initial funding and a unique and radical business model, Webvan set about to revolutionize the low-margin and intensely competitive grocery business. There is no question that the business model was radical and innovative—yet, Webvan turned out to be one of the Internet’s most spectacular failures.

Similar stories of companies that strategically innovated but failed abound. Readers familiar with the rise and fall of the airline company People Express will no doubt see the similarities between its (failed) strategy and the (successful) strategy of Southwest Airlines in the USA or easyJet in the UK. Similarly, despite following equally radical strategies, the retail chain Next in the UK failed miserably whereas the Body Shop enjoyed considerable success.

These examples highlight the central thesis of our article: coming up with a radical strategy that breaks the rules of the game in an industry is easy! The difficult part is to actually implement the new strategy in an economical and effective manner so that real value is delivered to customers in a cost-efficient way. This is what usually separates success from failure.

How then could potential strategic innovators implement their radical strategies successfully? To explore this question, we embarked on a two-year research project to study strategic innovation in more detail. The focus of our research was to examine in depth a number of strategic innovators from a variety of industries and try to understand the reasons behind their success. In the process, we studied and wrote case studies on twenty companies that we had identified as strategic innovators.

There are, obviously, many factors that can influence the successful implementation of a radical new strategy—factors such as leadership, timing, resources, luck, competitor reaction, and so on. In this article, we’d like to focus on one of these factors—Information and Communication Technology (ICT)—as one of the key ingredients of successful
implementation. ICT is not the only factor, nor is it sufficient. But we found that it is a key enabler to the successful implementation of radical new strategies.

How could ICT support strategic innovation?

To appreciate the role that ICT plays in strategic innovation, we must first explain what we saw as the sources of strategic innovation in the companies that we studied. As already proposed by Derek Abell (1980) in his seminal work on the subject, all companies in an industry develop their strategies on the basis of the answers that they give to three key questions: Who should we target as customers; What products/services and what value propositions to offer the chosen customers; and How to offer these products/services in a cost-efficient way. The answers to the Who/What/How questions form the heart of the strategy of any company—in fact, some will argue that the answers to these questions is the strategy of a company (Porter, 1996).

Over time, as different companies claim different Who/What/How positions, the industry landscape becomes "filled" (Abell, 1980; Porter, 1996). Thus, some companies choose to focus on specific customer segments and offer specific products/services; others choose to be global players offering one (or many) products/services; yet others choose to focus on a specific technology or distribution method and offer specific products/services to one or many customer segments. And so on. This does not mean that once they've made a choice, companies are stuck with these choices forever—any company can decide to change its customer orientation or product offering at any given time. This may be difficult but not impossible. The important point to note, however, is that over time, a given industry positioning map tends to become "filled"—that is, most possible customer segments are taken care of; most products and service offerings are being offered in one form or another; most possible distribution or manufacturing methods or technologies are being utilized. In fact, it is this filling-up of the industry space by enough competitors that eventually leads to industry "maturity".

Strategic innovation takes place when a company identifies gaps in this industry positioning map, goes after them, and these gaps grow to become big markets. By "gaps" we mean: (a) new customer segments emerging or existing customer segments that other competitors have neglected; (b) new customer needs emerging or existing customer needs not served well by other competitors; and (c) new ways of producing, delivering or distributing existing (or new) products/services to existing (or new) customer segments (Hamel and Prahalad, 1991). These gaps tend to "emerge" for a number of
reasons (such as changing consumer tastes and preferences; changing technologies; changing governmental policies; etc). The gaps can be created by external changes or in a proactive way, by the company itself.

Obviously, the first requirement to becoming a strategic innovator is to identify these gaps before everybody else does. But being first in identifying the right gaps does not guarantee success—a company still has to exploit the existence of the gap in a competitive way. This is where ICT comes into play. We found that Information and Communication Technology can help a company exploit these opportunities in four distinct ways:

- ICT can allow a company to target new or different customers from those that traditional competitors target—that is, discover and exploit a new “Who”. These are customers that the established competitors are currently ignoring because it is not very economical to serve them. ICT allows the implementation of a radical strategy that can reach these customers in a cost-effective way.

- It can allow a company to radically redefine what the value proposition of its product or service is and so offer new benefits to the consumers—that is, discover and exploit a new “What” even without changing the product.

- It can allow a company to put in place a radical new value chain that can deliver value to the customer in an innovative or economical way—that is, discover and exploit a new “How”.

- It can allow a company to scale up its radical business model quickly. This protects it from competitive attacks.

We explore each of these four strategies below.

(1) Discovering “new” Customers

A major source of strategic innovation is the “discovery” of a customer segment that other competitors are not currently serving (e.g. Rosenblum, Tomlinson and Scott, 2003). The reason that these customers are not currently served by any of the existing competitors is not because the existing competitors do not know about them or do not recognize their
needs. Rather, they have decided that this customer segment is either too small to chase or cannot be served profitably.

Identifying such “non-customers” (Christensen and Raynor, 2003) is the first ingredient to strategic innovation. But how could these customers be served in an economical and profitable way? After all, the main reason why the existing competitors are ignoring these customers is exactly because they cannot be served in a profitable way. How could the strategic innovators do what numerous established competitors cannot do?

According to Rosenblum, Tomlinson and Scott (2003), the innovators that successfully target these customers are those that develop radical business models that are specifically designed to serve these unprofitable customers. In our own research, we have found that ICT could play a vital role in ensuring that these radical business models are economical and value-enhancing.

Consider, for example, the case of Edward Jones—the broker that built its success in serving the needs of individual investors in rural America. Founded in 1922, Edward Jones has designed its organisation to target individual investors who are not the high net-worth individuals that are targeted by most other big brokerage firms. It aims to serve these customers by developing long-term relationships with them through its single-broker branch office network.

During the 1960s and 1970s, as major brokerage firms moved towards ever-larger offices to achieve operational efficiencies and economies of scale, Edward Jones stood fast by its commitment to deliver personalised service through the single broker branch office network. But by the early 1980s, Jones’ organisational processes were creaking under the weight of almost 1000 individual offices. As the number of offices and brokers grew, it was becoming increasingly difficult to provide its brokers with the necessary training or financial and trading data and communications media at a cost that would enable the organisation to remain competitive. Some within the firm believed that Jones had reached an upper limit in the number of broker offices and that further expansion would be impossible without adjustments to the Jones’ model. External consultants went so far as to suggest that the firm would need to move to multiple broker offices. “Many in the industry said the single broker office couldn’t survive” says current CIO Rich Mallone.

To continue serving customers that almost nobody else wanted, Jones turned to technology. In 1985 the firm invested more than US$30 million (a substantial amount for
a still relatively small firm) to move its entire broker network over to a hub-and-spoke satellite system. With a satellite dish on their branch office roof, brokers in small rural communities suddenly had access to real-time market data, video presentations by fund managers of many of the United States' largest mutual fund management companies (to which they could invite their customers) and enhanced communications with the St Louis headquarters and other Jones' brokers. The cost of installing the satellite system did not vary by location. It was also cheaper to operate and faster and more reliable than the landline technologies used by other brokerage firms. Says John Bachmann, Edward Jones CEO: “A Jones' broker in Manhattan, Kansas was suddenly able to deliver the same level of service as a broker based in Manhattan New York.”

The number of single-broker branch offices reached 3000 by 1995, 7,500 in 2000 and is expected to exceed 8,000 by the end of 2005. Today Edward Jones is ranked first in number of offices in the US brokerage industry, has over 3 million retail clients and almost $2 billion in annual sales. The firm expanded into Canada in 1994 and the United Kingdom in 1997, leveraging its technology infrastructure to deliver the unique Jones’ model to both markets. The company has achieved this with an unwavering dedication to Ted Jones’ original vision of serving the individual investor through a single broker office. It will come as no surprise that the firm is currently undertaking a major project to explore next-generation broadband technologies that might enable the company to reach 10,000 branch offices globally by 2010.

Just like Edward Jones, Progressive Insurance has built its success on the back of ICT technologies. While competitors were chasing the same high-margin customers, Progressive was out to target high-risk drivers—those accident-prone customers that nobody else wanted. But how can an insurance company make a profit out of such “unprofitable” customers?

Progressive’s superior use of computer power for pricing and risk analysis has been recognised (Rosenblum, Tomlinson and Scott, 2003). Less well known has been the company’s development of “Claims Workbench”, an ICT-enabled platform that is a key ingredient of Progressive’s success in servicing the high-risk segment so efficiently. This proprietary software platform is installed on the laptop of every claims representative and allows the Progressive rep to perform up to 20 separate transactions while still in the field or at the scene of an accident. Rather than waiting days to assess a client's claim, Progressive despatches a claims representative as soon as an accident is reported and the rep can complete all the necessary paperwork on the spot. This offers obvious
advantages, considering that fraud represents one of the most significant challenges in serving the high-risk segment.

With the help of a wireless modem and a laptop installed in one of Progressive's Immediate Response Vehicles (IRVs), representatives are empowered to settle many accident claims on the spot. One software application installed on laptops provides a listing of parts for nearly every car on the road allowing for an immediate damage assessment. If additional data is required, the claims representative can connect to the Progressive extranet via wireless modem. Once the claim is processed it is sent remotely from the IRV to one of Progressive's claims centres, speeding up the overall claims process. This not only results in happier customers but also saves money. But perhaps most importantly, by enabling claims representatives to focus on inspecting accidents – rather than sitting behind a desk completing paperwork and responding to customer complaints about delays - Progressive also has less staff than it otherwise would. This means that the company has been able to efficiently serve those high-risk customers that nobody else wanted while simultaneously developing one of the lowest cost-structures in the industry.

(2) Offering new value propositions

New strategies invade an existing market by emphasizing different product or service attributes to those emphasized by the traditional strategies of the established competitors (Christensen, 1997). For example, whereas traditional brokers sell their services on the basis of their research and advice to customers, online brokers sell on the back of a different value proposition, namely price and speed of execution. Similarly, whereas traditional airline companies sell their product on the basis of frequency, range of destinations and quality of service, low-cost, point-to-point operators emphasize price.

This is an important point to appreciate. Since innovators emphasize different dimensions of a product or service, their products or services inevitably become attractive to a different customer than the one that desires what the traditional competitors offer. As a result, the markets that get created around the new competitors tend to be composed of different customers and have different key success factors than the established markets.

But again, coming up with different value propositions to offer the customer is the easy part. The difficulty lies in actually offering these new value propositions in ways that make economic sense. Our research suggests that the innovating firms can use ICT to
do exactly this—not only to radically redefine what the value proposition of their product is but to also deliver it in an economical way.

For example, consider the cement business where the purchasing decision is based mostly on price. The Mexican firm Cemex, the world’s third largest cement company, has succeeded in redefining the basis on which customers purchase cement. Rather than focus on the cost of cement itself, Cemex is offering its product on the basis of a new value proposition—“total cost” to the customer, a notion that includes the price of cement as well as all other costs that the customer has to incur from the moment of ordering cement till it is delivered to the construction site. Specifically, Cemex is using ICT to deliver just-in-time cement. In the “traditional” way of ordering cement, customers were required to order days in advance and were then provided with a four-hour delivery ‘window’ during which the cement will be delivered to them. By contrast, Cemex has created business processes that enable same-day service and free unlimited order changes as standard operating procedure.

In 1994, Cemex launched a project called Sincronización Dinámica de Operaciones: the dynamic synchronization of operations (SDO). The goal of SDO was to free the company’s delivery trucks from fixed zone assignments, allowing them to roam an entire city or region. The company also equipped its trucks with transmitters and receivers connected to a GPS (global-positioning satellite) system, thereby providing its computer systems at headquarters with precise, real-time data about the location, direction, and speed of every vehicle in the Cemex fleet. Today, Cemex can use its computer system to triangulate this information against order destinations and mixing plants, all the while taking traffic patterns into account, to ensure highly efficient delivery processes.

The company has introduced the kind of guarantee that competitors can only dream about: if a delivery load fails to arrive within 20 minutes of its scheduled delivery time, the
buyer is refunded 20 pesos per cubic meter. That amounts to a discount of approximately 5%. With reliability exceeding 98% and with a vehicle efficiency that increased by more than 30%, Cemex can afford to offer a far more generous guarantee. Even in the absence of these discounts, the total cost of ownership for a building contractor has been significantly reduced given that they no longer have to pay workers to stand idle at a building site waiting for cement to arrive. Today, Cemex is undoubtedly the best performing large company in the cement industry. It has expanded its technology-enabled model to the United States, Indonesia, the Philippines and Latin America. Its financial performance is the envy of the industry.

Enterprise-Rent-A-Car is another strategic innovator that has redefined the value proposition of their “product”. While other rental car providers have ignored or underserved the rapidly expanding insurance replacement market, Enterprise has been able to dominate this segment not merely by offering replacement cars to the clients of insurance companies, but by also providing a free, ICT-enabled car-rental processing service to insurance companies.

Over the past decade, Enterprise has been quietly developing what it calls its Automated Rental Management System (ARMS). This is an Internet-based software application that enables insurance companies as well as Enterprise branches and auto-repair shops to manage the entire rental cycle electronically. When a customer has an accident and calls in a claim, the insurance claims agent logs on to the Enterprise ARMS extranet and automatically places a rental reservation for the customer. This is a quick and efficient alternative to what was in the past a tedious, paper-based, manual process that involved up to half a dozen phone calls to different rental office locations just to secure and process a replacement rental car. But ARMS is not limited to the rental process alone. The system is also connected to approved auto repair shops that are required to send regular electronic updates on the status of car repairs to customers and to the insurance company. It also tracks the collection of the repaired car and return of the rental car, automatically generating an electronic invoice that is sent to the insurance company.

Taking excessive human interaction out of what was a cumbersome and time-consuming process has had a big impact on insurance companies. Enterprise has calculated that on average, 8.5 phone calls are eliminated from each rental transaction. That's about 85 million phone calls since 1993, equivalent to about seven million hours of employee time, assuming an average of 5 minutes per call. The system also saves about half a day from a typical rental cycle, saving anything between $36 million and $107 million from the
industry's rental costs annually. ARMS also provides insurers with access to online data about their transactions on the system, allowing them to better review and manage the rental process\textsuperscript{iv}. By late 2002, ARMS was used by 22 of the United States' 25 biggest insurance companies. Enterprise has succeeded in transforming the previously labour-intensive replacement rental process and has streamlined the operations of insurers. This, in turn, has allowed it to offer its customers a very different value proposition from all other competitors who simply provide replacement vehicles.

(3) **Putting in place new value chains**

As we suggested above, strategic innovators introduce products or services that emphasize different value propositions to those emphasized by established competitors. Inevitably, their products or services become attractive to a different customer than the one that desires what the traditional competitors offer. As a result, the markets that get created around the new competitors tend to be composed of different customers and have different key success factors than the established markets (Christensen and Raynor, 2003; Gilbert, 2003).

This has a very serious implication. Since the new markets have different key success factors, they also require a different combination of tailored activities on the part of the firm. For example, the value chain, as well as the internal processes, structures and cultures that Amazon needs to put in place to compete successfully in the online distribution of books is demonstratively different from the one that Borders or Barnes & Noble need to compete in the same industry using *their* strategy. Thus, to be effective, strategic innovators have to put in place entirely different value chains to implement their new strategies.

Information and communication technologies could play an important rule in enabling a firm to achieve such architectural innovation. This is just as true for Edward Jones, which has been able to develop a unique business ‘architecture’ supported by ICT to serve individual investors, as it is for Enterprise Rent-a-car that has been able to utilise the Internet to develop a new business process to service the auto insurance industry. It is also true for a company that is recognised as a strategic innovator in the mobile telecommunications market – Smart Inc. of the Philippines. 

During the late 1990s Smart’s low-cost, high-coverage marketing strategy targeting the middle and lower middle income segments had been very successful for the company,
and innovations such as PureTxt 100 (a text only prepaid card) had delivered relatively low-cost propositions to a broader customer base. By 2002 Smart held 45% of the market while its main competitor Globe Telecom (Globe) controlled 40%. Sun Cellular was a distant third. Between 1998 and 2003 Smart had been recognized five times as one of the ‘Top 10 Philippine Companies in terms of Corporate Leadership’ by the Far Eastern Economic Review. But despite the company’s success industry analysts believed that the Philippines’ mobile telephony market was heading rapidly towards saturation. They pointed to the fact that close to 50 percent of the population in the Philippines lived below the poverty line, and that more than 65 percent of the population lived in rural areas where usage of mobile services was limited or non-existent, even where network coverage was present. A report by research consultancy Barkawi & Partners suggested that industry saturation would peak at approximately 25% by 2007. Quite simply, the remainder of the population would be unable to afford mobile telephony given existing operator cost structures.

To develop a proposition to reach the low end of the market Smart recognized that it could not benchmark others in the mobile industry, as there were very few cases of mobile network operators who had successfully developed propositions for very low income consumers. Instead, the company looked to companies that already served this segment with other products and services, and undertook its own market research on consumer buying behavior. The company soon recognized that those Filipino population from low income segments received low weekly (and in many cases daily wages), meaning that cash flow management was a key issue. While P100 (the lowest price for a prepaid card in 2002) was not a lot of money for a consumer from the middle class, this amount represented a significant cash outlay for a family living in poverty.

Not surprisingly, when Smart looked to companies such as Proctor and Gamble and Unilever that served this segment with fast moving consumer goods they discovered that these firms had developed low-priced micro-packs for daily necessities such as shampoo, soaps, cigarettes and food. While these ‘sachets’ did not represent the most economical way of purchasing goods, they met the needs of consumers in terms of low purchase price. The vast majority of these items were sold through the country’s small ‘Sari-Sari’ stores (Sari-Sari means varied in Tagalog) that survived on high turnover low value transactions. Indeed, "tingi-tingi" or "purchasing goods in small amounts" was part of daily life, and customer surveys revealed that poor Filipinos made an average of four trips a week to their local Sari-Sari store.
Sari-sari storeowners were typically small merchants with close connections to their patrons. These merchants often provided credit when their customers were unable to afford cash purchases. It was estimated that there were over 750,000 such stores in the Philippines – at the end of 2002 Smart had fewer that 50,000 resellers of its pre-paid cards. But Smart recognized that to serve Sari-Sari stores in isolated rural areas with pre-paid cards would be a costly and difficult operation in supply chain management. Warehousing, transportation and pilferage costs all contributed to the minimum value at which a pre-paid card could be sold profitably, and most industry experts saw this as an insurmountable barrier to serving geographically isolated low-income consumers. Smart recognised that if it was to serve this segment profitably it would need to look for an alternative to the physical distribution of pre-paid cards.

In May 2003, Smart introduced a revolutionary over-the-air (OTA) prepaid reloading service offering airtime in sachet-like packages. The service, dubbed Smart Load, offered prices that were broken down into smaller denominations: P30 (US$0.54), P60 (US$1.07), P115 (US$2.06), and P200 (US$3.58). The lower the value of the load, the shorter the expiration period of the credit (see Table 1 below). Smart Load was advertised by Smart as "telecoms in sachets," the smaller denominations targeted low-income Filipinos who purchased consumer goods in small quantities. The launch of Smart Load was accompanied by a US$4 million national marketing campaign.

<table>
<thead>
<tr>
<th>LOAD</th>
<th>PRICE</th>
<th>CONTENT</th>
<th>LOAD EXPIRY</th>
<th>SIM VALIDITY</th>
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</thead>
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<td>Economy</td>
<td>P30</td>
<td>30 text messages 3 mins voice calls</td>
<td>3 days</td>
<td>30 days</td>
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<tr>
<td>Regular</td>
<td>P60</td>
<td>60 text messages 6 mins voice calls</td>
<td>6 days</td>
<td>30 days</td>
</tr>
<tr>
<td>Extra</td>
<td>P115</td>
<td>115 text messages 13 mins voice calls</td>
<td>12 days</td>
<td>60 days</td>
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<tr>
<td>NEW</td>
<td>P200</td>
<td>200 text messages 25 mins voice calls</td>
<td>30 days</td>
<td>120 days</td>
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Note: (P30 = US$0.54, P60 = US$1.07, P115 = US$2.06, P200 = US$3.58)
Source: www.smart.com

With the launch of Smart Load, Smart minimized physical product distribution costs by creating a demand response stocking system for pre-paid airtime. Product distribution became faster, more efficient, and more secure. The user-friendly SMS distribution
interface could be sold in a personal fashion complementary to sari-sari business practices. The special retailer SIMs allowed retailers to "open" or "close" their retail handsets via SMS and enabled them to sell their service outside a physical location, and outside regular store hours.

To electronically re-load, a Smart Buddy subscriber simply got in touch with a Smart Load retailer, chose from the selection of Smart Load denominations, and paid the retailer. The retailer then loaded the customer's airtime from a specially designed, retailer SIM (the small electronic network access card inside the retailer's mobile handset) to the subscriber's phone - all electronically. The subscriber received a text message indicating the new load amount once the transaction was completed. The entire transaction took place electronically.

The ability to reload electronically meant consumers could purchase airtime even in remote rural locations. Retailers did not have to obtain stock and sell pre-paid cards. The Smart Load service eventually replaced the PureTxt 100 service, and by the end of the second quarter of 2003, Smart had eliminated production and distribution of physical PureTxt P100 re-load cards.

Smart's electronic distribution network created a new class of entrepreneurs, who found the business quite attractive. Smart estimated that, of the more than 500,000 retailers, approximately 90% were micro businesses (e.g. neighborhood stores including sari-saris, housewives, and students acting as roving agents). Smart made distribution simple for these small entrepreneurs. Retailers completed transactions using a menu embedded in a special retailer SIM card by sending specially formatted text messages that executed the sale. Many sari-sari merchants extended their existing on-credit purchasing model already used for staples and sachets to Smart Load.

The start-up costs associated with becoming a Smart retailer were minimal. A prospective merchant needed a bank account, a GSM handset, a retailer SIM card, costing P100 (US$1.79), and an initial load balance of P300 (US$5.37). Low capital requirements enabled the company to build an extensive dealer network and recruit several hundred thousand retailers in a few months. These retailers, in turn, served a broader market area since sales could take place over the phone eliminating the need for consumers to physically travel to a retailer site. Retailers received 15% commission, with the most popular packages being P30 (US$0.54), P60 (US$1.07), and P 115 (US$2.06). According to Smart, some retailers earned up to P1000 (US$18.00) per day in re-Load sales, and
many retailers indicated that they could make as much or more revenue selling OTA
minutes as they could from other consumer goods sales.

To make sales and re-loads even more accessible for cash-poor customers, in December
2003, Smart launched Pasa (transfer) Load. The new system allowed consumers to
transfer loads as low as P10 (US$0.18), from one account to another. By January 2004,
denominations of P2 (US$0.03), P5 (US$0.08), and P15 (US$0.27) were added to the
Pasa Load lineup. Pasa Load allowed airtime transfer by just keying in the mobile phone
identification number of the recipient and the amount and sending it to access number
808.

The innovativeness of Smart load in delivering mobile telephony to consumers living in
poverty was recognized around the world. In 2004 the company won the Frost and
Sullivan Asia Pacific Technology Award for ‘Most Innovative Application of the Year’ and
‘The Best Mobile Application or Service for the Consumer Market’ at the GSM
Association Congress.

But Smart Load did not merely deliver accolades – it also exploded analysts' estimates of
the serviceable mobile market in the Philippines. Globe launched a similar service, Globe
Autoload Max, in late 2003, and by September 2004, roughly 30% of the Filipinos were
active cell phone users. The figure was expected to reach 40% by 2005, and analysts
now predicted penetration rates of 60 percent or more by 2008. By September 2003,
'two thirds of Smart's pre-paid users were reloading their phones electronically. As
on June 30, 2004, approximately 91% of Smart Buddy subscribers were using
Smart Load as their reloading mechanism. Smart Load, an ICT enabled
innovation, accounted for approximately 61% of sales derived from reloads.
Spain’s Inditex Group SA, one of the fastest growing fashion houses in the world, has also used vertical integration enabled by ICT to radically reduce the design-to-sale cycle in the apparel industry. The company has reduced traditional design-to-sale times from 90-180 days to less than 30 days on most product lines. Fashion designers from Inditex attend premier fashion events where they use digital imaging to send pictures to the organisation’s concept development centres in Spain. These concepts are compared with an electronically catalogued CAD portfolio of in-house designs developed by the company’s 200 in-house designers. Within weeks new designs are manufactured in factories mainly across Southern and Eastern Europe, but also in Latin America, before being sent to test stores in key markets. Point-of-sales software is used to identify ‘hit’ products and production of these designs is then ramped up in single runs of 100,000 to 350,000 units that are distributed ‘just-in-time’ to hundreds of other stores.

This vertically and ‘virtually’ integrated model enables Inditex’s core division, Zara, to replace 70% of the fashion items on its shelves every 2 to 3 weeks. Lacking Inditex’s high level of ICT enabled integration, competitors offer only 4 or 5 fashion ranges in a given year (typically Spring, Summer, Autumn and Winter collections). Without the same level of supplier integration the design-to-sale cycle for the industry is typically between 90 and 180 days. This forces Inditex’s competitors to attempt to forecast fashion trends rather than act quickly to introduce products in response to actual demand. Vertical integration is the key to Inditex’s innovation in the apparel industry – but it is Information
and Communication Technology that has enabled Inditex to deliver the benefits of this integration at the speed of the Internet.

(4) Protecting the business model by scaling it up quickly

Scaling up a radical business model allows the innovator to grow. But it also serves another useful purpose: it protects it from competitive counter-attacks. ICT can assist an innovator to rapidly scale up their business model and so ensure its sustainability.

Consider again Edward Jones, the world’s largest brokerage firm by number of offices. In 1978, Jones was a firm with a differentiated strategy that targeted the ‘unattractive’ individual investor segment. It had only 280 brokers, concentrated in Missouri and surrounding US states. Within twenty-five years, Jones has grown by more than 750% and is expected to open its 8,000th office by the end of 2005. It has also expanded into Canada and the UK. The firm now has more than three million retail clients and almost $2 billion in annual sales. This rapid scaling-up has created an intimidating incumbent for any challenger who is planning to attack the Jones’ position. ICT was a key enabler of this growth.

Consider also ARMS Web, Enterprise-Rent-A-Car’s proprietary online system for automating the insurance replacement vehicle process. In just a decade, Enterprise has been able to dominate the insurance replacement market. This computerised system has enabled Enterprise to achieve rapid growth in an emerging niche market, without overburdening the company’s physical infrastructure. New users of the system can be added at incremental cost, with only minor adjustments to the Internet-based interface required for adoption of ARMS by insurers and auto repairers.

Since its inception in 1993, ARMS has been used to process more than 10 million rentals for more than 250 insurance companies. Enterprise’s insurance rental segment was able to grow almost 50 percent between 1998 and 2002 alone. The company processed more than $1 billion worth of transactions through the system last year (about one-fifth of total revenues) and ARMS is now used by 22 of the United States’ 25 biggest insurance companies. Enterprise has built such a huge lead in this segment at such a fast pace, that competitors will be playing catch-up for years.

Inditex has also been able to rapidly scale up its business model by using ICT. In 1988, Inditex had a dozen or so Zara stores in Spain and just one international outlet in
Portugal. In 2002 alone, the Group opened 274 new retail outlets, reaching a total of 1,558 stores in 44 countries. All of these stores are connected electronically to Inditex Group’s design, manufacturing and distribution processes, and competitors can only dream of matching the company’s design-to-sale cycle times enabled by this level of integration. Inditex launched a homeware concept in late 2003 and is set to emerge as a competitor to established homeware companies such as IKEA.

Another company that exemplifies the importance of scaling up a business model quickly and efficiently is Cisco Systems. Cisco was founded in 1984 by two Stanford professors, Sandy Lerner and Len Bosack who came up with an idea for the router. A router is a device that allows the electronic transmission of data across networks and the Internet. As customer needs changed during the 1990s, Cisco also evolved into an end-to-end network solutions provider. Through organic growth and acquisitions, the company grew rapidly in the 1990s, quadrupling in size from fiscal 1994 to fiscal 1997 with as many as one thousand employees signing on each quarter.

As the Internet “exploded”, so did Cisco. By the end of 2000, Cisco had over 35,000 employees globally and more than $16 billion in revenues. The company grew to provide the entire foundation infrastructure for the Internet, with more than 80 percent of routers on the Internet marked with the Cisco label. Cisco provided not just the functionality required for data, but full multimedia support to handle voice, data, or video over Internet protocol (IP) networks. With the contraction of the Internet and telecommunications sectors since 2002, Cisco has shrunk in terms of both number of employees and revenues. But the company’s explosive growth from the early 1990s, and the way this growth was supported by technology, is still indicative of the power of networked IT.

Cisco recognized early that its internal systems could not scale up quickly enough to keep up with the pace of growth. A good example was sales-force training. In 1997, about 95% of training was done in the classroom. A training group of just 50 people was responsible for training 4,000 internal Cisco salespeople, as well as the company’s then 15,000 partner organizations and thousands of customers. Newly-hired sales personnel would travel to corporate or regional training sites for several five-day courses each year, with training delivered for one product line to the entire field in a classroom setting. This required up to 200 training session for each course to reach Cisco’s worldwide audience. This approach represented a model for extended failure, since salespeople simply could not spend the necessary time in the classroom to keep pace with frequent product introductions.
Cisco recognized that its future profitability and success would depend on a solution that could scale up to meet the needs of its growing business. But how could the company continue to grow without pushing its training and development systems to crisis point? Should it attempt to outsource training services, or hire more training staff?

In 1997, Cisco identified e-learning as a way to provide employee training without the expense or time-constraints of travel. After almost two years of development, the Field E-Learning Connection (FEC) was launched in 1999. This was a single, online point-of-entry for the company's global sales force and support staff to plan, track, develop and measure their skills and knowledge. The Intranet system had links to over 400 learning resources, on-line and leader-led training courses, assessment exams, and learning roadmaps for the company's Account Managers and Systems Engineers. Accessibility was anytime, anywhere with full accountability through online testing and certification.

To complement FEC, Cisco also created learning portals for other key areas of its business, including manufacturing, worldwide customer service and company audit. The company's Leadership Express is a portal of self-directed learning for Cisco managers, providing online management tools and articles on leadership, searchable by topic. Cisco also introduced video intranet training via its global broadband IP/TV network in 1999. Cisco can conduct a single update training session that reaches up to 4,000 people at once, worldwide. This presentation is then archived for employees who missed the live broadcast event. The same IP/TV system has been used to broadcast company presentations by Cisco executives since late 1997.

Cisco believes that its Field E-Learning Connection achieves cost savings of over 40% to 60% versus instructor-led training, and estimates that 80% of sales and engineering
training was conducted online at the end of 2001. But the main benefit identified by the company is the reduction in travel and in-classroom time for its employees, allowing them to spend more time with customers.

E-Learning is just one example of how Cisco has used technology to scale-up its business model. The company has also implemented initiatives for automated online expense claims, procurement, technical information, and employee benefits. For example, a New Hire Dashboard (NHD) portal has been developed for new employees. This provides advice on everything from setting up an email account to establishing a company pension plan. The portal has allowed Cisco to reduce the duration of its induction training by 50 percent and the company believes that NHD saves new hires approximately 15 minutes per day during their initial three months with the company.

Another technology initiative, the Cisco status agent, provides the company's sales force as well as customers and sales partners, immediate access to critical information about the status of customers' orders. Specifically, it is used to monitor expected shipment dates, generate complete backlog reports of all Cisco orders, view line-item details for each product on order and track shipment status with direct online links to Federal Express and UPS tracking systems. Cisco believes that this system not only gives its sales force more timely information and greater control of orders, but also prevents billing and shipment problems before they arise. The self-service nature of the system has seen order-related customer calls to Cisco's sales staff decrease by more than 60%.

Cisco's main motivation for embarking on the various technology initiatives described above was to help the company deal with the dual challenges of explosive growth and rapid employee acquisition, as well as the desire to improve customer service by freeing employee time from administrative duties and face-to-face training. Cost reduction was also a goal. By the end of 2000, the company estimated that it was saving more than $86 million annually through the implementation of its various employee intranet initiatives.

Cisco continues to develop interactive Internet applications for all its functional departments, such as human resources, manufacturing and finance. Despite the impact of the current economic downturn on the organization, Cisco remains a strong case study of the role of information technology in supporting rapid growth through virtual rather than physical infrastructure.
Common Behaviours Towards Technology

In his book “Good to Great”, Collins (2001) argued that technology-induced change is nothing new. What was unique about the good-to-great organizations was not that they used technology to achieve their goals but that they thought and used technology differently from mediocre firms. Specifically, technology for them was an accelerator of momentum, not a creator of it. In a similar vein, we’d like to argue that using technology to implement radical new strategies is nothing new. What was unique about the innovators who did so successfully was the behaviours that they displayed towards technology. Specifically, we’d like to argue that the behaviours of successful innovators in relation to the adoption of ICT demonstrated a number of common themes:

1. Successful Innovators focused on technology as a driver of value, not just as a tool for operational efficiency

Rather than using ICT primarily to shave cost from their existing business processes, successful innovators use technology to either target new or existing customer segments that could not be served efficiently using established business processes or to offer new value propositions to their existing customer base. The focus is upon value creation rather than just operational efficiency. This is true for companies as diverse as Dell Computer, Enterprise-rent-a-car, Cemex, Cisco systems, Edward Jones and EasyJet.

This may sound obvious but it’s rarely followed in most companies. For example, in a recent survey of UK-based senior executives, we found that the vast majority of spending on ICT was focused on cost reduction and improving existing business processes[6]. Fewer than 5% of responders identified ICT as an enabler of innovation and the majority viewed it as an expense rather than an investment. By contrast, the strategic innovators in our study looked at ICT as something that could not only support their strategy but also redefine their strategy. Taking a longer-term, strategic perspective, they used ICT as an enabler of top-line growth and as a tool to reach new customers or offer new benefits to existing customers in new ways. Edward Jones’ investment in satellite technology was not about shaving costs from the existing business – it was about a transformational scaling-up of the Jones’ business model. Similarly, Cemex’s investment in ICT was about delivering a radical new value proposition for customers.

Michael Dell has often argued in favour of using ICT as a strategic rather than an operational tool. In a recent speech, he proposed that: “ICT must be viewed not in terms
of cost to be carefully managed but as a powerful enabler to deliver velocity, efficiency and customer experience**id.** Our own research has demonstrated to us that to use ICT in a “strategic” way means to use it as a tool to pursue and exploit radical new “Who-What-How” positions in an industry that all the other competitors find unappealing.

2. Successful Innovators are early adopters of ICT in their industry, even if the technology is already dispersed in other industries

Another key characteristic of successful strategic innovators is their willingness to experiment early in the implementation of emerging information and communication technologies. They may not be the first adopters of this technology per se, but they are frequently the first to adapt this technology to the unique needs of customers within their markets. This was certainly the case with regard to Edward Jones’ adoption of satellite-enabled communications in the brokerage industry, and it is also true of companies such as Dell Computer, Cisco and Cemex.

In the case of Cemex, the company actively benchmarked technology use by organisations outside the cement industry. It looked at companies confronting similar business challenges—such as delivering a product or service just-in-time. This led executives from the company to visit the FedEx hub in Memphis as well as a 911 dispatch center in Houston where they observed different uses of ICT in very different industry contexts. Despite the fact that technologies such as GPS navigation and cellular communication were not yet widely used within the cement industry, Cemex saw an opportunity to adapt them to its own business requirements. Similarly, Internet enabled virtual integration was used by Dell in the PC industry for many years before companies such as Enterprise and Progressive saw the opportunity to apply Internet enabled and “virtually integrated” approaches to their own industries.

3. Successful Innovators do not wait for complete technology solutions to fit their customer requirements – if needed, they develop technologies themselves

Successful innovators are not only early adopters of information and communication technology – in many cases they develop this technology themselves rather than wait for a complete ‘off-the-shelf’ solution to address their requirements. This is true of both Edward Jones and Progressive Insurance, but it is also true of other innovators such as Enterprise Rent-A-Car.
When Enterprise identified the need to develop a virtually integrated process for linking its own reservations management system to insurance companies as well as customers and auto repair outlets, it quickly realized that it was simply not possible to buy an 'off the shelf' solution. With a development investment of $28 million in hardware, software and staff time and $7.5 million in annual maintenance, Enterprise developed ARMS internally. Could Enterprise's competitors simply go out and buy ARMS off the shelf from a software vendor, just as they can purchase a CRM package, e-procurement solution or financial management package? The answer is No. ARMS is a proprietary system developed by Enterprise's IS department and if competitors want to develop their own system they will need to do so from scratchviii.

Similarly, even though Progressive’s Claims Workbench uses readily available ICT hardware, much of the 'middleware' (software that enables existing hardware and software to function seamlessly) has been developed by Progressive. Dell, Cemex and Zara have also developed middleware to integrate the ICT technologies that enable their own virtually integrated operations.

4. Successful innovators have CEOs that act as technology evangelists.

The implementation of ICT-enabled strategic innovation typically cuts across business processes and functions. Projects of this nature are notoriously difficult to implement successfully without explicit and visible senior management commitment. Perhaps not surprisingly, we identified “technology evangelists” at the top of virtually all of the strategic innovators that we studied. These business leaders were not necessarily technology experts nor did they understand fully the technical capabilities of ICT. But they fully appreciated the importance of using ICT in a strategic way and encouraged their organisations to tirelessly pursue ICT as an enabler of strategic innovation.

At Cemex, CEO Laurence Zambrano initiated the benchmarking study that culminated in the launch of Sincronización Dinámica de Operaciones. He has also been the main sponsor of a range of other ICT investments. At Edward Jones, then-CEO John Bachmann was an early champion of new technologies in the firm. He summarised his philosophy to us as follows:

“You have to understand that Edward Jones is not about technology. We have organised ourselves around a specific social and economic need of a specific universe of consumers - namely the serious long term investor... The key has been recognising who is the customer,
what is the value to the customer, and organising ourselves to be responsive to what we believe is this fundamental need. We recognised that to deliver on this need to cities and to small rural communities alike we would have to push the envelope in terms of the underlying technology infrastructure. This is how I encouraged the use of IT within Edward Jones - to deliver the kind of personalised service upon which the Jones’ model has been built. Sometimes, as was the case back in 1985 when we launched the satellite system, this has involved committing the organisation to transformational change. ”

At Cisco, CEO John Chambers is a self-confessed obsessives in advocating the transformation of long-standing industry structures through the adoption of ICT. But again, Chambers understands that technology is simply an enabler of sound business practice that delivers customer value profitably.

**Conclusion**

In industry after industry, leading companies are becoming better and better at playing the performance improvement game and have little difficulty stymying competitors who play by the same. Yet, these same competitors find it extremely difficult to even conceive of a “different” way of competing; and easily lose out to any competitor that attacks them by following a different strategy. It seems that the better they execute their chosen strategy, the harder they find it to conceive of a different one, and the more easily they fall victim to an upstart who attacks them by playing by different rules.

Yet, no company can afford to ignore strategic innovation. Experience shows that dramatic shifts in company fortunes usually take place when a company succeeds in not only executing its existing strategy better than its rivals but in also designing and implementing a different strategy from its competitors. Strategic innovation has the potential to take third-rate companies and elevate them to industry leadership status; and it can take established industry leaders and destroy them in a short period of time. Even if the established players do not want to strategically innovate (for fear of destroying their existing profitable positions), somebody else will. Established players might as well preempt that from happening.

But discovering a radically different strategy is only the beginning to strategic innovation. The important thing is not to conceive of something new and radical but to implement it successfully. Although there are many factors that can influence the successful implementation of a radical new strategy, we found that Information and Communication
Technology can be a critical element in the success of many of today’s strategic innovators. ICT is not the only factor, nor is it sufficient, but it can play an important role in providing a cost effective solution to developing new business designs. Information and communication technologies underpin strategies that deliver new WHO-WHAT-HOW innovations by overcoming previous value chain constraints. Think of Cemex that has turned the cement industry on its head by delivering just-in-time cement through innovative use of satellite navigation and mobile communication technologies, or Zara that has implemented an Internet-enabled supply chain to deliver cutting edge fashion at an affordable price.

ICT-enabled strategic innovation can also permit the strategic innovator to scale up quickly. In turn, this rapid scaling of the ICT-enabled business model, combined with the fact that this model typically introduces a value chain configuration different to the industry norm, can protect the innovator from competitive attacks. This has been just as true for Dell computer, with its virtually integrated direct business model, as it was for Enterprise-rent-a-car that now dominates the US insurance rental segment through its proprietary ARMS Web.

Information and Communications Technologies enable strategic innovators to question the WHO-WHAT-HOW heritage of their industries. As a result, ICT allows strategic innovators to conceive and exploit entirely new “Who-What-How” positions. It also provides the underlying infrastructure to create new value chain configurations, or to reconfigure those already in existence. As information and communication technologies continue on their path of seemingly ever increasing improvement, we believe that more and more industries will be disrupted by the power of ICT-enabled strategic innovation.
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Technology to create value</th>
<th>Early Adoption within industry</th>
<th>Development of proprietary technology solutions</th>
<th>Technology to enable architectural innovation</th>
<th>Technology to scale-up business design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edward Jones</td>
<td>Target a new mass customer segment – individual investor</td>
<td>Yes - Satellite system, software</td>
<td>Yes – software to integrate satellite with own communication needs</td>
<td>Yes – targeting individual investor through single-broker offices</td>
<td>Yes – overcame barriers to organic growth</td>
</tr>
<tr>
<td>Progressive Insurance</td>
<td>Creating a new value proposition – speed of claims process</td>
<td>Yes - Internet, wireless technologies and proprietary software</td>
<td>Yes – software to link mobile claims agents to headquarters</td>
<td>Yes – eliminating steps in the claims process through virtual integration</td>
<td>Yes – achieved rapid growth while keeping variable costs low</td>
</tr>
<tr>
<td>Cemex</td>
<td>Just-in-time cement</td>
<td>Yes - GPS, cellular technologies, software</td>
<td>Yes – software to integrate GPS and cellular technologies to own systems</td>
<td>Yes – new model for cement sales and distribution</td>
<td>Yes – After succeeding in Mexico, has taken model to Indonesia and elsewhere</td>
</tr>
<tr>
<td>Dell Computer</td>
<td>Direct model for PC sales and service</td>
<td>Yes - Internet</td>
<td>Yes – software to virtually integrate supply chain</td>
<td>Yes – virtual integration of supply chain</td>
<td>Yes – achieved rapid growth while keeping variable costs low</td>
</tr>
<tr>
<td>EasyJet</td>
<td>Low-fares airline</td>
<td>Yes – Internet, e-tickets</td>
<td>Yes – adaptation of e-commerce software to own needs</td>
<td>Yes – direct sales to eliminate intermediaries</td>
<td>Yes – rapid customer acquisition while constraining overhead costs</td>
</tr>
<tr>
<td>Cisco</td>
<td>Internet sales and service</td>
<td>Yes - Internet, broadband</td>
<td>Yes - software to virtually integrate supply chain, e-learning platform</td>
<td>Yes – virtual integration of supply chain, remote sales force training</td>
<td>Yes – achieved rapid growth while keeping variable costs low</td>
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References

Endnotes


ii For our study, we examined companies that introduced strategic innovations in the following industries: banking; general insurance; life & health insurance; motor insurance; cement; car-rental; brokerage trading; personal computers; networking; movie theatres; ordering and delivery of groceries; airlines; FMCGs; and screen-based electronic trading systems.

iii Further details on Cemex can be found in: FC Editor, ‘CEMEX- This Promise is Set in Concrete, Fast Company, Summer 1999.

iv For a full description of the history and features of ARMS see: CIO Magazine, Feb 1, 2002 Issue.


viii We wonder whether ARMS, given its widespread acceptance by large insurers, might eventually become the industry standard for processing insurance rentals, just as SABRE has become the reservations standard in the travel industry. The question of course is whether Enterprise's CEO and Chairman Andy Taylor would ever license the system to his competitors.