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Strategic Change

Mapping opportunity space: options for a sustainable e-strategy

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- *As has been widely reflected in the popular and business media, the dot.com crash in April 2000 heralded a collapse of public and business confidence in almost anything associated with the 'e-revolution' of the late 1990s, or the first wave of e-change.*
- *During 2002 and 2003 a broad-based, international sample of 281 organizations was surveyed to validate this populist perception. The findings indicated that many organizations have not only continued with their uptake of modern information systems, but that a good number have been quietly intensifying their efforts.*
- *This paper distinguishes between the replicability of core operational systems for internal cost-efficiencies and the differentiating capability of customer-facing technologies that enables firms to attract and maintain a loyal customer base. The parameters for managing the dynamic balance between replicability and differentiation shape a new concept of 'opportunity space' which is bounded by a high-touch/high-technology dimension and the tangible/intangible nature of the customer offering.*
- *The opportunity space model can be applied to a major product/service offering, a business unit, an enterprise or an industry sector. It allows managers to map where their effort can be focused when evaluating strategic options for the effective introduction of customer-facing information technologies.*

Introduction: a second wave of e-change

Although a rudimentary form of the Internet was in limited use in the late 1960s, it was not until the mid-1990s that Internet and associated information and communication technologies (ICT) became widely and commercially available, catalysing the emergence of what came to be referred to as e-business. There followed a half-decade of exponential growth in its use, and an equally exponential rise of assertions that ICT would transform the world of physical and relational business.

The widespread use of media in this period to announce websites and portals amounted to a 'megaphone' approach in many organizations. There was an assumption that consumers would flock to new web-accessed products and services and that as a result, investors would continue to bid up the stock prices of technology vendors and ICT-mediated companies. Some shifts did indeed occur, but as is well known, by April 2000 there had been a crash of stock values in the

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information technology sector and a more sober set of assessments started to set in. Microsoft, the global technology software company, has recently indicated that many businesses in the current environment are not persuaded that 'front-end' information technology spends add significant value (*Financial Times*, 2002). This more cautious attitude towards such front-end, customer-facing technology investments is understandable because the benefits claimed by business and system vendors often proved illusory in practice. Additionally, a major issue for companies was that in moving to business models which minimized direct human interaction, many found it difficult to hold customers and consumers long enough to effect transactions. In the popular jargon of the era, their websites were not 'sticky' enough. Factors like these and the scarcity of profits, caused analysts and other financial commentators to become progressively more hostile towards Internet-oriented businesses. For many organizations the dot.com crash subsequently translated into a view that '*the revolution is over: the pressure is off*' — they could sit back and resume their technological hibernation.

Coltman *et al.* (2001) have in fact challenged the popular myth of an e-business revolution, claiming that for a revolution to occur '*It lies in the nature in which people, rather than businesses [and technology] interact*'. In a similar vein, Barnatt (2001) states that the real challenge, if information technologies are to have transforming effects, '*Will be to integrate the proliferation of [technology] interfaces and channels to achieve real engagement with customers*'. Both writers emphasize the primacy of human interaction with technologies, rather than the technologies *per se*.

In this paper we use the phrase '*The second wave of e-change*' to denote the emerging phase in the application of information technologies to business. Barnatt titles this period as '*a second digital revolution*'. Our preference, however, is for the term '*the second wave*' because '*revolution*' often connotes hype and excess, one of the lingering perceptual problems arising from the earlier period. The second wave of e-change embraces more complex variables of customer behaviours and knowledge management, rather than simply focusing on the technologies. The emphasis has moved from '*supplier push*' to '*customer pull*', the error of the late 1990s being the assumption that the technology was a revolution in itself. We continue to use the 'e' prefix in this paper where in our view the 'e' retains relevance, or where the 'e' is widely adopted (as, for example, the term 'e-government').

Moving to a sustainable 'e-type' strategy

Organizations in transition: research findings

The introductory phase of any new technology will invariably involve experimentation by first movers. However, the period of hype in the first wave of e-change went beyond careful experimentation. We draw here on a framework used to analyse the first wave in the middle of the Internet boom shakeout period (Stace *et al.*, 2001). The typology proposed in that paper was designed to provide a framework for understanding that the 'one-best-way' mantras of the boom period were flawed. During the ICT boom period countless organizations sought to emulate the strategies and business models of the first movers to the extent that there was often little differentiation between rival offerings, particularly in the minds of customers and consumers. **Figure 1** illustrates this with a typology that differentiates three transitional e-types (*not.com 1*, *dot.com* and *heatseeker.com*) from three sustainable e-types (*not.com 2*, *multi-channel.corp* and *e.corp*).

The argument here was that the three transitional types were products of the hype of the late 1990s period — where the technologies, rather than their successful application, seemed to be the prime focus. In that period, companies were either regarded as a *not.com 1* (or *not.com by default*) through their refusal

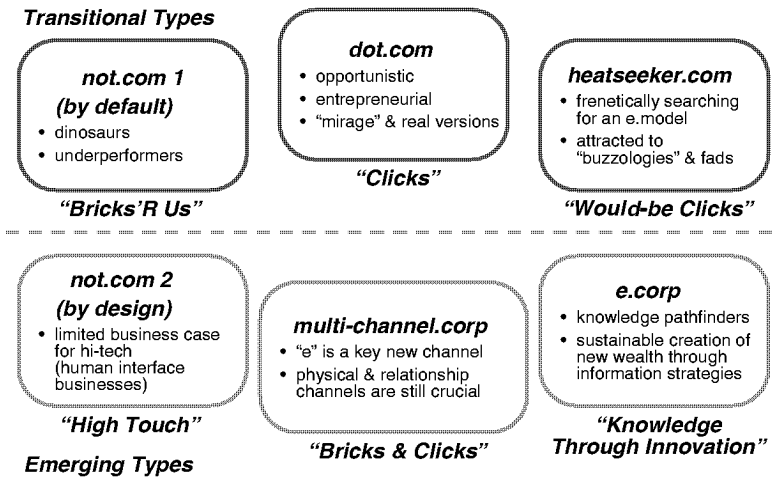

Figure 1. e-Business Types: 2000.

to get onto the technological bandwagon, a fashionable *dot.com* prepared to take customer connectivity to a new dimension of 'clicks' in place of old-fashioned 'bricks', or a *heatseeker.com* frenetically gambling huge amounts of company resources to leap to a totally new paradigm of front-end customer connectivity. Technology was the object and the driver.

In this paper the primary focus is on the three sustainable types, or what might be termed an 'in-fit' category. These are the *not.com 2* (or *not.com by design*), the *multi-channel.corp* and the *e.corp.* Our research indicates that in the second wave of e-change, the transitional types have dramatically decreased in popularity. However, they have not totally vanished as we show towards the end of the paper, particularly in relation to e-government.

The original typology was derived from desk research and empirical observation. These e-types characterized six discrete forms of organizational behaviour concerning the adoption of information technologies for business benefit. These forms range from non-adoption of information and communication technologies through various intermediate, 'hybrid' states to the ICT-mediated virtual organization. At the time of first publication in this journal in 2001, the instrument and model had been tested with and applied by a small number of multinational enterprises. Since then the model has been tested by application to different organizations by 281 independent respondents.

The tests were conducted in four tranches during 2002 and 2003. The four groups of respondents were given a detailed briefing on the model and typology. Each respondent applied the methodology to his/her selected organization and, in the process, recorded its industry sector and principal e-business objective. **Table 1** provides a summarized profile of the 281 organizations.

Respondents were asked to assess the e-type that most closely characterized the behaviour of their subject organization 'three years ago' and 'today', and the e-type they believed their subject organization sought to become 'in three years time' (see **Table 2**). An **Appendix** shows the detailed trend of the responses.

Overall, the majority of respondents (54%) indicated that the orientation of their organizations in the previous three years had been as one of the three transitional e-types, with a large contingent ranking the *not.com by default* category. In the current period, at the time of assessment or 'today', there had been a large-scale move to one of the three sustainable e-types, with the largest percentage (51.6%) ranking their organization as a *multi-channel.corp*, or in other words, a 'bricks and clicks' organization. The exception to this

Table 1. Profile, by industry sector, of the 281 organisations independently assessed

Industry sector	2001/02 Assessments				2002/03 Assessments				Total	%
	Tranche 1	Tranche 2	Subtotal T1 + 2	%	Tranche 3	Tranche 4	Subtotal T3 + 4	%		
Services	34	37	71	*48.6*	9	56	65	*48.2*	135	*48.4*
Manufacturing	17	8	25	*17.1*	9	11	20	*14.8*	45	*16.0*
Financial Services	18	12	30	*20.5*	3	12	15	*11.5*	45	*16.0*
Professions	2	7	9	*6.1*	—	12	12	*12.0*	21	*7.5*
Public Sector	2	9	11	*7.5*	2	21	23	*23.0*	34	*12.1*
Totals	73	73	**146**	*100*	23	112	**135**	*100*	**281**	*100*

Table 2. e-Type adopted/planned by the subject organisations

e-type	'3 Years Ago' Total (%)	'Today' Total (%)	'In 3 Years' Total (%)
1. notcom by default	27.0	1.1	3.6
2. dotcom	16.4	12.1	4.3
3. Heatseeker	10.0	7.8	0.4
4. notcom by design	22.1	12.5	5.3
5. multi-channel corp	19.5	51.6	56.9
6. e-corp	5.0	14.9	29.5

general pattern were UK public sector organizations, the vast majority of which were still being ranked by their executives and managers as one of the transitional types, namely *not.com by default* or *heatseeker.com.*

Architecture for a sustainable e-type strategy

A bias of the original six e-type descriptors is that they were focused primarily on the uptake of front-end, customer-facing technologies, with limited focus on business support technology platforms. In the current period, however, empirical observation indicates that companies are turning attention to the effective standardization, integration and reliability of their business support technology platforms, or their core operational systems. The game of emulation of competitors' go-to-market business models, with a prime emphasis on front-end, technology-enabled customer connectivity, has receded in relative importance.

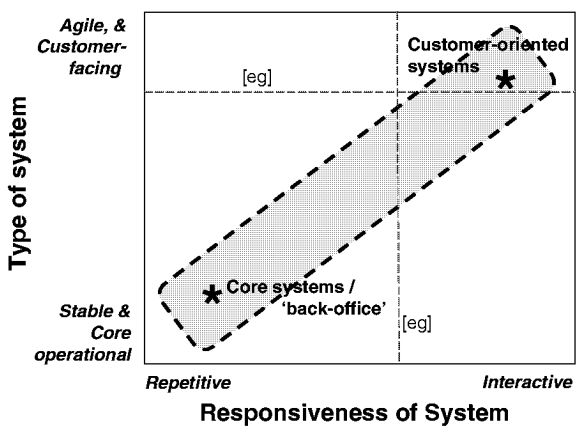

Figure 2. Strategic integration of enterprise systems.

Figure 2 illustrates that 'front-end' technologies (that is, technologies which assist organizations to quickly and interactively connect with their customers) will typically need deep systems support in the operating core of the organization. Yet during the first wave, the emphasis tended to be concentrated primarily on customer-facing technologies,

often underplaying or ignoring their integration with the operating core.

A longitudinal case research study we were conducting at that time illustrates this point. The subject organization is a multinational, private sector financial services business that wishes to remain anonymous. In the course of over 60 structured interviews, the respondents indicated that the focus of the firm's technology uptake had changed from 65% focus on front-end, customer-facing technologies in the period 1998–2000, to a 95% focus on back-end systems integration by 2001.

The company had taken over several businesses in the UK and was amalgamating them into the group at the height of the first wave period. As part of this strategy the company spent in excess of £50 million in building and acquiring front-end 'customer connectivity portals' to attract customers in the race against a plethora of rivals offering Internet-based services.

By 2001, in the face of declining results and poor investment performance, this company had completely refocused its information technology strategy. The realization was that no amount of attractive web-based portals, offering much-heralded information on complete 'financial solutions', would yield growth if customers faced frustrations in smoothly negotiating a transaction on-line or could not readily access their client information. While customers and consumers often tend to tolerate tardiness in human interaction, few are as forgiving of technology-induced tardiness. Without trumpeting its strategy, the company moved its focus, using technology primarily for systems integration and processing support, with lesser emphasis on the use of information technologies for consumer and customer connectivity.

Other examples of the shift towards more blended systems are reflected in recent published work:

> *Not so long ago, many considered speed to be the primary tactic for blocking competition and increasing market share. Companies rushed to field a dot.com strategy or some innovative application of IT that was going to secure their role in the new economy . . . Today it's back to the basics.* (Microsoft, 2002)

That is, the basics of effective core operational systems such as supply chain management, integrated customer information systems and effective business-to-business transactional systems. In 'The unexpected return of B2B', Hoffman *et al.* (2002) show that there is also a resurgence of business-to-business linkages via technology. The difference now is that the concept of 'open' exchanges and e-marketplaces has changed to '*Private exchanges: invitation-only networks that connect a single company to its customers, suppliers, or both*'. The ubiquitous availability of information via open supply-chain markets has been replaced with systems over which in-company users have much more control. This is a good illustration of technologies blended with human interaction and intervention, or technologies under the control of people rather than *vice versa*. This is a fundamental characteristic of the second wave of e-change described in this paper. Weill *et al.* (2002) emphasized this when they concluded their own study of ICT infrastructures by saying: '*We consider it critical for the enterprise's most senior executives to understand which specific ICT-infrastructure capabilities are needed for which kinds of initiatives.*'

Marchand (1999), in an article on hypercompetitive markets, observes that companies operating in moderately competitive markets such as chemicals can gain a high return on investment from large-scale information systems integration. The benefits include better financial and production control systems and increased cross-functional collaboration. However, firms operating in 'hypercompetitive' markets — like those for mobile phones and computer software — need to extract different types of process improvement. The goals they need to achieve include better customer interaction, order processing and after sales service. They need information systems that will deliver a high 'return on information'.

An example concerning moderately competitive markets is given by Esso Petroleum (IT Skills Forum, 1996). Esso's UK refinery near the port of Southampton produces 10 million gallons of petrol every day for sale in innumerable small quantities via its nationwide network of forecourts. Changing the rate of flow through such a massive process engineering plant is a non-trivial matter. Esso has integrated its back-office systems so that peaks of demand are smoothed out by means of real-time changes to the wholesale price of fuel. A forecourt manager 'negotiates' directly with the computer system to agree an acceptable delivery time and price. The consumer also benefits because for each forecourt the system sets the retail price based on competitors' prices in the locality.

Dell provides an example in the second category — hypercompetitive markets. The company's website is used to animate Michael Dell's 'up close and personal' business model. Customers who feed back implementable suggestions for product improvements and service enhancements are rewarded with more attractive prices. This reduces research and development (R&D) costs for Dell and its supply chain partners. Dell has also configured its ledger system so that it can present each corporate client with a personalized inventory list. Clients can then save the cost of an internal inventory management system — provided, of course, they continue only to purchase from Dell.

What these examples show is that effectiveness in core operational systems, as for example the opportunity to join value or supply chains, is the price for a seat at the table in the emerging environment. However, the rate of information technology uptake and a company's reliance on it will vary enormously between our three sustainable types — the *not.com by design*, the *multichannel.corp* and the *e.corp* — according to the nature of the dominant customer offering. The challenge is to get the balance right and to maintain the appropriate balance.

However important this trend of integration with core operational systems, evidence is also emerging that a proportion of 'nearly failed' pure Internet-based organizations which relied primarily on customer-facing technologies for their revenue streams are not only still alive but could now be on a path to business sustainability.

> *eBay, the internet flea market, is once again worth (as an investment) as much as Sears, The Gap and Federated Department Stores combined. Online travel service Expedia is worth more than the six biggest airlines put together . . . and Amazon.com is trading at four times Barnes and Noble, and Borders . . . . . real sales and earnings, not eyeballs or click-through rates, are now the main yardsticks for (technology-related) stock prices.* (*Financial Times*, 2003)

eBay is now in fact taking on the characteristics of an *e.corp*, migrating from its former high-flying *dot.com* status. In the UK, physical retailers with some Internet-based customer ordering capability and purely Internet-based retailers have seen tenfold growth in on-line transactions, particularly at peak seasonal periods (*The Independent*, 2002). Of this rebuilding process, *The Economist* has commented:

> *The Internet's ability to bring people together cheaply and anonymously has made possible the creation of entirely new business models. Some are now starting to pay handsomely . . . [although] none of this is likely to suggest that internet firms will deliver on the absurd claims of the late 1990's. But it does suggest that there are profits to be made by selling consumers content and services, as well as physical goods, online.* (*The Economist*, 2002a)

In the face of this trend, it would be tempting to adopt a 'back to the future' view, a notion that all that was needed for the so-called e-business model to succeed was to have a shakeout of the weakest players. We suggest

however that future success will come for those businesses that achieve several things. At its most basic they will ensure that there is appropriate integration of customer-facing and core operational systems — this is the price for a seat at the table. However, the key is to find the appropriate blend of human and technology interaction and the opportunity to create a unique value proposition around customer offerings — whether tangible or intangible. We explore this in the concept of 'opportunity space' below.

The key is to find the appropriate blend of human and technology interaction and the opportunity to create a unique value proposition around customer offerings

Opportunity space: mapping the options

A more effective lens for value creation

Between them, the three sustainable e-types offer a wide range of possibilities about the degree of behavioural interface necessary to attract and service consumers, customers or clients. The *not.com by design* is primarily a relationship-oriented business where people are both the product and the process. Their information technology platforms support and enable the business but are often barely visible to the customer. Examples of this e-type would include small consultancies, some primary healthcare organizations and many smaller retailers. The customer relationship is paramount. The *multi-channel.corp* on the other hand is a mixed-mode style organization with much more powerful information technology platforms and a steadily increasing emphasis on front-end consumer/customer connectivity. In our sample of respondents, this type represents 51.6% of the sample of private sector organizations represented. Financial service firms, some large retailers and incumbent airlines are good examples. Their service is delivered by an admixture of human interface and technology. The third type, the *e.corp*, is representative of a class of organizations where without their technology platforms, there would be no business. ICT-based technologies represent their core offering and go-to-market business model.

From our research a relatively small percentage of organizations (14.9% in the 'today' category) approximate to anything like the *e-corp* — that is, organizations where their interface with the market is as strongly dependent on technology such as portals as it is on back-end processing systems capability. In the UK, the new 'no frills' airlines would be examples of *e-corp* in relation to bookings, but the on-board experience is more attuned to the *multi-channel.corp* option. Dell Computers worldwide however would be representative of an *e-corp* in its total business. Dell is a harbinger of a new business model but not one that is universally applicable or easily copied. Even the Internet-based book retailer Amazon.com, the doyen of the *e.corp* type of several years ago, is now busily adding physical distribution channels in which books are only part of the offering. This in the face of other more traditional booksellers which have created greater attraction to their physical bookstores by adding coffee shops and reading rooms — bookselling with a new human touch.

The earlier e-types model was one-dimensional as to type, but we have now created a two-dimensional frame to assist in an analysis of the 'opportunity space' which the organization might explore. The opportunity space concept addresses and facilitates the quest by an organization for dimensions on which it might add value, either through the introduction of more sophisticated 'customer-facing' information technologies, or equally legitimate decisions to rely on more physical or relational channels. The two are not mutually exclusive, but our argument is that the

customized blend will be unique for each organization and even for key customer groups. What is needed is a road map, not a prescription. A key to this is a better understanding of both the potential nature of the customer offering itself, together with an understanding of whether the product or service offering is better delivered through a human intervention, or technology.

Wallis and Holtham (2000) have developed a tangible–intangible spectrum to describe the relationships and interplay between tangible offerings, such as a music CD and alternative intangible offerings, such as a downloadable MP3 file.

> *At the very extreme of 'tangible' are experiences where all participants are present in the same place and same time and the connections between them are mediated through natural analogue media.*

At the extreme of 'intangible' would be face-to-face scenario planning exercises, where an intimate sharing of tacit knowledge takes place. They concluded:

> *We do remain convinced that a linear and non-reversible move from the tangible domain to the intangible is simply not borne out in any of the constructs we have reviewed. There is growing evidence of the interdependence of the tangible and intangible, and of dynamics in all directions between tangible, hybrids and intangibles . . . Success therefore will depend on integrating the tangible and intangible, and in achieving versatility in moving along the tangible–intangible spectrum.*

The degree of intangibility of customer offerings has become for us an essential parameter for gauging the appropriate ICT support that is required. We have therefore developed the Wallis/Holtham conjecture in terms of a spectrum on which can be positioned the dominant customer offering(s) of an organization (see **Table 3**). This is the first dimension of opportunity space.

Table 3. Type of dominant customer offering

Intangible ↑	✻ The dominant customer offering of this organisation is comprised of interactions or contributions that have no physical form, and are regarded as reasonably intangible. ✻ The dominant customer offering of this organisation is comprised of services or physical products that incorporate an extensive value-added component. ✻ The dominant customer offering of this organistation is comprised of simple and/or commoditised physical products, and some simple transactional services.
↓ Tangible	

Table 4. Mode of service delivery types

High Touch ←		→ High-Tech
✻	✻	✻
A business where info-technology plays purely a support/ admin istrative role but is not seen as central to the core business.	This organisation adopts information technologies as a powerful additional/ comple mentary distribution channel to the consumer marketplace.	This organisation is an industry leader in successfully using info-technologies as its primary/ dominant platform (60%+ of revenues) for growth and customer connectivity.

For the second dimension we have utilized the 'high tech/high touch' spectrum originally coined by Naisbitt (1982). By this he suggested that advances in technology need to be offset by efforts to sustain human-to-human contacts. The extent of human/technology balance required in service delivery is, in our view, another essential parameter in understanding the strategic choices available in value creation through technology. We represent this second dimension in terms of choices available in service delivery types (see **Table 4**).

For example, pathology services have been largely corporatized in the USA and Australia

and delivered using very sophisticated 'front-end' and 'back-end operational' technologies: human interaction in the whole doctor/pathology transaction is confined to exception reporting. In the UK, however, there is a much higher degree of human intervention, or high touch, in the whole process. Is there, or should there be, 'one best way'? In our view the answer is 'not necessarily'. Different healthcare systems are based on different philosophies, often based on deep cultural and historical factors.

We have brought together the two spectra to delineate the strategic terrain embracing the opportunity space (see **Figure 3**). We believe that success will come from a better understanding of how the firms' dominant customer offering or blend of offerings, from tangible to intangible, intersect with the positioning of the mode of service delivery on a high touch/high technology dimension.

This intersection can be mapped to create a visual representation of the current or desired positioning of an organization or a business unit, or a major product offering. Such a schema can then be used to trigger questions of how current or intended resources within a firm need to be orchestrated to meet the current or potential needs of customers and consumers. The opportunity space concept derives primarily from a resource-based view of the firm (Fahy and Smithee, 1999; Grant, 1998), emphasizing the current and potential bundle of firm capabilities and resources, rather than the technologically deterministic perspective so prevalent during the first wave period. However, it is also a dynamic concept that acknowledges the capacities which new technologies allow the firm to develop.

Applying the opportunity space concept

Figure 4 represents a series of illustrative schemas of various organizational types in a sample of industry sectors, and how they might currently be positioned on the

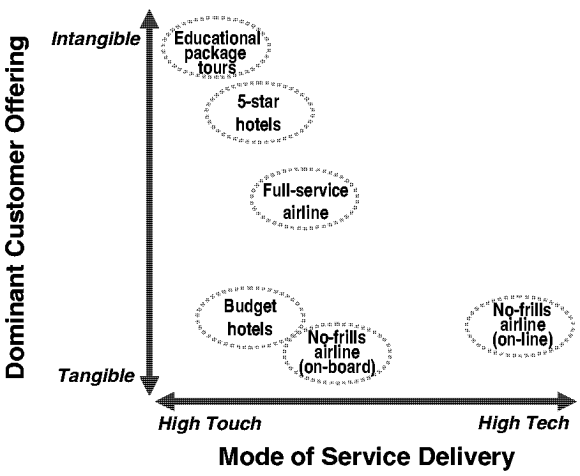

Figure 4A. Illustrative positions: *Airlines & Travel sector.*

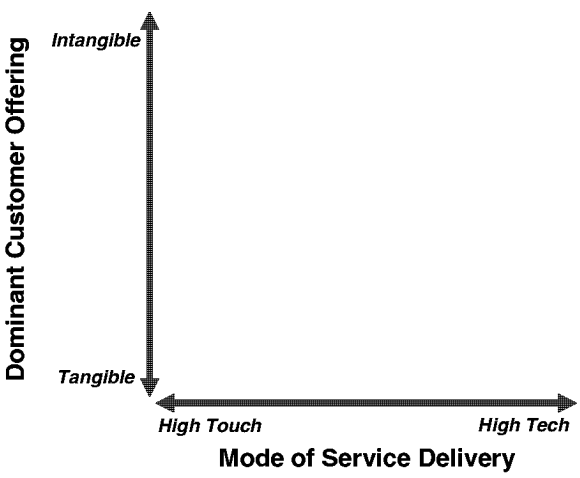

Figure 3. Opportunity Space: options in value creation.

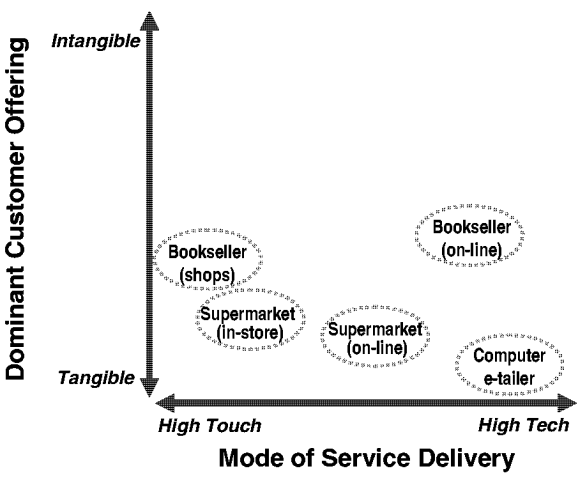

Figure 4B. Illustrative positions: *Retail sector.*

opportunity space matrix. These cover offerings, in the case of Figure 4A and sectors, in the case of Figure 4B. The suggested positions may represent perfectly sustainable ambits of current and continuing operation, or may trigger useful questions about whether the playing field in one particular area is too crowded. This in turn could lead to analyses of whether, for instance, the firm needs to either add more value to its overall customer offering/s, or to exit particular areas.

We see this dynamic currently demonstrated in the example of mobile telephony. At risk of becoming a mere commodity, with downward pricing to match, many organizations in this sector are repositioning simultaneously in two directions. On the one hand they are moving towards higher human touch, for example by the addition of video capability to handsets, adding a much greater element of human interactivity. Simultaneously there has been a move towards more intangible but value-added information service and knowledge search capability, in place of simple voice and text messaging services. **Figure 5A** illustrates the changing 'opportunity space' trajectory of this sub-industry.

In a further example, high street banks appear to be moving simultaneously in two directions. First, to accelerate their partial return to a more high-touch and responsive mode of service, as in the re-establishment of physical outlets and well-staffed regional banking centres. Second, by the virtual commoditization of back-end processing and simplified transactions using powerful technology platforms. **Figure 5B** illustrates the challenge of future value-creation for banks.

As an indication of possible application of the mapping concept, an opportunity space analysis by tertiary research-based institutions might discern that its research offering occupies only a small area of the opportunity space, typically in the top left-hand quadrant. This could prompt consideration of the possibility that harnessing more ICT capability might lead to quicker-to-market 'products' from research ideas. That is, moving from less tangible to more tangible products or services,

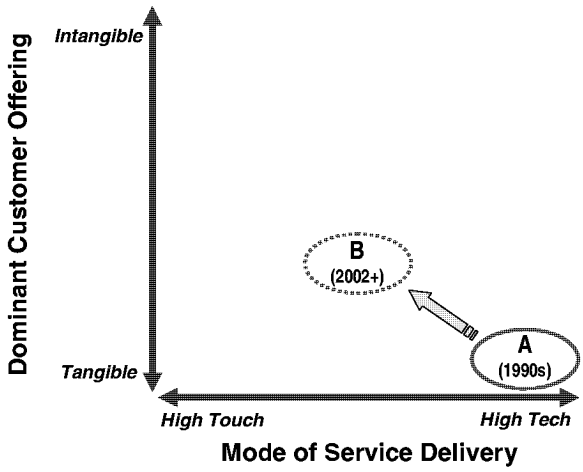

Figure 5A. 2nd wave value creation: *Mobile telephony*.

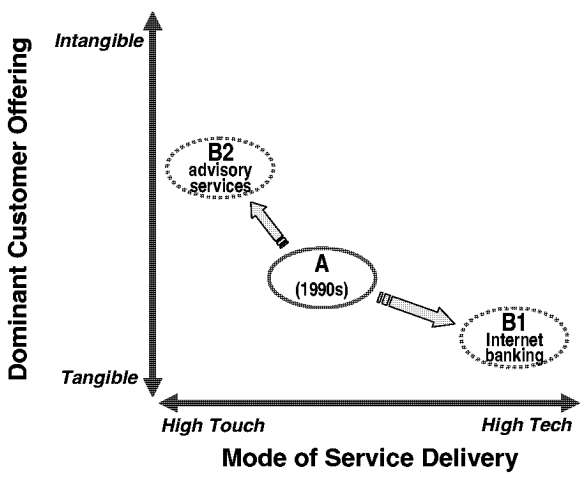

Figure 5B. 2nd wave value creation: *High Street banks*.

perhaps with a higher technology quotient, to assist in replicability.

We believe that these examples illustrate the utility of the concept and highlight the implications for planning and designing ICT technology platforms that facilitate the interactions with customers that will create continuing or new streams of value.

The case of e-government

The major focus of our remarks so far has been on private sector organizations. Our research indicates an apparent marked difference between what public and private sector organizations are doing. Huge amounts of

taxpayers' money are currently being spent by governments in advanced economies to upgrade public sector ICT systems. The goal of these initiatives is to achieve 'e-government' — that is, using new ICT capabilities to support a shift of culture from public administration towards service to and engagement with 'the citizen'. The research firm Gartner Group asserts that the topic of e-government is now at the top of its 'hype curve' (Gartner Consultancy Group, 2002).

e-Government initiatives in countries like Singapore and Sweden appear to be gaining efficiencies from the technologies and public acceptance of their deployment. In the case of Singapore, however, total commitment to a high-tech industrial future has left it economically exposed with few counter-cyclical industries to fall back on. In countries such as the UK, e-government fits the rhetoric of modernity espoused by politicians but the reality is of a frenetic search for any technology which might gloss over deep systemic problems that have yet to be resolved. Results to date have been decidedly mixed. For instance, the Benefits Payments IT system project was abandoned after three years at a cost of £1 billion; the Libra case-working system in the Lord Chancellor's Department failed at a cost of £178 million, while the rising costs of modern e-technologies in the Inland Revenue have doubled anticipated costs, adding £1.4 billion (*The Economist*, 2002b).

Such problems and failures of systems are not uncommon in both private and public sectors. However, if technology solutions presented under the guise of e-government are destined to disappoint or fail, we suggest that the voter backlash for governments could be as significant as the rolling effects of the financial fallout from the dot.com crash were for the private sector.

To be fair, there have been some positive developments:

> *In recent local elections, voters were able to cast their vote by digital television, internet, text messaging or touch telephone. They were able to vote in railway stations, supermarkets, churches and mobile polling booths . . . 60 pilots in alternative methods of voting [were] tested by the Government.* (Baldwin and Sherwin, 2003)

The UK government has announced its intent of having broadband connections to every primary and secondary school, as well as broadband connectivity in healthcare for every GP surgery, hospital and Primary Care Trust. In fact £6 billion has been pledged over the next several years for such IT/broadband investment. The real issue is not the intent, or the investment, but a capacity to manage the process so that it does not become short-term technology-hype and suffer the same fate as the dot.com era in business.

In theory many government agencies are aiming to be *multi-channel.corp*s, but they are such late adopters of modern ICT that in practice, their behaviour bears the hallmarks of the *heatseeker* e-type — an option that has almost totally been abandoned by the private sector. The question, however, is not necessarily only one of timing, but of relevance. Government operates in a multi-stakeholder world in which the messiness of human interaction is a prominent feature. In the public sector, as opposed to government trading enterprises, it is highly probable that a more desired positioning of some agencies might be as the *not.com by design* type. This is firstly because of the nature of human interaction required and secondly because of the long lead times required for the introduction of major systems — time spans which may not be always amenable to the governance and decision-making process of the electoral cycle.

As with the private sector, one size does not fit all. Some parts of the public sector are highly amenable to ICT-mediated access by citizens for information and services, while some parts may need to concentrate on more efficient back-end processes and systems. It is a question of achieving an appropriate balance or integration between the two to satisfy the needs of relevant stakeholders, many of whose requirements will sharply diverge.

Organizational implications

We believe that value-creation and the maintenance of sustainable organizational futures are key to successfully participating in the second wave of e-change. It is not about info-technology *per se*. On the one hand success will in future come from attention to the blend and integration of 'front-end' and 'back-end' info-technology capabilities possessed or developed by the organization. Without strong and integrated 'back-end' systems and processes, most 'front-end' information systems will be completely sub-optimal in operation. This is the lesson from the first wave of e-change. On the other hand a more insightful analysis is required by organizations to examine the intersecting needs of people, the capacities offered by technology and the type of customer offerings necessary to create future streams of wealth. Differentiation in this equation will often be the key to creating sustained success.

Value-creation and the maintenance of sustainable organizational futures are key to successfully participating in the second wave of e-change

Carr (2003) has produced a particularly controversial perspective on the relative lack of strategic importance of information technology in the twenty-first century:

> *By now the core functions of IT — data storage, data processing, and data transport — have become available and affordable to all. . . . Their very power and presence have begun to transform them from potentially strategic resources into commodity factors of production. They are becoming costs of doing business that must be paid by all but provide distinction to none.*

Conversely, Yap and Mohr (2002) find evidence that competitors buying the same technology does not lead to commoditized application of technology:

> *The Relationship Technology matrix helps us understand why firms who attempt to use the Internet in a similar manner can experience very different outcomes.*

Coming from two different perspectives, these arguments support our case. Carr in particular seems to be referring to replicable core operational systems, while Yap and Mohr's ICT reference could well refer to customer-facing technologies where differentiation in the application of the technology is the key. Our view is that while emulation of core operational systems may be sustainable, each firm must find a unique ICT value equation at the 'front-end' of the business.

The opportunity space concept therefore allows for both views and takes us forward by presenting a practical schema and lens to do several things. First, to map the current and potential positioning of the organization's offerings or clusters of offerings *vis à vis* competitors and non-competitors: '*where do we fit in the scheme of things, and why are we, or could we be different or similar to others*?' Second, to understand the answer to the question: '*what information-technologies might assist us in the transitions we will have to make*?' Third, to assess '*what organizational capabilities and skills do we need to develop to successfully operationalize our view of the future*?' And finally to reflect: '*do the models above provide a useful selection criteria and/or provide a useful set of questions to be asked for the selection of external resources, systems and specialist advisors*?'

The successful blend of human interaction with information technologies is a key variable in successful technology uptake. We believe that application of the opportunity space concept can materially assist in supporting

executive understanding of this variable and how best to manage it for organizational fit. The utility of the concept is that it is capable of being applied at the enterprise or business unit or offering level. Furthermore, it compels managers to address and achieve the appropriate balance between high technology and high touch to create business value and sustainable growth.

Biographical notes

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Nigel Courtney is at the Cass Business School, City University, London, where he gained his doctorate and lectures on e-business and applied knowledge management. Nigel is a chartered engineer with extensive experience in project and general management. Through his firm, Courtney Consulting established in 1990, he advises clients on information systems strategy and the management of intangible assets.

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Appendix: Validation of the 2000 e-change typology and model

The e-type adopted/planned by the subject organizations . . .

'3 years ago'

e-Type	01/02 Samples	02/03 Samples	Total (#)	*Total (%)*
1: *not.com by default*	32	44	**75**	***27.0***
2: *dot.com*	29	17	**46**	***16.4***
3: *beatseeker*	17	11	**28**	***10.0***
4: *not.com by design*	44	18	**62**	***22.1***
5: *multi-channel.corp*	20	35	**55**	***19.5***
6: *e-corp*	7	7	**14**	***5.0***
			281	***100.0***

'today'

e-Type	01/02 Samples	02/03 Samples	Total (#)	*Total (%)*
1: *not.com by default*	2	1	**3**	***1.1***
2: *dot.com*	21	13	**34**	***12.1***
3: *beatseeker*	12	10	**22**	***7.8***
4: *not.com by design*	12	23	**35**	***12.5***
5: *multi-channel.corp*	76	69	**145**	***51.6***
6: *e-corp*	24	18	**42**	***14.9***
			281	***100.0***

'in 3 years time'

e-Type	01/02 Samples	02/03 Samples	Total (#)	*Total (%)*
1: *not.com by default*	5	5	**10**	***3.6***
2: *dot.com*	4	8	**12**	***4.3***
3: *beatseeker*	—	1	**1**	***0.4***
4: *not.com by design*	7	8	**15**	***5.3***
5: *multi-channel.corp*	81	79	**160**	***56.9***
6: *e-corp*	49	34	**83**	***29.5***
			281	***100.0***

Deductions from these data

'3 years ago'

In 1999 the distribution of e-types was quite broad. The majority of the 281 organizations in our sample were fairly evenly split between e-types 1, 2, 4 and 5.

The main shift during the two years of sampling was from e-type 1 (*not.com by default*) to 5 (*multi-channel.corp*).

'today'

The data revealed that by 2002 — i.e. after the dot.com deflation — there had been a

dramatic change. Over half the organizations had adopted e-type 5.

The main shift during the two years of sampling was a noticeable retrenchment from e-type 2 (*dot.com*) to 4 (*not.com by design*).

'in 3 years time' (projected)

The data showed continued growth in the number of organizations seeking to achieve e-type 5 (*multi-channel.corp*) and a significant shift from e-type 2 (*dot.com*) and 3 (*heat-seeker*) to e-type 6 (*e-corp*).

It is evident that the three 'transitional' e-types (1, 2 and 3) are now viewed as viable e-change options by only 8% of organizations. In particular, e-type 3 (*heatseeker*) has virtually ceased to exist. Organizations today are almost entirely focused on achieving one of the three 'emerging' e-types (4, 5 and 6).

Against this background the time-split data suggests early signs of the emergence of a mini wave of 'post-bubble' dot.coms.

As would be expected with any longitudinal study of organizations, there has been a degree of attrition; 12 of the organizations in the sample are known to have ceased trading. The majority of these were e-type 1 and 2. In addition, a number of organizations are reported to be in financial difficulty. In general, these organizations have been trying to move to e-type 6 or retrench to e-type 4.

