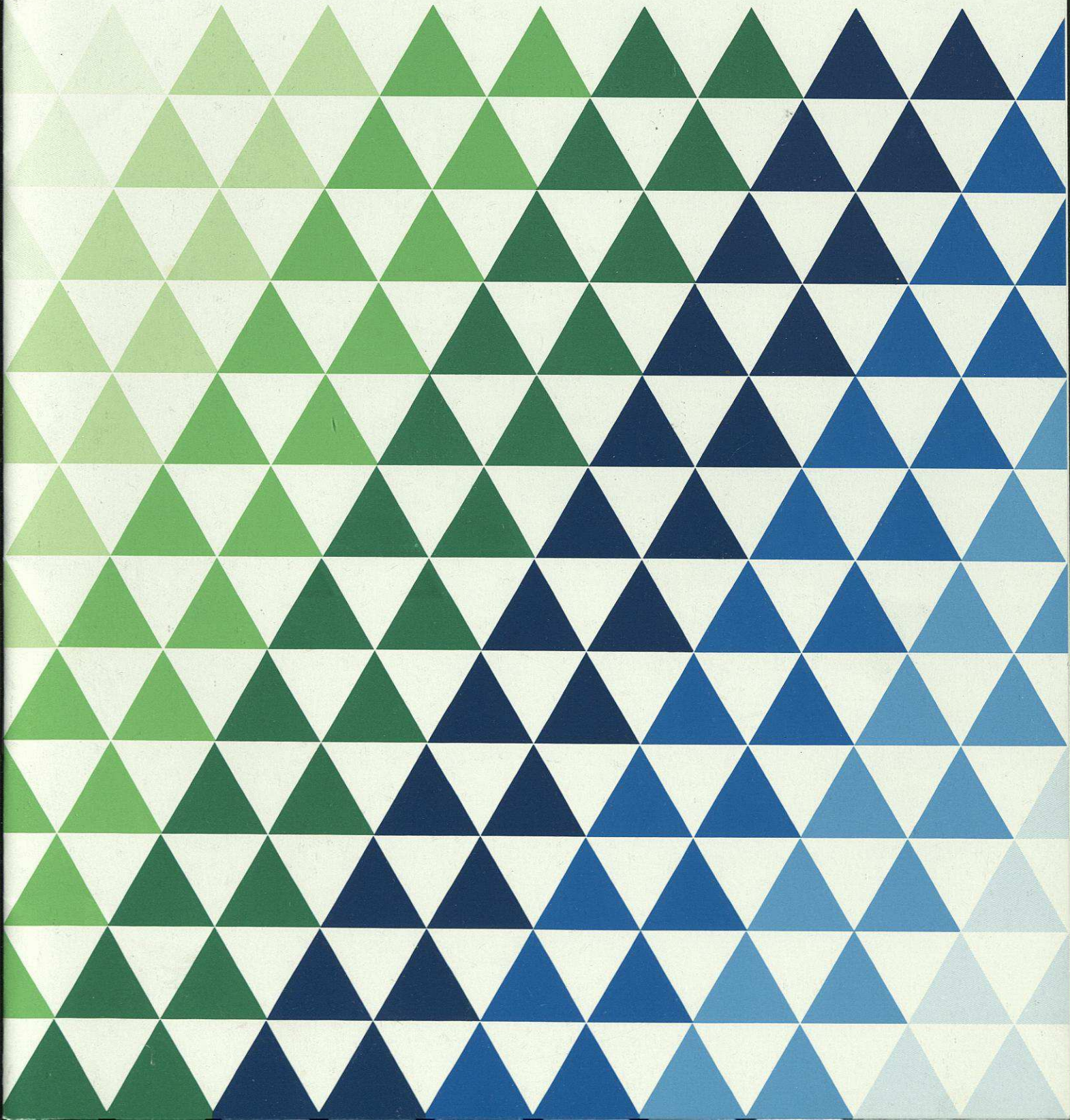


Electronic Marketplaces



Electronic Marketplaces

Management Summary
Report 77, November 1990

Butler Cox plc

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Foundation Report 77, 'Electronic Marketplaces', was published in November 1990. Its aim is to provide directors, senior managers in marketing and purchasing, and senior systems managers with an understanding of the potential impact of information technology on the operation of their marketplaces, and of the threats and opportunities that this will create. This document summarises the main management messages arising from our research. The full report is available only to members of the Butler Cox Foundation.

The traditional village marketplace was simple and efficient in operation. By meeting in one place, sellers could promote their wares to every potential buyer, and every buyer could compare the offerings of every seller. A few such marketplaces still exist, like the one illustrated in Figure 1.

The majority of today's marketplaces are very different. They operate on national or international scales, they manage much higher volumes of trade, and they deal in more sophisticated products, such as motor cars, or

life assurance, or teenage mutant turtles. In some respects, however, they are less efficient. Suppliers cannot afford to talk directly to every potential customer: they must use intermediaries, or hit-and-miss advertising campaigns. Customers cannot afford to compare more than a handful of suppliers' offerings for each purchase.

Information technology is now starting to be applied to the processes of marketing and purchasing, bringing suppliers and customers together in 'electronic marketplaces'. These developments will alter the balance of power between suppliers and customers, and introduce the dynamics of commodity and financial markets (illustrated in Figure 2) to industry sectors that are used to a slower pace of business.

We believe that information technology will, in the near future, affect all aspects of trading — it will assist in the process of identifying appropriate customers or suppliers, it will streamline the process of matching specifications to requirements, and it will facilitate the negotiation and agreement of a deal. The

Figure 1 A few traditional marketplaces still exist



Figure 2 Information technology will have a profound effect on the operation of marketplaces



combination of all three will lead to the transformation of a very wide range of markets. Financial markets have been the first to feel the effects of this, but the same principles will soon apply to most sectors, including transport and travel, manufacturing, retailing, and even local-government procurement.

In economic terms, information technology will move many sectors closer to the concept of a 'perfect market' — that is, a market in which all participants are fully informed about all aspects of the market. Today, most markets are very imperfect, and many suppliers exploit their customers' lack of information about the market. To some organisations, therefore, electronic markets will pose a serious threat. To others, they will represent a major opportunity.

The next few years will see the emergence of three new applications of information technology to marketplaces:

- Electronic marketing — the use of information technology to make marketing more effective.
- Electronic purchasing — the use of information technology to increase purchasing power.
- Electronic markets — the linking together of multiple buyers and multiple sellers.

We believe that senior managers should understand each of these principal developments and the resulting changes in the relationships between buyers and sellers.

Electronic marketing can strengthen the power of suppliers

Information technology can transform marketing in several ways. New electronic channels will make it easier for customers to place their orders, and for suppliers to provide up-to-date product and promotional information. In Singapore, Shell has recently made it possible for householders to order cylinders of liquefied petroleum gas, using touch-tone telephones to key in their account code. Shell can guarantee delivery within 30 minutes, some three hours ahead of its competitors.

Similarly, teleshopping schemes enable consumers to place orders for goods and services from a terminal in their home. Some of the

longest-running schemes are offered as Minitel services in France; terminals were initially given away by the telephone company to provide a directory enquiries service, but private users can now gain access to services ranging from home banking to dating agencies.

Large retailers are now evaluating the use of computer workstations with high-resolution colour graphics to provide 'interactive brochures' and catalogues in stores, especially for bulky or made-to-order items that cannot be kept in stock. General Motors' experiments with a multimedia brochure for the launch of a new Buick range resulted in a 20 per cent higher customer-conversion rate and a 25 per cent higher average sale value, because the system encouraged customers to explore the range of options available.

Electronic marketing does not, however, require an electronic link with the customer. The emerging field of 'precision marketing' involves the use of sophisticated customer databases to identify potential customers for a product. G E Capital, which runs the store credit cards for a UK-based clothing chain, now has the capability, for example, to mail a special promotion to 'all male storecard holders, aged between 25 and 35, who have previously bought a suit from us, but who have not done so in the last 12 months.'

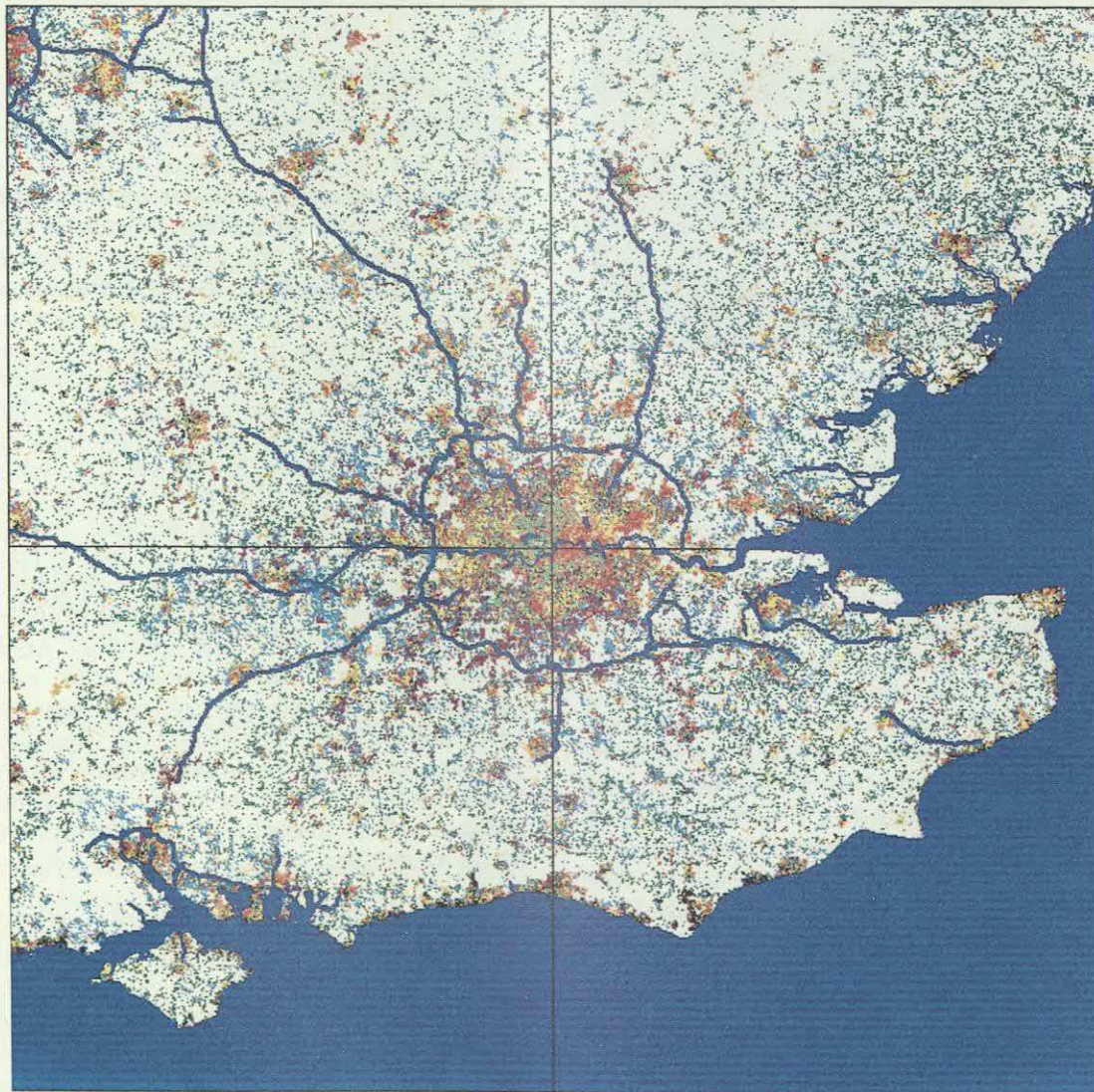
New customers can be targeted with the aid of postcode-analysis systems such as CCM's Mosaic system, which operates in the United Kingdom and the Netherlands. A map of the south-east of England, with postcode areas classified by type of housing, is illustrated in Figure 3. (In the United Kingdom, one postcode covers an average of just 20 houses.) Postcodes may also be classified according to average income, propensity to buy certain types of product, and even lifestyle.

The marketing concept of 'finding the right customers for the product' will, however, increasingly give way to 'finding the right product for the customer'. Information technology will be used to customise product specifications, packaging, and price. Some industries have always operated on a custom-build basis, but the concept will extend to mass-produced items. Toyota can now deliver a new car to a Japanese customer's house within eight working days of the order being placed, with a choice from 1,500 options.

The introduction of customised products, packaging, and prices will increase the importance of yield management. The technique has long been used by the airlines — the economy section of a 747 aeroplane comprises 30 or more fare classes and prices. The airline must adjust the allocation of seats to those classes to maximise expected revenue. The principle of yield management will become applicable to many more industries within the next five years. In Japan, for example, the Seven Eleven chain of

foodstores makes deliveries to each store three times a day, and changes what is offered on the shelves according to the time of day and the weather. With the advent of electronic shelf labelling — computer-controlled price displays that replace conventional shelf price labels — supermarkets will be able to vary prices during the day to even out peak loading problems. One of the commercial systems being tested in the United States and Europe is pictured in Figure 4, overleaf.

Figure 3 The Mosaic database classifies all postcodes according to type of housing



Types of housing:

- | | |
|-------------------------|------------------------------------|
| ■ Prosperous pensioners | ■ Poorer council housing |
| ■ Leafy suburbs | ■ Older council-house tenants |
| ■ Semi-detached housing | ■ Prosperous council-house tenants |
| ■ Older communities | ■ Young owner occupiers |
| ■ Singles | ■ Rural |

Figure 4 Electronic shelf tagging will ultimately make it possible for supermarket prices to be varied according to the time of day



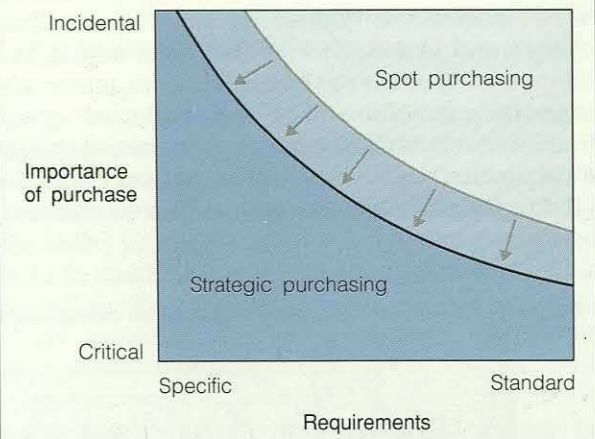
(Source: Retail Electronics Limited)

Electronic purchasing can strengthen the power of customers

Before suppliers get too excited about the possibilities for electronic marketing, they need to be aware of the changes that information technology will bring to the purchasing process. For if electronic marketing strengthens the hand of the supplier, electronic purchasing will strengthen the hand of the customer. As Figure 5 illustrates, there are two categories of purchasing — strategic and spot — and information technology will have an impact on each in different ways and will shift the boundary between them.

Strategic purchasing occurs when the product (or service) is so vital to the customer's business, or so specific to the customer's requirements, that long-term relationships are established with suppliers. Price, provided that it is not out of line with the market, is often less important than continuity of supply, quality, and timeliness of delivery. Electronic links can be used to tighten these relationships, and where the purchaser is the larger operation, the benefits

Figure 5 Electronic purchasing changes the boundary between strategic and spot purchasing

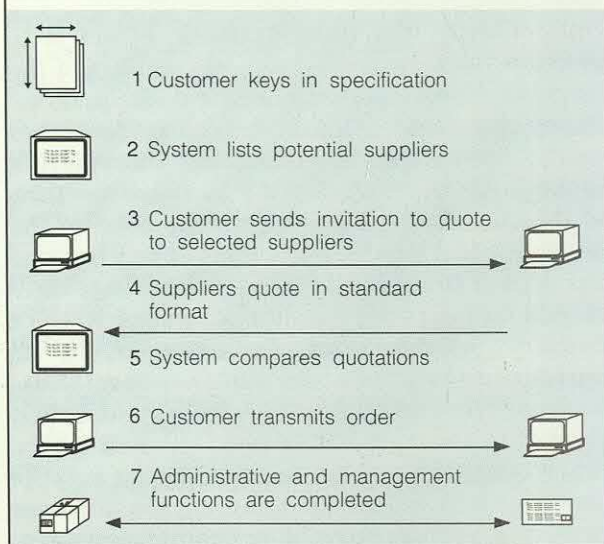


can be heavily skewed. For example, a major airline has recently moved to just-in-time ordering of aircraft spare parts, using electronic data interchange. The suppliers have had to set up depots close to the airline's maintenance establishment to meet its new delivery time-scales.

Information technology is also beginning to make an impact on spot purchasing (where the purchaser compares the offers of different suppliers each time a purchase is made). By reducing the cost of search and by providing easier connections to a greater number of potential suppliers, information technology enables customers to increase their purchasing power dramatically. The insurance sector has felt the impact of this already: quotation systems mean that brokers can compare quotations from 10 insurers as easily as from two, and the main beneficiary is the customer. Product-locator systems are another example — the US-based Inventory Locator Service helps airlines to locate stocks of specific aircraft parts at short notice.

Electronic purchasing is no longer restricted to packaged or standard-specification goods. Form-trac is a purchasing service for business stationery, recently introduced by AT&T ISTEL in the United Kingdom. Figure 6 shows how the system operates: large corporations or independent agents enter their requirements into the system and are immediately advised which print suppliers have the capability to meet them. The user can then send an electronic invitation to quote to all, or to selected, suppliers. Responses are ranked in order of price and displayed to the user, who may then order the goods via the system.

Figure 6 A new electronic purchasing system facilitates quoting for printed stationery



As electronic links reduce the cost of searching and matching, it will become easier for customers to switch suppliers if prices cease to be competitive. Many strategic purchasing relationships are justified by the cost that a new supplier incurs in tooling-up to manufacture a particular item or in becoming acquainted with the customer's administrative requirements, and by the consequent delays involved in changing suppliers. However, the use of computer-aided design and computer-aided manufacturing, and the increasing ease with which engineering drawings and machine tool control programs can be distributed over the telephone line, are removing these barriers.

Electronic markets will link multiple suppliers and customers

Electronic markets may be defined as electronic links that bring together multiple buyers and sellers. The next five years will see the emergence of electronic markets in a wide range of industry sectors. One of the ways in which such markets will be created is via a convergence of electronic marketing and electronic purchasing.

Electronic sales channels, for example, will evolve from single-supplier channels to multiple-supplier channels. When United Airlines provided travel agents with direct access to its reservations system, the airline gained a big competitive advantage, but it was not long

before it was forced (by the introduction of American Airlines' competitive Sabre system) to allow travel agents to book seats on other airlines through the same system. Regulations have now outlawed its attempts to retain some advantage by displaying its own flights first. The implication is that supplier organisations that are still locking their customers in by providing them with terminals (as UK pharmaceutical distributors do), or those that are considering doing so, must anticipate being forced into multisupplier links in due course. In other words, electronic sales channels can and will evolve into electronic purchasing channels.

Conversely, electronic purchasing systems will start to accommodate electronic marketing. The operator of the system may sell advertising slots on users' screens, and because the whole medium is electronically controlled, these messages can be personalised to each user. Prodigy, the home-shopping system owned jointly by IBM and Sears, features advertising windows within other information screens. Electronic purchasing systems may permit ad hoc offers as well as invitations to quote. Consider this possibility: a printer's forward schedule indicates a one-day gap between two, large, four-part, continuous stationery runs. It would be far more economical to do a similar smaller job for that period than to accept alternative business, so via the electronic purchasing system, he communicates a limited special price to all buyers connected to the system. Previously, the effort involved in telephoning all his customers would have been too great. This example demonstrates that electronic markets are not as one-sided as they may at first seem.

Electronic markets can also be set up as such from the start. Any party with sufficient capital and infrastructure can establish the market; it may be the government, a value-added network supplier, an industry body, or a group of intermediaries. There are also opportunities for entrepreneurs; an organisation called Marketel in California, whose experience is described overleaf in Figure 7, is attempting to establish an electronic market in travel facilities.

Large, decentralised organisations, especially those with multiple manufacturing sites and sales outlets, are starting to establish internal electronic markets. They have found that poor flow of information, or unbalanced purchasing power between subsidiaries, has allowed third parties to buy from one part of the organisation and sell to another part, with a mark-up in

Figure 7 A start-up company in the United States plans to establish an electronic market in travel facilities

Marketel International Inc is a start-up company based in San Francisco, whose aim is to establish a true electronic market in travel facilities. The idea is that would-be travellers will enter 'bids' into Marketel's trading system, indicating their requirements and the price that they are prepared to pay. An example bid might be: "I wish to fly from Los Angeles to Hong Kong between 27 and 29 January, and I am prepared to pay up to \$400 for a seat". These bids will be matched to offers placed on Marketel's trading system by travel suppliers such as airlines and hotels. The likelihood of a particular bid being successful depends on how realistic it is, but also on the load factors of the suppliers. Many major travel operators now employ sophisticated yield-management systems, so if demand is low on a particular day, it can pay them to accept a low bid.

According to William S Perell, senior vice-president of Marketel, the system would offer benefits to both suppliers and customers. "The customer gets the possibility of paying a lower price in return for accepting the burden of increasing uncertainty — both uncertainty of success and uncertainty of the supplier brand." Suppliers get the chance to generate additional marginal revenue, without having to publish reduced prices. Marketel hopes to have the system operational during 1991.

between. Establishing internal electronic markets not only improves the flow of information, but encourages better matching of supply and demand through price fluctuations. In some cases, these internal markets have been extended outside the organisation, and may even handle competitors' products.

Information technology changes the dynamics of markets

Once markets start to function electronically, however, their dynamics start to change. The best evidence for this lies in the financial markets and commodities exchanges, where trading is increasingly supported by information technology.

Information technology substantially widens markets in several ways. First, it extends the reach of markets, both in space and time: global, 24-hour trading is becoming a reality. New players can enter the market without a large sales force. It also becomes easier to introduce new products into a market, or even to create whole new markets by cloning the supporting systems. The Pacific Stock Exchange is in the process of establishing a market in computer

chip futures — the first example of such trading in a manufactured product.

Undoubtedly, the most dramatic effect is to increase the responsiveness and volatility of the markets, sometimes with drastic consequences. There are some salutary warnings for other emerging electronic markets. Information technology can undoubtedly increase the flow of information in a market, to the good of the economy as a whole, but a market can become uncoupled from reality. Foreign exchange rates should reflect the economic strength of a country, as measured, for example, by its current account balance, and they mostly did so from the time when currencies were first floated in the early 1970s until the mid-1980s. Since then, the market has become so volatile that the movements in some currencies bear little or no relation to the economic measures. Electronic markets therefore hold the potential both to benefit and to damage the economy as a whole. As they become more widespread, so will calls for regulation.

Businesses need to review their competitive strategy

The principal developments in electronic marketplaces are summarised in Figure 8. In addition to assessing the threats and opportunities that each of these developments represents, organisations need to conduct a more general review of their relationships with their markets. First, they need to re-evaluate the basis of competition under which they operate. Several of the trends identified will result in greater price competition, and in some cases, are already doing so. Staying out of a major electronic market is an option that is open to only a few of the biggest players, and to those with a unique offering. A more subtle way of achieving the same goal is to attempt to change the basis of competition — to after-sales service, or to visual design, for example.

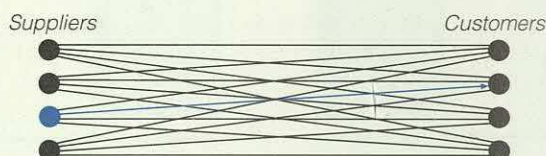
Surviving inside the electronic market (the only option for most players) requires one of four strategies. The first is to compete on price, using information technology and other techniques to reduce overall cost levels. The second is to emphasise factors other than price, which can be a way of competing within the market as well as of staying outside it. The third is to find niches within the market that can be exploited, and to concentrate on those niches in the hope of dominating them. The fourth is to compete

on responsiveness. This is slightly different from competing on price — it means adjusting prices and offerings to maximise revenue, often on a dynamic basis, depending on what is happening in the market. New information technology tools make this possible.

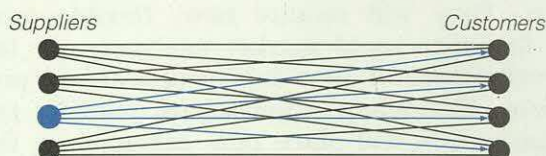
Purchasing relationships should be re-evaluated. Purchasers should exploit strategic relationships more fully, by increasing the exchange of information. Spot purchasing should be made more competitive, to improve purchasing power. Opportunities should be identified for introducing competition into strategic purchasing.

Figure 8 Electronic marketplaces take several different forms

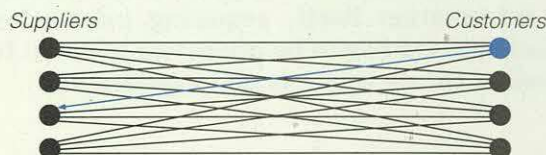
An electronic sales channel strengthens the link between a supplier and customer, to the principal benefit of the supplier.



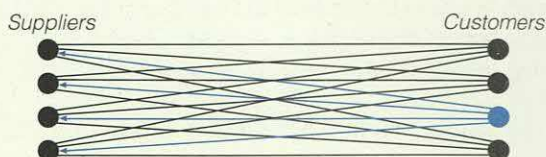
Electronic marketing techniques enable a supplier to tailor his offer to individual customers' requirements.



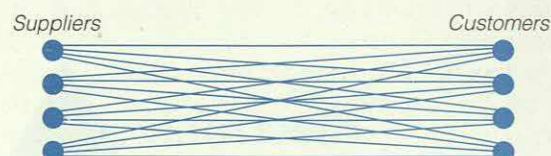
Electronic data interchange enables a customer to gain more from a strategic purchasing relationship.



An electronic purchasing system allows the customer to compare more suppliers at lower cost.



A true electronic market connects multiple suppliers and customers on a reasonably even footing.



Organisations also need to review the set of functions that they perform internally. The last two decades have witnessed a fashion for vertical integration. New developments in electronic marketplaces undermine several of the assumptions on which vertical integration is based; with electronic purchasing, it becomes easier to ensure continuity of supply and to buy at better prices from other organisations. This may actually favour disintegration.

The role for business intermediaries may change enormously. Those who thrive because of inefficiencies in the market (probably the majority) face the prospect of disintermediation — when a supplier uses electronic channels to sell directly to his end customers. On the other hand, those who genuinely add value to a product or service may gain from electronic marketplaces, and encroach on the traditional territory of neighbours in the supply chain, as food supermarkets have done by taking responsibility for distribution away from food manufacturers. Figure 9, overleaf, shows how electronic marketplaces make new strategies possible, based on the structure of the value chain.

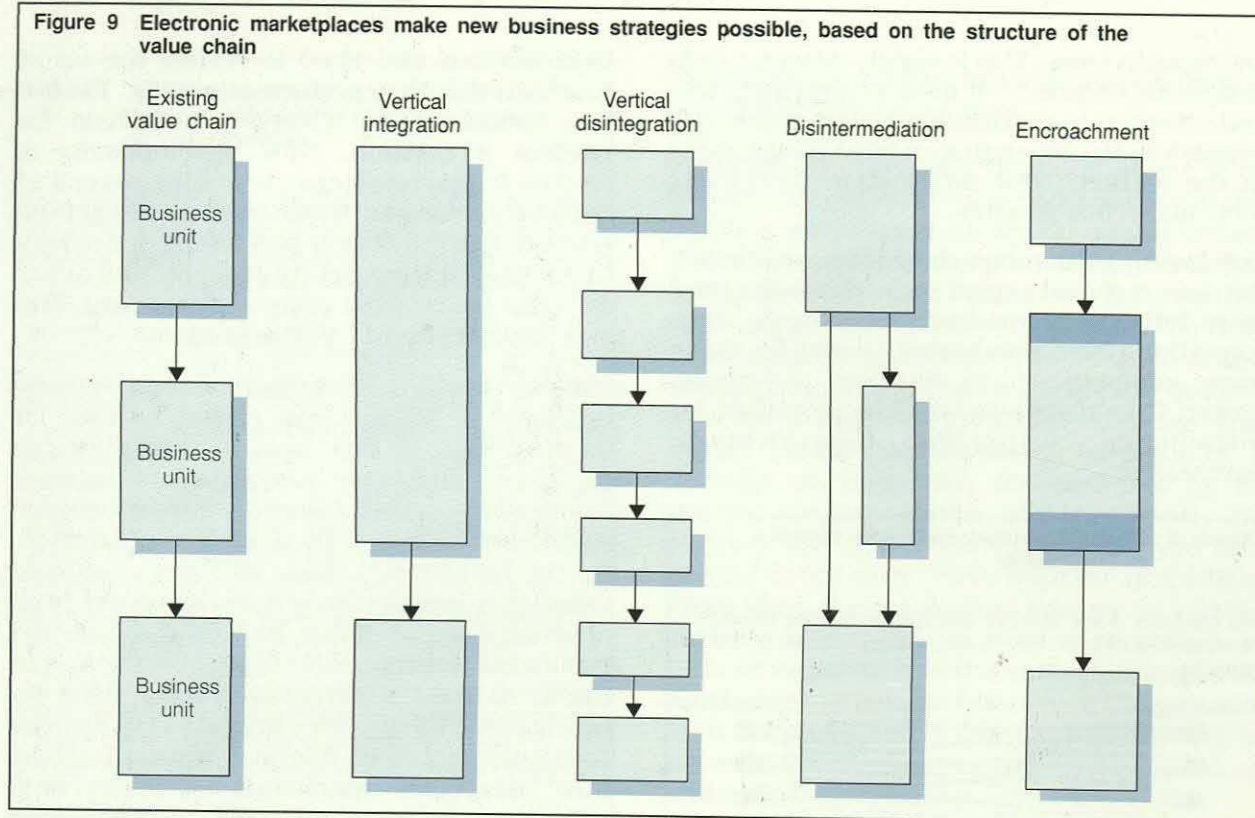
In reviewing their functions, organisations also need to look out for new business opportunities presented by electronic marketplaces, such as the opportunity to become the market maker, or to provide new services within the market, such as market research information or value-added services.

Systems departments should prepare for electronic marketplaces

Information systems are a critical factor in an organisation's ability to compete in electronic marketplaces. The systems department has an important, but difficult, role to play. (The full implications for the systems department are discussed in detail in the main report.) It cannot lead the business into electronic marketplaces, but it must ensure that the business is well positioned to exploit their potential, when the decision to go in is taken.

This will entail a thorough review of internal systems, to ensure that they can support participation in electronic marketplaces and to anticipate any problems that may arise if they have to be extended outside the organisation. It also means adopting a 'market facing' philosophy for all new systems development,

Figure 9 Electronic marketplaces make new business strategies possible, based on the structure of the value chain



paying particular attention to four main factors — interworking, responsiveness, security, and robustness.

The best way in which the systems department can help its organisation to capitalise on the potential of electronic marketplaces is to seek to form a strategic partnership with the marketing or purchasing department. This is both to ensure that decision makers are fully informed of the possibilities for electronic marketplaces, and to justify the large infrastructure costs that such applications may entail.

Electronic marketplace applications will also require new approaches to systems implementation. They will require new, flexible tools to facilitate rapid market analyses and the development of new information-based products. Extending applications outside the organisation will place new demands on the design of user interfaces and the provision of user support. Finally, electronic marketplaces will dictate a new approach to the value of information itself, requiring information relating to trading to be preserved in detail for possible future analysis and exploitation.

Electronic
Marketplaces



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Butler Cox plc
Butler Cox House, 12 Bloomsbury Square,
London WC1A 2LL, England
☎ (071) 831 0101, Telex 8813717 BUTCOX G
Fax (071) 831 6250

Belgium and the Netherlands
Butler Cox Benelux bv
Prins Hendriklaan 52,
1075 BE Amsterdam, The Netherlands
☎ (020) 755 111, Fax (020) 755 331

France
Butler Cox SARL
Tour Akzo, 164 Rue Ambroise Croizat,
93204 St Denis-Cédex 1, France
☎ (1) 48.20.61.64, Télécopieur (1) 48.20.72.58

Germany (FR), Austria, and Switzerland
Butler Cox GmbH
Richard-Wagner-Str. 13, 8000 München 2, Germany
☎ (089) 5 23 40 01, Fax (089) 5 23 35 15

Australia and New Zealand
Mr J Cooper
Butler Cox Foundation
Level 10, 70 Pitt Street, Sydney, NSW 2000, Australia
☎ (02) 223 6922, Fax (02) 223 6997

Finland
TT-Innovation Oy
Meritullinkatu 33, SF-00170 Helsinki, Finland
☎ (90) 135 1533, Fax (90) 135 2985

Ireland
SD Consulting
72 Merrion Square, Dublin 2, Ireland
☎ (01) 766088/762501, Telex 31077 EI,
Fax (01) 767945

Italy
RSO Futura Srl
Via Leopardi 1, 20123 Milano, Italy
☎ (02) 720 00 583, Fax (02) 806 800

Scandinavia
Butler Cox Foundation Scandinavia AB
Jungfrudansen 21, Box 4040, 171 04 Solna, Sweden
☎ (08) 730 03 00, Fax (08) 730 15 67

Spain and Portugal
T Network SA
Núñez Morgado 3-6ºb, 28036 Madrid, Spain
☎ (91) 733 9866, Fax (91) 733 9910

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