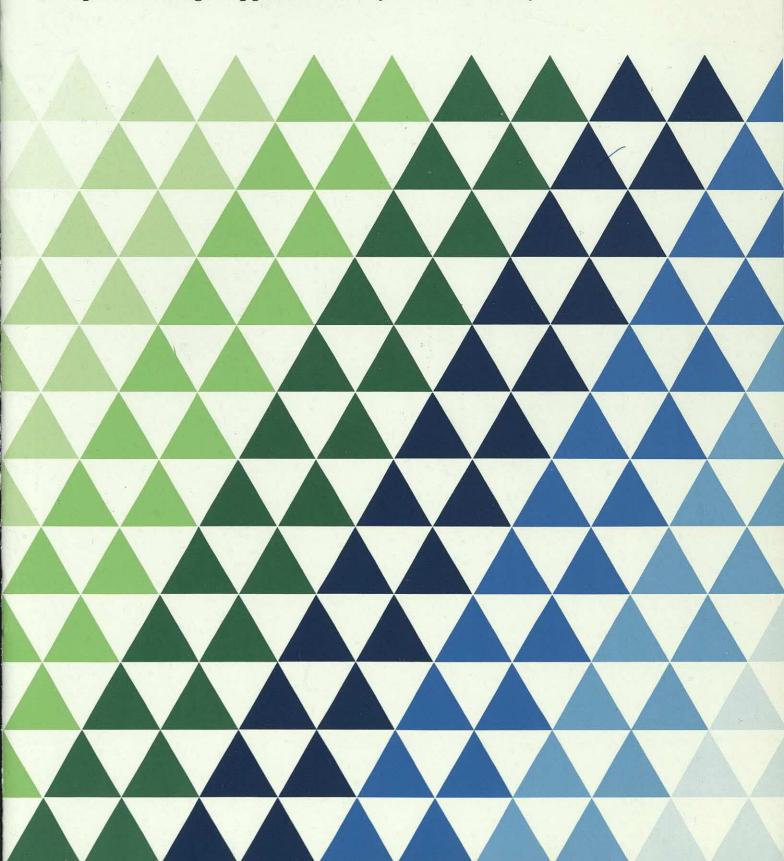# Management Summary

Competitive-Edge Applications: Myths and Reality

BUTLER COX FOUNDATION

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Management Summary
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Competitive-Edge Applications: Myths and Reality

Management Summary

An overworked term, an underexploited concept

The use of information technology (IT) to gain a 'competitive edge' or 'competitive advantage' has received considerable support from the media, computer suppliers, and consultants, and its importance has been preached increasingly in recent years by the business schools' gurus. The popularity of the topic is not surprising because it makes good reading, commands senior management attention, and, hopefully, makes compelling arguments for further investment in equipment and services. Indeed, 'competitive edge' is becoming an overworked term. But that does not alter the fact that behind the term lies a very real and highly significant trend in the use of information technology. From top management's viewpoint it is possibly the most significant development to date.

Our research, extending earlier work in the area, examined today's position and trends, looked at the lessons that could be learned, and assessed the implications. It drew on the experiences of several leading organisations, concentrating on those in Europe to complement earlier US research. Most of these experiences have not been reported before.

We found that competitive-edge applications are far more widespread than is generally realised. The research also identified certain key characteristics of applications used to exploit IT for competitive advantage. However, it showed that the way in which most of these applications are identified and deployed is not based on the strategic theories promoted by the gurus. Many of today's examples may be strategic in their consequences, but few such applications stemmed originally from a genuinely strategic concept.

The gurus perform a very useful service in terms of raising awareness. The problem is that, in the main, their descriptions of the process by which competitive-edge applications are spotted and developed are misleading. They rationalise what has happened, looking back to provide a neat logic to the case histories. This helps us to understand the nature of competitive-edge applications but is not very helpful in providing advice on how to go about seeking them or exploiting them.

Not an invention, an inevitable development

The current emphasis on using IT to gain a competitive advantage does not stem from any new invention or insight, or technological breakthrough, nor is it simply the latest idea thrown up by the computer industry or its watchers. Nor has the exploitation of IT in this way been brought about by those who preach its importance. Competitive-edge applications are a natural, and inevitable, extension of the way in which systems have been moving for the past several years:

— The continued development of the technology itself, with increased power, new capability, and vastly changed economics.

— The continuing move of computing into everyday life, so that more and more people turn to a screen or keyboard without apprehension or special training.

— The changing telecommunications environment, which provides an infrastructure that makes global trading a possibility and that will increasingly make electronic data interchange the norm.

— The growth of the installed systems base, which means that much of the data needed for competitive-edge applications is already being captured and processed.

— The increasing number of line managers who understand what the technology might do.

— The increasing use of information technology at the 'sharp end' of the business.

Competitive-edge applications take many forms

It might be argued that, since every system is designed to improve some aspect of corporate performance, every system is in fact designed for competitive advantage. But this could be said about every single activity within the business. Just as certain corporate moves are intended to provide a significant, sometimes strategic, lead over the competition, so too with certain systems.

There are several widely quoted examples of such applications — American Airlines, McKesson, and American Hospital Supply are amongst the favourites. They are all valid but, as already stated, competitive-edge examples are today far more widespread than these few well-known instances. Butler Cox's earlier public report, *Information Technology and Value for Money*, listed 100 different examples, and in the research for this Foundation Report, 89 per cent of the companies surveyed claimed to have genuine competitive-edge applications.

There are several ways in which IT can be used to gain a competitive advantage. The table in Figure 1

lists the more important examples, and the main report contains case histories that describe the ways in which IT is being used in practice to provide competitive edge in a variety of industries.

The term competitive edge, by its very nature, clearly applies to commercial enterprises, where many of the applications concern systems that fundamentally change the way an organisation operates and communicates with its customers and suppliers. However, the lessons learned from introducing such systems also apply to the public sector. Although public-sector organisations may not have competitors as such (although increasingly they do) they are certainly under evermore pressure — and often public scrutiny — to provide greater value for money for the taxpayer. Education and health care are areas where IT can, and in time will, have enormous, innovative impact. The relevant applications would be thought of as competitive-edge applications in the private domain.

The differences do not lie in the technology itself

The question that has to be asked is whether — aside from their goal — competitive-edge applications are any different from any other kind of system. The answer in terms of the technology itself, is 'no'. The technology (to date, at any rate) is the same as that deployed in other systems across the business. This is hardly surprising. The technology available to one organisation is basically that available to all. Competitive-edge applications cannot be bought 'off the shelf'. Thus, there is a premium on the know-how and imagination required to spot and develop the appropriate systems. That, in turn, does not always imply complexity or great technical sophistication.

Many of today's examples are extensions of already installed systems. Several are what might be termed 'third-stage' developments. Stage 1 is to put a system in to meet a well-defined operating need — providing widespread access to a corporate database, for example. Stage 2 is to provide external parties (customers or suppliers) with access to that database. Stage 3 is to add a further dimension, an additional facility that builds a permanent relationship with the third party offering mutual benefits that intentionally or coincidentally, lock-in the third party.

In the future, more competitive-edge applications might be based on expert systems technology (as reviewed in Foundation Report 60). Here again though, the key to success will lie in the specific

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Figure 1   The six main ways in which IT can provide competitive-edge opportunities

Information technology can assist in the creation of new products and services that compete with existing offerings. Online databases are an example of this.

Information technology can change the scope and size of the market. For example, telecommunications-based systems can enable an organisation to operate in geographic markets where it has little (if any) presence and to overcome time differences.

Information technology can reduce the life-cycle cost of products. Examples include the reduced development time and cost for cars and pharmaceutical goods, and the use of components for a wider range of products.

Information technology can enable more complex products to be produced — with the prospect that a competitive advantage can be sustained for longer. Uses of computer systems in financial services provide examples of this.

Information technology can permit a rapid response to competitive moves by allowing new products to be brought to the market quickly or by allowing new supporting services that increase the attractiveness of existing products.

Information technology can lead to the redistribution of added-value within an industry. This is particularly the case with electronic links between manufacturers, suppliers, and retailers.

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development and use of the application, not the purchase of the facilitating software.

But if competitive-edge applications do not differ in terms of the technology used, they certainly differ in terms of both how and why they are developed.

The traditional approach to systems development is not good enough

Experience shows that successful competitive-edge applications require a different approach, and a different attitude, towards the systems development process. In several cases, systems directors admitted that, had a competitive-edge idea gone through the formal approval channels, it would have been stillborn.

First, the process by which opportunities are identified and projects are initiated needs to be different. Second, the normal project structure of feasibility study, functional requirements specification, detailed specification, program specification, systems construction, testing, and implementation — all separated by neat decision points — is inappropriate. Third, the whole basis for proceeding — the systems justification — needs to be different. And fourth, the design priorities need to be different.

In practice, competitive-edge projects do not begin with the routine analysis of user requirements. Virtually every successful example we reviewed stemmed from an idea that had originated outside the systems department (not what we would have hoped or advocated, but what has actually happened in practice). Most never appeared in the planned applications portfolio or the formal five-year plan. Time is of the essence for most competitive-edge applications and they cannot take their place in the applications backlog. Once the opportunity has been spotted it is urgent. In almost every case there was a clear project 'champion', a line executive who had the vision of what was required, had the conviction, and drove the system through.

Moreover, the decision to proceed is not one of simply comparing costs and benefits. It is highly judgemental; it involves assessment of customers and competitors; it involves assessment of risk. It has to be management led. And the areas of investment are often different from the norm for traditional computer systems. The computer development costs can be quite low — because the investment in the underlying infrastructure, such as the telecommunications network or the data-

base, has been made for other purposes. But the costs of training and of introducing the changes in procedures required to gain the competitive advantage can be quite considerable.

Furthermore, the concepts have to be tried and explored, rather than theoretically evaluated. Investment has to be made with the knowledge that such trials may lead nowhere.

Experience to-date shows that there are several keys to success in developing competitive-edge applications. First, most such applications are inter-organisational, and it is very important to understand the other party's processes or needs. In many cases, external parties, such as customers or suppliers, had been directly involved in the development of the system either through working groups or pilot studies.

In terms of design, two factors have to be emphasised: speed of delivery and the quality of the user interface. Technical elegance and efficiency come a distant second. That is a major shift in emphasis for most systems design staff.

But this change in emphasis does not imply that development standards have to be abandoned. Rather, the standards have to be adapted so they can be used for a different kind of application. The alternative is either to stifle competitive-edge projects or to see existing standards circumvented. It is also necessary to educate systems development staff to recognise the changed priorities.

Formalised strategy studies have not produced competitive-edge applications

According to our research, few, if any, of the successful competitive-edge applications have so far resulted from a formalised search for strategic opportunities. Instead, they have been opportunistic in nature. Most have been the result of imaginative extensions of systems put in for more prosaic purposes. They have been evolutionary.

This finding from our research conflicts with the commonly accepted view that strategically significant systems are the result of strategic planning. They may be the result of strategic insight, but that is a different thing. To date, the many different methods advocated by academics and gurus for linking IT strategies to corporate strategy do not appear to be delivering competitive-edge systems.

The reason for this might be to do with the nature of the real opportunities; it might be a reflection on the currently available planning techniques; or it might simply be a question of time. In practice we believe it to be a combination of all three.

Many opportunities cannot be seen in advance. They are the result of a flash of commercial insight: the realisation that to take the system one step further will provide a unique facility, for example, or that the organisation is sitting on an unexploited asset. Or they are the result of a change in the market or a response to a competitor's move.

This will continue to be the case, which means there will be a continuing need to be able to react quickly. There is no point searching the horizon for new opportunities, when immediate opportunities are being ignored.

At the same time, certain areas of competitive advantage will stem only from constructing systems that progressively link together to provide a unique facility — thereby taking an innovative step in exploiting IT that the competition has not perceived early enough and cannot replicate quickly.

At present, there are few examples of competitive-edge applications resulting from a strategic review (though some case histories have been rationalised retrospectively to show such a picture). Partly, this is because it is a little early for many such systems to have reached fruition. When they do, they are likely to provide a long-standing advantage, though, again, it must be recognised that the subsequent exploitation of the system might well involve several opportunistic moves. Partly, however, the fault lies in today's planning techniques, virtually all of which specifically ignore a systematic examination both of technical trends and of the uses that competitors are currently making of technology.

What exists today, therefore, is the 'first wave' of competitive edge applications. These embody some, but not all, of the lessons for the future.

New attitudes and changed planning and development procedures are required

Two actions are required for an organisation to put itself in a better position to exploit IT for competitive advantage. Attitudes have to be changed, and the planning and development procedures have to be brought into line with a new set of requirements.

First of all, there is a widespread need to raise awareness of the possibilities for exploiting IT for competitive advantage, particularly amongst top management. This is not a one-off activity. Systems directors must strive for a situation where the subject becomes part of top management's regular agenda.

There has always been a demand from computer professionals, and computer suppliers, for top-management involvement. Today it has more substance than before, because:

— The nature of systems is increasingly strategic and their potential impact on the competitive position of the organisation is greater than before.

— There is a close interrelationship between systems and both corporate organisation structure and the way in which distribution and supply channels are organised.

— There is a high penalty for getting the systems infrastructure wrong.

Nothing can create as much inertia in a business as the wrong set of systems. Inappropriate systems can inhibit flexibility by constraining both the future means of operating and the future organisation structure. Without doubt, some organisations are now building systems that will prove to be tomorrow's strategic millstones.

There is more than one case of a planned corporate merger being abandoned because of the incompatibility of the two sets of systems. Conversely, to our own knowledge, there is more than one case where part of an organisation's attraction for its buyer was its systems.

There is a need to ensure that the potential impact of IT is considered when the appropriate aspects of corporate strategy are being reviewed. Associated with this is the need to keep the organisation abreast of potential developments and to monitor the ways in which competitors are using IT. These clearly are roles for the systems department.

For many organisations, and particularly for those in certain market sectors, there is a need for IT strategy to be developed interactively with the corporate strategy. Planning techniques designed to link the two, but which concentrate on known requirements and internal considerations, will fail to identify competitive-edge opportunities. It should be recognised that most of the techniques promoted today have this weakness.

However, the fact that many competitive-edge opportunities will continue to arise outside the formal planning process is not an argument for not having a strategy. Quite the reverse. Tomorrow's systems cannot be built on an ad hoc basis. What

the strategy must do is prepare the systems infra-structure, so that a fast response can be made when opportunities do arise.

Within the systems department there is the need, stressed above, to revise the systems-planning and project-authorisation procedures so that there is more focus on competitive issues, so that the appropriate line executives are involved, so that decisions are made using the right criteria, and so that competitive-edge applications bypass the development backlog. There is also a need to be aware of those emerging technologies that might prove relevant, and to ensure that the business gains first-hand knowledge of them early enough. The full report sets out a pragmatic workshop approach for identifying competitive-edge applications. This approach has been used successfully by Butler Cox in its consultancy work.

Competitive factors will become an essential part of systems planning

The report is not the final word on what is, after all, a rapidly moving field of development, but it shows clearly where we stand today. The growing emphasis on using IT for competitive advantage does, however, represent a permanent change to the way in which systems are regarded and exploited. It is a change that is still in its early stages.

In the past, information systems have been regar-

ded as largely synonymous with 'administration': important enough in terms of needing to be done efficiently and reliably, but not demanding continuous senior management attention and rarely looked upon as a key weapon in the organisation's strategic armoury.

That situation is changing rapidly: IT will have a much greater impact on the way in which an organisation is able to carry out its business and, of more importance, on the manner in which it can be controlled and redirected, and on the speed with which it is able to change and move into new fields. IT will thus become a key to business success and, in some cases, to survival.

Today's competitive-edge applications have proved mostly to be imaginative ways of exploiting systems that are already in place. They have arisen opportunistically. To some extent this will always be the case: it is a fact of life that new developments in the market and moves by competitors are not always timed to fit in with the corporate planning cycle. There will therefore be a continuing premium on vigilance, imaginative thinking, and the ability to react quickly — all of which would be welcome innovations in most corporate data processing thinking.

In addition, the need to review IT opportunities, technical developments, and competitors' uses of technology as an integral part of corporate planning will become both essential and the norm.

Perceptive organisations will recognise this both ahead of the competition and before the problems of doing otherwise become apparent.

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