



HEWLETT
PACKARD

The HP
Guide to
Open
Systems

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Presenting the Hewlett-Packard Guide to Open Systems



CONTENTS

1. Introduction.	9
<ul style="list-style-type: none">• Why business computers have often been more of a hindrance than a help ... evaluating the past.• How Open Systems support business decisions ... charting the future.	
2. What is an Open System?	13
<ul style="list-style-type: none">• What makes them possible?• Why internationally agreed standards are the key.	
3. Why Open Systems are relevant to your business strategy.	19
How they help in :	
<ul style="list-style-type: none">• Reducing the cost of integration in a merger or acquisition.• Increasing flexibility for business expansion.• Improving communication in joint ventures.• Taking advantage of electronic trading.	
4. How Open Systems increase freedom of choice in buying IT.	27
<ul style="list-style-type: none">• Why standards benefit you - the user.• Are there business risks in a single - vendor purchasing policy?	
5. How Open Systems can reduce system design and development costs.	31
<ul style="list-style-type: none">• The role of functional profiles, taking a lead from the US & UK Governments.• Moving beyond proprietary hardware and software.• Building in security.• Protecting your investment by reducing the cost of future obsolescence.	

6. A summary of Open Systems business benefits.	37
7. Guidelines to choosing an Open Systems vendor.	39
8. Conclusion.	43
The business advantages of addressing the value of Open Systems now.	
9. HP - the 'IBM of Open Systems'?	45
What Phillips & Drew Global Research Group are saying ...	

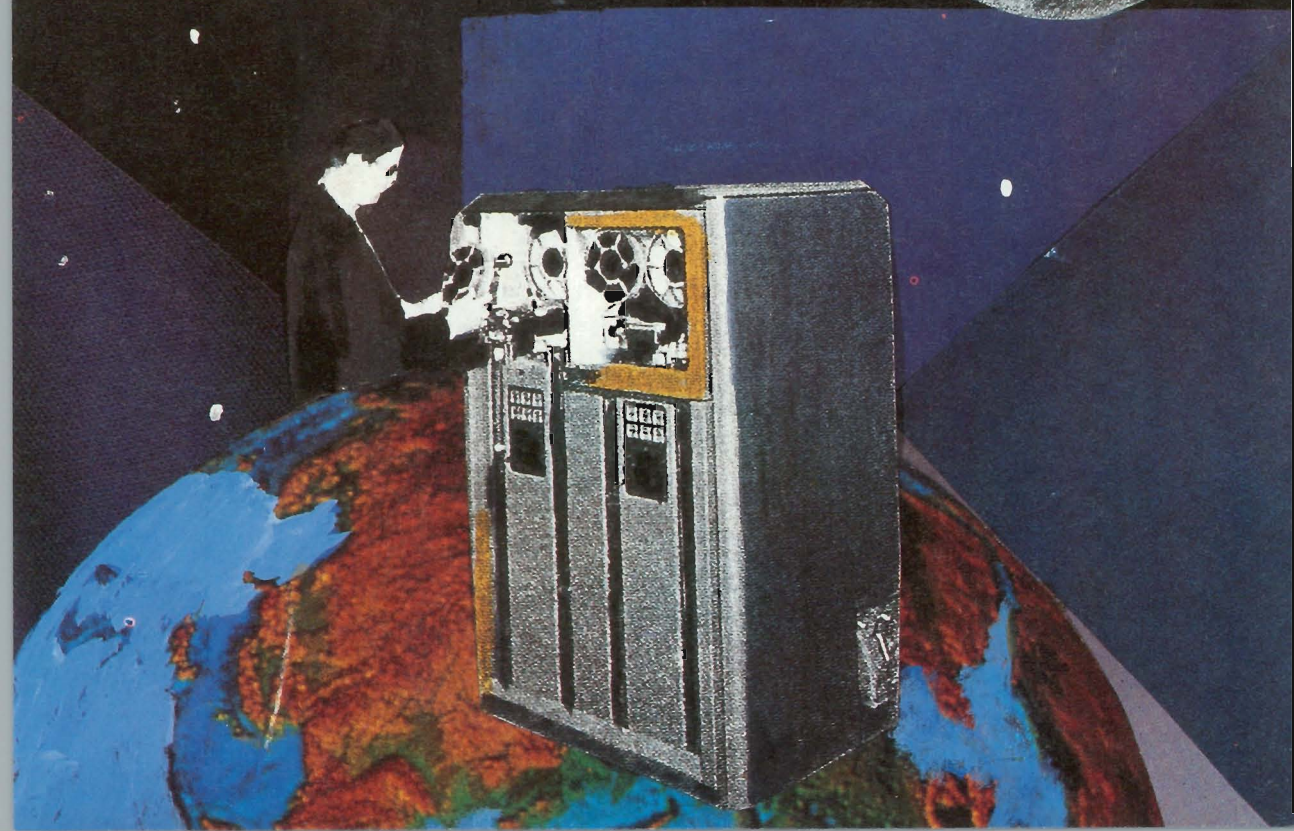
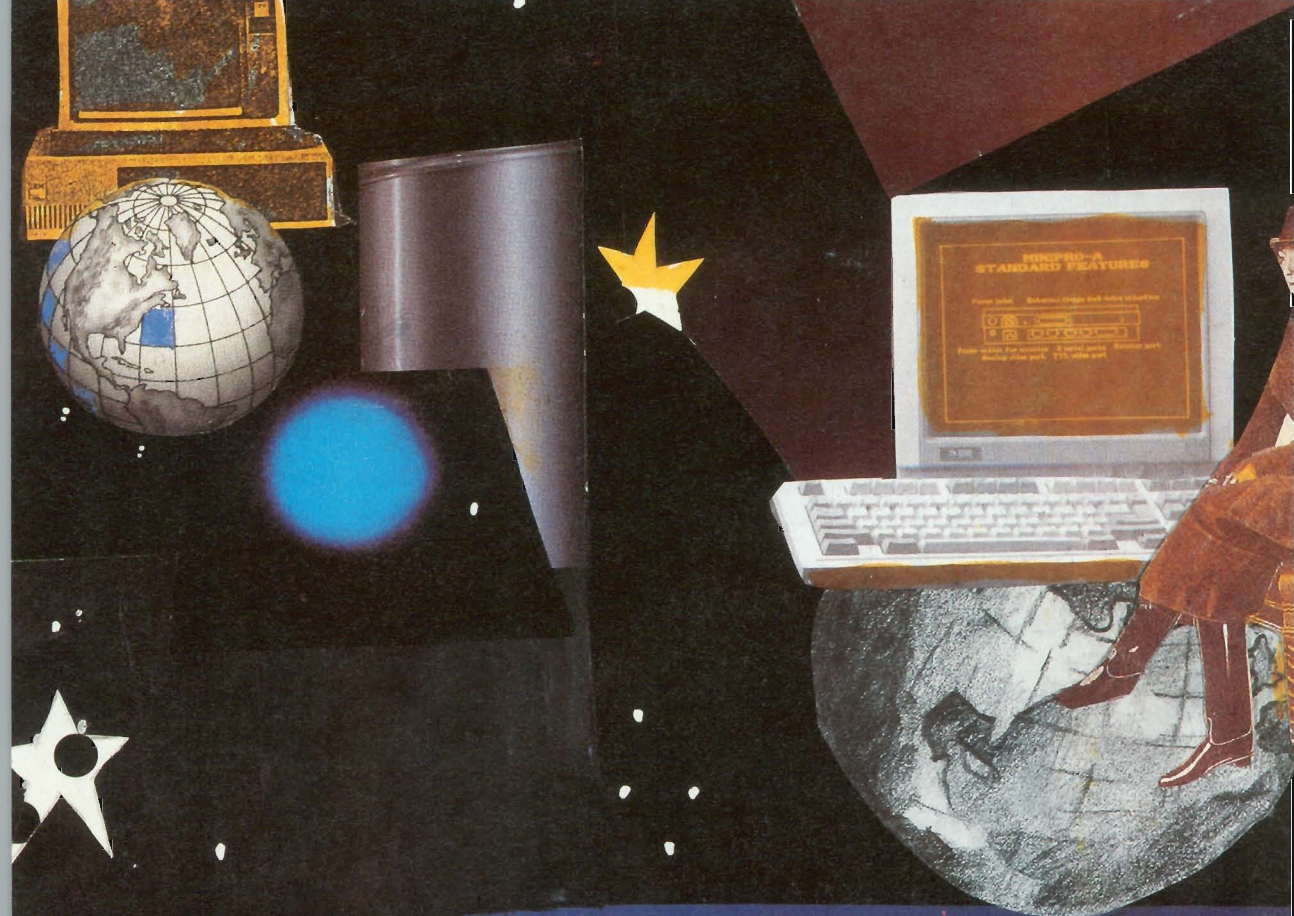


The Business Case for Open Systems

Open Systems is an approach which allows you more efficient, more flexible, use and management of your information technology (IT) to better serve your specific business needs. As such, we believe Open Systems is a major business issue which every organisation now needs to consider.

'The HP Guide to Open Systems' is designed to help chief executives, senior business managers, procurement managers and senior managers responsible for IT, address the business case for adopting Open Systems. It specifically covers those areas where strategic, commercial and economic advantages can be gained from using Open Systems in your business.

We are not, in this book, addressing the technical case for Open Systems. Many of these details may not be directly relevant to senior management. However, the fact that IT is frequently a major investment for any organisation and one that is becoming ever more critical to business success, suggests that you need to know the basis for this investment - to know that your IT will meet your business needs now, and in the years to come.

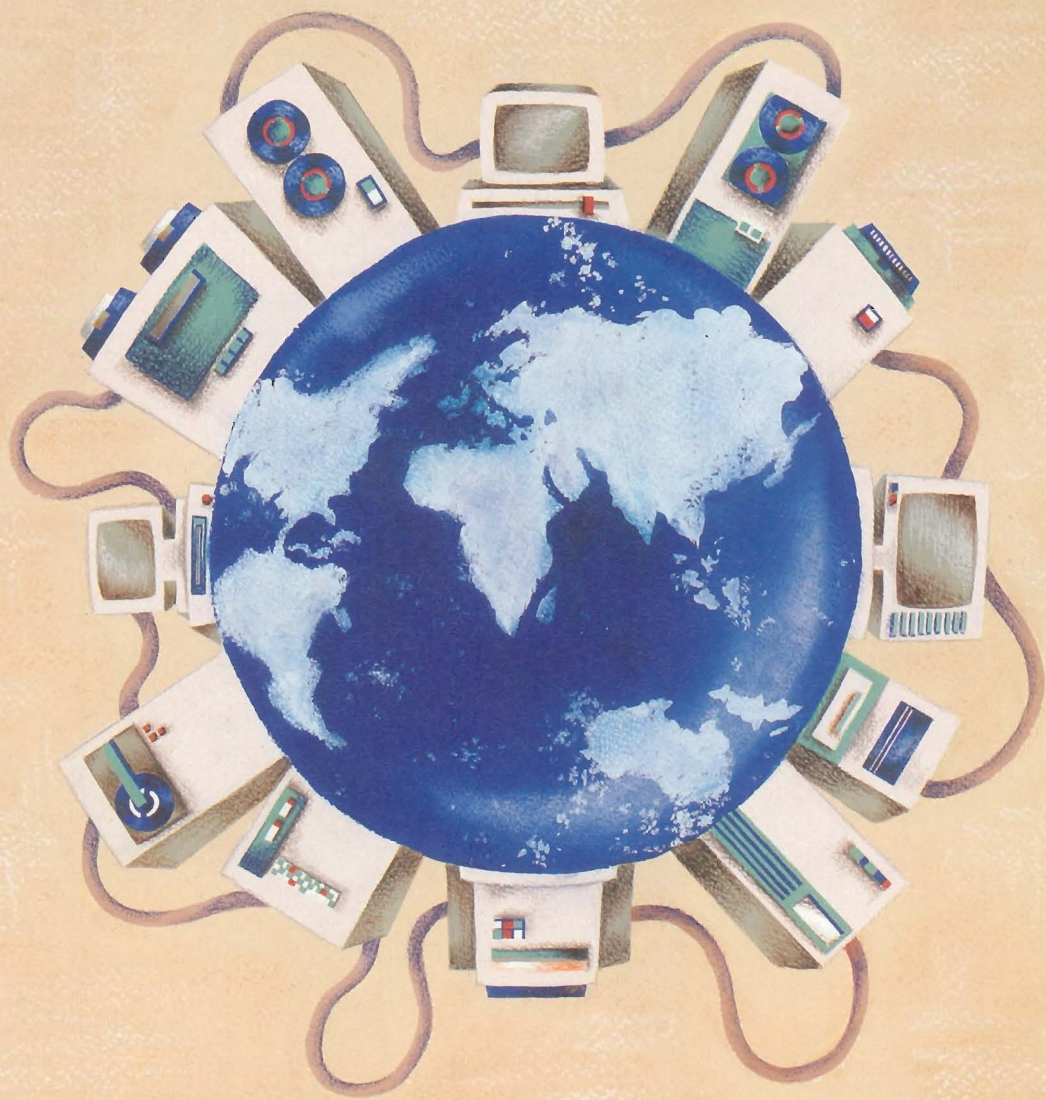


INTRODUCTION

Why computers in business have often been more of a hindrance than a help ... evaluating the past.

For many years the computer industry has operated in an isolated world. Manufacturers have developed information technology products and services to help business organisations, but they have done so separately. Each computer manufacturer has developed its products according to its own proprietary standards, standards which govern how their computers operate internally and what software can run on them. Each set of standards is different, creating a barrier to simple, cost-effective communication or interconnection with another manufacturer's system.

The results of such proprietary policy have become apparent in recent years. Organisations have invested heavily in IT, to take advantage of new technological developments, increasing not only the number of computers in our working environment but the variety of tasks they perform, only to find that in many cases such investment does not meet their expectations or requirements. Businesses which followed a strict single-vendor policy and those which computerised piecemeal, allowing each department to select the system best suited to its immediate needs, today face the same problem. Computer incompatibility. Systems cannot easily be connected or work together.



In the past, organisations have coped with these barriers by making modifications to existing systems or buying additional equipment - often several different software packages to perform the same task on different computers! Compromises which would be regarded as unacceptable in other business areas have been made in IT to maintain an investment in systems which are inflexible and difficult to change. Compromises involving time, disruption to operations and expense - it is like reorganising a department to accommodate a change in typewriters.

How Open Systems support business decisions ... charting the future.

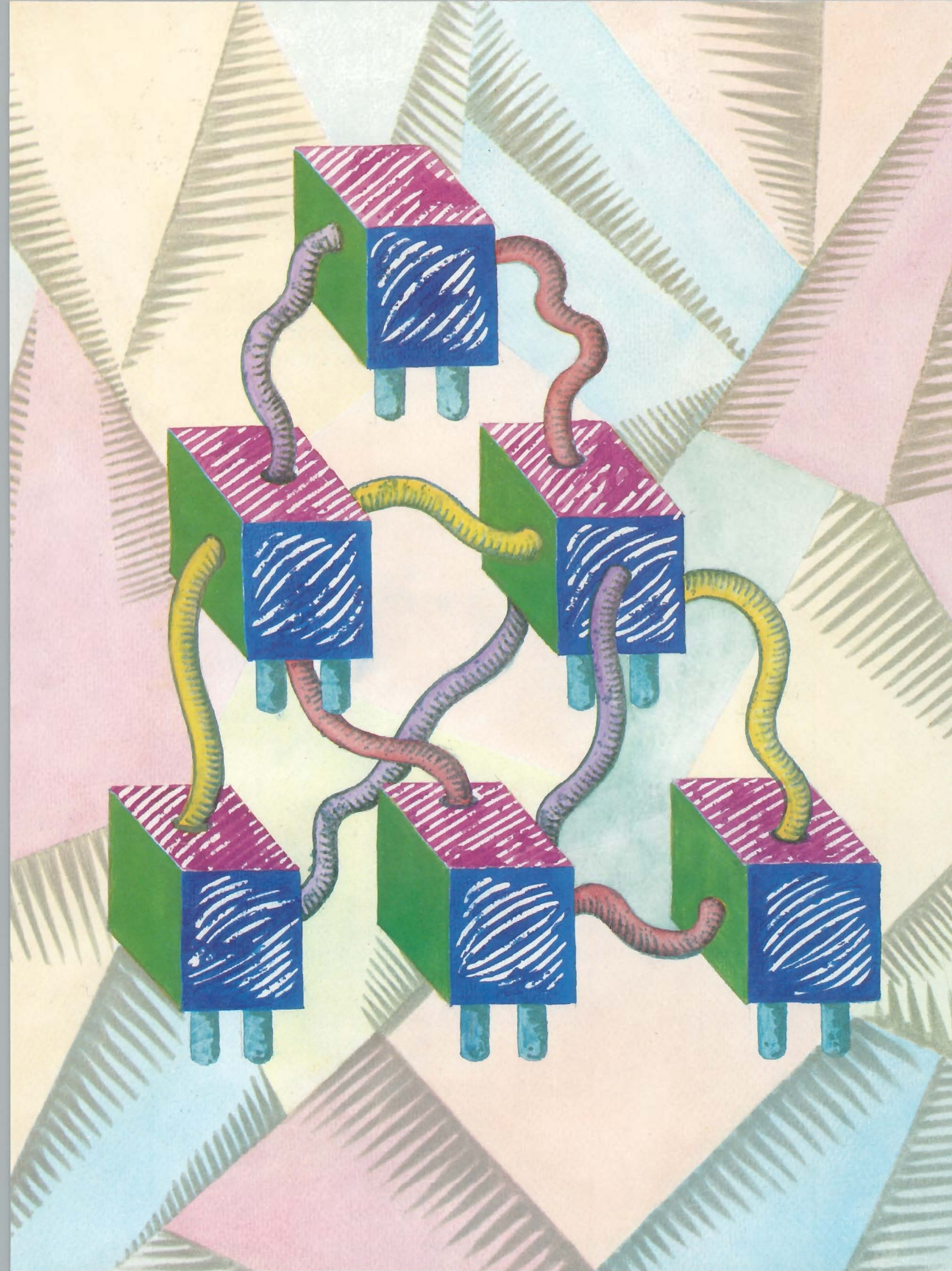


With the dawn of the Open System comes a business opportunity which promises change. Compatible products based on an internationally agreed set of standards for all areas of computer technology. An approach which starts from your business needs.

The basis for developing your computer strategy should be your business plan. The same criteria you apply to any area of major investment should underwrite the specification and selection of IT equipment. The question facing organisations today is no longer "will this computer system improve what the company does now", but rather "will it allow us to do what we may want to do in three years time?"

Today's business environment demands efficient use of information and communication. Internally, between desks and departments, subsidiaries and head offices, capitals and continents; and externally, with major customers, suppliers, banks and government organisations. Companies, large and small, recognise that the ability to exchange data electronically is vital in maintaining a competitive edge. Open Systems are dedicated to this. In this guidebook we will outline those areas where strategic, commercial and economic advantages can be gained from using Open Systems in your business.

With Open Systems, communication between different systems located anywhere in the world is possible.



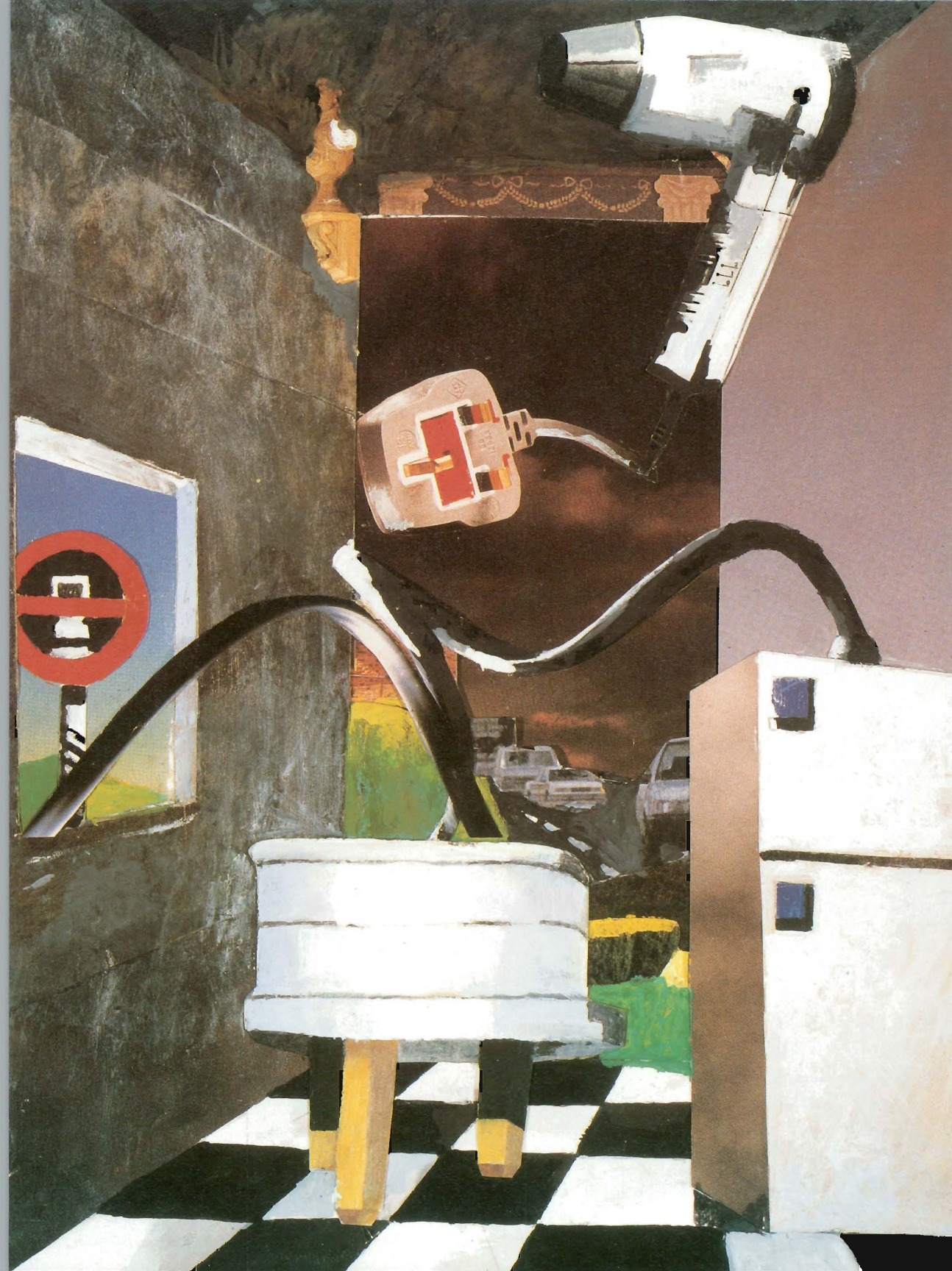
WHAT IS AN OPEN SYSTEM?

What makes them possible?

We define an Open System as: a set of networked business computers that can work together as if they were a single, integrated whole - no matter where the systems are located, no matter how they express their information, no matter which supplier produced them and no matter what operating system they use.

But an Open System is about more than hardware and software. The key is standards: standardising areas common to most systems, enabling systems to work together to communicate and share information, and programs to work together, moving easily between systems. In this way, an Open System forms the basis of a strategy which allows you to develop your own IT infrastructure, based on your own organisational needs. One that can grow and change with your business.

Open Systems are specifically geared to IT growth and enhancement in business. They provide flexibility - the ability to react quickly to change in line with developing business opportunities. They are not concerned with standardising specific applications such as accounting, stock control or distribution, instead Open Systems provide the infrastructure which allows you to 'plug in' your applications and have them work together.



Systems can be built gradually, block by block, using different products from different suppliers which conform to Open Systems standards. More importantly, your existing system becomes the base for building on so you can add or remove any hardware and software as your business needs evolve and change. There is no need to completely replace your present computer systems and reinvest in new technology.

Internationally agreed standards ... the key to Open Systems.

The move towards open computing has been driven by customer demand - principally increasing dissatisfaction over the lack of compatibility. As companies large and small have become aware that no one vendor can meet all their equipment, application and networking needs, increasing numbers of businesses are demanding IT solutions which provide:

- freedom of choice in hardware selection
- protection of investment in training and equipment
- applications that can run on different systems
- mixed vendor networks

The need for Open Systems was recognised by some vendors a decade ago and work has been in progress since then between users, suppliers and government agencies, to reach international agreement on a set of rules to standardise how computers work together. There is no business advantage in complexity.

Many of the initial standards have already been agreed and products conforming to these are now available. Business users who specify these standards-based products will find they can combine equipment and systems from a number of different suppliers.



In particular, two key standards covering communications and applications are already in place:

1. Communication standards, known as Open Systems Interconnection (OSI), enable any computer from any manufacturer to exchange information and work together.
2. Applications portability standards define how application programs can be used together and how they can be moved easily from one system to another.

Users are now in a position to start adopting Open Systems based on those standards and products available today. Other standards, addressing wider areas of computing, continue to be developed to ultimately provide a complete standards-based environment.

WHY OPEN SYSTEMS ARE RELEVANT TO BUSINESS STRATEGY

Developing a business strategy identifies both your business goals for the future and the methods by which you will achieve these. And while computer technology cannot create your business strategy, it can - and often does - play a vital role in determining whether your company meets those goals. Understanding the role of IT in the corporate development of your organisation can help you utilize computer systems that provide maximum business support - not potential frustration.



Merger or Acquisition ... how Open Systems reduce the cost of integration.

Merging with or acquiring another company to strengthen your existing business or help you enter a new market, inevitably means major changes - in organisational structure, personnel, management and reporting procedures, infrastructure and IT. You may find your computing systems completely incompatible with those of the new company. The accounts, financial management programs and procedures will probably be quite different to yours. While integration in some areas is possible, complete integration may be out of the question.

In the past, integration of the various parties' different IT systems has proved difficult and expensive. Proposed mergers have been known to fail because the task of integration was too complex and the costs involved too high. Open Systems reduce the cost of integrating different systems, resulting in lower expenditure and minimum disruption to your organisation.

Open Systems reduce the effort of integrating and merging different systems.



Business expansion, changing demands ... how Open Systems protect your investment.

Achieving success means being willing, and able, to respond quickly to change, or to seize that new business opportunity at short notice. To support this, your information technology should be as flexible as possible, able to grow and change as your business does. And although expanding your business, or entering a new area may mean you need to modify or increase your existing IT to meet new demands, it shouldn't mean completely replacing it. This is not only expensive but can completely undermine the feasibility of any new business venture.

But while a simple change or addition to your existing system may be all that's required, too often this proves expensive and difficult. Proprietary 'closed' systems are not easy to add to, expand or change - even quite minor adaptations require costly internal 'surgery' to perform to your new requirements and integration can be difficult if the equipment's standards are incompatible with the new systems you require.

Open Systems are designed to facilitate growth and enhancement. Whenever you need to expand or change your IT to support new demands, you can add or remove parts of the system as required, without affecting others. Open Systems protect your investment by providing an infrastructure - the basic facilities such as communications and operating systems can be used to support new applications whenever a change is required.



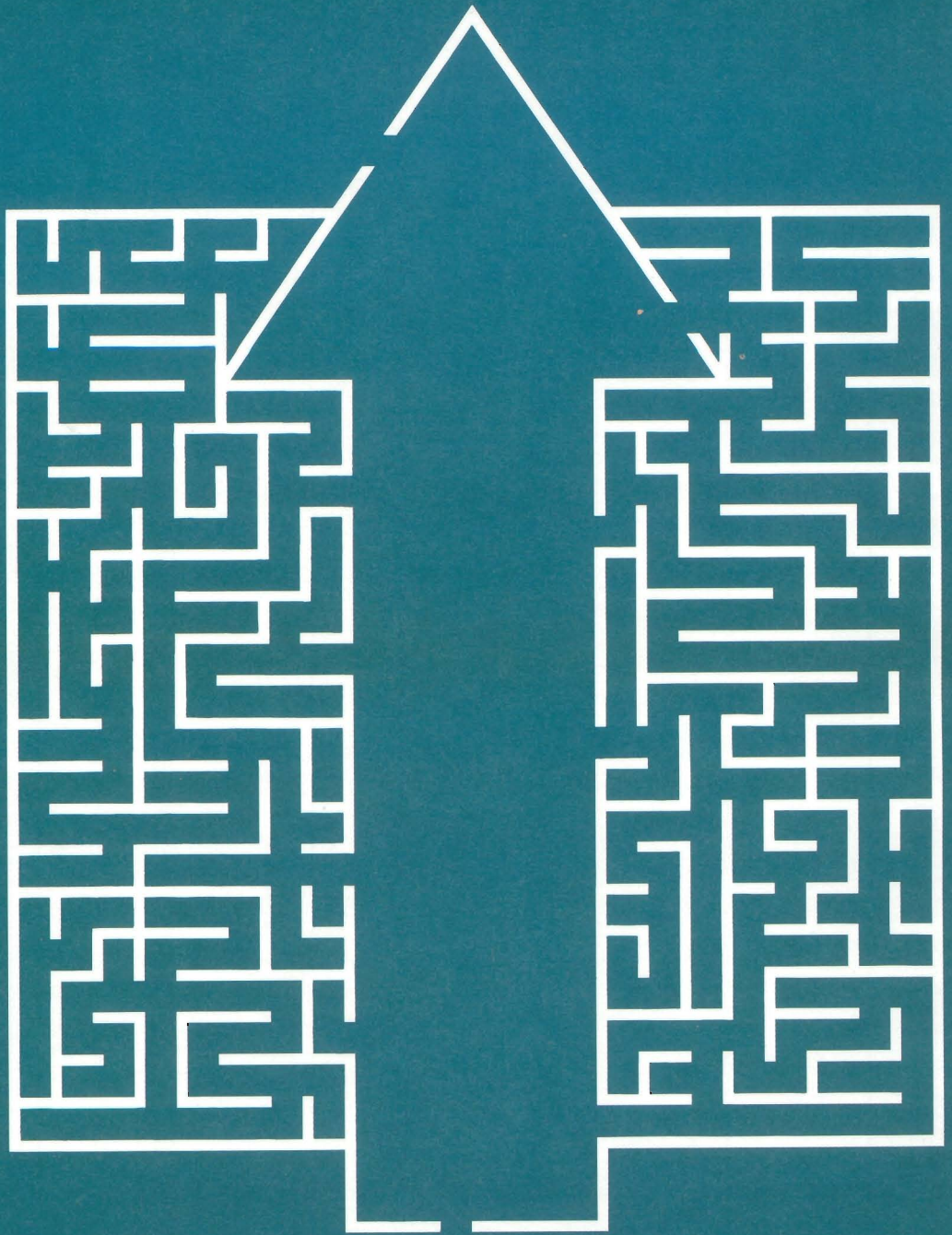
How Open Systems increase communication in joint ventures

Joint ventures promise mutual benefits - each company bringing its own strengths and skills - and require close cooperation to achieve specific goals. They also involve additional management and administration costs, not least of which is the cost of exchanging information. If the various parties have incompatible computer systems, basic communication concerning company information, contracts and so on is reliant on lengthy phone calls and faxes. Communication is often slowed down and, in the case of confidential information, rendered less secure.

Open Systems facilitate open communication, with common standards enabling different systems in different locations to exchange information. So your costs are reduced, you can respond more quickly and errors and duplications of clerical effort are minimized.

Open Systems help you take full advantage of electronic trading

Exchanging information electronically with customers and suppliers is already a business reality for some organisations. They have found that processing orders and invoices for example, printing them out and mailing - only to have the customer / supplier then retype the same information into their system for processing can lead to costly errors, delays and inefficient duplication of clerical effort. Electronic exchange reduces costs, speeds response time, reduces errors and creates more consistency of information while lessening duplication of effort.



However, to trade electronically your computer system must be able to communicate - and interpret the information exchanged - with the many different systems used by your trading partners. The Open Systems communication and electronic data interchange standards enable this to happen. By providing the essential communications ability you need to trade electronically, with diverse partners using different systems from different suppliers, you are able to take full advantage of electronic trading in many business areas.



HOW OPEN SYSTEMS GIVE YOU FREEDOM OF CHOICE IN BUYING INFORMATION TECHNOLOGY

In the past, buying information technology has put users in a 'no win' situation: purchasing the best technology for your needs from several suppliers created compatibility problems; purchasing everything from one supplier meant restricted choice and possibly higher prices.

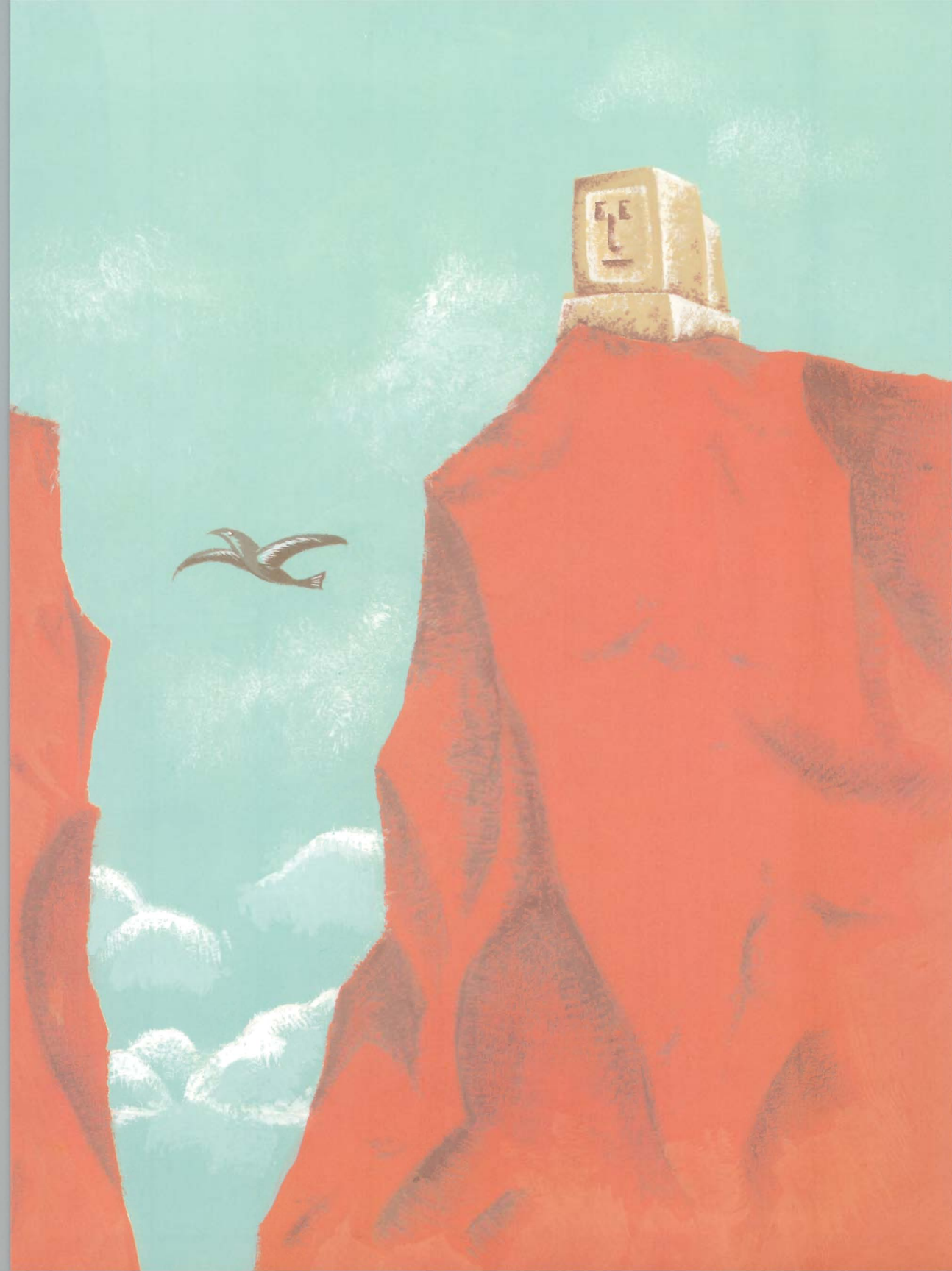
Open Systems let you buy the best products at the best price:

- you are not 'locked in' to any single vendor
- you can specify precisely what you want, based on international standards
- you have the negotiating strength to buy products which adhere to these standards, from any supplier at the best possible price.
- specifying clearly understood standards makes bid evaluation easier

Why standards benefit you - the user.



The drive towards standards has been customer-led. And while some suppliers have been reluctant to reduce their proprietary product differentiation by fully embracing an Open Systems strategy, the increasing demands of customers - particularly those with considerable purchasing influence such as governments and international corporations - have proved difficult to ignore.



In an Open Systems market competition is based on standards-based products which will encourage purchasing decisions based on price and performance. As standards-based systems are developed by a greater number of suppliers, so the choice for users grows and prices will fall.

However, the opportunity will still exist for innovation with creative, value-added extensions built on top of an open platform. Users and vendors alike will benefit from the opportunity to expand the market, through lower costs and focussed R & D investment.

Are there business risks in a single-vendor purchasing policy?

Buying exclusively from one supplier may seem the ideal way to overcome problems of computer incompatibility. But while this can remove some difficulties, it can also create others: if you're 'locked in' to one supplier's proprietary products it can be expensive and disruptive to change and you could find your negotiating position weakened.

You also have restricted freedom of choice; as businesses increasingly find no one vendor can fulfill all their requirements, it becomes essential to be able to buy freely - choosing the best hardware and software for your needs, from a variety of different suppliers. Furthermore, a single-vendor policy does not guarantee compatibility, you could find that systems and applications from the same supplier are unable to work together.

Occasionally, suppliers stop production of some product lines or cease to trade in particular areas. If such changes are not in line with your requirements, you could be exposing your business to risk with IT systems that are no longer supported, or serviced.

How would you feel if your suppliers stop production of the products you need?



HOW OPEN SYSTEMS CAN HELP REDUCE YOUR SYSTEM DESIGN AND DEVELOPMENT COSTS

Functional Profiles - taking a lead from the US & UK Governments ...

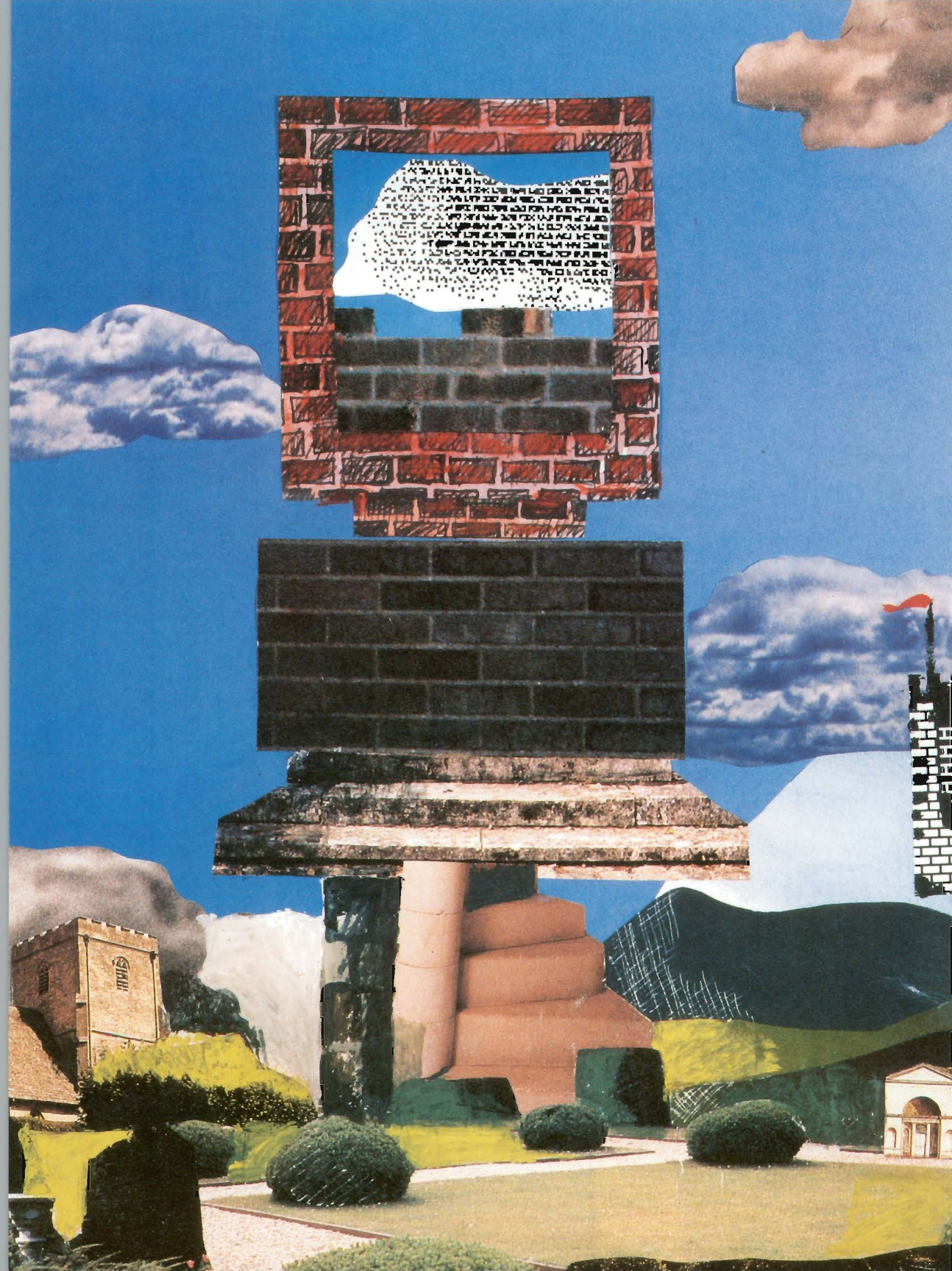
Today there are a growing number of interest groups, representing the views of particular categories of user, who are actively involved in defining what are known as 'functional profiles'. These are specific sets of standards, compatible with common Open Systems communications standards, which are implemented for a particular purpose. General Motors, for instance, has already defined one such 'functional profile' (MAP) suitable for the manufacturing environment. While a group led by Boeing has defined a profile suitable for technical and office environments (TOP). And both the US and UK Governments have adopted profiles for their respective administration offices (GOSIP).

Using a profile suitable for your own business means you can adopt a set of Open Systems standards which you know will work together successfully - reducing the time and cost of developing detailed designs for specific areas of your own IT.

In the US, a group of about 30 of the most influential companies including Ford Motor Company, Exxon Chemicals, 3M and Hughes Aircraft have formed the User Alliance for Open Systems. They are "declaring war against proprietary systems that hold data hostage".

User groups like this across the world can use their combined purchasing power to influence vendors' Open Systems strategies and the evolution of functional profiles. These two factors will increase the momentum for the adoption of Open Systems particularly in major corporations.

Specific sets of standards implemented to form functional profiles for a particular industry or application.



Beyond proprietary hardware and software

Too often the development of an IT system is delayed until specific, proprietary hardware and software is chosen, but with Open Systems you get independent development. Software, based on standards, can be developed in advance of the specific hardware, allowing parts of your system to be developed and tested in parallel. Implementation time is reduced and better utilization of your development team is possible.

Building in security

While IT systems are valuable company assets in their own right, the information they contain may be critical to your company's success. Developing a secure IT system from the outset is therefore crucial - in order that essential business information is there when you need it, that it is correct and that confidential information remains so. Providing security as an add-on to an existing IT system can be ineffective and costly.

Open Systems security standards can support your own security policy and provide for the secure operation of your system.

Reducing the cost of IT obsolescence

In managing your IT it's important to plan for change; hardware and software systems have a finite life - different parts of your system will have different lifespans. Since it's unlikely that your entire IT system will reach the end of its allotted lifespan at the same time, in theory you can plan for upgrades - phasing these in for different parts of your system to minimize disruption to users and reduce costs.



However, in practice this may not be possible. Some systems are configured as one 'block', which means you cannot simply upgrade the obsolete parts. In such a case you are faced with the need for a complete renewal of your entire system.

Open Systems reduce this risk. You can replace, upgrade, change and adapt parts of an Open System at any time, without disruption to users, or the rest of the system.

SUMMARY OF OPEN SYSTEMS BENEFITS

The following is a summary of Open Systems benefits in three key areas of your business:

Strategy	IT Procurement	IT Management
Flexibility to expand and change easily	Cost reduction	Standards for your needs
Improved communications	Vendor independence	More efficient system development
Improved customer/supplier linkage	Freedom of choice	Lower cost of development
	Less vulnerable	Minimize cost and maximize lifespan of IT investments
		Better system security
		Improved effectiveness



CHOOSING AN OPEN SYSTEMS VENDOR

The move towards Open Systems is customer-led. Businesses are demanding the technology to meet business needs, now and in the future. Consequently, no vendor can afford to say they don't support the development ... but while nearly all say it, a few are actively investing in Open Systems, supporting and driving industry standards, and generating their revenue from Open Systems sales - others merely pay lip service to the concept. To help you choose the best vendor for your own business needs, we hope these guidelines may come in useful:

- Is the vendor an active contributor to standards' organisations? Has its technology been adopted by any of these organisations?
- Has the vendor made a public commitment to Open Systems as its platform for the future? Or is it simply offering nominal Open Systems solutions alongside its own proprietary systems?
- Does the vendor offer a complete 'family' of Open Systems, or only a limited range of systems?
- Is there a clear upgrade path within any Open Systems environment offered?



- What proportion of the vendor's sales, or existing customer base, is made up of Open Systems? Is the vendor genuinely committed to helping buyers interested in Open Systems, or is it really only interested in protecting its proprietary business?
- Does the operating system support Open Systems standards?

YES!

THE VALUE OF ADDRESSING OPEN SYSTEMS NOW

The process of change towards an Open Systems environment requires a commitment to the concept now. Those companies who have already perceived the value of addressing Open Systems are creating a positive, competitive business advantage: from early experience with the technology, to gaining early value in some business areas.

Some vendors are even seeking the opinions of multinationals on how much emphasis to give the development of Open Systems - allowing businesses the unique opportunity to influence these developments to their own advantage.

We would be the first to agree that Open Systems are not a panacea for all business ills. Nor are integrated computing systems created overnight. A new business opportunity relying on even proven technology can often take years to implement. However, a reluctance to investigate the value of Open Systems to your organisation in the early stages, could mean you are left trying to catch up - without the appropriate technological base to take advantage of future business opportunities.



HEWLETT-PACKARD - THE 'IBM OF OPEN SYSTEMS'? - DON'T JUST TAKE OUR WORD FOR IT ...

In April 1990, the Phillips & Drew Global Research Group published their Survey of Ten Top US Vendor Open Systems Interconnection Strategies. The following is their assessment of HP's position and capability :

"Hewlett-Packard is uniquely perceived among computer users as possessing the size and stature to inspire confidence within corporate boardrooms and as having a total commitment to Open Systems.

It goes without saying that 'Open Systems' is the wave of the early 1990s. Now every vendor in the industry is attempting to associate its name with Open Systems. Our conclusion is that HP is the best positioned of these companies to assume leadership in Open Systems in the early 1990s.

The structural shift (in demand is) providing HP with the opportunity to become the 'IBM of Open Systems' - a phrase that implies high quality, an expansive product line and strong service and support."

Marc G Schulman UBS - Phillips & Drew Global Research Group, April 1990.

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