

HOW TO SUCCEED IN CYBERSPACE

Colin Haynes

*Take yourself,
your company
or your
organization
online*



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The publisher has gone to great lengths to ensure the quality of this reprint but points out that some imperfections in the original copies may be apparent.

Dedication

“Nothing is so dangerous as being too modern. One is apt to grow old-fashioned quite suddenly.”
Oscar Wilde

“The invention of the printing press is a small blip on the history of culture in comparison to what’s happening now.” Nicholas Negroponte, founder and director of the MIT Media Laboratory.

This book is dedicated to the high proportion of British managers that an Institute of Directors survey found to be uncomfortable with information technology. They may never risk the dangers of being considered too modern that Wilde warned about, and if they temper Luddite instincts with open minds and good sense, they will never become old-fashioned, and so can participate fully in the cultural revolution described by Negroponte.

The author

Colin Haynes has been a professional writer for over 40 years, an international marketing communications consultant specialising in the automotive and film industries, and a broadcaster. His previous books on business and technology have covered the virus phenomenon, public relations practices, industrial counterfeiting and other intellectual property rights issues, portable computing, paperless publishing, business travel stress, and the prevention of health problems resulting from computer usage. He has carried out assignments in 20 countries, made over 1,000 broadcasts, and spoken at leading conferences on the new Information Age technologies.

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Preface

Pull on your asbestos underwear to protect yourself from the flames, watch out for the black holes and angry fruit salad, and stand by for a brain dump as we take a trip into the future for YOUR business or career in cyberspace.

Soon you can no longer be accused of being a burbling suit when you talk about the Information Superhighways. You will become familiar with the Brooks and Airplane Laws, brittle products, brochureware, firewalls, dinosaur pens, cretinous cross-posts and British big-endians.

In other words, the pages that follow should protect you from the risk of making gaffes in Internet etiquette that will result in strongly adverse reactions – flames – as you explore the enormous potential for doing business in the new media. “Angry fruit salad” describes flashy over-coloured screens that are uncomfortable to use. It is Internet jargon derived from the bright colours found in tinned fruit salad, vividly defining one of the many mistakes being made by big companies and individual entrepreneurs alike rushing to establish their presences on the World Wide Web.

Black holes are the places into which undelivered email disappears without trace, while cyberspace itself is a still evolving term that we use in this book to cover all the electronic media available to venturesome entrepreneurs. As I try to brain dump – share with you my research into entrepreneurship in cyberspace – you will no longer risk drawing contemptuous comments from hackers accusing you of burbling (as in Lewis Carroll’s “Jabberwocky”) because you are clueless about this new business environment.

Many of us are still suits, being required most of the time to wear uncomfortable business clothes, including the neckties which some of the young hackers we must deal with in the future believe are strangulation devices curbing our creativity and restricting the blood supply to our brains. (You will learn that the suit and necktie are optional in the virtual business world as we gain more freedoms to work how, when and where we wish.)

BRITAIN FIRST

Britain may have the world’s first national interactive fibre-optic network. British Telecom has predicted that every home will have a fibre-optic access by 2005, possibly even by the turn of the century.

CYBERSPACE NAMING

The name cyberspace – now widely adopted as defining the complex international web of computerised communications – was coined in 1985 by author William Gibson. He used it in his novel *Neuromancer* to describe what the players of video games perceived to be an imaginary place, an actual space, behind their screens.

Cyberspace is now a buzz word being misused to describe the physical connections – the telephone wires, fibre-optic cables and radio connections – which are more accurately dubbed The Information Superhighways (and motorways, streets and back roads). Cyberspace is perceived by the people actually functioning within it as describing a community and a place where human interaction is conducted thorough the medium of personal computers.

The Information Superhighways is the pop media term describing – often inaccurately – the complex links from your home, office, or mobile computer that provide the routes to reach any other location or individual anywhere in the world with similar access facilities. The Brooks and Airplane Laws are cyberspace versions of the management maxim that if you add more people and complexity to a project it risks being delayed even more. The first term is a tribute to Fred Brooks, an IBM manager who wrote *The mythical man month* (Addison-Wesley, 1975, ISBN 0-201-00650-2). The Airplane Law is based on the rule that complexity increases the possibility of failure – a plane with two propellers having twice the chance of engine problems. We will see that complexity can be a serious business mistake in cyberspace, but having power in reserve can prove extremely useful.

Brittle products are all too familiar in any form of business, and creating them is one of your biggest risks in cyberspace. One way we will try to avoid this is by following the familiar KISS Principle, keeping things as simple as possible, avoiding creeping featuritis so often afflicting marketroids who promise product features that cannot be delivered. Brochureware is one product of such dangerous management self-deceptions, worse than vapourware by indicating that the marketing department is actually selling mythical products, having gone to the expense of printing brochures for them. You may not intend to follow such disreputable business practices in cyberspace, but you need to know that your competitors may deploy brochureware and other new strategic weapons against you.

Firewalls are among the protective devices we will consider to keep crooks and competitors from damaging your premises and inventory in cyberspace, and we will see how the low cost and flexibility of new generations of personal computers are making redundant the complex and expensive dinosaur pens required to house mainframes. Cretinous cross-posts will need to be avoided at all costs as we deploy email and the other new media research and marketing tools.

This book will try to point out such pitfalls to you, but, in order to give a comprehensive overview of the opportunities for entrepreneurship in cyberspace, it will not be possible to go into great technical detail on any particular subject. That doesn't mean that you need to go out and buy lots of other books to fill in the gaps not covered by this one. Once we get you up

and running online, you will find hosts of people within modem reach who are able and willing to give you sound, up-to-the-minute advice on almost every conceivable topic.

We will focus on essential information, basic principles and broad guidelines that you can adapt readily to your own particular business and career objectives.

Nearly half (49%) of white-collar workers admit to being “cyberphobic” or resistant to new technology, according to a 1995 Gallup Survey for MCI Telecommunications in the US. Women are more cyberphobic than men by 39% to 27%, and nearly 60% of all white-collar workers surveyed say they will only try technology after it is proven. However, 65 % use personal computers and 67% believe the Information Superhighways will give their companies competitive advantages.

Major fears – key human resources factors which need to be considered by organisations expanding into cyberspace – are:

≠ losing privacy	56%
≠ being overwhelmed by information	38%
≠ losing face-to-face contact with others	38%
≠ needing continually to learn new skills	35%
≠ being passed over for promotion	19%

Freud, in his *Interpretation of dreams*, defined an entrepreneur as someone who feels impelled to realise his ideas, but can do nothing without capital.

“He needs a capitalist who will defray the expense, and this capitalist, who contributes the psychic expenditure for the dream, is invariably and indisputably, whatever the nature of the waking thoughts, a wish from the unconscious,” said Freud. It is important to emphasise that the entrepreneur venturing into cyberspace should not carry with him or her this dependency on a nurturing capitalist. Significant amounts of money need not be necessary to launch substantial business enterprises in cyberspace, but the entrepreneur may need at least to modify, and often abandon, traditional business models in this new environment.

The elimination of physical contact and the need to be concise and clear when communicating only with plain text have resulted in distinctive new styles of writing/speaking - *cybertalk*. The measures of human worth in cyberspace are in the quality of ideas and how effectively they are expressed. Eliminated are the physical appearance, accent, social status, body language and other complex socio-economic cues and inhibitions which play such important rules in conventional human contact.

Thanks largely to the transatlantic influence of *Monty Python's Flying Circus*, Americans in cyberspace tend to use the British pronunciation of ‘cretin’, but generally hacker jargon and the techspeak of computing are dominated by Americanisms. Consequently, some of the spellings in this book may be alien to some readers. I have avoided ‘gotten’ and other linguistic abomina-

tions, but program rather than programme is an example of a word that has a distinctive meaning in this context. Fortunately, the jargon – like everything else in cyberspace – is becoming more standardised.

The need for this is illustrated by British ‘big-endians’ (derived from Swift’s *Gulliver’s travels*), a legacy from the days before Internet email standards when the UK Joint Networking Team decided to put the name of the country before the name of the computer located in a particular national domain. There is *ad hoc* software to sort this out in most cases, but it is one of those little details that you will need to be well informed about.

Two centuries after the Industrial Revolution made possible by remarkable developments in transportation, we now are well into an information revolution in which fundamental changes to the national and international communications infrastructure are transforming the ways that we do business. Shorter product cycles and a multiplicity of niche markets illustrate some of the more tangible realities of this, but it is the changing of relationships between the elements of a business project and between that project and its customers that will be most significant. Already we are seeing the cyberspace equivalents of the Japanese *karietsu*, a web-like structure of companies and individuals that appear to be a single entity, but actually comprise myriad components coming together, perhaps temporarily, for a common objective. These are virtual corporations very different in structure from conventional business models, and they have an infinite variety – from the multi-billion pound consortia building the Information Superhighways, to the small enterprises setting up businesses alongside them.

The economic and social consequences of what is happening are enormous and will touch every business and every individual in the industrialised nations. The speed and scale of this information revolution are far greater than even the frenetic pace of the canal mania and the subsequent railway mania which transformed Britain, and much of Europe, in the 19th century.

The media hype about the Internet and Information Superhighways is but the tip of the iceberg. Even those of us trying to track the development of cyberspace are being overwhelmed by the daily – hourly – announcements of new projects, advances in technology, corporate realignments in the form of mergers and takeovers, and the thousands of individuals, small businesses, major corporations, government departments and organisations of many kinds entering what could be called “The Great Cyberspace Race”.

The atmosphere is reminiscent of the rush for colonial possessions, land, and mining rights in earlier eras. But the pace and pattern are very different because the very fact that this is a communications, rather than transportation-based industrial revolution, makes everything happen faster and on an immediate global scale.

When building a canal or railway to link a town to the new industrial infrastructure, it was necessary to raise significant amounts of investment, obtain rights of way, negotiate and purchase land, move large quantities of workers

and materials, and physically embark on a major financial, logistical and engineering venture with inherently great problems and risks.

But in the virtual environment of cyberspace, most of the physical problems are eliminated, yielding previously undreamed of opportunities for under-capitalised small companies and individual entrepreneurs to compete with major corporations. You can open a virtual office, consulting room, store or service on the World Wide Web, the fastest-growing sector of the Internet, for under £1,000 (often much, much less) and keep it open for under £20 a month. You can, with little technical knowledge, make your cyberspace premises more impressive and more efficient than those put up by some of the leading multinational corporations.

When the canals and railways came to town, our entrepreneurial forebears still had to cope with the problems of raising substantial investment capital or loans; buying, renting or building physical premises; hiring employees with all the hassles and commitments that implies; shipping in raw materials and moving out finished products; and advertising and deploying salespeople to generate orders for those products.

Of course, most businesses still have to meet some – or all – of these physically demanding requirements. But there is no business that cannot benefit from the information revolution by taking at least some of its activities into cyberspace to eliminate or find new solutions to problems. You can improve the efficiency of your procurement procedures, the hiring of both permanent and temporary staff, the research and development of your products and markets, the promotion of your products and services, and perhaps even make direct online international sales to end-users and distributors around the world.

All these activities can take place entirely in cyberspace for some products and services. Where it is necessary physically to deliver or implement them, then the new media can be deployed on specific tasks, such as market research and order processing. The nature of the product is almost immaterial – aircraft, flowers, books, live lobsters, medical services – these and many more figure already in cyberspace trading. New categories are being added every day.

While these are matters relevant to a greater or lesser degree to businesses of all kinds, the impact of this revolution is being felt particularly in the area of

CYBERPHOBIA RAMPANT

The Institute of Directors expressed its alarm in 1995 at the numbers of British managers failing to get to grips with the potential of cyberspace. As a result, the Institute published an instructional book - *A director's guide* - which emphasises the need for senior managers to take a lead, even if many of them will be among the least comfortable with the technology. (The guide costs £9.95 from Director Publications, Tel +44 (0) 171 730 6060.)

SECURITY FEARS No Excuse

Fears of security problems are being used as much as an excuse for delay as a justifiable rationale for not venturing into cyberspace. The real problems are rapidly being solved, and you will find in the following pages sources for information to help with any particular concerns that you may have. A good start, if you are not already online, is a call in the UK to +44 (0) 121 703 3020 for a free copy of a White Paper on Internet Security from the Firefox company. It also has a Web site at <http://www.firefox.com>.

small business and individual entrepreneurship. These are the categories that in virtually every nation are providing the main stimuli to growth. Never before in modern times have they had such opportunities to flourish.

As we move from an era of transportation development to communications enablement, we transform the ways in which a business can be launched or developed. Independent entrepreneurs can have, right on their desks, the power of traditional accounting, distribution, human resources and marketing departments. You can hire and fire from your keyboard, getting the best people for a particular task irrespective of where you are located, or where they may choose to live. You can deploy software programs that add the expertise and vastly enhance the performance of specialists in such areas as bookkeeping and order processing.

You may no longer need an advertising or direct mail agency to generate and disseminate your promotional materials because the word-of-mouth and hypermedia linking powers of the Net create new marketing communications media. Smart agent software that helps you to research your markets through cyberspace can be deployed also to go out and generate the publicity and locate the sales prospects. A craft business or florist's shop dependent on limited local and seasonal trade can expand its markets to a region, a nation, or the world with minimal cost. Many small businesses are already doing this, and we will look at some of them in detail later.

In the constantly changing environment of cyberspace, new opportunities are arising all the time, and we will examine also entrepreneurial activities not yet exploited in cyberspace. You may be surprised to find that your particular area of interest already has a presence on the Internet, or be able to identify an opening to stake your unique claim first.

But do bear in mind that cyberspace will never provide the appropriate facilities to research, market or deliver some types of business, product or services. You may still be able to use many of the opportunities that you will find described in the following pages, but you will need to blend them with more traditional ways of doing business. Just don't take a cursory look, decide that your needs cannot be met by the Information Superhighway facilities, and close your mind to them. What is not practical today, may well be – literally – possible tomorrow.

An example of this is the enormous progress being made in processing orders and payments online. Early in 1995, business and banking experts were sounding dire warnings that the Internet might never be a safe place for the processing of credit card payments. By mid-1995, many of those problems had already been solved and there is now a wide range of options for customers to pay for goods and services over the Net with at least as much security as they enjoy when writing cheques, or placing orders by mail and telephone.

Virtual shopping malls, town centres, online catalogs, employment agencies and other trading facilities are springing up all over cyberspace. When a need is demonstrated, there are hosts of entrepreneurs ready to leap in to seize the business opportunity to satisfy it. If you have a business need, cyberspace is the place to look for a solution, no matter whatever your need may be. In just one week, I found there an artist with a talent to draw angels for a book, air fares that beat everything that my local travel agent had offered, a brain surgeon with a great concept for a medical newsletter, new software that would cut by 75% my costs and workload for a difficult project, a solution to a personal medical problem, an overseas agent, and much, much more.

It is this enormous range of information, plus the expertise that transforms information into knowledge, and the sheer numbers of people that make cyberspace the place in which every business needs to have at least a presence. Even if you don't want actually to do business there, you need to visit regularly to know how our society, culture and ways of doing so many things are being transformed by this new element in our lives.

Take, for example, the impact on healthcare, one of the most important areas of personal concern and economic activity in every developed nation.

Doctors, surgeons and other medical professionals are using cyberspace in a host of ways. But it is how patients can communicate with each other online that is truly beginning to transform medicine. All over cyberspace there are groups of patients exchanging information about all kinds of diseases and other medical issues.

"It is," as cyberspace medical entrepreneur Dan Gardner of San Diego told me, "empowering patients in times when the quality of the care they receive may be threatened by managed healthcare programs and budgetary pressures on national health services. For example, patients can learn in detail about a

MANAGERS UNCOMFORTABLE WITH NEW TECHNOLOGY

The Science Museum in London, announcing its 1995 exhibition on cyberspace, quoted a survey undertaken by 3Com revealing that only 23% of British managers felt that they truly understood the term "information superhighway." The exhibition, sponsored by British Telecom (BT) and Oracle, posed the question whether the information superhighway "will transform our lives through developments such as virtual surgery and the arrival of the global office."

CYBERSPACE POPULATION 700 MILLION

Estimates of the growth of the cyberspace population vary enormously, but IBM probably has more information on which to make an intelligent guess than almost anyone else. John Patrick, IBM's vice-president for Internet applications, has gone on record predicting 700 million potential customers on the Net by the year 2000. IBM is doing some creative projects to help build that market, including sponsoring a Web page for the 1996 Olympic Games Committee at <http://www.atlanta.olympic.org>

new or alternative treatment from other online sufferers with the same complaint, and so be able to ask their doctors if it is appropriate for them. If they are denied the treatment for financial rather than medical reasons – it may not be approved by their insurers, or available through their health service – they can acquire online the knowledge aggressively to pursue their demand for such treatment”.

Gardner, as we will learn in more detail later, is pioneering a number of important projects to help spread quality health information online. Such activities, even when motivated entirely to benefit patients, are not always welcomed by the medical establishment, hospital services and drug companies. The University of Pennsylvania in Philadelphia took over an information service started by one of its professors and began censoring the information being put online, including suppressing some reports already published in the print media. Online patient groups are proving very resistant to such tactics, and increasingly skilled at getting round them. An interactive forum might be established online by an organisation or company to serve its own needs, but actual control of it can be taken over quickly by its users in this most democratic of media.

Cyberspace communications in digital form can spread way beyond that environment into the physical world by powerful word of mouth when there is information circulating that people both on- and off-line have a real need to know. It is estimated that a third of the 30,000 Lou Gherig's Disease patients in America alone began taking a drug called Neurontin after reports of its beneficial effects circulated among the 1,000 online sufferers of this neurological disease. Although the distinguished British physicist Stephen Hawking survived ALS (amyotrophic lateral sclerosis) for many years, it is usually quickly fatal and so sufferers who use online services to mitigate their physical symptoms of immobility and difficulty in speaking roam cyberspace seeking any information that might help them. It is the same situation in the large numbers of online groups of cancer and AIDS patients.

When news started spreading that Neurontin, a drug for epilepsy and not approved as an ALS medication, had appeared to help some ALS patients, sufferers began dropping out of trials for other treatments. They exchanged information among themselves to discover if they might be part of a control group being given placebos. As a result, the whole basis for clinical trials of experimental drugs may have to be changed.

Some doctors fear that this “medical treatment through patient networks” may yield distorting psychological results. Both medical professionals and drug companies fear a loss of control as patients become better informed – or risk being misinformed and so not taking qualified medical advice.

The whole confidentiality basis of doctor-patient relationships may be changed as patients rush from the consulting room to the keyboard to pass around verbatim reports of what their doctors told them to seek comment from other sufferers. The recommendations – and criticisms – of doctors, surgeons and specialists is already a prominent feature of online self-help groups. Opportunities abound for an unscrupulous professional to seed cyberspace with spurious testimonials, or a drug company to start a wave of interest in a new drug, or for new uses of an older one. Millions can be made by such tactics. Many existing drugs could be given a commercial boost with a subtle online promotional campaign advocating their efficacy for diseases for which they have not been formally approved. This would be the black side of online entrepreneurship, with patients being manipulated online to expand the market for a drug by asking their doctors to prescribe that drug for conditions in which it has not been proved to be beneficial.

You can see how the ALS experience can extend to other non-medical situations because of the sheer power of the online word-of-mouth communications network. We will see it happening in, for example, the build-up to class action suits for product liability. The automobile manufacturer would be unable to control the spread of information and misinformation around the nation, or the world, when a vehicle proves to have a serious defect. Consumers – and lawyers – will find it easier to mobilise themselves to initiate legal actions in many territories, not just one, settlements could become even more difficult to negotiate, and the consequences could run into hundreds of millions of pounds. Such scenarios become more likely as cars, trucks and consumer and industrial products become more standardised and just one defect at source can have wide international repercussions.

An example of the potential was the problem the Japanese car manufacturers experienced in 1995 when problems were revealed with seat belts from the same source fitted to a variety of makes and models for world markets. Skilled public relations in the past have been able to minimise the marketing consequence of such events, but will find it far more difficult to do so in the future

SNAIL MAIL IN DECLINE

European business-to-business postal communications (*snail mail* in cyberspeak) could decline by as much as 30% over the next few years if the growth of email, fax and electronic fund transfers matches that in the US.

RADIATING HUMANS ONLINE

Concern about the effects of radiation from Chernobyl could make a unique cyberspace resource an essential destination for European scientists, medical personnel, researchers and journalists. A digest of over three million cubic feet of US data on paper about the effects of radiation on about 9,000 people is now available on the Web at <http://www.eh.doe.gov/ohre/home.htm>.

as they swing away from more easily manipulated top-down print and broadcasting media, to distributed information in which every reader-consumer has the power to be a publisher also.

There are many pitfalls as well as rich strikes waiting in cyberspace. Consumers, agents, distributors and dealers who are able to compare notes readily with each other and be better informed on pricing, specifications and other issues will be able to change the way that many companies at present do business. An early consequence could be bringing down the price of computer hardware and software in Europe to be on a par with lower North American price structures.

Product life cycles are getting shorter also, and there will be little chance of getting away with versions of what in cyberspace hacker jargon is called crippleware. Although usually referring to demonstration versions of software products, there is also crippled hardware which the manufacturer deliberately makes inferior to a more expensive version. If the upgrade can be made by something as simple as moving a jumper lead, information about it will spread online like a bush fire, with a serious effect on sales and reputation.

There are numerous other examples of potentially positive and negative consequences of doing business in cyberspace. However you add the pros and cons together, you cannot ignore this new business environment. Even if you decide that it's not an arena in which you wish to participate, be sure that some of your competitors will be out there trying to make it work for them. At least you need to know what they may be up to.

1. What is cyberspace?

First steps into the online universe

Cyberspace is far more than the World Wide Web, or even the vast Internet that by now may have as many as 30 million inhabitants. There are numerous elements among tens of thousands of communications networks that comprise the global cyberspace environment, including islands of activity still operating in isolation. The information highways include many byways, back roads, private paths and other links which can be deployed to entrepreneurial advantage by large and small businesses. Here are the main categories.

PC-to-PC, LAN and WAN connections

The route that you create between your personal portable computer and your desktop system can by itself become a communications route vital to your business or professional operations. The connections you have with a few or many colleagues over a local area network (LAN) or a wide area network (WAN) can empower your operation with the shared knowledge and more efficient working that result.

Bulletin boards

That kind of closed circuit networking may be extended easily – and remarkably cheaply – by setting up a Bulletin Board System (BBS). This can be a private affair to which you carefully control access, or you can open it up as much as you wish to customers, dealers and others able to access it by direct telephone connections. Many BBSs operated by low cost older personal computer systems perform valuable services for corporate email, or customer ordering and technical support. Thousands are profitable in their own right, serving special interests and storing particular categories of information, or catering for local communities all within reach of it through local telephone calls.

GLOBAL INFORMATION STRUCTURE COULD CHANGE OUR LIVES

“The Global Information Structure is a world wide assembly of systems that integrate communications networks, information equipment, information resources, applications such as education, electronic commerce and digital libraries, and people of all skill levels and backgrounds. It has the resources, therefore, to have enormous beneficial impact on the citizens of our nations and people through the rest of the world.”

So said Edward R. McCracken, chief executive officer of Silicon Graphics Inc. at the Group of Seven Ministerial Conference on the Information Society in Brussels in 1995. McCracken presented the business delegation's call to the governments of the industrial

nations for open telecommunications and free competition because of the "new reality of extraordinary technological change".

"The Information Society, based on technology, has new and special requirements for creative freedom, private initiative and extraordinary risk-taking," he said. "The lightning speed of technological change makes a mockery of long-range, centralised planning and close supervision of creative talent. Computer power, relative to price, is increasing ten-fold every three-and-a-half years. Who is wise enough to predict and plan the future in that volatile technological environment?"

"In my company, we tell young people who apply for jobs: 'If you will be uncomfortable having your desk moved every four months, you won't enjoy working for us'."

Any BBS may be visited by cyberspace explorers using only a modem and a telephone line.

Just one BBS may be, at this time, the only online business presence you need to set up, or cyberspace destination to visit. Later, a business or private BBS can be connected into the Internet in various ways.

Value-Added Networks

Even if you do want to travel much further afield through cyberspace, you may, as an individual or an organisation, still not need to set up a formal Internet connection. You can easily and economically connect to cyberspace through a value added commercial network (VAN) of which CompuServe, Delphi and the new Europe Online are among many examples.

A VAN is rather like an independent nation in the cyberspace world. For a few pounds a month you are provided with software and an access password to a community that, in the case of the biggest, CompuServe, is international with over three million members. It has been expanding in Britain, France and Germany at the rate of 100% annually.

A large VAN like this contains in microcosm many of the activities taking place on a larger scale over the Internet with perhaps ten times as many members. A VAN has forums, online marketing and other business facilities that may be all you need. It will send and receive your email to and from other VANs and Internet addresses, perhaps with some restrictions on length and the attachment of files, but still very easily and economically.

In an increasing number of urban centres you will be able to get access with a cheap local telephone call. (The fact that local calls are toll free in the United States has done much to stimulate the growth of email, the Internet and VANs there, while the different telephone billing structure in the UK and much of Europe has been an inhibiting factor.)

The software provided by VANs is becoming very sophisticated, yet easy to use with either a PC or Macintosh system. Although VANs may be perceived as mainly for home users, they are in fact powerful communications resources equally applicable to business use. What's more, to be competitive they have had to provide increasingly unrestricted gateways to the greater Internet universe beyond them. There may be restrictions in reaching and using different

parts of the Internet, but a VAN gateway may be all you need at this time, or for the immediate future. Many entrepreneurs join two or three of these VANs so that, as members, they can research and trade within them, as well as venture further into cyberspace.

The Internet

The Internet itself is composed of many elements and you may wish to use just one or two, or all of them. There are thousands of services, special interest groups and other resources that you can reach by computer and modem, some of which may be more specific and appropriate for your information needs.

The network began in the 1970s as a communications experiment by the US Defense Department, then grew in size and range of uses to serve universities, research organisations, and now a rapidly increasing number of individual and business users around the world. It is still very informal and largely unregulated, but the use of major parts of the Internet by business is somewhat restricted in key respects.

The routes and vehicles by which you reach the different places in cyberspace will vary according to which of the commercial services you use, or how your Internet and other network access facilities are organised. Things are changing all the time, so the following must be general guidelines. In particular, the commercial VANs are developing their Internet facilities in a business environment of very keen competition, so that you may find that through them you have more user-friendly interfaces and routing to many online destinations than a specialist Internet service provider can offer.

For the time being, let's do a quick overview of what is available to you. We can explore the alternatives in more depth as we look at their different roles in specific aspects of doing business in cyberspace – research, marketing, email, etc.

Bulletin boards

These can be set up for just a few hundred pounds – you may already have a redundant PC or Mac that is suitable. It can become a BBS with just the addition of a modem and low cost software, some available online for free evaluation as shareware.

WHERE TO GET MOSAIC

Mosaic is the universal point-and-click browser program that, in its standard and enhanced commercial versions, is driving the popularity of the World Wide Web for commercial purposes. *Mosaic* runs under *Windows 3.1* on a system with *Winsocket* compatible TCP/IP software, 6MB of RAM and a hard disk. For the Macintosh, *System 7*, TCP/IP software, 4MB of RAM and a hard disk are required.

You get the necessary software from your VAN or other Internet service provider. If not, it can be obtained via FTP from **ftp.ncsa.uiuc.edu**.

ALL THE WORDS IN A LIBRARY TRANSFERRED EVERY SECOND

The functional power that the Internet is acquiring to transmit information is becoming too great to be ignored by business. In 1994, typical business-to-business transactions transported data over the Net at speeds equivalent to a typed page or two every second. In 1995, new systems were developed which would transmit the equivalent of all the texts in a town library every second.

The usual BBS address is just a telephone number, but many are accessible through what is called a “packet network”. FidoNet is an example of a network that links thousands of individual bulletin boards, and offers many local access numbers so that users in these areas can pay a monthly fee and get to other more remote elements of the network without incurring the expense of long distance telephone charges. If you intend to make extensive use of a board that involves a long distance call, you should check whether it has acquired packet network access – this information may well be displayed on the screen that greets you when you dial up the direct number for the first time.

Email

Millions of online individuals, organisations and resources can be reached by ordinary electronic mail – email. You will recognise these because they include the “@” symbol in their addresses. You exchange email as you do conventional “snail mail”, except that it is much cheaper and faster. Basic email is the single most powerful force making cyberspace the engine to drive so many social and economic changes. It can free us from the restraints of time and physical location in ways not made possible by the telephone and fax machine. Millions of business people now regard email as their most important communications tool.

The cost of sending and receiving email is very low – usually falling within the few pounds a month for your monthly subscription to a VAN, bulletin board, or Internet service provider.

Some services accessible by email require you to subscribe, either free of charge or on payment of a fee. When you establish contact you will probably be either stepped through a series of questions, or asked to send a short message requesting to become a subscriber. If you want to subscribe, make sure that the key word “SUBSCRIBE” is prominent in your message. (If you no longer want to be a subscriber, you can send another message later which prominently features the key word “UNSUBSCRIBE”.)

Some of these mail list resources function as “list servers”. You can make requests for information or files, and they will reply to you through your own return email address. Although you do not interact in real time as you might with a discussion group, forum, or other online resource, mail servers are very useful research and communications tools.

Mailing lists can save you a lot of time and money in telephone and connect charges, because the communications take place without your computer needing to be hooked up directly with the other computer. This also makes it less demanding in time – you can make your contact at any time convenient to you, and should get a response without having to wait online, so that you can access (or download if it is a file) at your convenience.

You should know if your message has not been delivered, because it will be “bounced back” to you with an explanation.

How email addresses are compiled

An email address is constructed from this formula:

username@domain.top-domain

The username is the name of the addressee – one of my email addresses is a combination of my initials and surname to give **cfhaynes@aol.com**.

The “@” sign and first part of the address that follows it indicates where I am located, i.e. the “domain” for my email. It is America Online, a VAN, abbreviated to “**aol**”, which functions rather like the name of the city and postal code, except the domain name directs my email to a particular computer system operated by the company America Online. When communicating with other AOL members, I need only give my username because my email does not go outside the AOL network.

The second part of the address, separated from the first by a full point, is the “top-level domain name”, which categorises what kind of organisation is supplying the email service. Mine is “**.com**” because I am using America Online, which is a COMmercial organisation. You will find addresses that include “**edu**”, because they are EDUcational institutions, “**gov**”, because they are GOVERNmental, “**net**” because they are NETwork resources, “**org**” indicating ORGanisations, including charities, and you may encounter also the top-level domain “**mil**”, representing MILitary addresses.

Top-level domain names are used also to identify geographic locations – “**ca**” for California, for example. International Internet mail usually incorporates a national address – for Britain, the geographic location will be identified by “**uk**”.

NETWORKING GROWTH

Revenues from commercial Internet access services were expected to near \$500-million (over £300-million) during 1995, and global revenues for LAN and WAN networking products and services grow by about 18% for the second year running to exceed \$57-billion, according to *Data Comm*. International revenues for ISDN telecommunications – a low cost way of providing much better data links than ordinary telephone services – were expected to increase by 45% in 1995, with the music industry becoming a significant ISDN user to network recording studio facilities.

VIRTUAL LANs

There is a new way of working of potential value to many organisations that creates a localised, self-contained version of the massive brain power sharing of the Internet. Called Virtual LANs, these are workgroups that can be brought together electronically for specific projects or other purposes without the need to juggle with the hardware of the corporate network. All the connections between group members can be set up through LAN software, and changed easily at any time as the group needs to acquire or shed members. The procedure varies, but the virtual LAN facilities are usually readily available from the suppliers of the switching hub or inter-networking products your organisation uses.

You can arrange to have an overseas address if it will be of help in your business, or is financially advantageous. We'll explain that later also. International Internet sites use two-letter identifiers that tend to be the same as those displayed on road vehicles when they are used outside their country of registration – “**fr**” for FRance, “**dk**” for DenmarK, etc. It usually does not matter if you use capital or lower case letters, or mix them up. But it's generally easier to stick to lower case.

Signatures add impact to email

Make your email work for you as a promotional business tool by creating an attention-grabbing, informative signature file for all your messages. These “sigs” should be no more than four or five lines long, otherwise they may be resented by recipients, particularly those who have to pay for their incoming email and will not welcome anything that makes messages more expensive to receive. You can use the sig file as just a bald statement of how to contact you, or include in it a message or ASCII text graphical representation of a logo or other image. Here is a simple but effective signature file from Jonathan Schull, president of SoftLock Services, which gives his physical and email address, as well as the Web sites where he is active.

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=====
Jonathan Schull, Ph.D.,      President, SoftLock Services
Inc. Schull@SoftLock.com,   36 Brunswick St., Rochester,
716-242-0348 (voice/fax)    NY 14607-2307,

City Planner,               Philosopher King
Downtown Anywhere          Rochester Anywhere
http://www.awa.com/         http://www.servtech.com/re/
=====
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Unless you stay within your VAN, most of the cyberspace addresses that you encounter will be Internet addresses. The route to them may differ according to who provides your Internet access, but the basic address rules remain the same, following the Domain Name System convention of **user_name@the_address** defined to varying degrees of specificity.

Telnet

One of the longest-established ways of connecting to other computers over the Internet is to use *Telnet*. Although other options are gaining ground, there may be important resources for you that can still only be accessed via the