

COMMITTEE FOR INFORMATION, COMPUTER AND COMMUNICATIONS POLICY

**PAYMENT FOR GOODS AND SERVICES ON THE INFORMATION SUPERHIGHWAY:
REPRODUCTION RIGHTS AND REMUNERATION IN THE ELECTRONIC
MARKETPLACE**

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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FOREWORD

This document was prepared by Mr Peter Davies, consultant, in collaboration with the Secretariat.

The main conclusions are that:

Copyright is the right regime for software protection on the information superhighway.

Exclusive reproduction rights should remain with the copyright holder.

Content owners will place their goods on the superhighway and decide for themselves about price, payment and the risk of piracy.

Schemes for electronic payment for the use of services on the superhighway are being tried. For many people, the traditional means of payment will suffice for some time.

As recommended by the Committee for Information, Computer and Communications Policy at its 28th Session on 23-25 October 1995, this document has been derestricted under the responsibility of the Secretary-General.

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1. Introduction

This paper is about one aspect of the global information infrastructure -- the trade in reproduction rights for intellectual property works and the remuneration element in such trade. It may seem premature to think about payment for goods and services on the information superhighway before the physical and technical infrastructures are in place, but it is vital to consider the legal framework and the practical implications of commercial activity in the electronic marketplace from the very outset. Developments in the technology are now taking place with such speed that they are in danger of racing far ahead of society's ability to accommodate them in their legal and economic systems. This is not to say that everything needs to change in this regard. Many aspects of intellectual property and contract law and of current commercial practice will remain in use, as consumers and suppliers come together in this new trading environment. However, it will be necessary for legal and business thinking to keep pace with the dramatic advances in computing and communication technology.

Although this broad topic can be analysed in many ways, this paper selects and proposes a number of matters which must be addressed and for which the right conditions must be put in place:

- the widest possible international agreement on the legal rights of all parties;
- a free market for the negotiation of rights, for establishing the market value of electronic rights and for establishing operating costs, profit margins and customer prices;
- effective laws and efficient technical procedures to govern cash-less transactions and electronic commerce;
- strong consumer protection.

This paper will review certain intellectual property concepts as they apply to the information superhighway. It will provide some background information on the converging intellectual property industries and the ways in which rights are bought and sold, and will conclude with some anecdotal reference to current experimentation into methods of payment. For the consumer, the first question is, "What am I being asked to pay for?" Setting aside for the moment the investment needed in computer or enhanced television hardware, this paper aims to answer the question by setting out some of the main features of reproduction rights, and their economic value, as they apply to the information superhighway. For it is the right to reproduce somebody else's intellectual property "goods" which will be traded on the information superhighway. Historically, it has sometimes been hard to persuade users that such intangible assets have real value, and all the intellectual property industries have suffered as a result. The information superhighway provides a new opportunity not only to achieve cheap and efficient global distribution of knowledge and information, but also to ensure that its value can be appreciated and its creators properly remunerated.

On the information highway, the kinds of rights that consumers will purchase will include:

- the right to consult a database, such as an hourly up-dated list of stock prices;
- the right to view a selection of goods from an electronic catalogue, which can be chosen, ordered and paid for from home;

- the right to view or make a copy of a motion picture as it is delivered to the home via satellite or cable;
- the right to send and receive e-mail messages.

2. Intellectual property concepts applied to the information superhighway

2.1 *Commercial and legal developments must keep pace with technological innovation*

Well beyond the examples given in the preceding paragraph, most people will probably have their own mental pictures of the information superhighway and how it will benefit them. There is also wide understanding of the intangible nature of intellectual property and of its importance. There are, however, matters which have not yet been resolved, for the quite acceptable reason that it is far too soon to settle all aspects of the information superhighway definitively. Nevertheless, it is sensible to ask questions about buying and selling and getting paid on the information superhighway. Otherwise, thinking about these conceptual matters will fall too far behind the rapid advances which are being made on the technical level, and regulatory confusion will result. The examples listed in the preceding section are rights which are clearly *worth* something, but establishing their value, ensuring a healthy marketplace for them, and getting paid for them will all be major challenges.

2.2 *An expanding information society emphasises the importance of intellectual property*

Intellectual property is now one of the most important traded commodities in the global economy. For example, copyright and related rights account for approximately 5 per cent of the gross domestic product of the European Union. The importance will continue to increase well into the next century. Concomitantly, the significance of the proper regulation of this sector of the economy will only grow as governments, private enterprise and the public make increasing use of the information and communication possibilities now becoming available. To take just two indicators from the mass of statistical evidence of this growth:

- The Internet, with at least 4.85 million connected computers and up to an estimated 50 million users, carries a volume of commercial activity which is equivalent to that of the entire economy of the Netherlands.
- 37 per cent of homes in the United States have a computer. In the United Kingdom the figure is 22 per cent. This UK number is growing by more than 3 000 new machines a day, with over 30 per cent being top-of-the-range multimedia machines.

2.3 *Digital convergence provides a common language for content and management*

The information superhighway will involve many different goods, services and methods of delivery. Cable television, satellite signals, telephones, computers and office machinery, computer software, databases, still images, moving pictures and music are all, at present, treated differently by consumers and regulators. They are governed by several different sets of laws or international agreements because, up to now, they have been perceived as physically separate phenomena, each needing its own system of legal rules. Paradoxically, a single digital language can now be used to carry all these images, data, voice messages, music and so on, which have thus far been thought of as separate categories of creative work or communications media. Not only can all the content be rendered into this single medium (binary code), but so can the instructions and commands that allow the hardware (television sets, video

recorders, computers, fax machines, telephones) to carry this content, and to send and receive it from one place to another, from one device to another. The information superhighway is the sum total of the digitised content which will attract consumers and the hardware and software which will manage all transactions on the superhighway, using the same digital language.

2.4 *Dramatic increases in computing power allied to lower unit costs*

A second technological paradox underlies all aspects of the information superhighway. The speed at which information or signals can be processed or transmitted and the storage capacity of the computers, fibre optic cable and other hardware devices are increasing all the time. Unit costs, on the other hand, are falling. Higher and higher levels of computing power at lower and lower cost form the technological and commercial starting point from which a global information marketplace can be developed. These technological advances have put enormous capabilities into the hands of consumers of information and communication services. Traditional patterns of working in the creative and publishing industries, and the present use and purchase patterns of consumers will simply be obsolete before the end of the century. The shape of these industries and markets today is already profoundly different from that of just five years ago. Change is happening literally at exponential rates.

3. The right legal regime to protect intellectual property on the information superhighway

3.1 *Everything on the information superhighway will be intangible intellectual property*

In recent years, more and more enterprises have grown up which are based exclusively on the value of their intellectual creations. By their nature, intangible assets such as intellectual property rights are impossible to see, and their value is all too easily ignored or misunderstood. Consequently, the need for clarity and strong consensus in the legal regime which protects them is especially great. An ability to protect these assets using well-understood legal principles is critical, because they cannot be inventoried like other goods nor stored safely in warehouses. Unfortunately, goods whose value lies in their intellectual content are very easily copied. Copyright pirates can reproduce several thousands of dollars worth of software for just the cost of the floppy disks on which they are stored. Recent disputes between the United States and the People's Republic of China have highlighted the ease with which compact discs carrying counterfeit copies of music recordings and computer programmes can be manufactured at low cost on an industrial scale. Finding a stable legal regime to protect rightholders against this abuse is all the more difficult because the information and communications industries are re-inventing themselves every few years. The law can scarcely keep pace with technology, so a robust and pragmatic system is needed, which stands the best chance of dealing fairly with constantly changing conditions.

3.2 *Copy protection: an imperfect solution*

Can rightholders do more to protect themselves, instead of relying upon the law alone? If technology is progressing at such speed, surely it is possible for rightholders to put electronic "locks" onto their products to prevent unauthorised access to or copying of works? Rightholders are often challenged with this question, and much research effort goes into the search for cost-effective security which is not troublesome to the legitimate user. Where this has been tried in the past, fierce competition and user pressure has led software companies to withdraw it. Nevertheless, with the new commercial opportunities of the information superhighway, the principle is being re-evaluated in many trials and prototypes for selling software products in the current Internet "marketplace". It is, however, a great irony that the same technical skills which can invent copy-protection devices can also be applied by those without respect for intellectual property rights to break or circumvent them. Every new method of protecting against copying

adds to the development costs of the creator, occupies space on the user's computer, and impairs the speed and functionality of the programme. This is an expensive process as creators struggle to stay one step ahead of counterfeiters who regard the breaking of copy-protection code as merely the first stage in their own (somewhat cheaper) production process. Rightholders from all the intellectual property industries have tried over the years to support both *legislative* moves towards strong protection for their works and a *social* consensus that sees the act of copyright infringement for what it is -- a form of theft which deprives creators of remuneration for their work.

3.3 *Digital convergence renders all content into software -- how is it to be protected?*

The search for agreement on intellectual property protection in the information age is not merely an interesting academic exercise. Without properly defined rights, and widely accepted mechanisms for remunerating rightholders, there will be little incentive to embark upon the expensive creative work to build the superhighway. The software industry has operated with digitised works from its outset, and has had to grapple with the search for the right legal regime to protect these works for several years. There have been alternatives put forward over the years for the best legal category into which software might be placed. Individual nations were required to look at the phenomenon of software and find a home for it in their intellectual property laws. This has been a difficult process and there are still some national laws which, amazingly, make no reference to software even today in spite of its ubiquity. However, increasing use of software, and the ease with which it can move electronically across national boundaries, has given rise to much activity aimed firstly at recognising it expressly in national laws, and subsequently at harmonising these laws by international agreement. The two most frequently discussed alternatives to copyright were patent protection and the creation of a wholly new category just for software -- the so-called *sui generis* approach.

3.4 *Copyright broadly accepted as appropriate for software*

In the course of this harmonising activity, both patent and *sui generis* approaches were examined and found to be inadequate, and a broad consensus has formed around copyright as the best available method. This is a controversial subject in some circles. Patent and *sui generis* protection certainly still have their advocates, and patent protection in particular has been sought in certain circumstances for software-related inventions. Even within the copyright "camp", there is debate about whether copyright principles can be accurately or reliably applied to all aspects of software. For example, the rightholder's exclusive right to control reproduction of a work has been modified in many jurisdictions to allow reproduction as part of the process of reverse engineering. Such exceptions have, however, been made subject to many conditions relating to the user's objectives and circumstances. Overall, language has generally been found to bring such modern concepts within the framework of traditional copyright law, and today, it is broadly accepted that treatment of software as a literary work under the copyright regime attracts the widest support.

3.5 *Intellectual property rights harmonisation and world trade*

The Agreement on Trade-Related Aspects of Intellectual Property (TRIPS), formed a major part of the GATT Uruguay round which ended in 1994. Some aspects of the TRIPS negotiations were so contentious that they threatened the entire GATT process right up to the deadline for agreement. However, in spite of considerable tension over certain cultural issues, there was little disagreement about the need to reinforce copyright protection for software and make it easier for creators to protect their rights. Agreement on this point will play a major part in encouraging the development of an information superhighway, and also ensuring that it is truly global, with benefits available to both rich and poor nations. The inclusion of intellectual property as a major aspect of the GATT process is just the most

recent expression of the awareness of the need for global harmonisation in this area. The European Union, for example, has a comprehensive programme of regulation for software, databases and other intellectual property related issues. This has involved not only current EU member states, but many others who will either seek EU membership in due course, or who merely look to Brussels for guidance on drafting national laws. Individual nations which still have to introduce intellectual property laws for new technologies have no shortage of signposts showing an internationally-agreed way ahead.

4. Reproduction rights applied to software on the information superhighway

4.1 *The general principle*

Under most copyright laws, the copyright owner has the exclusive right to reproduce the protected work. The rightholder may waive this right, and allow others to make copies of the work either with total freedom, or within limits which the rightholder can set down. Such limits can involve the number of copies permitted, the geographical area within which copying is permitted, or the length of time for which copying is permitted. In normal commercial circumstances, payment can be demanded in the form of royalties relating to the extent of the concession, or by one-time fees, or by any other method the rightholder is prepared to accept. Some software authors have circulated their works using computer bulletin boards, and invited payment on a voluntary basis. Users may take a look at the work by pulling it down off the bulletin board and then retain and pay for a copy if they wish. Such programmes were christened “shareware” and a great deal of software is shared between bulletin board and Internet users today on the basis of voluntary payment.

4.2 *Free distribution and “public domain” software*

The original rightholders *may* concede to reproduction of their work without payment. Indeed, many creators happily make their works available without charge and place them in free circulation in the public domain. In some countries, other categories of work may also enter the public domain and be freely copied: where they have been created at taxpayers’ expense for example, and where public policy requires the widest possible distribution. Other public policy reasons may give rise to exceptions to this general principle relating to so-called *fair use*. An over-simplified example of this would be that most laws do not consider it a breach of copyright to reproduce a small part (suitably defined) of an otherwise protected work.

5. Applying copyright principles to user activity on the information superhighway

5.1 *Looking beyond today’s transitional technologies*

Few communication developments have received so much publicity as the Internet. This is the current model available to anyone interested to know what an information superhighway will look like. It is important to realise however that the Internet is merely *today’s* method of linking users, suppliers and consumers together. Like CD-ROM as a medium for so-called multimedia works, it is a *transitional* technology, to be refined, improved or even replaced completely as the technology continues to improve. Nevertheless, attempts are being made to look further ahead, and to establish a vision of an *information society*, independent of the technology which will bring it to our homes and workplaces. In examining reproduction rights and remuneration, it is certainly necessary to have some sort of mental picture of what consumers will want or be able to do on the information superhighway.

5.2 *What will the user see and do on the information superhighway?*

Consumers must be allowed a sufficient right to reproduce copyrighted works placed on the information superhighway, for the normal use of the product or service. The current situation with computer software is that a user technically makes a copy every time a software programme is run on a computer. When a user calls up a programme, it is copied from the computer's long term storage into its short-term memory. Likewise, when a user accesses material from the Internet via a modem and a telephone line, the act of reproduction is implicit in doing so. The owner of the material is deemed to have given permission for such reproduction by virtue of having published the work in this accessible form. Accordingly, it is the working assumption of the technology industries who will create the superhighway that access to it for most people will be via a computer, or via some form of computer-assisted device like a television. The average home may have a number of linked devices, and the user may wish to work close to a (computer) screen for some tasks and further away from a (television) screen for others. Other types of hardware which do not use screens, (phones, faxes, photocopiers, satellite receivers, etc.) will also be connected, to provide ancillary functions and form an integrated network at the service of the user. However the office or domestic situation operates, it is very likely to involve devices which possess some level of computing intelligence, digital storage and reproduction capacity.

5.3 *Menus and help screens assist users to navigate and interact with the superhighway*

Trials of different models for mass market superhighway applications are only now beginning. It seems likely that the user will first connect to a general introductory service where lists of services or menus from which to choose will be presented. Behind this introductory layer will reside a hierarchy of computer servers, storing ever-greater amounts of data, movies, information services, and all the other content on offer to users. The user will "navigate" through the available services, probably using a more sophisticated version of today's TV remote control device, or some other "point and select" tool like a computer mouse. Current trials point to two slightly different approaches to delivering this service. Some enterprises propose a model which uses highly complex servers with huge storage capacity at the hub of the distribution network, requiring individual user locations to have relatively limited storage and processing power. An alternative model distributes computing power more evenly between the centralised servers and the individual homes and offices which will be linked to them. The ultimate market for the superhighway may well allow alternative systems to flourish and inter-communicate. In any event, some degree of interactivity is certain to be included, such that users can communicate with suppliers, other users, public authorities, and so on. Such interactivity is also fundamental to electronic payment--transmission of credit card information, credit checks, home banking and the many other financial transactions envisaged for the information superhighway.

5.4 *Some existing payment mechanisms will remain in use*

For some services, the user may have pre-paid by means of subscription, as cable TV channels operate today. Otherwise, the user will make a selection from the goods or services available and some alternative payment mechanism will be brought into play. (The question of payment methods and some of the current experiments into electronic cash-less transactions will be discussed at greater length below.) The designated material will then be sent from the server on which it resides, via a distribution channel of intermediate servers, to the user. The act of calling up a work onto the home or office screen will almost certainly involve the act of reproducing it. Copies of the work will either be created at the server end and sent to users who request them via complex multiple switching devices, or a copy will be created at the user's end, to reside temporarily on the home or office receiver during the period the user needs it. This is a well-ordered and non-threatening picture of what will happen. From the point of view of reproduction rights, however, certain questions and problems do arise.

5.5 *The problem of unauthorised reproduction*

Rightholders will be able to license their works for reproduction via the distribution network of servers, into the home or office of the user. This is clearly a major new commercial opportunity for both large and small enterprises trading on their intellectual property rights. However, there is little, in practice, to protect the rightholder against unauthorised distribution and reproduction either at points along the distribution chain or by the end-user. If a user calls up a video-on-demand service, it will be possible to infringe copyright in the movie by taping it for re-sale, or setting up a public performance and charging for admission. Reference has been made to the problems associated with copy-protection to defeat this kind of activity, and other answers may need to be sought. Alternatives may involve more flexible contracting for such reproduction rights, so that rightholders are paid higher royalties as the risks or possibilities of copying increase. In cases where copying is not authorised, and is damaging to rightholders' interests, harsher penalties for infringement would be appropriate, to indicate that abuse of intellectual property rights is not an acceptable consequence of the information and communications revolution.

5.6 *The problems of security of information systems and protection of personal data and privacy*

Some services, such as home banking, home shopping and remote medical diagnosis, may involve the electronic transfer of financial or other sensitive information belonging to the user. The security and integrity of this data will be of paramount importance to users. If the lines carrying this information can too easily be intercepted, even if only by government agencies, consumer confidence in these valuable applications of the information superhighway will be lost and they will surely fall into disuse. The interception of private communications is heavily regulated in most democratic countries already. Such regulations relate to telephone and postal communications for the most part. The arrival of global computer-based communication has led to a belief that new or additional controls are justified in the interests of national security or the fight against crime. It is a fallacy to believe that the new opportunities for communication via the Internet or its more elaborate successors justify further interference. Existing communication methods can be used for good or ill; there is nothing new about the information superhighway which will change this. Laws which seek to compromise the security of these communications for reasons of state are ultimately unenforceable.

5.7 *The challenge of change in the supplier-consumer relationship*

The old model of large enterprises distributing material to a passive consumer audience is incomplete for the information superhighway. Technical innovation will lead to a drastic alteration in our relationship with information and communication. The potential now exists for consumers to engage actively with creators and suppliers, to interact with the material on offer, to add to it, to adapt it to their particular needs, to create new intellectual property. Traditional roles of consumer and supplier will therefore give way to a much more fluid relationship between parties, linked together by new communication channels. Content, similarly, will no longer stay fixed in our perceptions, as a printed book or a painting does today. Content is malleable, mutable, flexible. In its digitised form it can be manipulated by the user in the home or office, using ever cheaper yet ever more sophisticated devices. It is far too soon to guess at the implications for the intellectual property rights of all parties under these conditions, but again, questions of ownership and creation of works, and of the right to reproduce them, will arise in more difficult circumstances than was the case with traditional copyrighted works, such as books, photographs or recorded music.

6. The commercial exploitation of reproduction rights

6.1 *Rightholders' concerns are matters of traditional business risk*

What will be the user's rights over material obtained from the superhighway? What limitations on reproduction can rightholders reasonably apply to their works when they make them available in this apparently "free-for-all" environment? The best way to answer these questions, from the point of view of the rightholder, is to think in traditional business terms. It is a matter of business risk to a publisher whether to put works onto the information superhighway or not. There are risks that the works may be reproduced without payment, or misused in some other way. This has always been the case for suppliers of intellectual property related goods, who consider these risks and price their goods accordingly. There is, therefore, nothing new in the problem of trading on the information superhighway.

6.2 *The rightholder's monopoly*

The exclusive right of a copyright holder to reproduce a work, or to permit others to do so, is controversial in some quarters. With increasing emphasis being placed on rules governing fair competition, dispute also arises over the rightholder's exclusive right to *withhold* permission to reproduce works. The arguments are especially vigorous in connection with intellectual property which forms part of whatever standards are established on the information superhighway. All other suppliers will wish to conform to such standards, or meet the expense of establishing better alternatives with superior technology. The owners of this key intellectual property have opportunities, it is argued, to hold all other suppliers to ransom, by charging unreasonably for rights to reproduce it under license, or by exercising self-interested choice in deciding who shall be granted such licenses and who shall not.

6.3 *Exclusive rights are the only basis for investment and innovation*

This has led to debate about whether the monopoly nature of copyright rights can be justified in economic or public policy terms. For the purposes of this paper on remuneration and reproduction rights, it is sufficient to point out that allowing the rightholder to exercise exclusive rights in the fruits of his or her creative talents is the only approach consistent with the essential nature of intellectual property law. If those who invest their time, talent or money in the creative process are forced to accept an element of uncertainty or compulsion in what they can do with their works, then their works are not truly their own. Motivation to invest will decrease, though competitive pressure will mean that it will not disappear altogether. However, even competitive pressure will be reduced, where rightholders' freedom to exploit their works to the full is limited. If possessing market-leading technology brings with it loss of control over intellectual property assets, why invest to reach market-leading status? Technology will still move forward, and new works will become available, but in an unreal atmosphere in which competitors will not need to strive so hard to improve upon established market leaders.

6.4 *The economic argument for public interest exceptions to the rightholder's monopoly*

The rightholder's monopoly has already been modified over the years for various reasons associated with public policy. The intellectual property industries have accepted many exceptions to their exclusive rights, which have served both their own as well as the public interest. Many copyright laws, for example, include a statutory right of a user to reproduce portions of a work for personal study. The general public policy principle is that education is a good thing. The economic argument is that an educated society will result in bigger markets for intellectual property works of all kinds. To repeat an important fact about software, it should be remembered that the act of loading and running a programme on a computer always involves reproducing the programme: copying it from the long-term to the short-term memory of the computer. In this context, many countries' copyright laws explicitly create rights for users to reproduce programmes for archival or back-up purposes, or otherwise for the normal running and use of the programmes. These are not exceptions to their exclusive rights which copyright holders have been forced to accept unwillingly. They are self-evidently necessary for the commercial

exploitation of the programmes. Indeed, competitive pressure among software publishers (rather than pressure from legislatures) has led to considerable liberalisation of their licensing policies -- allowing additional reproduction rights in a wide range of circumstances to meet their customers' demands. For example, almost all software publishers now allow a single user the right to reproduce a programme onto both home and office or portable computer.

6.5 *Public respect for intellectual property rights*

Both suppliers and consumers of intellectual property goods around the world know quite well where they stand today in terms of the law. The high levels of publicity given to the trade in counterfeit goods, and the anti-piracy campaigns of the music, book, motion picture and software industries have raised public awareness of the issue. Although "commercial" infringement of intellectual property rights continues alarming levels (amounting, according to one estimate, to 8 per cent of world trade), the popular approach to the information superhighway should be one of respect for intellectual property. Rightholders who will make use of new technology to exploit their works on the superhighway will, however, do so with their eyes open. For most, the issue of getting paid for works disseminated in this way will remain a major business management challenge. New technology has made illegal copying easy and cheap. The task for the copyright industries, as it has been in the past, is to establish more respect for intellectual property in the public mind. Publishers will continue to seek a balance between, on the one hand, wide dissemination of their works for marketing purposes and, on the other hand, the risk that users will indulge in the superhighway equivalent of supermarket shoplifting. When goods are placed temptingly on display, and are easy to remove from the shelves, the dilemma is easy to appreciate.

7. *The evolution of a marketing and distribution channel for digitised works*

7.1 *The Internet as an alternative marketing device*

Those who put created works onto today's Internet understand that they might be accessed any number of times and in any part of the world. Many "authors" will wish to make their works available without charge. Indeed the *free* movement of ideas is an integral part of the Internet's sociological importance. Apart from the pleasure of exposing one's intellectual creations to, it is to be hoped, constructive criticism, there are often sound business strategies underlying free circulation of material on the Internet. Software companies have long known that the best way to sell programmes is to let people try them for themselves. Computer magazines often carry free sample diskettes or CD-ROMs, which hold sample copies of programmes. The Internet is an ideal method of expanding this notion to allow far wider trial use of digital products. Such samples, either as give-aways in magazines or as items on the Internet, are often "locked" so that they will operate properly a limited number of times, or contain only a sub-set of the functions available in the full product. If the user likes the product, a code can be given when payment is received, which "unlocks" the full functionality of the product on the version already in the user's hands. Such locking codes are by no means completely secure. They will, however, deter casual infringement.

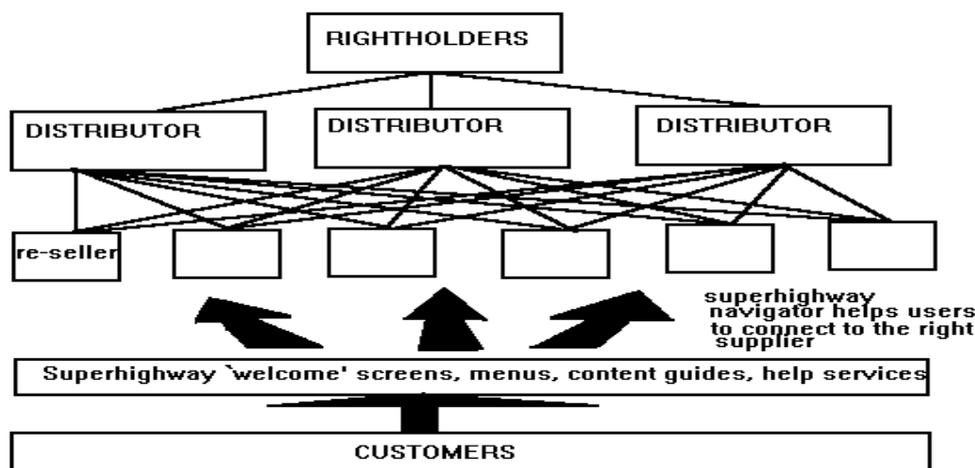
7.2 *The Internet as an advertising and sales medium*

Commercial users of the Internet will weigh the risks of theft of their works against the increased sales and marketing opportunities afforded by it. Numerous small software companies have accepted the risk and used the Internet in this way to reach a wider audience for their products. In January 1995, Oracle became the first of the large companies to try this method. As conventional marketing methods become more and more expensive, companies like Oracle are concluding that they cannot always seek to match advertising budgets with all of their competitors across all of their product ranges. Even the very largest companies are now considering the Internet as a means of promoting their products directly to users rather than through print media. This is not wholly new. Many companies have used bulletin boards for some time to place additional products and services at the disposal of their customers. For example, most software applications (like word processing or spreadsheet programmes) include small sub-programmes called “printer drivers” to pass instructions between the user’s computer and printer. However, only code for the most common makes of printer can be included in the basic application package. Additional printer driver programmes for the less common brands of printer are frequently placed on bulletin boards where they can be easily accessed, as a free customer service from the application publisher.

7.3 *An electronic distribution channel*

Up to now, most software vendors’ attempts to use the Internet have been to promote a single new product or service, where the “enthusiast” profile of users makes them an attractive specialist segment of the market. However, a recent announcement foreshadows the kind of computerised distribution network which may ultimately form the central commercial core of the information superhighway. American companies such as CyberSource, Software Inc. and Symantec Corporation’s Software.net act as Internet distributors for other companies’ software products. As use of the Internet extends from computer-literate specialists to a more general public, the problem of “navigating” the Internet and finding what is useful or relevant to the general interest subscriber will become more prominent. The language and techniques of getting on to the Internet, and locating and using its various services (for convenience, often referred to as the “user interface”) still require a degree of computing expertise. This problem is being addressed by companies who supply their own, easy-to-use interfaces to assist the non-technical subscriber in getting started. Even with such services, however, the volume of available information is enormous and Internet users may still have difficulty locating individual products or services. Such users may now turn to a smaller, more manageable range of “distributors” who will group products together, offer extra added-value services, and perhaps concentrate on niche markets or specific user profiles. In other words, they will act exactly like conventional distributors of traditional goods. By these means, Internet users in the United States can today order and download more than 8 000 software programmes.

7.4 *A typical distribution network: multiple contract relationships across a hierarchy of service providers:*



7.5 *A close analogy to contracts in traditional distribution channels*

A vast range of digitised content, including not only computer programmes but also movies, music, images and data, will form the subject matter of more or less familiar-looking distribution agreements. Rightholders will contract with distributors, who in turn may use networks of smaller “retailers” to promote their copyrighted works to customers, to manage payment, product support and all the other ancillary services which may be needed. The hierarchy of computer servers which store the digitised works and then deliver them to homes and offices will be put in place by this distributor network.

7.6 *From physical distribution to electronic distribution (and reproduction) of digitised works*

This development is especially interesting in the light of reproduction rights. In a traditional publisher/distributor relationship, such rights are seldom at issue as the publisher will generally retain responsibility for reproducing copies of the products for the distributor to sell. Under these new circumstances, it will be more accurate to think of the distribution agreement as incorporating a license to reproduce the works as necessary to ensure their availability on the relevant servers and other distribution channels.

8. The rights marketplace

8.1 *Setting prices, operating margins and profit levels*

Appropriate prices and operating margins can be established, based upon the rightholder’s and distributor’s assessments of the value of these reproduction and distribution licenses. They will be negotiated at each point along the distribution channel, depending on the range of re-selling, support or other added-value services offered. Large enterprises may act as distributors for a wide geographic territory, such as an entire country, and will sub-contract with smaller re-sellers in different regions.

Alternatively, the ability of these digital works to cross national boundaries may result in the rightholder contracting not on the basis of geographical distribution, but perhaps according to the types of works, music, movies and so on, to be licensed. This is the language of traditional, contract-based commercial distribution, and there is every reason to believe that it can apply perfectly well to conditions on the information superhighway.

8.2 *The current rights marketplace works well with individual contract negotiation*

Reproduction rights form part of the bundle of rights which can be licensed, or traded in any other way, according to well-trying market principles, around the world. There is ample evidence from the traditional intellectual property industries, such as book publishing or television programme-making, that both small and large enterprises can flourish in a free contracting environment, each negotiating with whatever strength can be mustered. Small companies, for example, may wield disproportionate bargaining power because of their skills in highly specialised markets. Large companies will rely upon their financial strength, wide geographical presence, or ability to fund research and take risks. Whatever stance they take, rightholders are the only people who can know their own costs, calculate an acceptable margin and set a price on their intellectual property assets that the market will find attractive.

8.3 *The basis of a multimedia industry*

This paper has thus far spoken mainly of two groups, the original rightholders and the final consumers. There are also various intermediate groups, whose interests need to be taken into account in the commercial growth of the information superhighway. Many hopes are being invested in the growth of multimedia publishing, for example, and while such publishers may create entirely original works of their own, they will certainly also need to use the works of others in the creation of derivative works, adaptations, translations or compilations. Such creators need the ability to identify and negotiate for the reproduction rights they need. The success of the industry will be based in large part upon such buying and selling of rights. Do multimedia companies need help to do this -- by formalising and centralising the rights marketplace, or can an unregulated electronic rights marketplace function under normal commercial conditions in the same way as traditional trading of rights has done thus far?

8.4 *Alternative models to regulate the rights marketplace*

It is being argued in some quarters that the information superhighway, with all its technical opportunities for creating multimedia works, and its proliferation of intellectual property rightholders, will make traditional contracting for such reproduction/distribution rights unworkable. How, it is asked, can contracting parties identify each other? How can they negotiate on equal terms? How can owners of key intellectual property rights be forced to license them equitably? The rationale for such questions seems to be that the information superhighway is so different, that buying and selling of intellectual property rights is so complicated, that existing commercial methods, which have dealt satisfactorily with the rights marketplace thus far, cannot possibly cope with the digital revolution. As the commercial potential of the information superhighway has become clear, alternative models to regulate this marketplace have been put forward to deal with these apparent problems. Speculation of this kind, and proposals for change have not so far been of value, because it is not at all certain that these issues will, in practice, translate into problems or obstacles to progress. Indeed, all indications from observation of the current electronic marketplace point to the wisdom of allowing existing commercial and legal practice to evolve and expand organically to meet new requirements, rather than inhibit growth by the introduction of costly and uncertain regulations and administrative machinery.

8.5 *A central register of intellectual property*

The supposed problem of a multiplicity of rightholders (of identifying “who owns what?” and then locating the rightholder) can be resolved, it is suggested, by a central register of all intellectual property, each item bearing some form of electronic identifying tag. It is argued that multimedia publishers will need such a service to allow them to compile works involving intellectual property from many different sources. Such electronic labels might include details of ownership, the nature of the reproduction rights which the rightholder is prepared to sell, and possibly interface information enabling a user to add the digitised material to other works, or to make it compatible in some way. Thus far, rightholders have shown themselves extremely wary of handing over administration and control of such matters to any outside agency.

8.6 *Standards and the compulsory licensing of reproduction rights*

It was suggested earlier in this paper that consumer demand and supplier competitiveness might result in more than one version of the information superhighway. Competing technologies may attract different users for different reasons, while still providing the global coverage and ease of access which most people imagine to be fundamental to the superhighway concept. Whether there is a single or multiple systems, users will demand a high degree of standardisation and compatibility at all levels so that they can cross between systems when necessary and navigate the superhighway network with ease. The process of standardisation implies either a conscious decision (by a committee) or a *de facto* determination by the marketplace to choose one technology to underlie the whole system in preference to others. Obviously, the owners of the chosen technology will have achieved a major commercial success. Can the successful rightholders, whose proprietary technology becomes a vital component by this process, exert total control over the whole superhighway system? Some argue, again speculating about something which has yet to happen, that abuse is inevitable and that anti-competitive effects are sure to result. They demand that owners of intellectual property which acquires this essential status should accept that the work be taken out of copyright protection and enter the public domain. Alternatively, such rightholders should be obliged to license reproduction rights in the intellectual property in ways set out by law or regulation rather than in ways dictated by their own commercial judgement. Any such collective pressure on intellectual property owners to exercise their rights in particular ways or to abandon their rights to the public domain is in itself anti-competitive.

8.7 *Unnecessary regulation of the rights marketplace will stifle innovation*

Interference in the rights marketplace would remove a major force for progress on the technological front. Once key intellectual property has become a standard and entered the public domain, the incentive for the rightholder to improve upon it disappears, as does the incentive for a competitor to produce superior technology to replace it. Any study of the computer and communication industries today will show a constant struggle to achieve standardisation and compatibility for the benefit of the consumer. At the same time, technology is being driven forward at great speed by competitive pressures. In this struggle, the products of some rightholders have achieved prominence and *de facto* standards are appearing without regulatory interference. This is surely a process that should be allowed to operate without artificial constraints being placed upon it.

8.8 *Centralised licensing and administration of royalties*

The universality of the information superhighway is intended to be its greatest strength. Vast amounts of information will be available at all times and across the globe. Rightholders, having taken the business decision to place works on the information superhighway, will hope for remuneration in proportion to the use made of their works. The problems of establishing a value for intellectual property rights and of ensuring payment flows to rightholders have been taken up by some commentators as a call for centralised administration of these rights and payments. Linked to the idea of electronic tagging of intellectual property outlined above, it is now being proposed that rightholders register their works with a central agency, to which those who wanted access to such works could turn. In a form of one-stop-shopping, users could locate the works they wanted, acquire a license to reproduce them and pay for the license under a single agreement. While this may be superficially attractive to users, such a development would signal a marked transfer of control away from rightholders into bureaucratic hands. Registration with such an agency might be voluntary at first, though experience with centralised collecting agencies in other industries suggests that pressure to make registration a necessary condition for copyright protection would certainly arise.

8.9 *New approaches to administration of reproduction rights are premature*

In reality, problems are being anticipated long before they actually arise, or where there is little risk of them arising. Such suggestions for new regulation and centralised administration of rights are a dangerous distraction from the important task of creating optimum conditions for the information superhighway to flourish. They are wrong for at least three reasons. Firstly, characterising these matters as problems is absurdly premature, making a judgement well before any body of experience has been obtained about how this marketplace can or will function. Any attempt to create new commercial structures to handle commerce on the information superhighway will certainly be overtaken by the very technology it seeks to regulate. Second, these proposed solutions incorrectly assume that existing methods of individual contracting will not work in the future. Until there is strong evidence that the system is not working, individual rightholders should be allowed to contract for their intellectual property goods with those who are in the marketplace for them. Thirdly, advocates of such changes pre-suppose that rightholders would accept a centralised and bureaucratic machine to identify, authenticate and administer intellectual property rights around the world. Major intellectual property rightholders are unlikely to agree.

9. *Negotiation and trade in the rights marketplace*

9.1 *Establishing the value of non-traditional rights*

As electronic multimedia publishing has started to take off, the first challenge for many participants, both rightholders and consumers, has been to assess the value of intellectual property rights which thus far have not had a known commercial worth. Even well-established intellectual property based enterprises have had this problem, as they have begun to study their products in their traditional formats, like printed books or musical recordings, and to ask themselves how much are electronic publishing rights worth, compared with traditional rights, such as foreign language or serialisation rights? The new electronic rights marketplace will grow, as rightholders become more knowledgeable about the size and characteristics of this new commercial opportunity. Early negotiations over electronic rights may have produced some startling under, or over-valuations in this field, and a superficial look at this marketplace today may give the impression that it is not well-ordered, and that better regulation is needed to avoid competitive abuse and to protect consumers. There is little or no evidence that this is really the case. Rightholders, quite properly, are vying with each other to maximise return on their investment by selling

electronic rights for materials on the information superhighway at the best prices they can get. From the rightholder's point of view, returns will only stay high if investment and product development is high enough to result in attractive content for consumers.

9.2 *Reproduction and remuneration in the software industry*

The software industry shares many of the piracy problems of the traditional copyright industries. It is a fiercely competitive industry, and the companies have been forced by their customers, and by rapid developments in mass market computing, to update their products on a very short time cycle. The normal product life for a software programme is now approaching twelve months, with minor upgrades and improvements every six months. R&D investment by software companies is extremely high by manufacturing industry standards, within a range of 10-18 per cent of annual revenues in recent years. These rapid cycles of product improvement, although providing fertile ground for counterfeiters and pirates, have the desired commercial effect of stimulating a well-informed marketplace, with constant expectations of ever-better programmes. The technical means to improve services, update information services and add new products are now available to almost anyone who will publish on the information superhighway. Thus, the market dynamics of the information superhighway as a whole will come to resemble those of the software industry which gives the superhighway its means of operation. Like the software industry, few features of the broader electronic marketplace will remain unchanged and static on the superhighway for long. The sales and distribution channel described below has developed successfully by combining regular flows of new products with new generations of hardware technology and their own added-value services.

9.3 *From tailor-made to mass-market programmes: a major difference*

In the days before mass-market personal computers, software was written to order for the specific needs of the very large undertakings that housed the earlier generation of mainframe machines. The software was commissioned and paid for by the user and disputes as to ownership, acceptability and payment could be resolved by reference to the contract which governed the commission. Such a model was manifestly unworkable when personal computing came along. How could the publishers of software get their products into the hands of a global marketplace of variously talented or inexperienced users, while at the same time (a) being clear about how they wanted to protect their intellectual property rights, and (b) getting paid?

9.4 *Shrink-wrap licenses*

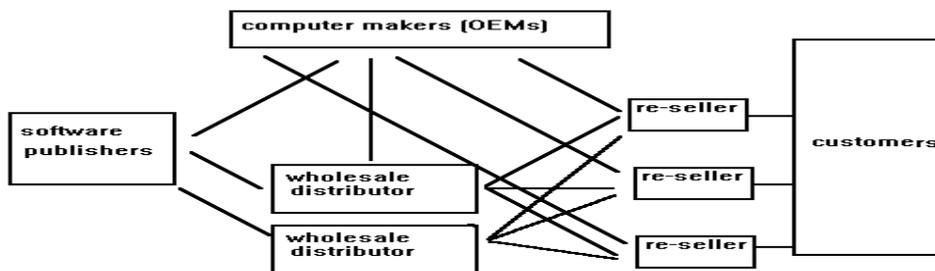
The answer to (a) was the so-called "shrink wrap" license. This is a notice to the user, in the form of a contract or license agreement, placed conspicuously in the software package. It tells the user that the license should be read before opening the envelope containing the software disks. If the user opens the envelope, he or she is deemed to have agreed to the terms contained in the license. Such licenses conventionally contain two sections -- one concerns intellectual property rights, and the other speaks of the manufacturer's warranties in relation to the product. In general, the intellectual property portion of shrink-wrap licenses merely sets out the fact that the publishers' rights are protected under the laws of copyright. More controversially, the warranty portion of the licenses generally offered very limited security to consumers. This is based upon the reasoning that software products containing hundreds of thousands of lines of code, used on a wide range of computer configurations, and by an infinitely variable range of users, cannot be guaranteed bug-free.

9.5 *Establishing the value of personal computer software*

The answer to question (b) above, how to ensure payment, lies in the growth of distributors. An added-value distribution channel did not, however, appear overnight. On the one hand, the business world was still more familiar with the tailor-made programmes commissioned for mainframe computers. Unlike the spreadsheets and word-processing programmes which formed the PC software industry's base, these high cost, high value programmes were designed to perform very specific, complex functions. For the software author, getting paid was just a matter of exerting contractual rights against whoever commissioned the work. With the arrival of personal computers, on the other hand, individual negotiation for the licensing of software was soon seen as impracticable. At that early stage, personal computing was a specialist hobby, and a culture grew up which regarded computing as a liberating and even anti-establishment pastime. Programmes were written and shared freely. Copying of programmes, if considered wrong at all, was felt to be a victimless crime, and working out the commercial value of programmes was a difficult exercise, for the very few who thought it worthwhile to try.

9.6 *The development of traditional distribution channels signifies a maturing market*

As personal computers became more popular, software suppliers had to find ways of getting their products into this emerging mass market with some assurance that they would be paid. Distribution channels were created, often using the same wholesalers and retailers as the computer manufacturers. This channel spreads the risk of non-payment by users between rightholders and those who sell the products. It works well for so-called packaged products, with software programmes and associated manuals and documentation packed in boxes. This historical description is relevant because the conventional distribution channel has remained in place, and is thriving as it introduces added-value services to consumers. It is now in use for the CD-ROM based products. Both conventional software and also the new multimedia software titles are still being sold through these means, notwithstanding the new possibilities of electronic distribution over the Internet.



9.7 *Payment from computer makers for pre-installed digital works*

Software companies have also negotiated directly with computer makers (OEMs, or original equipment manufacturers) who pay royalties for the right to pre-install copies of programmes onto the computers before they leave the factory. Such arrangements have been beneficial to consumers, who have benefited from the bargaining power of OEMs, to bring programmes to market at lower cost. Even in the

new information age, content providers are increasingly licensing equipment manufacturers to pre-install their products. OEMs might pay for a single one-off license, or royalties on a per-copy basis. Relying on conventional contract negotiation, this will provide a suitable means of distribution and guaranteed payment for rightholders whose goods will reside on home or office computers. Moreover, works provided to consumers in this fashion need not be static or unchanging just because they have been pre-installed on the user's computer. Connection to a network can allow a computer's programmes to be updated from a remote server, with subscription charges, a renewal fee or other form of payment being levied as appropriate.

10. Remuneration on the information superhighway

10.1 Like other superhighway issues, electronic payment is still at an experimental stage

Much experimental work is now going on to find methods of making commercial transactions possible on a large scale over the information superhighway. The supply of content and the technical operation of the network have been considered in the first part of this paper. The rights of those engaged in this exercise have also been considered. The remainder of this paper will consider the commercial considerations, principally sale and purchase of the added-value goods and services that the information superhighway will offer. At the very outset of this discussion however, it is necessary to underline again the essential truth that methods and techniques which exist today are only transitional solutions. Attempts to trade over the information superhighway are numerous, and some will certainly fail. Competition to find efficient methods is intense, and premature standardisation of procedures will limit this process in a most dangerous way.

10.2 Traditional contracting and payment methods may still be practicable

In such a changing environment, a major part of the argument of this paper is that existing ways of doing things should not be rejected wholesale, in favour of new practices and methods, introduced simply because change seems inevitable. For one thing, there is now a substantial body of commercial activity in the electronic information and communication industries which is using traditional contracting and payment methods without apparent problem. For another, all change involves a degree of uncertainty. When it comes to enforcing legal rights, such as the right to remuneration for intellectual property works, uncertainty means high legal costs and damaging delays in obtaining justice. This jeopardises especially the rights and commercial growth of small enterprises, who are expected to play a central role in the economic development of the information superhighway. Because existing trading methods in the software and digitised content industries will continue to be important for some time, a description is set out below of the current sales and marketing strategy used for digitised works.

10.3 New methods of getting paid

Although existing methods of licensing and paying for intellectual property rights seem to be adequate, there is a strong feeling that more futuristic, electronic methods must be possible to make trading even quicker and easier. To this end, the technology industries are hard at work on mechanisms for buying and selling the commercial rights to the expanding universe of services and information available to the global marketplace. For the present, the *carriers* of on-line services, such as *America On-Line* or *Compuserve*, contract with content *providers*, such as encyclopaedia publishers or financial information providers, for electronic publishing rights, and contract with end-user customers to provide access to their services, charging them on a connect-time basis. Such systems are based upon a known community of

subscribers, who have signed contracts in advance to receive the services, and receive regular bills for their connect time.

10.4 Many-to-many publishing

Reference was made earlier in this paper to the fact that the convergence of all works into digital format will allow all users, not merely large commercial enterprises, the ability to manipulate and interact with the content of the information superhighway. The economic benefits of legitimate use of this freedom are considerable. Digital diffusion can make small, independent companies competitive against large corporations. In an electronic marketplace, expensive distribution networks are not needed, and production costs are not inflated by the need for massive manufacturing capacity, as in the record industry for example. Many such small enterprises are starting to take advantage of this development, and negotiating with original rightholders for permission to add their works to broader compilations, or re-structure information or data into specific added-value services on the Internet.

10.5 Guidance for small enterprises to operate in the rights marketplace

It has been noted elsewhere in this paper that there has been some call for centralised administration of rights and royalty payments, in part justified by a need to assist small enterprises and even individuals to operate in this new many-to-many environment. An alternative suggestion, which would gain acceptance from a far greater portion of the private sector participants in this market, would be to encourage national governments and inter-governmental bodies to provide assistance to small enterprises to trade freely, but more knowledgeably in the rights marketplace. Investment in trade fairs, advice and consulting services to small businesses would be quickly recovered as such enterprises realised the full value of their own intellectual property assets, developed attractive added-value services and learned to specialise so that they can trade confidently without unnecessary applications to bureaucratic registration and collection agencies.

10.6 Abuse of the many-to-many publishing freedom

What is to be done, however, with individuals or enterprises who take the works of others without payment and “publish” them on a network? An example of this is the growing number of digital “jukeboxes” on the Internet. This is technically a very simple service to create. Using low priced equipment, recorded music can be rendered easily into digital format and posted onto the Internet. The jukebox “proprietor” can ask end-users for payment for the right to download the digitised recordings, without having paid anything to the original rightholders of the music. With few costs, the unauthorised proprietor is indifferent to piracy, as any revenue from the jukebox, even if it represents only a fraction of use made of the service, will be profit. This principle applies very broadly; it is increasingly easy to “cut and paste” content from the Internet and incorporate it without payment or attribution in another electronic work.

10.7 Hardware devices for detecting illegally-obtained digital signals

One possible security option is to add non-removable identifying code to all digitised data travelling over the networks, (described in some places as “tattooing” the data), and then installing receptors in all computers to detect unauthorised, that is to say, unpaid for, signals. The user’s computer would simply be unable to interpret the signals. For this system to work, rightholders would have to encourage the computer manufacturers to install such devices. It has been pointed out that three of the six largest record companies, for example, are controlled by electronics groups involved in computer manufacturing. If rightholders collectively conclude that the threat of lost revenue from piracy over the

Internet is big enough, and if the manufacturing cost of adding detectors to computers is acceptable, then this would seem to be a worthwhile method to investigate. As part of its broad programme of work on intellectual property and multimedia industries, the European Commission is sponsoring research into approaches of this kind.

10.8 Direct payment from network users

The really big challenge involving payment on the information superhighway is to discover how available technology can allow casual network users to find information and services and pay for them in a single transaction. One of the most important characteristics of the current Internet community is the propensity of users to “browse” almost at random through the different services, consulting and downloading material which strikes them as useful or appealing. This type of electronic supermarket shopping, making impulse purchases, or buying things at short notice, needs more flexible payment methods. Clearly some form of network which links users, banks, credit card companies, clearing houses and suppliers is feasible. Trials are being put in place to take these ideas forward, as newspaper headlines speak with increasing frequency of the cash-less society, of electronic money and of the virtual marketplace.

10.9 The “smart card”

One possible way forward is the so-called “smart card”, which permits high levels of flexibility as a payment device. Smart cards resemble credit or charge cards, and indeed they can carry out the functions of these other cards. They differ because they can carry far greater amounts of data than the magnetic strip used in traditional cards. Each card has its own chip which provides high levels of computing intelligence and storage. The user can have personal financial, medical or other data on hand at all times and can, by means of hardware which can read the data on the card, connect the smart card and its owner into larger computing networks, such as banks, electronic retailers, transport services and so on. The power of the smart card’s microchip allows far more sophisticated interactive transactions than are possible at today’s cash point machines.

10.10 Field trials for new on-line services

The electronic distribution channel referred to earlier in this paper will use increasingly sophisticated servers to hold digital material and record how often each product or service is accessed. Individual on-line customer transactions are certainly possible today on a very large scale, thanks to rapid expansion of the carrying capacity of fibre-optic cable, and technology such as asynchronous transfer mode (ATM) switching, which allows enormous numbers of electronic signals to be processed and acted upon. Making use of these possibilities, a growing number of trials are currently taking place, to assess the feasibility of whole populations employing combinations of televisions with intelligent set-top boxes, and home computers, to engage in transactions such as home shopping, video-on-demand, interactive services such as remote medical diagnosis and so on. Charging is most frequently done by conventional invoicing at present, although various experiments with direct electronic payment are now taking place. In some experiments, users will provide a credit card number and approval via the network through which they receive the service they are paying for. In other research projects, users buy credits in advance (by traditional means) and then exchange these electronic credits for access to the on-line service, or for goods or services purchased through it.

10.11 Minitel -- increasingly flexible direct payment methods

The French Minitel service was a pioneer in delivering on-line information and communications services to millions of French homes and offices. The technical standards upon which it was based were unfortunately set too firmly at the beginning, and the system does not at present take full advantage of the newest technologies. Nevertheless, on-line ordering of many thousands of products and services has been available for some time. For payment however, the transaction has been for the most part off-line, by cash, cheque or credit card. It is now possible to pay for certain services by means of entering a credit card number directly onto the Minitel, and other services use newly-added card-readers which transmit smart card data to complete the payment transaction.

10.12 Mondex -- smart card technology

Experiments in the UK, France and elsewhere extend this notion by using smart card technology to allow users to move money from their bank accounts to a pocket-sized card which can be used for various transactions. Users employ secure PIN numbers to access their bank accounts, but once the funds “reside” on the smart card, they can be debited from the card automatically when payment is due, by reading devices installed by suppliers. In field trials, shops, transport providers and local government services are accepting payment in this way from large sample populations.

Experiments in the Netherlands by the Dutch company DigiCash in partnership with a US bank have gone one stage further by holding collateral and providing settlement for digital “credits”, which can be exchanged for goods and services available over the Internet. These and other experiments are rapidly coalescing into a significant industry-wide effort to make electronic trade widespread and safe. All the major financial institutions, such as banks and charge card companies are exploring joint ventures with computing companies, both hardware and software. Even though the scale of this experimentation is large, it is important to stress that electronic trade will evolve gradually rather than become a universal reality overnight. Although development cycles are rapid in the high tech world, forward progress tends to be by small incremental steps rather than by dramatic, innovative change.

10.13 Computerised home banking

Home banking software has existed for some years, although earlier programmes have been used mainly for home-based financial management, without necessarily allowing the user direct on-line access to bank records and services. Programmes and services are now being made available which allow customers to deal directly with their banks for the full range of banking services by means of their personal computers. The unprecedented increase in sales of computers to the home has provoked considerable new interest in home-banking software, which the public can now visualise more readily being linked to banks, shops, utilities and all the other networked services.

11. Summary of conclusions

11.1 General copyright conclusions

- Digital convergence means that all information superhighway content and the technology to carry it to users will be, in essence, software. Text, images, music, and voice telephony are all equally manipulable and capable of easy reproduction.
- Copyright is the right regime for software -- it is pragmatic and robust.

- The general direction of global consensus-building supports stronger intellectual property protection for digitised works.
- Ability of users to interact creatively with content on the information superhighway will extend the concepts of copyright ownership and authorship and may create new rights.

11.2 Reproduction rights and exceptions

- Current analysis of how reproduction rights apply to software is sound and does not need radical revision.
- Exclusive reproduction rights should remain with the copyright holder.
- Exceptions allowing reproduction without the owner's permission should be very limited.
- Unauthorised reproduction can be lessened by copy-protection or electronic key methodologies, provided proper levels of encryption and other security technologies are permitted.

11.3 Remuneration and the market-place for reproduction rights

- Intellectual property goods should find their own market value like other goods.
- Compulsory licensing to widen access to reproduction rights will reduce innovation and distort market pricing mechanisms.
- Content owners will place their goods on the superhighway and decide for themselves about price, payment and the risk of piracy. Normal business risk considerations apply.
- An open and unfettered electronic rights market-place should be allowed to develop without centralised administration. Traditional copyright industries provide a model for how this will happen.
- Governments and public bodies can assist by providing help to small and medium-sized enterprises to operate efficiently in the free rights marketplace.
- Many schemes for electronic payment are being tried. For many superhighway services, traditional payment methods will suffice for some time.