Breaking the barriers of resistance to electronic journal entry: Experiences of *BITоday*

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ABSTRACT

There are a number of socio-economic issues that are generally understood in the area of electronic publishing. Primary among these is an apparent reluctance within the academic community to accept a replacement for paper-based journals. This sits incongruously with the fact that the WWW was born at CERN primarily as a vehicle for the effective dissemination of scientific research papers. The present paper focuses on research, problems and issues encountered at South Bank University in attempting to establish a Business Information Technology (BIT) Journal on the Internet (*BITоday*). It is hoped that this undertaking, which requires challenging the current academic culture on research and publication, would meet the requirements of academic staff and publicise the current and innovative academic area of BIT outside of the University. However, there are different levels of acceptance and understanding about communicating by electronic publication. This paper will thus review and highlight the main problems and issues that have been encountered in this effort to establish an electronic journal in a relatively new academic discipline.

The culture of electronic publishing is opposed by a number of 'forces of resistance' (as they may be termed in the electronic publishing environment). These forces of resistance act like barriers into the electronic journal field. This paper will suggest from experience the nature and origin of these resistant forces. Two obvious resistant forces are the establishment of standardisation of publication and the difficulties of enforcing copyright upon electronic journals. However, these issues are only policy constraints and pale in significance next to the issues of the initial cultural establishment of an electronic journal, which manifests itself in the form of an academic culture gap. The socio-economic forces of change in the academic world, such as diminishing budget allocation for paper-based journals held in academic libraries, strongly suggests that electronic journals will become the standard and not the exception in the future. Those institutions that, early in this evolution, break the barriers of entry to the electronic journal field, stand to benefit in terms of establishing standards and an academic presence.

Academic institutions are still in a period of experimentation. Most people are still trying to get to grips with the basics of the WWW and the

evolutionary nature of electronic publishing media which offer the prospect of hyperlinks, to point to additional reference material within other academic domains, or even other electronic journals (at no additional cost). This paper, firstly, addresses the issues that surround 'barriers to entry' in the electronic journals field. Secondly, it outlines the forces of resistance to an acceptance of electronic journal media and the nature and reason of such resistance. Thirdly, the paper will suggest possible solutions, and areas of further work, needed to overcome the primary forces of resistance.

Case-study details of the Web-based electronic journal *BIToday*

Title: *BIToday*	(The Journal for Business Information Technology)
Academic affiliation:	South Bank University School of Computing, Information Systems and Mathematics London SE1 0AA
Academic area:	Business Information Technology (BIT) Programme (Web: http://www.scism.sbu.ac.uk)
ISSN number:	Application made. (The procedure for obtaining an ISSN for an online journal is very similar to that for a printed journal.)
Launch date for publication:	1 September, 1997
Publication frequency:	Quarterly
Details of content:	Refereed articles Book reviews Conference details Academic links forum
Contact point:	Dr. Simon Polovina *BIToday* (on behalf of the Editorial Board) SCISM South Bank University London SE1 0AA Web: http://www.sbu.ac.uk/~polovina/

1. Aims and rationale for the electronic journal *BIToday*

Throughout the world, information and communications technologies are generating a new revolution already as significant and far-reaching as those of the past. It is essentially a revolution based on information, which in itself can be the expression of human knowledge. We generally understand that advances in information technology now enable the academic world to process, store, retrieve and communicate information in whatever form it may take, unconstrained by distance, time and to some extent volume. This revolution adds huge new capacities to human intelligence and constitutes a significant academic resource which affects the way academic knowledge is handled and used. All revolutions generate uncertainty and discontinuity, but also opportunities. The use of the Internet and concurrent Web facilities is no exception in the context of electronic publication. In the face of these technological developments, and perhaps economic opportunities, many Universities are reassessing their strategies and options with regard to the way knowledge is processed and disseminated in the academic world. Within this scenario the Business Information Technology (BIT) Programme at South Bank University set about establishing a web-based electronic journal to support and disseminate research in the area of BIT. The paradigm used was the traditional academic journal and the name of the journal established as *BIToday*. It is not the intention of *BIToday* to be merely a newsletter, but to be a fully refereed journal that publishes national and international work within the discipline of BIT. However, in establishing such a journal a question needed to be answered: was the paradigm of the traditional paper-based academic journal appropriate for the establishment of a Web-based electronic journal? This paper largely covers the issues and principles that were distilled from attempting to answer this question.

Within Higher Education, and within the academic discipline of Business Information Technology, there are developing many new and innovative courses to address the rapidly evolving information technology needs of the business community and the vocational aspirations of students. The British educational system thrives on academic freedom and diversity. Higher education, although increasingly competitive, is historically based upon the collaborative sharing of experience. This approach requires the sharing of our common academic experiences, so as to ensure that the best approaches are supported and replicated effectively. BIT is an important and rapidly evolving area of interest to the business world and higher education. Therefore, information sharing and collaboration are vital to further the interests of industry and education alike.

Despite the growing importance of BIT, academically and commercially, there is no BIT journal! The annual BIT conference organised and hosted by Manchester Metropolitan University has made enormous strides in providing a high quality event for the BIT community. But it is only once a year and, whilst a wonderful opportunity for BIT participants to meet each other, its ability to disseminate information in a compressed time space is limited. Funds in higher education are also scarce and the attendance at such conferences places a heavy burden on staff development and teaching resources. It is intended that the BIT journal will address this issue by providing ease of access to a wealth of current research and at no, or relatively little, cost to the recipient. Therefore, educationalists are actively seeking to 'practise what they preach' by finding ways of incorporating the technology into the teaching and learning processes associated with BIT programmes. An electronic journal illustrates this commitment, providing authors and students with an innovative medium to meet their respective interests.

However, within this philosophical ethos to 'disseminate knowledge to the wider academic and research world' are a number of barriers that act as factors of resistance to the establishment of a journal in electronic form. Within micro-economic theory of the firm there is a great deal of work in the area of new entrants into competitive markets. Within this context, the two main barriers to market entry, by new methods and ideas, are cost and technology. If the cost of entry is too high, this will form a barrier and, likewise, if the level of technology required is too sophisticated, this will also form a barrier to entry. However, the Internet is a relatively open and cheap medium for disseminating knowledge which largely overcomes these economic barriers of cost and technology. Nevertheless, there are costs to an academic department, and technology issues that need to be considered, along with specific barriers to electronic journal entry that affect academic departments. The following are the main barriers of resistance covered in this paper, although this list should not be considered all-inclusive:

(1) economic factors
(2) technical factors
(3) legal aspects
(4) political considerations (internal and external)
(5) cultural and organisational factors.
(6) journal location (static and drifting Web-based sites).

2. Economic Factors

The Internet has emerged from the academic research world to become one of the most significant driving forces behind business change and innovation. Therefore, it seems appropriate to apply such a medium to the academic discipline of BIT which, at its core, addresses the way information systems and information technology (IS/IT) are developed and integrated into the business environment. It is estimated that there will be between 100-200 million users of the Internet by the year 2000. This offers the possibility of institutions and business organisations alike, with the appropriate information technology, being connected across a vast international information network that truly offers academic globalisation. Hence, it is in the interests of all academic disciplines to understand and utilise the resources of the Internet and the Web in order to remain current and competitive within the academic world.

The main advantage of using the Internet is its relatively low cost compared to other knowledge media, such as paper-based journals. It is estimated that the business community can save a vast amount of money by transferring its electronic data interchange (EDI) needs from traditional system-to-system connections to Internet-based connections. Peripheral rationalisation can also be achieved by the fact that there is a direct cost saving to an organisation because the expense of data transfer is independent of how far the data message has travelled. This can mean a significant saving to an institution that relies on paper-based communication between individuals or organisations. Another peripheral rationalisation is the fact that the Internet can also provide an important facility for cheaper video-conferencing and other interactive telecommunications that can be built into the environment of an electronic journal on the Web.

The significant promise of electronic journals on the Web lies in the potential for global electronic information and knowledge dissemination at low economic cost. The economic issue becomes merely whether to charge a subscription to an electronic journal, to add to departmental income, or whether the department is merely interested in creating a knowledge foundation within its own academic domain, without consideration of financial return. Profit may not necessarily be the motivating factor for electronic journal entry on the Web. Unlike paper-based journals, the start-up costs and the overhead costs are minimal. The Internet, being a relatively inexpensive academic resource, permits smaller and new universities to compete with larger or more established universities because of the absence of any major economic competition constraints of using the Web.

The widespread dissemination of marketing information and advertising across the Web is the most obvious sign of the commercialisation of the Internet and the collateral possibilities of generating income from electronic journal formats on the Web. It may even become policy in many universities to incorporate some level of advertising into a Web-based electronic journal in the future. A Web-based journal allows a site to be linked not just to the academic world, but also to the commercial and industrial world. Supporting departmental income through professionally produced electronic journals may become a major economic consideration, which is not largely the case today. In order to appreciate the full significance of advertising revenue, Table 1 indicates the level of advertising revenue in the first three months of 1996 accruing to the top five recipients of advertising revenue and the top five advertisers within the Internet market.

Table 1 First Quarter of 1996. Advertising and the Internet (in US Dollars).

Top Recipients of Advertising Revenue (by Site)		Top Advertisers (by Company)	
Infoseek	$3,107,500	IBM	$1,528,300
Lycos	$2,622,200	Microsoft	$1,010,900
Yahoo!	$2,190,000	Netscape	$929,000
Netscape	$1,908,500	Cellnet	$612,300
Cellnet	$1,330,500	AT&T	$606,700

(Source: *Time* Magazine, July 1, 1996)

Although advertising is extensively available on the Internet, the consumer of such available information is in control of the nature and extent to which he or she interacts with the advertising, whereas, with other forms of advertising, such as on television, the advertiser is not in control of the advertising message and delivery to the consumer. By interacting with Web formats the 'consumer' of electronic journals has more control over the influence and nature of advertising, which is a consideration with the possibility of commercial organisations funding Web-based journals in collaboration with universities.

3. Technology Factors

The World Wide Web was first developed by the European Council for Nuclear Research's (CERN) European Laboratory for Particle Physics, which is located near Geneva in Switzerland.

It attracts and employs some of the best academic physicists, mathematicians and computer scientists from around the world to implement experiments into subatomic matter using atomic particle accelerators. Such leading-edge scientific research requires extensive use and application of computing and information technology to disseminate knowledge. To this extent, the Web was first developed as an academic publishing tool to enable scientists to distribute academic papers to fellow colleagues, unrestricted by differences in hardware and software; these could be accessed and used by the geographically disparate research staff connected to CERN. The Web was developed through the leadership of Tim Berners Lee, and a team of associated researchers at CERN, and introduced to the Internet in 1990.

The advantage of the Web as an electronic journal medium is that is that it provides a common front-end interface that can be used on different hardware platforms, with the additional innovation of hypertext tools and techniques which allow the contents of a document to be linked and cross-referenced by embedding unique Web addresses into an article of information. This can, in turn, be called up by someone browsing that information journal site. The Web's suitability, regardless of the IT environment in which the user works, makes it instantly recognisable as a useful communications interface in the academic world, where Web-based activity is prevalent. A further advantage of Web-based journals is that they offer the possibility of interactive multimedia features such as the incorporation of photographs, graphics, icons, sound and video, which can be embedded into a textual document. However, an issue arises as to the legal ramifications of an electronic journal article possessing hypertext links to invalidated or restricted sources.

In order to interact with a Web-based journal, a reader or user needs some form of browser technology. The user-friendly nature of most browsers, which can double as search engines (with incorporated search agents) makes interaction with an electronic journal more accessible, acceptable and useful. In essence, there are four main stages to the establishment of a technical presence for a Web-based electronic journal. Firstly, the institution must register a domain name (and URL) for its site and a title for journal. As far as we could determine through extensive research the title *BIToday* did not exist. Therefore, our discussions concerning the launch of an electronic journal revolved around whether the title implied a quality refereed journal or whether the title trivialised what we intended. Nevertheless, *BIToday* was adopted as the title.

The second stage to establishing a Web-based journal presence involves an institution deciding between having the site based in-house or serviced externally by a collaborating institution, whether business or academic. Obviously, the main issue is one of control of the technical and human resources. This choice may be dependent upon the size of the institution and the availability of IT- and Web-literate staff in the institution needed to maintain and promote the Web-based journal. It is imperative that this is done professionally, with suitable staff being allocated appropriate time and resources. One of the major considerations at this stage is the ease of maintainability of the journal and the environment in which the electronic journal is accessible. It is normally an ongoing requirement for Web-based journals to update the site on a regular basis, outside of normal publication dates, to meet the changing requirements of a dynamic academic discipline such as BIT.

The third stage involves selecting an appropriate technological environment, with supporting administrative resources, within which to design and construct the Web environment of the electronic journal. This stage involves consideration not just of the scripting languages to be used, but more importantly the technological infrastructure and the relationship of participants within

that infrastructure. Then the fourth stage should determine the 'logical' relationship of the site in relation to those who use the journal, which obviously will include a range of users, from subscribers and other users to competitors and collaborators. The main decision to be contemplated is the purpose to which the journal will be used by academics and others within the academic and business worlds. For instance, it may not be the intention for the journal site to be used merely as an information board, but as a more sophisticated commercial vehicle involving higher levels of interaction with the user or clients. The logical purpose of the journal will determine the design nature and complexity of the electronic journal site and its associated hypertext links to other sites and sources.

4. Legal aspects

The major obstacle to mass electronic journal entry is currently one of ensuring, and maintaining, control within the journal environment. This becomes more significant if an electronic journal is to be restricted to subscribers only. The development of advanced encryption technology is essential in allowing control over access and dissemination. However, this will often be seen as a restriction of academic freedom and contrary to the ethos of the Web as an open academic resource. So what legal considerations are there for establishing an electronic journal beyond obtaining an ISSN number? Unfortunately, the Data Protection Act which became law in the UK in 1984 is lacking in many ways regarding the Internet as it exists in the 1990s. However, the European Commission Directive on Data Protection (1995) provides greater advice and guidelines in the area of data control; it is mainly concerned that data should only be sent outside of the European Community (EC) to countries with adequate data protection laws. This European directive has been supplemented by the Bangemann Report which addresses much broader issues of Europe and the encouragement of a 'global information society'.

Within the sphere of electronic journal entry there should be major consideration of the Protection of Intellectual Property Rights (IPR). While there is a great deal of information that is in the public domain, there is also information containing added value which is proprietary and needs protection via the enforcement of intellectual property rights. IPRs are an important factor in developing a competitive academic or industry environment. Creativity and innovation are two of the most important assets of the academic world. Therefore, their protection must be a high priority within the sphere of a Web-based electronic journal. Within the European Union (EU), the global nature of the services that are provided through information networks means that the EU will have to be party to international action to protect intellectual property. Otherwise, serious difficulties could arise if regulatory systems in different areas of the world are operating on incompatible principles which permit circumvention or create jurisdictional uncertainties. Paper-based journals are largely protected by the national laws in which the journal resides. However, a Web-based journal is international and potentially liable to misuse internationally. In this global information market place, common rules must be agreed and enforced by everyone. The academic community within Europe, as it is evolving connections and collaboration, has a vested interest in ensuring that protection of IPRs receives full attention and that a high level of protection is maintained. The role of copyright is a primary issue of importance within the European Union and legislation under IPR will include reference to electronic media.

Appendix 1 outlines the European view on the protection of intellectual property rights in an extract from a European Union document referring to IPR.

In particular, the European document discusses the ease with which digitised information can be transmitted, manipulated and adapted, within the environment of an electronic journal, and the need for solutions to protect the content providers, contributors and other users of an electronic format. It also states that, at the same time, there is a need for flexibility and efficiency in obtaining authorisation for the exploitation of academic and other material. This is a prerequisite for any dynamic Web-based electronic journal.

5. Political Considerations

The establishment of an electronic journal which is intended to support research activity in the area of BIT cannot be done in isolation. There are numerous factors that have to be addressed in terms of enfranchising academics and the composition (and functions) of the Editorial Board. The intention with *BIToday* is to establish a journal that can eventually gravitate its way upwards to become a grade A1 refereed journal. This intention can only be supported by sound academic refereeing and the participation of notable academics within the academic discipline of BIT and related fields. The intention is not merely to allow *BIToday* to become an in-house newsletter. Subsequently, the political considerations largely revolve around the external composition of the editorial board, which performs the main role of academic refereeing, and the remit of executive board members and associated editorial board members.

Within what can often be a nebulous environment, it is important to be able to structure a strategic document for guiding the direction of electronic journal development. Therefore, one of the important guiding principles is to create early on in the development process a 'strategic working document' to act as the skeleton for debate and participation. The working document for the *BIToday* project contained the following structure and content, which attempts to establish the why, what, how and when of entry into the electronic journal market.

Outline of the Strategic Working Document for *BIToday*:

Part 1.
Aims and rationale
Form and content of the journal
BIToday organisation
Resource implications (including computer resources)
Pricing policy (subscriptions, membership, funded)

Part 2.
Pilot phase (e.g. publicly funded)
Launching the project
Development team
Funding and its realisation
Timing
Feedback and assessment.

6. Cultural and Organisational Considerations

There are a number of cultural barriers to overcome when trying to establish a Web-based electronic journal as an equal of the traditional paper-based academic subscription journal. There is often a belief among some in the academic world that a journal that is free, open and accessible may not be of the same quality as a journal that is paper-bound and restricted to subscribers. When a journal is published it normally attracts some form of subscription from the reader or institution. Web-based electronic journals also have the means to handle subscription and payments, but nevertheless the reader still becomes burdened with the publication costs if they wish to print what is available. The short-term aim of *BIToday* is that it be free to all readers and users. The points to consider later in its evolution will be the use of abstracts only for non-subscribing readers with members having the ability to extend beyond the abstracts. The question then becomes how to deal with archive material (i.e. publications that have become outdated). Within the academic world, it would be appropriate to allow free access to a data repository where each user would have to log-in to allow traceability of access to articles. This then leads onto issues of document management within the context of Web-based electronic journals.

Document management is not a new technology, but an old technology revitalised due to demands of the Internet and intranets. Security and originality of documents has always been a primary consideration. The traditional method of archiving is normally controlled by an application that writes the data once to a "jukebox" along with scrutinised date and time stamps. Once data are stored in a format that is read-only, the issues of control and document variations becomes immaterial. Therefore, it becomes the duty of academic institutions, business organisations, and other interested parties to install systems whereby important documents can be archived in a controlled and fool-proof manner. This method would strengthen Intellectual Property Rights (IPR) as proof would always be available when and where necessary. Hence, IPRs can be guaranteed as they are with traditional paper-based journals.

Beyond guaranteeing IPRs, there are also issues concerning how to culturally orientate academics, and others in the business world, to recognise electronic journal formats; and to give them the same credence as paper-based journals. There are four main issues related to the cultural aspects of electronic journal entry into the academic and business worlds:

(1) Security of information flow and hyperlink connections.
(2) Privacy of the individual and copyright of material.
(3) Academic censorship and free speech.
(4) Ethical obligations of the journal and its users or readers.

Many of the security issues can be successfully dealt by using to encryption software for business and commercial activity within the environment of a Web-based journal. However, thought must be given to the embedding of hyperlinks into the body of an electronic journal. Hypertext technology allows an electronic journal to be linked to other sources of information (e.g. authors original home pages at their institutions). There is need to structure the permissible links that should be embedded within a journal article and the journal environment. It would undermine the credibility of a journal if the author of a paper had links to material that was unvalidated, untested or perhaps politically controversial. In such a scenario, the article may be adequately refereed, but the links would be outside of the jurisdiction and control of the editorial board of the journal. To be on the side of caution would imply that no links be embedded into an article, yet this would be a pointless restriction of the medium of the Web.

The main body of existing national legislation has concerned blocking or restricting the distribution of pornography and other forms of indecency over the Internet, an area that should not affect electronic journals. With such national legislation there is often much debate concerning decency versus freedom of information. In most Internet-literate countries there have been two main schools of thought; one favours consistent regulation and the other favours total freedom without government influence or any other form of localised regulation. However, one fact is clear to all academic users of open Web-based electronic journals: that the Internet and Web is one of the most participatory forms of mass speech yet developed and as such requires ethical consideration. For instance, in a Federal judicial ruling in the USA with regard to the Communications and Decency Act, it was declared that the Internet, through which most electronic journals will operate, was 'a medium of historic importance, a profoundly democratic channel for communication that should be nurtured, not stifled.'.

One of the significant ethical issues involved in dealing with users and authors of electronic journals is to avoid anything within the Web-based journal environment that might lead to a defamation or smearing of the reputation of an individual or institution associated or contributing to a Web-based journal. An institution that strives hard to maintain a competitive reputation must ensure that no other reader or user of a Web-based journal can lay claim to an individual's reputation or attempt to besmirch any organisation's reputation. The Web as a communications medium can appear to be anonymous; individuals or organisations can take on the "identity" of another body (known as shadowing) that could confuse or challenge the copyright of an institution or individual. The following lists a code of etiquette that the readers, users and contributors of a Web-based journal should abide by in their participation and dealings with an electronic journal. In principle, a Web-based electronic journal may wish to formalise a 'guideline code of conduct', similar to the current submission guidelines within paper-based journals, which lays out some standards of courteous behaviour that should be commonly accepted.

1. Never communicate any form of electronic message via a Web-based journal that you would not want publicised or to be used in the public domain with regards to IPR or institutional copyright.

2. Never engage in the sending of academically harassing or loaded electronic communications through the Web-based journal site, which cannot be firstly vetted or refereed by the board of an electronic journal. Do not create associated Web sites, bookmarked to a Web-based journal that affects another individual or institution.

3. Try to protect the reputation of contributors, authors and readers by avoiding the creation of shadow identities that may besmirch the reputation of an individual or institution. Such shadow identities can misinform or mislead the journal user.

4. On a technical level try to avoid creating a Web-based journal that requires an enormous amount of technological muscle to operate or be accessed by authors, readers and other users. Within this guideline is enveloped issues of transmission rates and accessibility to material and sources.

7. Journal location (static or drifting web sites)

A Web site referenced by a URL provides any user with a place to revisit information that has been viewed previously or indeed referenced internally within some form of document, whether

hard or electronic. With the dynamics of the Web, no certainty can now exist concerning to the state or even the availability of any single document upon its revisit. For example, one particular document which the editorial team maintain in our own references is the prestigious 'Bangemann Report', which covers Europe and the global information society and has the associated remit to make recommendations to the European Council with regard to matters affecting the information society. When the site was last visited, it was found that the URL was not available. We then proceeded to investigate, via the EU search engine and the Alta Vista search engine, the new location of the document. The following two sites were recorded:

[Bangemann EU report. Alta Vista Search engine]

<a href="http://www.earn.net/EC/bangemann.html">
Europe and the global information society - Bangemann report The European Commission. "In its Brussels meeting of December 1993, the European Council requested that a report be prepared for its meeting on 24-25 June.
size 4K - 20 Jul 95

<a href="http://www.ispo.cec.be/infosoc/backg/bangeman.html">
Europe and the global information society - Bangemann report. Recommendations to the European Council. Europe and the global information society. Members of the High-Level Group on the Information Society. Martin...
size 89K - 15 Mar 95

<a href="http://www.earn.net/EC/report.html">
size 88K - 23 Aug 94

The implications of this example, present the user and the publisher of a Web-based electronic journal with extreme difficulties as to which one is the correct reference and which one is the original reference, if either.

An understanding of this problem has allowed the development team of *BIToday* to adopt a different approach to the publishing of static and refereed information. The intention is that all articles will be published and indexed within a database, with date and time stamps. The information will be fully accessible via the Web using traditional database-querying techniques and will be accessed by one URL, thus eliminating the requirements for complex URL locations. If an article is updated, then version controls will allow a new entry in the database to access the latest version. The technical terms on the Web for this style of data retrieval are the 'Push' and 'Pull' models.

The 'Push Model' - Triggered or Scheduled

A push model is the technique to create a static Web page by way of a pre-defined query or controlled update mechanism. For example, if data change at very fast and regular intervals then an administrator may decide to automate the publication of a new page at fixed intervals. This can also apply for pages which are only published infrequently, but whose contents are generated by complex or time-consuming queries. They are, in effect, dynamic in nature, but static in retrieval.

The 'Pull Model' - Dynamic

This model works in real time and is driven by the user queries and the data retrieval mechanisms, which populate the data sources. Each HTML page has a template, which will form the completed page. When the query returns the results the HTML is populated by embedded tags, and the HTML page is displayed for the user to examine and further investigate.

The main issues surrounding the problems of static or drifting Web locations for electronic journal sites fall into two distinct areas:

(1) copyright and the control of intellectual property rights
(2) location and content control.

When a page is secured in its electronic format, the electronic world, through the medium of an electronic journal, has access to its contents and its properties. Copyright protection has always been a primary consideration ever since the first photocopier was invented, but the growth in photocopiers never prevented books or other articles from being published. Control is exercised from a higher level and is evident within many traditional frameworks. Software copyright, for example, has been plagued by massive fraud, but actions by a number of corporations have attempted to bring piracy under some from of control. In Peru, for example, it is a criminal offence to own illegal software and the last reported audit of licensed software showed that 98% of software was legal, as a result of often draconian policing laws. The role of copyright is a primary issue for the European Union and is legislated for, and addressed, under the heading of IPR (Intellectual Property Rights), which includes electronic media.

Journal location management and control issues are the main afflictions of Web-based electronic journals on the Internet. Material and other documentation, and their various hyperlinked manifestations, can appear in limitless quantities without reference or acknowledgement to the original. Secure documents can assist this on two counts:

(1) the document when archived can be referenced from a static point
(2) the document copyright and intellectual property has been confirmed.

As an example of electronic publishing in favour of paper-based publication, the South Bank University has a prestigious libraries research department and is currently active in a number of UK and European libraries projects. A reported disaster provided an environment to test a situation which highlighted the potential benefits of electronic publication. The electronic conference proceedings for *What makes consultancy work*, (SBU Press) disappeared leaving only the original book available. Faced with a depleted stock the decision had to be republish or seek alternative methods. After analysing the costs it was found that a limited print run would have been prohibitive and this decision prompted research into electronic scanning and distribution. The publication is not yet available, but the method has been to have the book scanned externally at a fraction of the published cost and then package the book into PDF format for distribution electronically.

8. Conclusion

The purpose of this paper has been to share our experiences of the background work necessary in the establishment of a Web-based electronic journal. The first issue will be available from September 1997, it has been our intention to reveal the problems, issues, and possible solutions, from our own progress. By engaging in such an activity it may be possible to distil a number of principles that need to be understood and addressed in order to be successful in the electronic journals field. In an information society the academics role must be one of the active dissemination of knowledge to all. Within that role academics must contribute and participate collaboratively, with others, to enrich our current understanding of our society and academic environments.

A Web-based electronic journal offers all academic institutions, both large and small, the opportunity to compete globally, and on equal terms, irrespective of the size and nature of the institution. Unlike many academic publication opportunities in the past, the financial barriers to entry do not exist in any significant form on the Web; to establish a Web-based electronic journal presence is a relatively cheap exercise. Therefore, a Web-based electronic journal is likely to be judged on the knowledge, wisdom and creativity of those individuals and associated editorial teams that deliver an electronic journal. Reputation and guarantees of academic integrity are essential and need to be woven into the fabric of a Web-based journal. The intelligence and creativity of a Web-based journal will increasingly provide a source of competitive advantage to academic institutions that wish to solidify their research base and to enter the competitive academic journals market.

Appendix 1

Extract from EU Document on Protection of Intellectual Property Rights (IPR):

' While there is a great deal of information that is in the public domain, there is also information containing added value which is proprietary and needs protection via the enforcement of intellectual property rights. IPRs are an important factor in developing a competitive European industry, both in the area of information technology and more generally across a wide variety of industrial and cultural sectors.

Creativity and innovation are two of the union's most important assets. Their protection must continue to be a high priority, on the basis of balanced solutions which do not impede the operation of market forces.

The global nature of the services that will be provided through the information networks means that the Union will have to be party to international action to protect intellectual property. Otherwise, serious difficulties will arise if regulatory systems in different areas of the world are operating on incompatible principles which permit circumvention or create jurisdictional uncertainties.

The Group believes that intellectual property protection must rise to the new challenges of globalisation and multimedia and must continue to have a high priority at both European and international levels.

In this global information market place, common rules must be agreed and enforced by everyone. Europe has a vested interest in ensuring that protection of IPRs receives full attention and that a high level of protection is maintained. Moreover, as the technology advances, regular world-wide

consultation with all interested parties, both the suppliers and the user communities, will be required.

Initiatives already under way within Europe, such as the proposed Directive on the legal protection of electronic databases, should be completed as a matter of priority.

Meanwhile, in order to stimulate the development of new multimedia products and services, existing legal regimes - both national and Union - will have to be re-examined to see whether they are appropriate to the new information society. Where necessary, adjustments will have to be made.

In particular, the ease with which digitised information can be transmitted, manipulated and adapted requires solutions protecting the content providers. But, at the same time, flexibility and efficiency in obtaining authorisation for the exploitation of works will be a prerequisite for a dynamic European multimedia industry.'

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